Diagnostic Test Accuracy of Detecting Donor-derived Cell-free DNA in Renal Transplant Rejection: A Systematic Review and Meta-analysis.

Dr Michael Wong[1], Mr Yegor Tryliskyy[2], Dr Raja Rashid[3], Mr Sowrav Barman[4], Mr Vlad Shuymeko[5], Mr Ajay Sharma[6], Mr Mohammed Hossain[7]
[1]University of Liverpool, Liverpool , United Kingdom , [2]Southmead Hospital, , Bristol, [3]Queen Elizabeth University Hospital, , Birmingham , [4]King's College London, , London, [5] Queen Elizabeth University Hospital, , Glasgow, [6]Liverpool University Hospital, , Liverpool, [7]Royal Free Hospital, , London

Background:
Recently, circulating donor-derived cell-free DNA (dd-cfDNA) has been utilised as a diagnostic biomarker in assessing allograft rejection and renal status. The biomarker is obtained through liquid biopsy. It is a non-invasive test that is relatively simple and safe. However, the accuracy of the test has yet to be established. The main aim of this study was to explore the diagnostic test accuracy using dd-cfDNA in detecting rejection in renal transplantation.

Methods:
A systematic review and meta-analysis of diagnostic test accuracy studies were conducted in accordance with PRISMA guidelines, by searching all electronic databases MEDLINE via PubMed, EMBASE, Scopus, and Web of Science. All eligible studies reported sensitivity and specificity outcomes of dd-cfDNA in detecting rejection post-renal transplantation. The data analysis was performed using Review Manager (RevMan) Version 5.4.1 and MetaDTA Version 2.0.

Results:
Twelve articles were included, comprising 1,599 samples analysed with a mixture of antibody-mediated rejection (ABMR) and T cell-mediated rejection (TCMR). When dd-cfDNA was above the 1% threshold, diagnostic accuracy revealed a pooled sensitivity of 62.1% (95% CI: 46.1% - 76.0%) and specificity of 81.9% (95% CI: 74.2% - 87.7%) in detecting unspecified rejection. A slightly higher pooled sensitivity of 75.3% (95% CI: 59.9% - 86.2%) and specificity of 82.1% (95% CI: 71.3% - 88.8%) were observed in ABMR rejection. Data were inadequate to allow for analytical comparison in TCMR rejection. The AUC for dd-cfDNA is better than serum creatinine in discriminating all allograft rejections.

Conclusions:
dd-cfDNA test has a higher sensitivity and specificity in detecting AMBR than other allograft rejections. Future studies are needed to optimise the utility of dd-cfDNA in conjunction with other non-invasive tests in clinical practice.

Social media forums are effective as a resource for Peritoneal Dialysis (PD) nurses to discuss challenging patient situations and to access expert advice and support.

Sister Toots Ansell, Mrs Jayne Woodhouse
[1]Portsmouth Hospitals University NHS Trust, Portsmouth, United Kingdom, [2]Oxford University Hospitals NHS Foundation Trust, Oxford, United Kingdom

The First National Peritoneal Dialysis (PD) Nurse Forum took place on Thursday 23 November 2017. The aim of the forum was to ensure that patients receive the most up-to-date and evidence-based practice throughout the UK, while allowing attendees to network and be a resource for each other. The aim was to provide two meetings per year in different locations across the UK. At this first meeting it was suggested that a Facebook group should be set up so that members could keep in touch and share experiences and ideas.

The Facebook group was set up on 24th October 2018 and called the National Peritoneal Dialysis Nurse Forum and has just celebrated its 6th anniversary. It is a private group with 112 members and is only open to nurses who work in the NHS. The aim of the forum is for PD nurses to discuss current practices, share experiences and knowledge, prove and receive peer support and review policies and protocols. The group administrators are NHS nurses who manage PD services and it is a not for profit group which does not receive any sponsorship from our Industry Partners. The nurses who attended the face to face meeting wanted an opportunity for open and honest debate around the different PD products available on the market and to discuss the services from different PD providers. This can only be achieved from an independent forum.

The group is very active with over 40 individual posts per year either sharing information or asking for advice. Discussions within the group have helped to influence new innovations in patients care, leading to new treatments and have given advance warning of PD product shortages and withdrawals which could have potentially catastrophic consequences if they had not been addressed early. The feedback from its members highlights what an invaluable resource it is for PD nurses in smaller units, giving them access to experienced PD nurses from across the country for advice and support. It provides a perfect platform for networking and group members have shared their policies and procedures as well as their experiences and challenges which enables patients across the UK have equity of access to good quality, research based, peer reviewed PD as a therapy.

PD is a very specialised home therapy which is under utilised in the UK. The access to safe and specialist Facebook forum groups can assist units who are trying to build their PD services by providing advice and opinions from experienced PD nurses from across the UK. It is hoped that this will give smaller units confidence to grow their PD service and ultimately contribute to the UK GIRFT challenge of achieving a minimum of 20% of dialysis patients on a home therapy in every centre.

Staff education on appropriate medicines waste segregation and use of patient's own medicines during hospital stay and on discharge

Miss Janeme Lam[1]
[1]Northampton General Hospital, Northampton, United Kingdom

Introduction
A significant volume of medications is returned to the pharmacy at a district general hospital from the renal ward. This practice leads to unnecessary waste, increased workload for pharmacy staff, and potential environmental impact. While ward staff often place medications in a pharmacy return box, believing they can be re-dispensed, this is not always the case. Patient-owned drugs (PODs) and split packs cannot be reused due to health and safety regulations. Hospital-supplied medicines may also be unsuitable for re-dispensing, further contributing to the waste issue.

Methods
To address this problem, a two-pronged intervention was implemented:
Nurse Education: Ward staff were educated on the importance of segregating PODs and hospital-supplied medicines into designated return boxes. This education aimed to increase awareness of the potential for medication waste and the importance of proper disposal. By understanding the specific guidelines for medication return, nurses could take steps to minimise unnecessary waste.
Patient Engagement: Patients were encouraged to bring their own routine medications to the hospital, reducing the need for hospital dispensing. This approach aimed to reduce the overall volume of medications dispensed by the hospital pharmacy, thereby decreasing the potential for waste. By actively involving patients in their own medication management, we hoped to promote a more sustainable and efficient healthcare system.

Results
The intervention yielded considerable positive outcomes. On one ward, it projected annual savings of £19,680 and 3,435 kgCO2e, equivalent to driving 10,143 miles in an average car. These figures highlight the substantial environmental and financial benefits of implementing such initiatives.
Staff surveys revealed a strong awareness of medication waste and a desire to reduce it. Prior to the project, 100% of pharmacy staff felt there was duplication of dispensing. These findings underscore the need for improved communication and collaboration between healthcare professionals to minimise waste and enhance efficiency.
Two patient surveys revealed concern about the environmental impact of healthcare and a willingness to minimise medication waste by only requiring new medicines on discharge. This patient engagement demonstrates the potential for individuals to play an active role in reducing waste and promoting sustainability within the healthcare system.

Discussion
This project highlights the potential for significant cost savings and environmental benefits through improved medication management. By empowering patients to bring their own medications and educating staff on proper disposal, we can reduce unnecessary waste and improve patient outcomes.

Potential clinical impacts include a reduction in medicines omissions, especially for critical medications, and quicker discharge due to reduced dispensing times. These benefits can lead to improved patient satisfaction and overall healthcare efficiency.
Key factors contributing to the project's success include strong engagement with ward pharmacists, nurses, and other pharmacy colleagues. The project emphasises the importance of breaking down communication barriers and misconceptions to foster efficient, cost-effective, and environmentally friendly multidisciplinary teamwork.

Future research should explore the long-term impact of this intervention and its potential application to other wards within the hospital. By conducting further studies, we can gain a deeper understanding of the long-term benefits and identify opportunities for further optimisation.

"Eczema Herpeticum in a Haemodialysis Patient: A Case of Recurrent HSV-1 Delaying Vascular Access and the Value of Chronic Suppressive Therapy"

Dr Alshymaa Eltahan[1], Dr Ibrahim Ali[1], Dr Hannah Ross[2], Dr Ali Aljanabi[2], Dr Joel Paul[3], Dr Vino Srirathan[3]
[1]Renal medicine, Salford, United Kingdom, [2]Dermatology, Salford, United Kingdom, [3]Infection science (Microbiology and Virology), Salford, United Kingdom

Case presentation:

We present a case of a 39-year-old white British male with end-stage renal disease (ESRD), receiving haemodialysis (HD) since May 2024, who experienced recurrent herpes simplex virus-1 (HSV-1) infections manifesting initially as eczema herpeticum. His medical history includes ESRD of unknown aetiology, hypertension, atopic eczema, uraemic pruritus, and a childhood history of chickenpox infection.

In April 2024, our patient presented with an eczema flare affecting his face, upper chest, arms and flexures with small circular periorbital erosions and yellow crust affecting the chin and cutaneous lips. He complained of left eye redness and discharge, which was treated with chloramphenicol eye drops following ophthalmology review. Skin swabs were taken and identified HSV-1 by PCR and Staphylococcus aureus following culture. He was treated with oral antivirals (acyclovir 200mg 5 times/day for 5 days), antibiotics (oral doxycycline 200mg loading then 100mg once daily for 5 days), and topical steroid agents, with complete recovery without residual scarring or permanent ocular damage. During this period, he also experienced recurrent infections requiring hospitalization, which were linked to inadequate clearance whilst receiving peritoneal dialysis (PD). Notably, the skin infections delayed the creation of his arteriovenous fistula (AVF) and the insertion of a tunnelled line needed to transition to HD, due to concerns about disseminated infection.

Three months later, the patient attended a routine HD session with unilateral crusted skin lesions confined to one side of his face, not crossing the midline and not affecting his eyes. Despite the distribution of the lesions suggesting a new diagnosis of Herpes Zoster of the face, we again suspected HSV as being the aetiology of the rash and commenced acyclovir. Viral swabs again confirmed this as the diagnosis.

Based on clinical suspicion, treatment with renal-dose-adjusted oral acyclovir (800 mg twice daily for 7 days) was initiated immediately, without waiting for swab results.

The patient achieved full recovery without any complications. Given his recurrent HSV-1 infections, a multidisciplinary team (MDT) including microbiologists, virologists, and nephrologists recommended initiating chronic suppressive therapy (CST) for long-term prophylaxis. He was started on renal-dose-adjusted oral acyclovir (200 mg twice daily) with plans for annual review of the CST regimen and was given the Staphylococcal decolonization treatment to reduce the chance of repeated bacterial superinfection of eczema. To date, the patient has not experienced any recurrent infective episodes.

Discussion:

HSV-1 typically linked to oral herpes (cold sores), is usually a benign, self-limiting condition. However, in immunosuppressed individuals, such as haemodialysis patients, it can lead to serious complications(1). Uraemia accelerates immune cell aging, shifting haematopoiesis towards myeloid cells while reducing lymphoid components, mimicking immune senescence in the elderly and increasing infection susceptibility(2). This risk is heightened in patients with compromised skin barriers, such as atopic eczema, who are vulnerable to eczema herpeticum(3). Solid organ transplant recipients shed HSV more frequently(4). Chronic suppressive therapy (CST) is recommended for severe, frequent recurrences, disfiguring lesions, or severe pain (5–8).

Conclusion:

ESRD patients with dermatological disorders are prone to recurrent infections due to weakened skin and immune defences, requiring individualized evaluation for long-term prophylaxis.

Learning points

1. Management of skin colonization/infection and evaluation of aetiological factors are essential and can impact vascular access planning in haemodialysis patients.
2. An MDT approach involving renal and infectious disease specialists is recommended for managing challenging cases.
3. Viral infection confirmation is mandatory as CST is prescribed for HSV and not VZV.

Patient's consent: The patient has given verbal, documented consent for case publication
Acknowledgment: We thank all the staff from renal, dermatology, and microbiology departments in Salford Care Organization who contributed to the diagnosis and management of our case.

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Evaluating lipid-lowering target adherence in high-risk CKD patients: A retrospective analysis of dyslipidaemia management in a pre-dialysis population

Dr Seena Babu[1], Dr. Tom Siby[1], Dr. Inuri Patabendi[1], Dr Jyoti Baharani[1], Prof. Sudarshan Ramachandran
[1]Birmingham Heartlands hospital, University Hospital Birmingham NHS Foundation Trust , Birmingham, United Kingdom

Introduction:

Patients with chronic kidney disease (CKD) have an elevated risk of cardiovascular disease (CVD), compounded by factors like dyslipidaemia and hypertension. Given this high-risk profile, lipid-lowering therapy (LLT) is crucial, yet variations exist across guidelines on target LDL-C levels for CKD patients. This study assesses LDL-C target adherence and current LLT prescribing practices among high-risk CKD patients with eGFR <30 ml/min/1.73 m² in a pre-dialysis setting to identify opportunities for optimizing lipid management.

Methods:

A retrospective audit was conducted on 272 CKD patients with eGFR <30 ml/min/1.73 m² attending a pre-dialysis clinic. Demographic and clinical data were extracted from electronic records, including LDL-C levels calculated via the Friedewald and Sampson methods. Patients' LDL-C results were evaluated against ESC/EAS (<1.4 mmol/L), Joint British Societies (<1.8 mmol/L), and NICE (<2.0 mmol/L) targets. Descriptive statistics and comparisons were used to analyse prescribing patterns and assess areas for potential LLT optimization.

Results:

The median LDL-C was 2.3 mmol/L using Sampson's method and 2.2 mmol/L with Friedewald' s formula. Among the cohort, 89% exceeded the <1.4 mmol/L target, and 73.2% and 65% surpassed the <1.8 mmol/L and <2.0 mmol/L thresholds, respectively. LLT was prescribed in 72% of patients, with statins being the most common monotherapy. Combination LLT usage was limited, with 12 patients on statin-ezetimibe and none on bempedoic acid. Of 24 patients eligible for inclisiran, only 3 were receiving it.

Discussion:

The findings reveal significant gaps in achieving LDL-C targets in high-risk CKD patients, underscoring the need for intensified LLT strategies. The low use of combination therapies and newer agents like inclisiran suggests a need for clinician education and updated treatment protocols to meet LDL-C goals effectively. Adopting more stringent, guideline-based LDL-C targets and integrating patient-centred LLT options may improve cardiovascular outcomes and address disparities in this vulnerable population.

High Burden of Menopausal Symptoms in Female Kidney Transplant Recipients: Survey Findings and Clinical Implications

Mrs Catherine Johnson[1], Dr Janson Leung, Dr Lisa Crowley
[1]University Hospitals of Derby and Burton NHS Foundation Trust, Derby, United Kingdom

Introduction

8 out of 10 women who enter the menopause experience symptoms associated with oestrogen depletion. There is a lack of data and guidance in kidney transplant recipients (KTR) meaning these symptoms are potentially overlooked. In our centre female KTR make up 40% of the prevalent population with the majority (82%) being over 40 years of age.

Methods

We undertook an anonymous survey to better understand how the menopause affects female KTR. The survey took place from June - September 2024. The survey was sent to 101 patients over 40 years of age via QR code, link or paper. 9 patients were excluded mainly due to ill health, 2 were unable to consent.

Results

We received a 66% response rate with 100% completion of the survey which typically took 4m 45s. Most respondents (70%) had not discussed the menopause with their GP. 10% were prescribed HRT and7 patients had undergone a hysterectomy.

Self-reported symptom burden was high. Vasomotor symptoms: sweating at night and hot flushes were reported by more than 70% of respondents. 76% reported muscle and joint pain. 73% reported difficulty sleeping, 77% memory problems and 72% difficulty concentrating. 69% reported a loss of interest in sex with 19% describing this as severe.

Discussion

This survey suggests that in female KTR's there is a high self-reported burden of menopausal symptoms. There is a low rate of HRT prescription and a low rate of reporting these symptoms to healthcare services. Possible reasons include low awareness amongst patients and healthcare providers, a lack of specialist services and limited guidance about treatment in this group. Given the implications of the menopause for CVD, osteoporosis and quality of life there is an opportunity for further work to be done in raising awareness of symptom burden and potential clinical implications in this patient group.

Challenges in Managing Hypomagnesemia in Kidney Transplant Recipients: A Compliance Audit of Local Guidelines

Mrs Brenda Rivera[1], Mrs Catherine Johnson, Dr Lisa Crowley, Dr Janson Leung, Dr Zoe Pittman
[1]University Hospitals of Derby and Burton NHS Foundation Trust, Derby, United Kingdom

Introduction

Hypomagnesemia is a well-recognised side effect of both Proton Pump Inhibitors (PPI) and Calcineurin inhibitors (CNI). A 2023 review by the UK Kidney Association at the request of NHS England following a coroner's report recommended close monitoring of magnesium (Mg) levels following the death of a kidney transplant recipient.

At this centre a guideline for monitoring and treatment was developed and Mg levels are monitored once weekly for the first 3 months post-transplant and 3 monthly for long-term transplant recipients.

Methods

A baseline audit of this centre's compliance with monitoring and response was undertaken in late 2024. All 25 newly transplanted patients from October 2023 to October 2024 were included. We evaluated if a Mg level was checked at first visit on surgical discharge and once weekly up to 3 months post-Transplant. We also reviewed if appropriate treatment was actioned for mild, moderate and severe hypomagnesemia

Results

All 25 patients were on PPI post-transplant as standard and had Mg checked each week. At repatriation 12 patients had a normal serum Mg (> 0.7 mmol/L), 12 had a level of 0.5 - 0.7 mmol/L and one significant (< 0.5 mmol/L) hypomagnesemia.

All 25 patients developed some degree of hypomagnesemia within 5 weeks of transplantation. 10 (40%) patients developed significant (< 0.5 mmol/L) hypomagnesemia within the first 3 months. Our local guideline requires stopping PPI and starting oral Mg replacement if Mg < 0.5. Of these 9 of the 10 required repeated courses of Mg supplementation to maintain Mg > 0.5. One patient required intravenous supplementation. At 10 weeks post-transplant only 5 (20%) had normal magnesium levels.

Discussion

Our data supports the idea that hypomagnesemia is almost universal in our early post-transplant population. Stopping the PPI helps with managing this early complication but vigilance is key. Consideration should be given to early discontinuation of PPI.

Perspectives of nephrologists regarding mobile applications that deliver exercise for people with chronic kidney disease.

Mr Thái Bình Trần[1,2], Mr Adam Thomas[1], Professor Jeanette Thom[3,4], Doctor Shaundeep Sen[2,5], Associate Professor Kelly Lambert[1], Associate Professor Ria Arnold[1,2,6]
[1]School of Medical, Indigenous and Health Sciences, Faculty of Science, Medicine and Health, University of Wollongong, Wollongong, Australia, [2]Department of Renal Medicine, Concord Repatriation General Hospital, Concord, Australia, [3]School of Health Sciences, Faculty of Medicine and Health, The University of Sydney, Sydney, Australia, [4]Sydney Musculoskeletal Health, The University of Sydney, Sydney, Australia, [5]Concord Clinical School, Faculty of Medicine and Health, The University of Sydney, Sydney, Australia, [6]School of Health Sciences, Faculty of Medicine and Health, University of New South Wales, Sydney, Australia

Introduction
Exercise is an essential though often underutilised treatment for people with chronic kidney disease (CKD). Frequently cited barriers include the limited number of clinical exercise physiologists and inadequate funding to support these positions in hospital settings. Mobile applications that deliver exercise (mobile exercise apps) may overcome these barriers by facilitating remote access to exercise programs. Nephrologists are an important stakeholder group regarding the integration of these platforms in clinical practice. However, their perspectives regarding mobile exercise apps remains unclear. Therefore, this qualitative study aimed to explore the perspectives of nephrologists regarding the role of mobile exercise apps in clinical care for people with CKD.

Methods
Perspectives of nephrologists regarding mobile exercise apps were examined using semi-structured and focus-group interviews. Recruitment was targeted to trainee and consultant nephrologists from two metropolitan kidney care units in Sydney who had been involved in a pilot digital health study using a mobile exercise app. Two independent authors coded qualitative data and performed inductive thematic analysis. High order themes were reviewed by senior authors whose feedback guided iterative changes.

Results
Fourteen nephrologists completed a semi-structured or focus-group interview. Ten provided demographic data (50% female; age 44±5 years). Preliminary analysis identified two major themes: 1) 'Mobile apps have potential to increase access to exercise but there are logistical and patient-specific barriers to overcome' and 2) 'Further research is needed to realise the full potential of mobile exercise apps in practice.' For the first theme, there were six sub-themes that highlighted factors influencing uptake of mobile exercise apps. These included 'Patients' complex health status and older age profile can limit opportunities to engage with mobile apps,' 'Patients have varying capacities and motivation to engage with mobile apps,' 'Public hospitals may have limited number of compatible devices to support mobile apps,' 'Apps may facilitate self-monitoring and management of health outcomes,' and 'Apps can provide remote access to exercise interventions.' For the second theme, there were five sub-themes related to recommendations that support the integration of exercise apps in clinical practice. These included 'Facilitate co-design with the multidisciplinary kidney team and incorporate apps as part of the multimodal care package,' 'Apps need to demonstrate benefit on hard outcomes before they are taken up as regular practice,' 'End-users should receive regular feedback from apps to direct self-management,' 'Technical support should be made available where necessary,' and 'Mobile apps should include exercise programs that are tailored to patients' needs and goals.'

Discussion
The major findings of this study are that nephrologists recognise the utility of mobile apps to increase access to exercise and support self-management. However, they also emphasised the need to

minimise patients' and institutional barriers to uptake and integrate apps into multidisciplinary care. These findings were similar to other studies that explored the barriers and enablers of digital interventions for self-management of chronic health conditions, including diabetes and heart failure. Clinician-researchers may use the themes from this study to inform the development of mobile exercise apps for people with CKD and guide the direction of future research.

The benefits of patient gatherings in home dialysis therapies

Mrs claire cox[1], Mrs Heidi Montes[1], Mrs Khristine Cimafranca[1], Mrs Vanessa Halls[1], Mrs Abigail Mensah[1], Mrs Sarah Rowley[1], Mrs Jayne Woodhouse[1], Mrs Lois Overton[1], Mrs Claire Osmer[1], Mr Ethan Doyle[1]
[1]Oxford University Trust Hospital, Oxford, United Kingdom

Introduction

The home therapies and peritoneal dialysis team observed that patients can feel lonely, isolated and unsupported when on a home renal replacement therapy (peritoneal dialysis and home haemodialysis). This can cause psycho-social issues such feeling withdrawn, depression, anxiety, affecting adherence and abandoning therapy.

Background

Pre the COVID pandemic we ran successful coffee mornings where home therapy patients, families and friends could meet other people. Feedback from new patients to a home therapy asked where they could meet other people going through a similar experience to them. This gave us an ideal opportunity to restart the patient gatherings. We identified that for many patients' social interaction is particularly important. As home therapies nurses, we recognise that the patient gatherings are a valuable source of patient social interactions and another way for patients to meet others and gain invaluable social support to help them through their journey

Method

Social gatherings are planned and organised away from the hospital environment where possible or another part of the hospital. Different locations, such as church halls means we can accommodate everybody. We sometimes plan a structure to them, such as bingo, quizzes, dancing or learning opportunities. On other occasions they are social gatherings (usually Christmas). All patients, family or carers, on a home therapy are invited, we also invite patients who have had a transplant or are coming to a home therapy in the next few months. Sessions are normally 2-3 hours. The nurses provide light refreshments and snacks (charity money) in a relaxed environment. We give people at least one months' notice of the gathering date. During the gathering there is no clinical work. We aim to run 3 a year. We ensure that all of the patient information leaflets are available too.

Evaluation

We have successfully organised 9 patient gatherings. The feedback has been positive. Initially feedback was verbal but at a recent psychological gathering we formulated a written feedback form. We always received comments that patients would like the gatherings more often but did not have this as a form of written feedback.
In the written feedback we also asked for topics for future sessions and are currently arranging sessions around these. These are sessions that the patients / carers want not what the nurses think would be useful. The feedback form is going to be rolled out for all patient gatherings.
The patients who do attend, seem to thrive better on the therapy. develop knowledge, skills, confidence and better self-esteem, feel empowered and foster a more active role in their care.

Discussion

Whilst we invite all patients on a home therapy there are patients who work or have family commitments, do not drive, or do not want to be involved. We understand that not everyone likes to interact socially. This is something that we would like to think about in the future.
There is more information on support groups when managing long term illnesses, such as respiratory or cardiac conditions but not for those on a home renal replacement therapy.

Hyperkalaemia secondary to low salt substitutes

Dr Thomas Grant, Dr Iraklis-Georgios Kagias, Dr Timothy Lewis-Morris

Introduction

Hyperkalaemia is an electrolyte disturbance that is frequently encountered in patients with end-stage renal failure due to impaired renal excretion of potassium. It constitutes a potentially life-threatening medical condition, as serum potassium levels exceed 5.5 mmol/L. Hyperkalaemic patients with serum potassium levels < 6.5 mmol/L are often asymptomatic. Cardiac arrhythmias, muscle weakness, pain and paralysis usually occur in moderate (6.5–7.5 mmol/l) and severe (>7.5 mmol/l) hyperkalaemia. Widely recognised causes of hyperkalaemia include renal failure, diabetes, adrenal pathology and medications, such as potassium-sparing diuretics, angiotensin-converting enzyme inhibitors and angiotensin-receptor blockers.

This case report highlights the importance of considering low-salt substitutes as a rare and under-appreciated cause of hyperkalaemia and the need for a thorough dietary assessment.

Case Description

A 56-year-old male patient with a background of type 2 diabetes mellitus, hypertension, and haemodialysis thrice weekly presented to the emergency department via ambulance in October 2023 with 3 days progressive dyspnoea, weakness, and reduced mobility.

He attended his usual haemodialysis 3 days prior, completing 4 hours with no issues. Previous post-dialysis potassium levels were below 5.0mmol/l.

Admission VBG showed K+ 10.1mmol/L, confirmed on repeat. ECG showed signs of hyperkalaemia including tall, tented T waves.

He was treated medically for hyperkalaemia before undergoing dialysis.

On initial review he was asked whether he had made any recent dietary changes, to which he reported no dietary changes.

It was only on review later when he was specifically asked about any new dietary supplements or substitutes that his partner confirmed recently commencing a LoSalt substitute to help manage his hypertension. They had been pressure-cooking meals with this low salt substitute, unaware of the high potassium content.

He was advised to avoid low-salt substitutes, and has not had recurrence of hyperkalaemia.

Discussion

When reviewing dietary changes with a patient presenting with hyperkalaemia, it is extremely important to ask about low-salt substitutes. These substitutes are particularly relevant in the context of end-stage renal failure and co-existing hypertension, as patients are encouraged to abstain from high-salt diets and can purchase potassium-containing salt substitutes over the counter.

The NHS website for prevention of hypertension advises reducing salt to less than 6g/day. Although potassium-containing low salt substitutes warn of caution in renal disease or pre-existing health

conditions, it is likely that more renal patients could adopt these low-salt alternatives to improve their hypertension if not specifically made aware of the associated risks

Increasing the number of letters from transplant recipients to their donor families.

Mrs Hayley Bell[1]
[1]Nottingham University Hospitals NHS Trust, Nottingham, UK

Introduction

There is evidence to suggest that letters between kidney transplant recipients and donor families can be beneficial to all parties (Selves & Burroughs, 2011). Healthcare professionals play a role in this process and their intervention was necessary to initiate contact between recipients and donor families (Azuri & Tabak, 2011). Whilst there are some benefits for all parties, there is some ambivalence regarding this process centred around the emotional burden of letter writing on recipients (Poole et al., 2011). Maximising letter writing rates is widely held to be an interplay between the attitudes of recipients, their families and healthcare professionals. It was noted that less than 5% of recipients in a UK Trust wrote letters to donor families in 2022/23. The aim of this project was to investigate the reasons underlying low correspondence rates and attempt to increase the number of letters written to donor families from recipients in this transplant centre.

Method

Scoping of current practice took place which revealed lack of consistency amongst the transplant nursing team with regards to encouragement for recipients to write letters. A range of interventions were implemented from March 2024 to promote letter writing from recipients to donor families.

- Leaflets and posters were developed and used to prompt patients and provide guidance.
- Prompt to ask recipients if they wish to write to their donor family added to 3 month post-transplant review proforma
- Post box in transplant office installed to put letters in to be forwarded on
- Data collection spreadsheet developed to record which patients had letter writing discussed and track letters written as a result
- Discussion at transplant team meetings to discuss healthcare professional attitudes to letter writing and encourage staff at transplant and referral centres to discuss letter writing with patients

Results

- 2023 total of 7 letters written to donor families
- March -October 2024 20 letters written (nearly 3 fold increase)
- Recipient won 2 gold medals at 2024 Transplant Games which they sent to their donor family
- Recipients transplanted 28 years ago wrote to their donor family and has received a reply

Discussion

Raising awareness of the potential benefits of letter writing for both recipients and donor families needs to be done with both transplant recipients and healthcare staff if it is to impact letter writing rates. It has been acknowledged that whilst most recipients write letters within a year of their transplant, even writing letters much later in the journey can still be beneficial to both parties and indeed, at this stage the benefits of the transplant can be even more easily articulated to donor families. A range of easy to implement and low cost interventions can significantly impact the rates of letter writing. Further qualitative work is planned to further explore the positive attitudes towards, and barriers preventing, letter writing in this context for both patients and health care staff.

Efficacy and safety of iptacopan in patients with C3 glomerulopathy: 12-month results from the Phase 3 APPEAR-C3G study

Professor David Kavanagh[1,2], Professor Richard Smith[3], Dr Marina Vivarelli[4], Dr Carla M Nester[5], Professor Giuseppe Remuzzi[6], Professor Ming-Hui Zhao[7], Dr Edwin Wong[1,2], Dr Yaqin Wang[8], Dr Angelo J Trapani[8], Dr Induja Krishnan[8], Professor Nicholas J.A. Webb[10], Professor Matthias Meier[10], Dr Andrew S Bomback[11]
[1]Newcastle University, Newcastle upon Tyne, United Kingdom, [2]National Renal Complement Therapeutics Centre, Royal Victoria Infirmary, Newcastle upon Tyne, United Kingdom, [3]Carver College of Medicine, University of Iowa, Iowa City, United States of America, [4]Bambino Gesù Children's Hospital, IRCCS, Rome, Italy, [5]Stead Family Children's Hospital, University of Iowa, Iowa City, United States, [6]Istituto di Ricerche Farmacologiche Mario Negri, IRCCS, Bergamo, Italy, [7]Peking University First Hospital, Beijing, China, [8]Novartis Pharmaceuticals Corporation, East Hanover, United States, [9]Sobi, Stockholm, Sweden, [10]Novartis Pharma AG, Basel, Switzerland, [11]Columbia University College of Physicians and Surgeons, New York, United States

Background: The Phase 3 APPEAR-C3G study evaluated the efficacy, safety, and tolerability of iptacopan vs placebo in C3G patients (pts).

Methods: APPEAR-C3G (NCT04817618) was a multicenter, randomised, double-blind, placebo-controlled, pivotal Phase 3 study that included adult pts with biopsy confirmed C3G. The study comprised a 6 month (m) randomised double-blinded treatment with iptacopan 200mg bid. vs. placebo followed by 6m open-label iptacopan treatment, as previously described.

Results: 74 pts were randomised 1:1 to either iptacopan (n=38) or placebo (n=36). Baseline pt demographics were generally balanced; the iptacopan arm exhibited a more severe disease phenotype. 43 (58.1%) pts in the iptacopan (n=22) and placebo (n=21) arms completed 12m treatment at data cut-off (when all pts completed 6m of treatment). The study met its primary endpoint, demonstrating a statistically significant reduction in 24h UPCR with iptacopan treatment at 6m (35.1%, 1-sided p=0.0014, 95% CI:13.8%, 51.1%) vs. placebo, sustained up to 12m (Figure). Iptacopan showed a sustained improvement in pts meeting the composite renal endpoint (≥50% reduction UPCR + ≤15% reduction in eGFR at 12m), 43.5% (iptacopan vs. placebo) and 25.0% (switched to iptacopan). Iptacopan led to improvements in the trajectory of eGFR compared to pts' historical eGFR decline. Iptacopan demonstrated a favourable safety profile with no new safety signals identified. Other 12m primary and key secondary endpoints will be presented.

Conclusion: Iptacopan demonstrated a significant and clinically meaningful proteinuria reduction on top of supportive care at 6m in the APPEAR-C3G study; sustained up to 12m. Iptacopan was well tolerated with a favourable safety profile in C3G pts.

Improving Early Detection of BKPyV in Kidney Transplant Recipients: A Six-Month Quality Improvement Project

Ms Kris Teves[1], Mrs Catherine Johnson, Dr Lisa Crowley, Dr Zoe Pittman, Dr. Jansen Leung
[1]University Hospitals of Derby and Burton NHS Foundation Trust, Derby, United Kingdom

Introduction

Polyomavirus BK virus (BKPyV) infection is a significant risk factor for kidney transplant dysfunction and graft loss. The Transplant Society (TTS) recommends monthly BKPyV screening until month 9, then every 3 months until 2 years post-transplant. A baseline audit of this centre's compliance undertaken in March 2024 reported the majority (84%) of kidney transplant recipients (KTR) were not screened for BKPyV within the first 30 days post-transplant and none were screened consistently.

Methods

We undertook a quality improvement project addressing several barriers to BKPyV screening, including requesting issues, raising awareness of the correct blood bottles and education of staff and patients. Data was collected monthly and reported at the transplant multidisciplinary meeting.
Our centres compliance with the TTS recommendations was reaudited at 6 months.

Results

From September 2024 all KTR were screened for BKPyV within the first 30 days post-transplant compared with only 16% prior. Monthly monitoring was consistent with the recommendations on all but 2 occasions.
6 patients were identified as BKPyV positive: 5 from monthly screening and 1 from 3 monthly screening. All 6 had a reduction to their immunosuppression: 2 had a reduction to their CNI and 4 a reduction to their anti-proliferative medication. 3 out of 6 had a reduction of their viral load.
The baseline audit of 3-monthly screening compliance reported 87% of tests (39 out of 45) were completed, whereas the 6-month reaudit showed a completion rate of 76% (41 out of 54).

Discussion

This reaudit suggests there has been a significant improvement with early BKPyV screening allowing for timely reduction of immunosuppressive therapy as per guidelines However, there was a slight decline in consistency of 3 monthly screening of longer-term transplant recipient and there is an opportunity for a further QIP to improve consistency of testing in this patient group.

Addressing health inequalities in partnership: community outreach/early monitoring & management case study: a Welsh pilot project

Mrs NEERJA Jain[1], Mr Wasim Khan[1], Ms Rachel Burr[2], Dr Alexa Wonnacott[3], Ms Rajani Seelamanthula[1], Ms Necia Jones[4], Dr Julia Platts[4]
[1]Kidney Research UK, Peterborough, UK, United Kingdom, [2]Diabetes UK Cymru, Cardiff, Wales, [3]Kidney Network; University Hospital, Wales , Cardiff, Wales, [4]NHS WALES Executive , Cardiff, Wales

Introduction

Wales has the highest prevalence of type 2 diabetes (T2D) and lower completion rates of the eight diabetes essential care processes in the UK; Over 6% of the Wales population is from an ethnic minority group (EMG) (2021 census). People from EMGs are 2-4x more likely to have diabetes and are more likely to experience kidney failure than people of white heritage. T2D is the leading cause of kidney failure. It is known that people from lower socio-economic status (SES) groups are also much more likely to develop CKD and die earlier from it. Furthermore, a recommendation from KRUK's Health Inequalities Review (2024) on CKD prevention states: "Identify how the healthcare system can reduce the risk of people developing kidney disease and prevent kidney disease progressing……. by looking at how……..new approaches for high-risk and underserved groups can remove barriers and increase access."
The aim is to raise awareness of uACR testing and CKD within South Asian communities and lower SES communities in Cardiff and Newport, to improve rates of kidney screening of people living with diabetes (PLWD).

Methods

Funded by the Diabetes Network, our novel approach deploys volunteers, with lived experience and/affiliation to the target communities to educate and empower PLWD to get their uACR tests. They are empathetic volunteers who are the "right messengers": they have a shared cultural, faith, and language. They are trusted and are passionate. Having received accredited training, we are building capacity at grassroots level. Sometimes, there are cultural and religious misconceptions and a lack of knowledge with managing long term conditions like diabetes. Moreover, language barriers and trust issues can make it very difficult to effectively access community members who are "at risk." The team do outreach work in partnership with community groups such as The Mentor Ring, Diabetes UK Cymru and a number of faith and cultural organisations.

Results

The outreach awareness work started in June 2024 following training of the 8 volunteers. So far, 20 events have been attended including mosques, health fairs, cultural events, social spaces, and food banks; including local radio coverage with a volunteer talking about their lived experience and the importance of the project and the issues. >5500 people reached – largely unaware of and the importance of a uACR. Quotes typically include: "I had no idea about CKD ….will ensure I get it [uACR] done." The demographic make-up of the people the team have interacted with:

- Roughly even split of men and women.
- With > 460 people spoken to, almost 80% had a family history of T2D and/ CKD.
- The majority, so far, have been of South Asian heritage as we continue to reach people from lower SES groups in Cardiff and Newport.
- A range of age groups reached from 18 to 70+, although more >70's still required.
- Most events have been in Cardiff, though we are striving to do more in Newport

Discussion

We are optimistic that the volunteers, a grassroots, and culturally sensitive intervention, will be effective in providing education on uACR and empower those most experiencing health inequalities.

The Burden Of Diabetes In Patients Receiving Haemodialysis

Miss Ida Saidy[1], Dr Ibrahim Ali[1]
[1]Faculty of Biology, Medicine and Health, The University of Manchester, Manchester, United Kingdom, [2]Department of Renal Medicine, Salford Royal Hospital, Northern Care Alliance NHS Foundation Trust, Salford, United Kingdom

Diabetes mellitus is a prevalent disease in the United Kingdom (UK), associated with significant morbidity, including development of end-stage kidney disease and initiation of dialysis. There is limited information on what constitutes optimal care for patients with diabetes receiving haemodialysis in the UK, therefore we sought to explore our own practice by 1) analysing the burden of diabetes in patients receiving haemodialysis in Greater Manchester, and 2) identifying strategies that may help address shortcomings.

A descriptive, cross-sectional study was conducted. We included all 492 patients receiving haemodialysis across five centres in Greater Manchester on the 26th April 2024. Patient data, including comorbidities, medications and blood tests, was accessed through the Electronic Patient Record platform and the Greater Manchester care record.

Diabetes was prevalent in 45% of the total cohort, with a greater preponderance in South Asians and in areas that had high rates of social deprivation. Patients with diabetes had a higher prevalence of obesity, ischaemic heart disease, peripheral vascular disease, stroke and peripheral neuropathy. Insulin was the most commonly administered hypoglycaemic agent. The majority of patients (83%) in our centres had an HbA1c of <80 mmol/mol with one dialysis unit showing the highest median HbA1c of 60 mmol/mol (interquartile range of 29mmol/mol). Blood glucose measurements of diabetic patients when they attend for haemodialysis also demonstrated a tendency to hyperglycaemia, although all median levels were in an acceptable range of 5-12mmol/l. The majority of patients were not receiving annual eye or feet checks with the best performing dialysis unit showing only 60% of patients were undertaking this.

This study provides a descriptive analysis of patients with diabetes receiving haemodialysis and highlights the importance of optimising care to this vulnerable group given the high burden of cardiovascular disease. More research is required to define optimal standards of care with respect to blood glucose monitoring and glucose targets in this patient cohort. A diabetes specialist link nurse attached to each haemodialysis centre could help provide appropriate education and support for diabetes care management and help reinforce annual health checks being undertaken.

Haemodialysis open day – supporting pre-dialysis patients towards haemodialysis

Mr Benjamin Lucas[1]
[1]University Hospital Birmingham NHS foundation trust, Birmingham, UK

Introduction

The Haemodialysis open day program was developed to support patients who have opted for haemodialysis after receiving CKD education. Feedback was used as method to determine if this program had helped pre dialysis patients in their transition to haemodialysis. NICE guidelines recommend that people with CKD including their family are given education and information that suits their modality choice.1 A haemodialysis satellite centre was used as the venue for the open day.

Method

Pre dialysis patients who opted for Haemodialysis after receiving CKD education were invited to the monthly Haemodialysis open day. Patients were invited to bring 1-2 family members to support them. Internal and external speakers from Kidney Care UK (peer supporters who are on and have had haemodialysis), Auriga assist services, renal dietitians, home haemodialysis and the Advanced Kidney Care Nurse Specialist shared their expertise on wide range of topics. These include the process of haemodialysis and how to look after a fistula, how to access grants and other money matters, how to access the psychological support team, information on renal diets, and the potential advantages of home dialysis. Attendees were given time to interact with speakers (either 1:1 or as a group), the opportunity to see and feel a fistula and group interaction with patients currently undertaking haemodialysis. They had a tour of the haemodialysis satellite centre including the home haemodialysis training area. The home haemodialysis team discussed the potential benefits of home dialysis. Attendees were asked to complete a feedback form.

Results

Patients reported they felt more empowered to talk about haemodialysis after the day. There was great feedback from attendees: “Came to the open day very anxious and went home satisfied”, “Very informative”, “Speakers are great and able to answer my questions”, “It helped my mental health in preparation for dialysis”, “A worthwhile experience” and “I might consider home dialysis” As home dialysis is recommended by NICE 1, some of the patients stated they would like to consider undertaking home dialysis after the open day. We had one patient who opted for home haemodialysis as a direct consequence of attending the program.

Discussion

While haemodialysis open days gave our patients the opportunity to know more about their modality choice, there are limitations to this approach. The venue can only accommodate 20 people and is not accessible to buses (public transport). There is free parking available. We were not able to offer interpreters for some patients and they had to rely on their family to interpret for them. Patients who cannot attend the open days were seen in clinics for further information about dialysis. Although, we can offer them a tour of the dialysis unit.

However, those who did attend reported more confidence in starting haemodialysis, were reassured that they will not be alone during their treatment and support will always be available. Patients reported that the open day helped their mental health during transition.

An ongoing evaluation of this program is being undertaken. This will allow us to evaluate how the open day helps patients on their pathway to haemodialysis and how we can improve our transition services further.

Reference

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Elevated stanniocalcin-1 in chronic kidney disease and cardiorenal syndrome

Dr Isaac Chung[1,2], Prof Guy Whitley[2], Prof Debasish Banerjee[1,2]
[1]St George's University Hospitals NHS Foundation Trust, Tooting, United Kingdom, [2]City St George's, University of London, Tooting, United Kingdom

Introduction

Stanniocalcin-1 (STC-1) is a glycoprotein hormone, previously found to have potentially role in chronic kidney disease and cardiovascular disease in in-vitro experiments. Although there is some evidence that it may have a protective role, there has not been any studies in humans looking at circulating levels of STC-1. We hypothesized that there would be differences in serum STC-1 levels between patients with CKD, patients with CKD and heart failure, and healthy controls.

Methods

Serum samples from patients with chronic kidney disease (CKD) and healthy controls were collected as part of an observational study (PACK Study). Serum samples from patients with CKD and heart failure were collected as part of a clinical trial (LiFT Study). Samples were analysed using standard ELISA kits for STC-1.

Routine demographics and blood results such as baseline eGFR were collected by reviewing the electronic health records of the participants. eGFR was estimated using CKD-EPI equation.

Results

There were 16 patients with CKD, 29 patients with CKD and heart failure, and 8 healthy controls. The healthy controls were generally younger than the CKD, and CKD and HF cohort (45, IQR 41 – 52 vs 68, IQR 60 – 73 vs 74, IQR 66 – 79, $p < 0.01$) (Table 1).

There were significant differences in serum levels of STC-1 detected in CKD patients, CKD and HF patients, and healthy controls (178 ± 117 vs 84 ± 49 vs 54 ± 47, $p < 0.01$) (Figure 1). The log of STC-1 was found to be negatively correlated with eGFR ($R = - 0.34$, $p = 0.02$) (Figure 2a). When stratified across gender, the correlation between STC-1 and eGFR was strengthened within the male cohort ($R = -0.49$, $p < 0.01$), not within the female cohort ($R = -0.21$, $p =0.42$) (Figure 2b).

Discussion

STC-1 is present within the serum in patients with CKD, CKD and HF, and healthy controls. There are significant differences between levels of STC-1 in serum in these groups. STC-1 was negatively correlated with eGFR, however, this was no consistent across biological sex.

Tirzepatide prescribing in patients living with chronic kidney disease: an observational study

Dr Jack Carruthers[1], Dr Andrew Frankel[1]
[1]West London Renal and Transplant Centre, Imperial College Healthcare NHS Trust, London, United Kingdom

Introduction

Glucagon-like polypeptide 1 (GLP1) and glucose insulinotropic polypeptide (GIP) receptor co-agonist, tirzepatide, has recently been approved by NICE for weight management in people living with obesity in addition to glycaemia control in those living with type 2 diabetes (T2DM) and obesity. Emerging data from the SURPASS-4 study suggests GLP1-receptor agonists are effective at improving renal and cardiovascular outcomes including albuminuria and estimated glomerular filtration rate (eGFR) decline in those with T2DM and chronic kidney disease (CKD) (Heerspink et al. 2022). It is likely that tirzepatide will be used increasingly in patients living with CKD, and so we identified patients living with T2DM and CKD prescribed tirzepatide in the general nephrology clinic and assessed the impact of the drug on core metabolic and renal outcomes in a real-world setting.

Methods

Patients with T2DM, obesity (BMI >27) and CKD from any cause were commenced on 2.5 mg a week of tirzepatide (Mounjaro). Demographic data including age, sex, underlying cause of kidney disease and medication co-therapy were collected. Patients were assessed every 4-8 weeks and if stable, the tirzepatide dose was uptitrated in line with recommendations. To evaluate the impact of tirzepatide prescription on metabolic and kidney outcomes over time, weight (kg), eGFR (ml/min/1.73m2), glycated haemoglobin (Hba1c; mmol/mol), urinary albumin:creatinine ratio (uACR; mg/mmol), and venous bicarbonate (HCO3; mmol/L) were collected at 4-8 weekly intervals. Trends over time were plotted as percent change from baseline. This work forms part of an evolving evaluation of service delivery and so ethical approval for the study was not required.

Results

Twenty (20) patients living with CKD II-V A2-3 were initiated on tirzepatide between January and November 2024. All patients were on maximal tolerated SGLT2i and RAASi, and at least 2 other oral hypoglycaemic agents. 8/20 patients were taking insulin. 6/20 were taking finerenone. Demographic data revealed mean age 59.4 (range: 50-74) yr, 4/20 females and 14/20 living with presumed diabetic kidney disease. There was a mean weight of 103.2 (range: 76-141) kg, Hba1c of 64.5 (range: 44-119) mmol/mol, eGFR 36 (range: 11-77) ml/min/1.73m2, and uACR 205.3 (range: 21.4-737.0) mg/mmol. Over 12 weeks, both weight and albuminuria decreased significantly from baseline (mean change of -9.5% and -26.6% respectively), whilst eGFR and Hba1c remained stable. We noted that venous HCO3 declined between week 0 and 4, below the KDIGO-recommended target of 22 mmol/L in CKD (mean 20.1 mmol/L at 4 weeks).

Discussion

Tirzepatide prescription appears to result in weight loss and improved albuminuria in patients living with CKD, with minimal impact on eGFR in the short term. The weight loss was comparable to targets achieved in published trials with predominantly people without CKD. Because this work formed part of service delivery, we were able to dynamically respond to a decrease in venous serum bicarbonate by co-prescribing sodium bicarbonate 500mg BD on initiation of tirzepatide. This work will be augmented as more patients are initiated on tirzepatide through our clinics, but provides an

encouraging real-world picture of tirzepatide-use in patients living with T2DM and CKD from any cause.

Epidemiology and outcomes of peritonitis in children on peritoneal dialysis at the Vietnam National Children's Hospital

Doctor Huong Nguyen[1], Medical Doctor Bay Luong
[1]Vietnam National Children's Hospital, Hanoi, Vietnam, [2]University of Medecin and Pharmacy , Hanoi, Vietnam

Introduction: Peritoneal dialysis (PD) is the preferred dialysis modality for children requiring kidney replacement therapy, with peritonitis being one of the most common complications of PD.
Purpose: To describe the rate, etiology of bacteria, and outcome of peritonitis in children on PD at the Vietnam National Children's Hospital.
Methods: In this retrospective study, we analyzed data from the Department of Nephrology and Dialysis, Vietnam National Children's Hospital, on 160 patients under 18 years of age who were treated with PD from January 2021 to December 2023.
Results: There were 51 episodes of peritonitis in 39 patients (0.21 episodes/patient-year); 9 patients experienced 2 or more episodes. Gram-positive bacteria were the most common etiology, with Staphylococcus aureus, causing 33.3% of all episodes. The 2nd and 3rd most common bacteria were Escherichia coli (11.8%) and Klebsiella pneumoniae (5.9%), respectively. There were 2 fungal infections (Candida albicans). Peritonitis was most common in the first 6 months after starting PD (48.7%). There were 10 patients (25.6%) who needed to stop PD and an alternative treatment modality due to an inability to successfully treat an episode of peritonitis without catheter removal. In there, Staphylococcus aureus is the leading cause of catheter removal. The rate of MRSA was very high (66.7%)
Conclusions: While overall rates of peritonitis were low, a significant percentage of patients had treatment failure due to peritonitis.

Nivolumab-induced tumour lysis syndrome in a patient with an invasive pleural Mesothelioma, a case report

Dr Michael Habeeb[1,2], Dr Jithin Jith[1]
[1]Northampton General Hospital , Northampton, UK, [2]Royal Sussex County Hospital, Brighton , UK

Introduction

Immune checkpoint inhibitors (ICIs) have become a cornerstone treatment for different malignancies. Nivolumab is one of the most used ICIs in clinical practice. Side effects of Nivolumab include pruritis and skin rash, Hypothyroidism, and GIT upset (1). Other side effects include hepatic, pulmonary, and renal symptoms. Acute kidney injury associated with ICI use is usually secondary to tubulointerstitial nephritis (TIN) in most cases, however, Immune complex-mediated glomerulonephritis has also been reported (2).

In our case, we report severe acute kidney injury due to tumour lysis syndrome after the first dose of Nivolumab, used for the treatment of Epithelioid malignant pleural mesothelioma with multifocal chest wall invasion.

Case Presentation

A 67-year-old gentleman was diagnosed with right-sided epithelioid malignant pleural mesothelioma with multifocal chest wall invasions. His medical background was significant only for heavy smoking for many years. He was commenced on palliative Nivolumab immunotherapy in February 2023. A few days after the first dose, he was admitted to the hospital with vomiting and severe acute kidney injury, with a creatinine of 921 umol/L, urea of 30.8 umol/L, and potassium of 2.9 mmol. His renal function was normal in early February 2023. The oncology team started him on intravenous Methylprednisolone for suspected immunotherapy-induced tubulointerstitial nephritis, with no improvement in his renal chemistry for 48 hours. The patient was referred to the renal team for advice regarding the management of acute kidney injury including possible support with dialysis. On examination, the patient was mildly dehydrated, and blood reports showed a high phosphate level at 3.8 mmol and a low Calcium level of 1.96 mmol. An ultrasound scan of the kidneys (KUB) and urgent urate levels were requested. Ultrasound KUB showed normal-sized kidneys with no evidence of obstruction. The urate level was markedly elevated at 924 umol/L. A diagnosis of tumour lysis syndrome was made and the patient was treated successfully with Rasburicase, a recombinant urate-oxidase enzyme, and his kidney function recovered over the following days.

Discussion

Immunotherapy-induced acute kidney Injury (AKI) is usually secondary to TIN as shown in 12 out of 13 patients who developed AKI after treatment with immunotherapy in a large case series (3). Tumor lysis syndrome is an oncological emergency caused by massive tumour cell lysis, which releases large amounts of potassium, phosphate, and nucleic acids into the systemic circulation. It mostly occurs after the initiation of cytotoxic therapy in patients with clinically aggressive malignancies and high-grade lymphomas. However, it can also occur spontaneously and with other tumour types.

In this case, we report tumor lysis syndrome in a patient with advanced mesothelioma after the first dose of Nivolumab which has been successfully treated with Rasburicase and adequate hydration.

Compliance towards prescribing Decolonisation at line insertion

Mrs Leah-kate Butler, Miss Sarah White, Mrs Tamasin Stevenson

Patients that require Haemodialysis require access, the preferred access is an arteriovenous fistula. Some patients require alternative access that may include temporary or tunnelled lines (CVC's) for reasons such as emergency need for dialysis, bridging access or the patients only option.
CVC's are associated with bloodstream infections which can lead to hospitalisation, morbidity and mortality. CVC's are accountable for half of the infections in haemodialysis patients1.
The trusts policy for the insertion of a temporary or tunnelled line is for patients to have mupirocin and octenisan prescribed for 5 days. The course of decolonisation should ideally be prescribed and used prior to line insertion, but if not feasible should be given on the day of the procedure2.
A previous first cycle looking at data from March to June 2022 showed 53% of patients were prescribed decolonisation with 88% of those patients having a complete regime. From this Cycle only 1 patient developed a bacteraemia. The second cycle showed 67% of patients being prescribed decolonisation and 92% of those patients having a complete regime. An increase in compliance was shown by the second cycle and no patients from this cycle developed a bacteraemia.
The aim of this data collection is to increase the awareness of all clinical staff on the importance of prescribing decolonisation to patients having lines inserted. Whilst ensuring 100% compliance in prescribing decolonisation as per protocol.
Data was collected for temporary and tunnelled line insertions from January 2023- September 2023. Decolonisation prescriptions were analysed using the trusts information and communication system, then analysed using excell.
The population of patients who had a line inserted was 196. 150 patients had a temporary line and 46 patients had a tunnelled line.
When looking at the decolonisation prescribed, 37 patients were prescribed no decolonisation. 147 patients were given full decolonisation treatment and 12 patient were given partial treatment (Only mupirocin or only octenisan).
When reviewing the data it was found that only 12 patients were prescribed decolonisation after their line insertion. 44 patients were prescribed decolonisation prior to line insertion and 101 patients were prescribed decolonisation on the day. Some of the patients were prescribed partial decolonisation treatment on different days. For purposes of the audit I calculated the number of patients for each category based on when they had full treatment prescribed.
When referring to patients with a bacteraemia within this audit, I am looking at any patients who have had a line infection based on a positive blood culture or swab. When reviewing swabs and blood cultures 15 patients developed a bacteraemia. Within this period 5 lines were removed and the tip of the line confirmed bacteraemia's.
A complete regime of decolonisation is important for reducing bacteraemia rates.
Looking at the three cycles of data collection there has been an improvement in the percentages of patients who have been prescribed decolonisation. The percentage of prescriptions completed after the line insertion has reduced significantly.
There is still a need for audit and education for prescribing a complete regime of decolonisation and ensuring that there is compliance from staff and patients using it.

Renal potassium wasting associated with hereditary spherocytosis caused by mutations in the SLC4A1-encoded chloride/bicarbonate anion exchanger.

Dr Matthew Beresford[1], Dr Kylie Beale[2], Dr Arvind Singh[1]
[1]Department of Nephrology, Gloucestershire Hospitals NHS Trust, Gloucester, United Kingdom, [2]Department of Biochemistry, Gloucestershire Hospitals NHS Trust, Gloucester, United Kingdom

The SLC4A1 gene encodes a chloride/bicarbonate anion exchanger expressed in erythrocytes and α-intercalated cells in the kidney. Pathogenic variants in SLC4A1 are known to result in two disease phenotypes: hereditary spherocytosis, resulting from destabilisation of the red cell membrane; and distal renal tubular acidosis (dRTA), resulting from defective kidney acid secretion. Heterozygous mutations have not previously been associated with renal potassium wasting without acidosis.
We present a case of a 54 year-old male with type 4 hereditary spherocytosis and chronic hypokalaemia without acidosis. Urine analysis indicated renal potassium wasting. Genetic analysis revealed heterozygosity for a loss-of-function mutation in SLC4A1, known to cause hereditary spherocytosis. Temperature and time-dependent potassium measurement did not provide evidence of pseudohypokalaemia.
While heterozygous SLC4A1 variants resulting in hereditary spherocytosis have been described in association with dRTA and pseudohypokalaemia, our case is the first to describe pathogenic renal potassium wasting without acidosis. Whether alterations in the function of the chloride/bicarbonate exchanger lead directly to renal potassium wasting remains to be elucidated and requires further study. We recommend that individuals with hereditary spherocytosis should be screened for associated renal tubulopathies.

The views of UK-Chinese individuals towards living and deceased-donor kidney transplantation: A qualitative interview study

Dr Matthew Beresford[1], Dr Katie Wong[2,4], Dr Mohammed Al-Talib[2,5], Professor Pippa Bailey[2,3]
[1]Department of Nephrology, Gloucester Royal Hospital, Gloucester, United Kingdom, [2]Department of Population Health Sciences, Bristol Medical School, University of Bristol, Bristol, United Kingdom, [3]Department of Nephrology and Transplantation, North Bristol NHS Trust, Bristol, United Kingdom, [4]National Registry of Rare Kidney Diseases, Bristol, UK; Department of Renal Medicine, University College London, London, United Kingdom, [5]Systems Immunity University Research Institute/Division of Infection and Immunity, School of Medicine, Cardiff University, Cardiff, United Kingdom

Background:
The views of UK Chinese people towards transplantation and organ donation are not known. It is uncertain whether the perspectives of Chinese people living in the UK differ from those of Chinese people living elsewhere in the world, or whether perspectives of UK Chinese people vary according to time spent living in the UK. This study aimed to investigate the attitudes of UK Chinese individuals towards kidney donation and transplantation, to better understand any observed differences in access to treatments. It formed part of a convergent parallel mixed-methods programme of research alongside a quantitative registry study which found that UK Chinese individuals experience poorer access to living-donor kidney transplantation compared to UK White individuals.
Methods:
We conducted in-depth semi-structured interviews with sixteen participants across three UK cities. Participants were permanently resident in the UK and self-identified as UK Chinese. Interviews were conducted between 9th April 2020 and 16th July 2020. Interviews were transcribed verbatim, coded using NVivo software, and analysed using inductive thematic analysis.
Results:
Three main themes and seven sub-themes were identified: (1) Importance of kinship: biological and social (i) Familism, ii) Relationship hierarchy, iii) Immunological matching); (2) Donor sacrifice (i) Impact on donor health, ii) Bodily integrity after death); and (3) Patient as information gatekeeper (i) Culture of silence, ii) Passivity.
Conclusions:
This study provides insights into reduced rates of living-donor transplantation amongst UK Chinese individuals. Further research is required to investigate observational research findings not explained here, and to develop effective strategies to improve treatment access for UK Chinese individuals with kidney disease.

The “PDI” simulation box - a promising “DIY” tool for percutaneous peritoneal dialysis catheter insertion training?

Dr Osasuyi Iyasere[1,2], Dr Aniebiotabasi Udofia[1], Dr Ranin Saad[1], Dr Apexa Kuverji[1], Dr Shingai Pepereke[1], Dr Yahya Makkeyah[1]
[1]John Walls Renal Unit, University Hospitals of Leicester NHS Trust, Leicester, United Kingdom, [2]Dept. of Cardiovascular Sciences, University of Leicester, Leicester, United Kingdom

Background

Home dialysis therapies provide a degree of flexibility and independence, amongst other clinical benefits. The Getting It Right First Time (GIRFT) initiative recommends that 20% of the prevalent dialysis patient should either be on peritoneal dialysis (PD) or home haemodialysis. The uptake in the UK remains below target, with substantial centre to centre variation.[1]

Studies suggest that having access to medical PD insertion (PDI) pathways increases access to PD. While trainees have expressed an interest to receive formal training in PDI, a recent UK survey suggests that training opportunities are lacking.[2] Porcine simulation models have been used to facilitate PDI training. However, these are often expensive and challenging to obtain. In this survey, we evaluated the usability and acceptability of a “DIY” simulation box to facilitate PDI training among renal physicians in training.

Methods

2 PDI simulation boxes was developed using household or easily obtainable materials, to simulate the anterior abdominal wall and peritoneal cavity. These were used during a teaching session on peritoneal dialysis insertion at the East Midlands Renal Education Course, in November 2024. An online feedback questionnaire with responses on a Likert scale of agreement, was created. This was sent to each respondent at the end of the study day. Responses were collated and analysed descriptively using the Excel program.

Results

There were 14 out of 18 potential responses (78% response rate). 71.4% of the respondents were of ST5 training grade and above. The majority (76%) had either assisted in or observed the procedure. None of the respondents were competent operators.

Most respondents (93%) agreed the box was easy to use overall. However, the level of agreement varied depending on the individual tasks (43% for realistic cannulation of peritoneum and use of guidewire; 71% for realistic use of dilators, peel away sheath and catheter insertion). 86% agreed that using the simulation box increased their understanding of the PDI procedure, while similarly increasing their interest in PDI training.

Conclusions

The PDI simulation box was deemed easy to use in this pilot survey. It was associated with better understanding and interest in PDI training. This “DIY” tool has the potential to be a useful adjunct in upskilling renal physicians in training. Subsequent iterations will seek to improve usability and capture definitive outcomes relating to procedural competencies.

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Differences in training and practice in Tunnelled Haemodialysis Catheter removal within Renal Registrars across UK

Dr Ismet Boral[1,3], Dr Shalabh Srivastava[2,3], Dr Joanna Mckinnell[1]
[1]University Hospital of Derby and Burton NHS Trust, Derby, United Kingdom, [2]Sunderland Royal Hospital, Sunderland, United Kingdom, [3]Newcastle University, Newcastle, United Kingdom

Introduction - The tunnelled haemodialysis catheter (TDC) removal is a necessary skill for the nephrology trainee as this task is undertaken routinely in renal units. Anecdotally, trainees suggest they do not have sufficient supervised training in TDC removal. We aimed to establish the differences in training and practice in TDC removal among nephrology trainees across United Kingdom (UK). There are two majors methods reported in the literature. Cut down method is making a new incision over the Dacron cuff and blunt dissecting down to liberate the cuff before clamping and cutting the catheter to remove it in two pieces. Traction method is blunt dissecting through the exit site to liberate the cuff before pulling out the catheter in toto. Little published data exists to establish current practice and there is no national guidance regarding TDC removal.

Methods - We created an online survey with twenty questions for trainee and non-training nephrology registrars working in UK. The survey was distributed via regional renal training programme directors, UK Kidney Association, “Renal SpR Club”, renal regional networks and online professional social networks including social media and instant messaging services.

Results - We received 75 responses from all of 14 deaneries. 91% reported registrars remove TDCs in their units. 53% of the operators were taught by another registrar. Only 16% report that they have written local trust guidance on TDC removal. 43% reported removing >10 TDCs a year. Cut-down method is preferred by more registrars over traction method for TDC removal. 63% remove TDCs in designated procedure areas, 52% obtain written consent and 65% wear full sterile personal protective equipment. 16% report removing TDCs alone with no assistant. 12% do not stop aspirin, antiplatelets or anticoagulants beforehand. 28% reported experiencing a “stuck catheter” at some point in their careers.

Discussion - This survey highlights that TDC removal is a common procedure and commonly performed by renal physicians in teaching hospitals. Despite being a routine procedure, it can be associated with major complications. It is mostly undertaken by registrar level doctors often without formal training or written guidelines with varying techniques. There is a need for national guidance on this procedure. 68% of participants want this procedure to be part of mandatory training in the renal post graduate training curriculum.

Identifying factors affecting donor attrition for living donor kidney transplantation: a service evaluation

Dr Anna Winterbottom[1,2], Miss Jasmine Simon[2], Miss Lucy Bird[2], Dr Sunil Daga[1]
[1]Leeds Teaching Hospitals Trust, Leeds, United Kingdom, [2]University of Leeds, Leeds, United Kingdom

Background: Living donor kidney transplantation is the best treatment for people with kidney failure. Despite this, only 21.1% of UK transplants are from live donors. Considerable variability exists between kidney units in terms of people completing the living donor kidney transplant process (8-49%). Factors attributed to poor attrition rates include, the rigorous testing required to assess donor compatibility to the recipient, living kidney donors general health and risks associated with surgery and the loss of a kidney. Few studies focus on attrition rates with respect to modifiable non-medical reasons. This service evaluation aimed to identify factors influencing donor attrition within our Living Kidney Transplantation Service, focusing on non-medical reasons.
Method: Retrospective data was collected from 375 people identified via a large teaching hospital, between 2018-23.
Result: Fifty eight people progressed to donation. Of the remaining 317, some had no attrition data (n=30) or no demographic data (n=76); a total of 211 people were included for analysis.
Higher attrition rates were seen in younger adults 18-40 years (39.1%, n=83), white Caucasian (53%, n=112) and those of unknown ethnic origin (26.5%, n=56). Reasons for attrition were - donor withdrawal (27%, n=57), donor complication (20%, n=42), incompatibility to recipients (10%, n=21), below advisory threshold for mGFR (6%. n=13), alternative donor found (27%, n=57), unacceptable renal anatomy (5%, n=11) and death of recipient (2% n=10), recipient refusal/anatomy unsuitable (3%, n=6). Reasons for donor withdrawal included, not returning the Donor Health Questionnaire (6%, n=12), loss of contact after the questionnaire was returned to the service (10%, n=20), or personal circumstances, e.g., work related concerns (6%, n=12).
Conclusion: The service evaluation found that the majority of donor withdrawals were younger adults in the earlier stages of the process. Improved education around the work-up process, information on finances and social support, may encourage more people to continue with donation. Our service has recently introduced a patient and carer support evening for people waiting for transplantation to provide information and ongoing support for those eligible for live (and deceased) donor transplantation. Evaluation of this session will further improve our understanding of reasons for (not) progressing with live donation.

Tumoral Calcinosis in a patient on chronic haemiadialysis

Dr Adarsh Babu[1]
[1]Gloucestershire Royal Hospitals NHS Trust, Gloucester, United Kingdom

Background

Bone and Mineral disorder is a common problem in chronic haemodialysis patients. Hyperphosphataemia can lead to calcification of myocardium, valves, and vasculature. Hyperphosphataemia is also commonly associated with secondary and tertiary hyperparathyroidism. Dietary restriction and phosphate binders are the only effective methods of phosphate reduction. Intensive haemodialysis can reduce phosphate levels to some extent. Here, we present a case of Tumoral Calcinosis(TC), a rare complication of persistent hyperphosphatemia. As far as we know less than 30 cases of TC are reported in literature and around 15 of them were related to end stage renal disease.

Case

55-year-old lady presented with 2 months history of right buttock pain while sitting on dialysis chair. Denied any difficulty in walking. She was on chronic haemodialysis for seven years. Dialysed via femoral Tesio after she had four failed fistulas.Other medical history includes high BMI, obstructive sleep apnoea, and hypertension. She reported non-adherance to both phosphate binders and low phosphate diet for many years.

Investigations

Bloods revealed chronic hyperphosphataemia for nearly two years. Calcium phosphate product was greater than nine most of the time (Figure 1)

Looking at the dialysis efficacy, Kt/V was persistantly less than 1.

Imaging of pelvis revealed extra articular calcification around ischium, right hip, and right knee joint. Treatment for this condition is unknown. Treatment incuded strict adherance to phosphate binders, sodium thiosulphate on dialysis. Two months of treatment with sodium thiosulphate helped to reduce the calcification around ischium, but had no effect on hip or knee calcification.

Discussion

Tumoral Calcinosis is benign slow growing mass, usually composed of calcium phosphate, calcium hydroxyapetite, and calcium acetate. It presents as painless or painful mass with predeliction to form around large joints like hip, knee, elbows or shoulders. Cause of TC is unclear but there are three types:1. Idiopathic, 2. Dystrophic calcification, and 3. Hyperphosphataemia related to end stage renal disease. Treatment of TC is unlcear. Surgical excision is considered if painful and/or if there is restriction of joint movements. The role of Sodium Thiosulphate is not known. It is also not known if TC will regress if phosphate levels are controlled. In our case, smaller TCs regressed after introduction of sodium thiosulphate and better phosphate control.This case highlights the complication of chronic phosphataemia, where phosphate levels are greater than calcium levels. Also, highlights the limited evidence for available treatment options.

Declining CKD in cystic kidney disease associated with COL4A4 gene mutation

Dr Adarsh Babu[1]
[1]Gloucestershire Royal Hospitals NHS Trust, Gloucester, United Kingdom

Introduction Autosomal Dominant Polycystic Kidney Disease (ADPKD) account for majority of inheritable cystic kidney disease and end stage renal disease. There are other cystic kidney diseases that are not associated with Polycystic kidney disease (PKD) gene mutations. There is no clear inheritance pattern, but common inheritance pattern is autosomal dominant. Rarely polycystic kidney disease is associated with Alport's syndrome or Thin Basement Disease. Thin Basement disease is associated with mutations in COL4A3 and COL4A4 Alport syndrome is associated with COL4A3, COL4A4 or COL4A5 genes. Here we report a family with inherited cystic renal disease associated with heterozygous COL4A4 gene mutation. There are very few cases reported in literature, hence the clinical phenotype is not well characterised.

Case Presentation
75-year-old man was referred to renal clinic for hypertension management in 2012, at the age of 63 years. He reported microscopic blood in the urine from age of 35 years, that was picked up on routine screening in the military. He reported recent onset hypertension and proteinuria. Blood tests revealed impaired renal function with creatinine of 130mmol/L and eGFR 50mls/min. Renal ultrasound showed enlarged kidney with multiple cysts. Ultrasound did not suggest inherited polycystic kidney disease. Patient has slow, progressive decline in renal function, that was accelerated by Abdominal aortic aneurysm repair and coronary stenting for myocardial infarction (Figure 1). Patient's eGFR is currently around 19mls/min. Urine Albumin to creatinine ratio is relatively stable at 100 (Figure 2). In 2022, patient informed us that his brother has polycystic kidney disease and was worked up for renal transplant. As previous ultrasound was not classical of autosomal dominant polycystic kidney disease, repeat ultrasound was performed. Cystic kidney disease was confirmed on USS and CT abdomen (Figure 3). Bloods sent for genetic testing showed heterozygous mutation in COL4A4 gene. There was no mutation in Polycystic kidney Disease(PKD) gene. Family screening showed one of the daughters to have polycystic kidney disease. Genetic testing of the entire family is ongoing to better understand genetics and inheritance patterns.

Discussion
In this case, there is a slow progression of chronic kidney disease and the index case has reached CKD stage 4. This case demonstrates that mutation in COL4A4 gene is not completely benign but is associated with progressive loss of kidney function. However, it is reassuring to note that, index case has not reached end stage renal disease. Other learning point is the utilization of genetic testing when there is uncertainty in the diagnosis or when patients report additional symptoms that does not fit with known presentations. Hopefully, studing other family members will shed more light on clinical phenotype. Identification and study from other similar cases may help to beffer define prognosis chronic kidney disease trends.

Survival Outcomes in APKD vs IgA Nephropathy Post-Transplant: A Single-Center Analysis of the Impact of Recurrence

Mr. Rashed Kamal[1,2,3], Ms. Isabella Carpio-Gonzalez[1,2,3], Dr. Mohammed Meghji[2], Dr. Durga AK Kanigicherla[2,3]
[1]Manchester Medical School, Manchester, UK, [2]Manchester Institute of Nephrology and Transplantation, Manchester University NHS Foundation Trust, Manchester, UK, [3]University of Manchester, Manchester, UK

Introduction:
Adult polycystic kidney disease (APKD) and IgA nephropathy (IgAN) are leading causes of end-stage kidney disease (ESKD), with kidney transplantation being the gold standard for optimizing quality of life and survival. While APKD is non-immunogenic, IgAN is an immune-mediated disease that can recur post-transplant. Although short-term survival outcomes have been well-documented, long-term survival comparisons between APKD and IgAN is limited, especially regarding the impact of IgAN recurrence.

Methods:
We conducted a retrospective analysis of kidney transplants performed between January 2010 and June 2023 in patients with APKD (n=122) and IgAN (n=137). Patient demographics, transplant characteristics, graft survival, recurrence rates, and renal function at follow-up were reviewed. Patients with IgAN were categorised into non-recurrent (n = 119) and recurrent (n = 18) subgroups based on histopathological evidence of post-transplant recurrence. Primary outcomes were patient survival and death-censored graft survival. Secondary outcomes included causes of graft failure, nephrectomy, and serum creatinine at follow-up. Survival outcomes were assessed using Kaplan-Meier survival analysis, with significance determined by the log-rank test ($p<0.05$). Cox regression models were employed to identify independent predictors of graft survival. Statistical analyses were performed using JASP (Version 0.18.3) and SPSS Statistics (Version 29.0).

Results:
259 transplant recipients were included in the study. Mean follow-up time was 7.2 years for APKD and 6.6 years for IgAN. APKD transplant recipients were significantly older compared to IgAN transplant recipients (54.7 ± 10.2 years vs. 47.6 ± 12.9 years, $p<0.001$). Time spent on dialysis prior to transplantation was significantly shorter for APKD (3.08 ± 2.54 years) vs. IgAN (5.45 ± 6.17 years, $p<0.001$). Patient survival rates at 1, 5, and 10-years were 95.1%, 90.3%, & 86.2% for APKD and 97.8%, 90.4%, & 77.5% for IgAN. Death-censored graft survival (DCGS) rates at 1, 5, and 10-years were also not significantly different at 95.9%, 92.7%, & 81.7% for APKD and 95.6%, 87.2%, & 78.1% for IgAN. 13.1% of grafts had recurrent IgAN. Recurrence of IgAN (IgAN R+) post-transplant was associated with significantly lower DCGS compared to non-recurrent IgAN (IgAN R-) ($p<0.05$). The 5 & 10-year graft survival for non-recurrent IgAN was 90.4% & 88.8%, while for recurrent IgAN it was 70.1% & 35.8%. In APKD, univariate Cox regression analysis identified kidneys from donation after circulatory-death (DCD) donors as an independent risk factor for poorer graft survival whilst in IgAN recipients, recurrence significantly increased the risk of graft failure (HR=5.39; 95% CI=2.29-12.71, $p<0.001$).

Conclusion:
Recipients with APKD and IgAN have similar long-term graft and patient survival, however stratifying IgAN by recurrence status reveals a different picture with significant divergence in graft survival. This study highlights the significantly poorer graft survival exhibited by recurrent IgAN. These findings underscore the critical importance of monitoring for IgAN recurrence post-transplant, as early detection and intervention may mitigate graft dysfunction and improve long-term survival and quality-of-life. Exploration of immunologic mechanisms and identifying new treatments is crucial in optimizing graft management and improving outcomes in this patient subgroup.

Prevalence of obesity in patients undergoing haemodialysis and peritoneal dialysis - A PAN-London audit

Dr Adrian Brown[1,2,3], Dr Kieran McCafferty[4], Rochelle Blacklock[5], Dr Anjali Zalin[4], Tadala Kolawole[4], Dr Cana Metin[6], Mr Ammar Almidani[6], Radu Polschi[6], Dr Ellie Evans[6], Nithesh Satchithanandam[6], Professor Reza Motallebzadeh[6]
[1]Centre for Obesity Research, University College London, London, UK, [2]Bariatric Centre for Weight Management and Metabolic Surgery, University College London Hospital NHS Trust, London, UK, [3]UCLH Biomedical Research Centre, National Institute of Health Research, London, UK, [4]Department of Renal Medicine, Royal London Hospital, London, UK, [5]Department of Nutrition and Dietetics, King's College Hospital NHS Foundation Trust, London, UK, [6]Department of Nephrology & Transplantation, Royal Free London NHS Foundation Trust, London, UK

Introduction
Obesity affects over 1 in 4 UK adults and is associated with the development of chronic kidney disease and over time kidney failure. While limited UK data are available, US data suggests 39.2% of people with kidney failure live with obesity. The aim of this audit was to assess the prevalence of obesity in people undergoing haemodialysis (HD) or peritoneal dialysis (PD).

Methods
A retrospective audit was conducted within three kidney centres in London. Patients who were undergoing HD or PD between October 2022 to December 2023 were included. A standardised data extraction tool was completed at individual site level. Data outcomes, including demographic data, weight, body mass index (BMI), prevalence of other conditions and Index of Multiple Deprivation deciles (IMD), were analysed.

Results
3179 patients were included in the audit, of these 2715 (85.4%) had available BMI data and were included in the final analysis, with 464 (14.6%) excluded with missing data either for weight or height. Mean age (± standard deviation) of the cohort was 62.2±14.9yrs; of which 59.9% were female; 32.7% Black Ethnicity, 27.6% White Ethnicity and 22.9% Asian Ethnicity and 16.8% were from other ethnic groups. Median IMD decile (interquartile range [IQR]) was 3.0 (IQR 2.0, 5.0).

Median overall body mass index (BMI) was 26.6kg/m² (IQR 23.2, 31.0). Nearly two thirds (61.8%) of patients were living with overweight (BMI 25-29.9kg/m²; 32.1%) or obesity (BMI ≥30kg/m²; 29.7%), with 35.0% living with a BMI 18.5-24.9kg/m² and only 3.2% having a BMI <18.5kg/m². Compared to those on PD, the HD cohort had a significantly higher BMI (26.6kg/m² (IQR 23.3, 31.1) versus PD of 25.9kg/m² (IQR 22.0, 30.6); p=0.016.

Compared to those with a BMI ≤29.9kg/m², living with obesity was associated with living with diabetes (p<0.001), hypertension (p<0.001) and dyslipidaemia (p<0.001) but there was no statistical association between obesity and cardiovascular or ischaemic heart disease. Living with obesity was not associated with increased use of anti-hypertensive medications. While living with obesity and diabetes was associated with increased use GLP-1 receptor agonists (GLP-1 RA; p=0.001) but not oral hyperglycaemic agent (p=0.558) or insulin therapy (p=0.294). There was no difference in IMD between those living with or without obesity (p=0.165).

Discussion
This is the first PAN-London audit assessing the prevalence of obesity in patients undergoing HD and PD. Our data reveals that nearly 30% of patients on maintenance HD and PD therapies are living with obesity (BMI ≥ 30kg/m²), which is higher than the general public (29%, Health Survey for England, 2024). In addition, living with obesity was associated with greater multiple co-morbidities and use of GLP-1 RA. Of concern was the high levels of deprivation within this population with 52.4% of patients

living in the most deprived 30% of areas in London, though there was no difference in level of deprivation according the BMI. Despite this there remains a lack of access nationally to obesity interventions to help patients lose weight, and with obesity precluding access to kidney transplantation, emphasises the continued access inequality that obesity potentially places to transplant.

CKM Jumpstart: nephrologists' experiences using a novel communication tool to jumpstart discussions about conservative kidney management for treatment of kidney failure with patients

Ms. Olivia Gaughran[1], Dr. Deborah Lee[3], Dr. Daniel Lam[1], Dr. Grady Paden[1], Dr. Jane Schell[2], Dr. Susan Wong[1]
[1]University of Washington, Seattle, United States, [2]University of Pittsburgh, Pittsburgh, United States, [3]University of California San Francisco, San Francisco, United States

Introduction: Conservative kidney management (CKM) as treatment for patients who forgo dialysis is not routinely discussed by nephrologists with their patients, with many nephrologists reporting unease with broaching the topic due to lack of communication skills.

Methods: We tested the feasibility and acceptability of a novel communication tool, CKM Jumpstart, in assisting nephrologists with discussing CKM with their patients. The Tool presents information about their patient's values obtained through patient surveys and a framework and language to guide discussion of four topics with their patients: 1) willingness to discuss their values; 2) exploration of their values; 3) interest in learning about kidney failure treatments; and, 4) whether CKM might align with their values. We recruited nephrologists and their patients aged ≥75y with eGFR ≤25ml/min/1.73m2 in the greater Seattle area between April 2023-November 2024 to try the Tool at their next clinic visit. We conducted qualitative interviews with nephrologists who used the Tool and completed a thematic analysis of interview responses to assess their experiences using the Tool.

Results: Of the 23 nephrologists (36.3% women, 23.3□9.6 years in practice) provided CKM Jumpstart, 18 (78.3%) used the Tool during the visit. Reasons for not using the Tool included lack of time and need to address other health issues. Three major themes emerged from interviews: 1) Selective application: nephrologists did not use the Tool in its entirety and selected only portions of the Tool to use that suited their own communication style and the context of the conversation; 2) Creating momentum: nephrologists felt prompted to have a conversation about values and CKM earlier and in a clinical scenario that they would not usually have, which for some made the conversation seem proactive, and for others, "forced;" 3) Handling discrepancies: nephrologists were surprised when hearing the values expressed by patients during some conversations differed from those presented in the Tool, which prompted several to explore discrepancies, and others, to view the Tool as "confusing."

Conclusion: CKM Jumpstart was feasible and acceptable to nephrologists, however also revealed persistent challenges with discussing healthcare values and CKM with patients.

A qualitative exploration of the understanding and experience of social prescribing for people living with kidney disease and renal healthcare professionals.

Ms Anna Wilson[1], Dr Julie Doherty[1], Prof Helen Noble[1]
[1]Queen's University Belfast, Belfast, Northern Ireland

Introduction

Social prescribing is an approach which links people to a range of activities and support services typically provided by local voluntary and community sectors to address non-medical or social determinants of health and wellbeing. Patients are referred to a link worker, who work with the patient to co-produce a personalised care and support action plan, their own 'social prescription'. Activities and support may include walking groups, arts activities, volunteering opportunities, support groups, or financial, housing or employment advice. The target group for social prescribing is patients who may require a greater level of social and emotional support to improve wellbeing than is available in routine care, particularly those living with long term health conditions or experiencing anxiety, depression, or social isolation.

People living with chronic kidney disease and transplant often experience social and emotional challenges which impact their quality of life and wellbeing, and access to psychological and social support is limited. This qualitative exploration is the second phase of a work in progress study which aims to explore if social prescribing could provide a holistic approach to health and wellbeing for people living with kidney disease or transplant, and how this patient population could be supported to engage with this approach.

Methods

In-depth semi-structured interviews were conducted with two groups of participants, people living with any stage of kidney disease or transplant, and renal healthcare professionals, to explore their understanding and experience of social prescribing. The interview schedule was guided by the Theoretical Domains Framework, with open-ended questions and prompts exploring the relevant domains. Data collection took place between August and December 2024. Interview data is currently being analysed using Braun and Clarke's six-stage process of reflexive thematic analysis.

Results

Interviews were conducted with people with kidney disease (n=10, 50% female) in stage 3 (n=1), stage 5 (n=3) and post-transplant (n=7), and renal healthcare professionals (n=11, 81% female) including psychosocial practitioners (n=5), nurses (n=3), a consultant nephrologist (n=1), a consultant physiotherapist (n=1) and an occupational therapist (n=1). Preliminary findings indicate limited knowledge of or engagement with social prescribing. Initial themes centre around the social and emotional challenges that impact patients' health and wellbeing, and the barriers and facilitators to implementing social prescribing in this patient population.

Discussion

This qualitative study explores how social prescribing could potentially address the non-medical determinants of health and wellbeing impacting people living with kidney disease, and how patients could be supported to access and engage with social prescribing services and activities. The findings will inform development of a cross-sectional online survey, which will be shared with people with kidney disease and transplant, and renal healthcare professionals across the UK, to further explore understanding and experience of social prescribing. Results will contribute to the growing body of evidence in this field and support future implementation of social prescribing pathways and services for kidney disease populations.

Quality improvement project: Implementing a standard operating procedure for transplant patients with medication or clinic non-adherence

Dr Lisa Tang[1], Dr Sunil Daga[1], Dr Andrew Lewington[1], Dr Matthew Welberry-Smith[1], Dr Usha Appalsawmy[1], Ms Andrea Rhodes[1], Ms Catherine Simm[1], Ms Caroline Smith[1], Ms Helen Snowden[1], Ms Jess Weemes[1], Ms Claire Ecuyer[1], Ms Alice Greenwood[1], Ms Katie Hodgson[1], Ms Catherine Hughes[1], Ms Emily Slatter[1], Ms Joanne Reischman[1], Ms Janette Moran[1], Ms Oxana Goncharova[1], Ms Kathleen Smith[2], Ms Daniella Hembra[3], Mr Vince Heslop[1], Ms Kirsty Heslop[4], Dr Madeleine Vernon[1]
[1]Leeds Teaching Hospitals Renal Department, Leeds, United Kingdom, [2]Learning disability and autism team, Leeds Teaching Hospitals, Leeds, United Kingdom, [3]Leeds Teaching Hospitals Safeguarding Adults team, Leeds, United Kingdom, [4]Leeds Teaching Hospitals Outpatient CSU, Leeds, United Kingdom

Introduction:

Supporting renal transplant patients who are non-adherent to taking medication and clinic attendance can be complex. Non-adherence can be multi-factorial and patients need to be considered on an individual basis when assessing them for support.

Through the clinical governance DATIX process, it became apparent that there was no standard operating procedure for the multi-disciplinary team (MDT) to follow when they review patients in transplant clinic. This can lead to issues such as delayed referral for support and increased risk to the patients health, for example transplant rejection.

Therefore, the aim of this quality improvement project was to develop a standard operating procedure (SOP) to provide support and guidance to members of the transplant MDT who review transplant patients in the outpatient setting who display non-adherence to taking medications and clinic attendance.

Methods:

The first step in creating the SOP was gaining intelligence on existing processes and liaising with the nephrology MDT including post-transplant nurses, renal pharmacists, and renal outpatient team. We also involved teams who were relevant for support for our vulnerable patients- such as the learning disability team and safeguarding team. These stakeholders were interviewed on their experience of managing non-adherent patients, and the difficulties and challenges they face.

After the implementation and dissemination of the SOP, a qualitative survey was undertaken to assess if members of the MDT felt better supported in managing non-adherent transplant patients and what further improvements were suggested. This followed the Plan-Do-Study-Act cycle to help improve our management for transplant patients.

Results:

A survey interviewing the users of the SOP compared their confidence in managing non-adherent transplant patients before it was introduced versus 2 months after its implementation. Results have shown that amongst the healthcare professionals who review transplant patients in clinics, there has been a statistically significant increase in confidence for all aspects assessed: (see P-values on infographic attached)

a. Escalation of non-adherent transplant patients to a transplant consultant:
b. Medication non-adherence management
c. Referral for appropriate support

Discussion:

The results have shown a positive impact on supporting members of the renal department in managing our transplant patients. A review team comprising key members of the renal department was also formed in order to review the SOP on a regular basis to ensure any issues or updates can be taken into account.

As part of ongoing quality improvement, the survey had a free text section to allow users to submit feedback- these suggestions will be taken into account for the next PDSA cycle to ensure continuous evaluation of the SOP is sustained.

In conclusion, the introduction of a SOP to support our renal department in managing transplant patients who display non-adherence to clinic attendance and medication has had a positive impact on the transplant MDT, with plans to sustain regular review and update this intervention.

Polyarteritis Nodosa: a cutaneous conundrum in a haemodialysis patient.

Dr. Aniebiot-abasi Udofia[1], Dr Nithin JayanSanthakumari[1], Dr. Gerald Saldanha[1], Dr Oluwaseyi Akinseinde[1]
[1]University Hospital of Leicester NHS trust, leicester, United Kingdom, [2]University Hospital of Leicester NHS trust, leicester, United Kingdom, [3]University Hospital of Leicester NHS trust, leicester, United Kingdom, [4]University Hospital of Leicester NHS trust, leicester, United Kingdom

Introduction

Dialysis patients are particularly susceptible to complex dermatological disorders due to their unique pathophysiological profile brought about by their primary disease, immune/metabolic dysfunction associated with advanced kidney disease , and the effects of renal replacement therapy. Additionally, de novo skin conditions may emerge in this population. These factors collectively shape the phenotypical appearance of skin disorders which may mimic or obscure other dermatological conditions, creating significant challenges in diagnosis.

Polyarteritis nodosa, a rare but serious vasculitis, frequently presents with nonspecific clinical features that overlap with conditions such as cellulitis, calciphylaxis, or other dermatopathies, further complicating timely diagnosis and management.

Case Report

We report the case of a 57-year-old male with end-stage renal disease on chronic haemodialysis presenting with high-grade fever, painful swelling, and blistering on both lower limbs. The lesions initially appeared as pruritic papules and progressed into plaques that darkened over time.

On examination, the patient showed signs of haemodynamic instability. Physical findings included tender ulcerations on the lower limbs with haemorrhagic bullae and ecchymosis, but notably, no crepitus.

Initial investigations revealed elevated inflammatory markers, a positive antinuclear antibody (ANA) test, and negative ANCA and complement levels. Blood cultures identified the presence of Group D Streptococcus. Radiological imaging excluded systemic involvement and ruled out bone pathology.

The patient underwent multiple reviews by dermatology and rheumatology team. A wide range of differential diagnoses were considered, including cellulitis with associated complications such as ecthyma, calciphylaxis, purpura fulminans, necrotising fasciitis and disseminated intravascular coagulation.

A skin biopsy ultimately showed medium vessel leukocytoclastic vasculitis, which supported polyarteritis in the clinical setting; this was likely triggered by a streptococcal infection. Treatment involved pulse intravenous methylprednisolone followed by a tapered course of oral prednisolone, leading to significant clinical improvement.

Discussion

Infections, particularly by hepatitis related viruses and streptococcal species, are known triggers for polyarteritis nodosa (PAN) due to immune complex formation and complement activation. This case highlights the diagnostic complexities involved in differentiating phenotypically similar yet pathophysiologically distinct conditions, such as cellulitis, calciphylaxis, and cutaneous vasculitis, particularly in dialysis patients. Delayed diagnosis is common in this population due to the nonspecific presentation of skin lesions, compounded by preexisting risk factors. A more nuanced

understanding and precise characterisation of these disorders in dialysis patients could substantially reduce diagnostic delays.

Integrated input from dermatology, microbiology, and histopathology, was essential in the diagnosis and management. This case highlights the value of multidisciplinary collaboration in addressing the diagnostic challenges inherent to this patient population.

Conclusion

This case emphasises the critical need for a systematic framework to differentiate between various skin disorders in dialysis patients. Developing a comprehensive catalog of distinguishing clinical and histopathological features could facilitate earlier and more accurate diagnosis, leading to improved outcomes.

To contribute to this effort, a systematic review titled “Comparative Analysis of Risk Factors, Patterns of Clinical Presentation, and Histopathological Features in Distinguishing Cutaneous Vasculitis from Cellulitis and Calciphylaxis in Patients on Chronic Haemodialysis” is currently underway (registration number: CRD42024577904). This review aims to consolidate evidence and provide a foundation for more effective diagnostic and therapeutic strategies.

Knowledge, Attitude, and Practices Regarding Acute Kidney Injury in an acute teaching hospital in the United Kingdom

Dr Ahmed Nassar[1], Dr Henry Olorunfemi[1], Dr Anna Jaroszewicz[1], Dr Shaista Tamizuddin[1]
[1]Peterborough City Hosiptal, Peterborough , United Kingdom

Acute Kidney Injury (AKI) is a prevalent and potentially fatal condition that contributes significantly to morbidity and mortality. According to NICE (2023), it is estimated that 1 in 5 emergency hospital admissions in the UK is associated with AKI. Mortality rates increase with the severity of AKI, making early diagnosis and treatment crucial. According to one UK hospital-based study, the overall mortality rate of AKI is 23.8%. The estimated cost of AKI-related inpatient care to the NHS in England over one year is approximately £1.2 billion.

Until May 2024, there was no dedicated AKI service at Peterborough City Hosiptal, which is a part of North West Anglia NHS Foundation Trust. However, the Trust then employed an AKI nurse specialist for the first time to review AKI alerts and take action in a timely manner. Alongside this clinical service, our aim was to empower other specialties to provide better care to AKI patients. To achieve this aim, we conducted a survey to first assess, the understanding of AKI among medical staff in the hospital.

Methods:

A questionnaire-based survey was conducted to achieve this objective.

A total of 81 medical staff members participated in the survey, including 8 consultants, 7 middle-grade trainees, 10 internal medicine trainees, 21 trust-grade doctors, 15 foundation year doctors, and 20 nurses of varying grades. Participants were asked to provide their views on eight questions, without seeking help from their colleagues or other sources.

Results:

Only 20% of participants were aware of the definition of AKI. While the majority recognized common causes of AKI, only 51% identified that fluid overload could contribute to AKI. A good percentage of participants (over 70%) were aware that certain antibiotics require dose adjustments based on renal function. However, only 50% correctly identified that low bicarbonate levels can cause hyperkalaemia. Additionally, just 40% of participants were aware of the overall mortality rate for AKI.

Discussion:

Our survey showed a need for increased education and awareness of AKI among doctors and nurses of all grades, to help them achieve better outcomes of their AKI patients. We extended the role of the AKI nurse specialist to include an educational component. This involved delivering 10-minute PowerPoint presentations to doctors and nurses on various specialty wards.

The power of the expert patient in renal psychological care provision: The journey from tokenism to true collaboration.

Dr Amy Waugh[1], Dr Jessica Dean[1], Ms Clare Murray[1]
[1]Northern Care Alliance, Salford, United Kingdom
We would like to submit this as a poster if possible please

Introduction
The provision of psychological support for renal patients is an integral part of a best practice, multidisciplinary approach to renal care. Healthcare policy is increasing focused on the importance of patient involvement in the delivery of health care services. However, integrating patient voice into healthcare in a way that is empowering and not tokenistic can pose challenges. We have considered the ladder of engagement as a framework for developing our expert patient group. We intend to outline the development of our expert patient group including some of the key achievements in renal psychology and reflections in relation to true patient collaboration.

Methods
Patients are invited to join the expert by experience patient group after a period of contact with the renal psychology service. Once a patient has consented to joining the expert by experience patient group they are invited to participate in the various group projects.

Results
Our Expert by Experience Patient Group (EEPG) has been engaged in a variety of projects alongside our renal psychologists: 1. Renal Psychology staff recruitment: EEPG members on renal psychology interview panels for staff recruitment; 2. Wider trust policy/strategy: Patient engagement in wider trust policy development; 3. Renal staff training; 4. Patient communication: improvement of letters sent to renal psychology patients. More compassionate language to foster engagement with our service; and 5. Research: patient engagement in research application.

Discussion
Patient collaboration has played a vital role in improving our renal psychology services. It provides a framework for incorporating patients' voices to improve service access and quality for all patients. Engagement with renal patients should be carefully considered. Renal patients have often experienced psychological trauma as a consequence of their diagnosis, condition, and treatment. Relationships with expert patients must be carefully considered, so that patients feel safe to be honest and share their experiences in a meaningful way, and to avoid the risk of re-traumatisation. It is vital that we ensure time and resources are available to engage with experts in a meaningful way - with engagement from the beginning of projects, and not just asking for comments at towards the end of a project It is also vital that we ensure to ‘close the loop’ and feed back to patients what changes their involvement has influenced. We are conscious that initiatives like this can feel unobtainable in resource stretched NHS departments, however, our expert patient group has been possible to set up with a small amount of resource available. We have benefited from integrating patient voice into our service and we hope that sharing our learning encourages others to implement similar initiatives. Our work isn’t a perfect model, expert patient working is an iterative process and requires continual development, aiming to do incrementally more all the time. But we hope that this demonstrates the benefits and opportunities to truly meet the holistic needs of our renal patients, by carefully and thoughtfully collaborating with expert patients.

Integrative Care for Alport Syndrome: Insights from an Adult Kidney Genetics Clinic

Dr Holly Mabillard, Dr Roxane Hillier, Professor John Sayer
[1]Freeman Hospital, Newcastle upon Tyne, UK, [2]Newcastle University, Newcastle upon Tyne, UK

Introduction:
Monogenic kidney diseases are increasingly recognised in nephrology practice, with global advances in understanding genetic kidney diseases. With rising diagnoses, nephrologists must improve genetic literacy and adopt multidisciplinary approaches to better manage patients. Studies show that 20-30% of individuals with Chronic Kidney Disease (CKD) have a monogenic cause.[1 2]

Alport syndrome exemplifies a multisystem monogenic disorder, requiring collaboration across primary and subspecialty care. It is characterized by haematuria, kidney failure, hearing loss, and ocular abnormalities (lenticonus, fleck retinopathy). This complex condition demands a comprehensive management strategy, but 30% of cases lack a genetic diagnosis, highlighting the need for advanced phenotyping and collaborative research.[3] This report outlines challenges and insights from our genetic kidney disease clinic, showcasing the benefits of an integrative approach to improve outcomes.

Methods/Results:
Genetic insights are vital for early diagnosis, risk stratification, family member identification, and preconception counselling. Advanced genomic techniques aid in diagnosing genetically negative Alport syndrome and enable personalised treatment, family counselling, and identifying potential kidney donors. Nephrologists guide renal function preservation through tailored treatment plans, clinical trial and RaDaR registry enrolment, and use of renoprotective therapies such as angiotensin-converting enzyme inhibitors, SGLT2 inhibitors, and non-steroidal mineralocorticoid receptor antagonists.

Otolaryngologists address sensorineural hearing loss through innovative auditory rehabilitation and cochlear implantation, preserving higher neural pathways. Ophthalmologists contribute to disease phenotyping and managing ocular manifestations. Additionally, national organisations provide crucial psychosocial support to patients and families, driving research, guidelines, and treatment advancements globally.

Discussion:
This experience underscores the importance of a collaborative, multidisciplinary approach to Alport syndrome in adult kidney genetics clinics. A holistic, patient-centred model integrates kidney care with genetic counselling, improved diagnostics, and specialised management of related comorbidities. By aligning expertise across diverse fields, we aim to enhance the quality of life for individuals with Alport syndrome. This integrative healthcare model advances care for monogenic kidney diseases, which are a significant part of nephrology practice.

Genetic Insights into Disease Progression in Autosomal Dominant Tubulointerstitial Kidney Disease Due to UMOD Variants (ADTKD-UMOD)

Dr Holly Mabillard, Dr Juliana Arcila Galvis, Professor Heather Cordell, Professor John Sayer
[1]Newcastle University, Newcastle upon Tyne, UK, [2]Freeman Hopsital, Newcastle upon Tyne, UK

Background:
Autosomal dominant tubulointerstitial kidney disease due to UMOD mutations (ADTKD-UMOD) is one of the most common genetic kidney diseases, yet remains under-recognised. It accounts for at least 1% of chronic kidney disease (CKD) and 2% of end-stage kidney failure (ESKF). The disease is characterised by progressive CKD with bland urinalysis, often presenting with early-onset hyperuricaemia and gout. Despite the same primary genetic mutation, significant inter- and intra-familial variability in disease progression exists, suggesting a role for genetic modifiers.

Methods:
A cohort of 275 individuals with genetically confirmed ADTKD-UMOD was recruited via the National Registry of Rare Kidney Diseases (RaDaR) and with the support of national and international collaborators. Genotyping was performed using the Illumina GSA MD array, and genome-wide association analyses were conducted using a saddlepoint approximation implementation based on the Cox proportional hazards regression model (SPACox). Kidney survival, defined as the age at which individuals reached kidney failure, was the primary outcome. Analyses were adjusted for principal components of ancestry and the effect of the primary UMOD variant. Loci of interest were further explored using publicly available functional genomic datasets.

Results:
The GWAS identified associations with genetic loci in ABCG2, encoding a uric acid transporter, and a region of chromosome 19 encompassing COX6B2, which encodes the terminal enzyme of the mitochondrial electron transport chain. ABCG2 is particularly relevant, given its role in uric acid handling, a hallmark of ADTKD-UMOD. Furthermore, ABCG2 shows chromatin bridging interactions with PKD2, a gene implicated in kidney disease, suggesting additional pathways for investigation. Functional annotation highlighted the potential involvement of oxidative phosphorylation pathways, aligning with recent findings linking these pathways to mitochondrial dysfunction in kidney disease. These findings provide insight into the variability of kidney survival in ADTKD-UMOD and identify biologically plausible targets for future investigation.

Discussion:
This is the first GWAS in ADTKD-UMOD and highlights biologically relevant loci that may serve as genetic modifiers of disease progression. The findings suggest that variability in kidney survival may be driven by alterations in uric acid transport and mitochondrial function, providing potential targets for therapeutic intervention. Future studies will focus on validating these findings in independent cohorts and exploring mechanistic pathways through functional studies.

Living with ADTKD-UMOD: Insights from Patient Lived Experiences and a Collaborative Patient Day

Dr Holly Mabillard, Dr Marco Trevisan Herraz, Ms Angela Watt, Professor John Sayer
[1]Freeman Hospital, Newcastle upon Tyne, UK, [2]Newcastle University, Newcastle University, UK

Introduction:
Autosomal Dominant Tubulointerstitial Kidney Disease caused by UMOD mutations (ADTKD-UMOD) is a rare genetic disorder often under-recognised and underdiagnosed, despite its significant impact on patients' lives. ADTKD-UMOD is characterised by progressive chronic kidney disease (CKD), often culminating in the need for dialysis or transplantation. Understanding the lived experiences of patients is vital for improving care delivery, genetic counselling, and research priorities. This abstract reflects on a dedicated patient day for individuals with ADTKD-UMOD and their families, highlighting themes of shared experiences, challenges, and support systems.

Methods/Results:
The patient day provided a platform for individuals affected by ADTKD-UMOD to share their stories, exchange knowledge, and connect with others facing similar challenges. Attendees described their diagnostic journeys, familial implications of genetic disease, and the psychosocial ripple effects on their lives. Recurring themes included:

1. Connection and Community: Many attendees expressed relief at being "seen, heard, and understood" by peers and medical professionals. Participants valued the opportunity to share their unique experiences while learning from others at various disease stages.
2. Knowledge as Empowerment: Discussions revealed gaps in understanding of the disease, even among those living with it for decades. Participants emphasised the importance of genetic testing, research updates, and tailored support to navigate uncertainty and plan for future steps.
3. Family Impact: The genetic nature of ADTKD-UMOD was central, with participants reflecting on the challenges of disclosing diagnoses to relatives and the emotional strain of witnessing intergenerational disease progression.
4. Misconceptions and Advocacy: Attendees highlighted widespread misconceptions about CKD and genetic disorders, including assumptions about lifestyle factors and transplantation as a cure. These misunderstandings underscored the importance of advocacy and patient education.
5. Resilience and Hope: Stories showcased personal bravery and adaptive strategies, with patients emphasising the importance of self-care, support networks, and maintaining optimism for the future.

Discussion:
The patient day underscored the critical need for patient-centred care that integrates medical expertise with psychosocial support. Acknowledging the complexities of ADTKD-UMOD and amplifying patient voices fosters a deeper understanding of the disease, improving care strategies and research priorities. The shared experiences emphasised the value of community, empowering individuals to navigate their diagnoses while advocating for broader awareness and support. These insights will guide future initiatives to enhance patient outcomes and quality of life for those affected by ADTKD-UMOD.

Roxadustat: Bringing new anaemia therapies to the South West (a single unit experience).

Miss Bethany May[1], Mrs Karla Purtill[1]
[1]University Hospitals Plymouth NHS Trust, Plymouth, England

Introduction:

Anaemia is a common complication for individuals with chronic kidney disease (CKD). Complications relating to anaemia has a negative impact on an individual's quality of life. Traditionally, treatment for renal anaemia would include the administration of erythropoiesis-stimulating agents (ESA's) and/or supplementation of iron in oral or intravenous formation. Development in treatment pathways now include an oral medicine called Roxadustat; which works on the hypoxia-inducible factor (HiF) cellular pathway. The aim of this audit is to evaluate the efficacy, safety and barriers encountered to introducing Roxadustat within the South West region for appropriately identified patients with renal anaemia.

Method:

Selecting patients suitable for commencing Roxadustat was began in April 2024. 23 potential participants were identified and matched the 2022 National Institute of Clinical Excellence (NICE) guideline inclusion criteria. These included adults aged 18 and over with CKD stages 3-5, who were not established on dialysis or had received a renal transplant at the start of treatment.
Out of these 23 potential participants -14 individuals were deemed unsuitable. A summary on the decisions towards this can be found in figure 2.

At this present time, we have commenced 6 patients on Roxadustat for which 5 of these patients were not receiving management for their anaemia. A further 2 patients, are in the process of initiating the HiF drug therapy pathway (figure 3).
Guidelines set out by NICE, which is reflected by the manufactures were adhered to throughout the prescribing pathway. This included a set dosing regime, entwined with frequent blood sampling on a 2-weekly basis for a minimum of 12 weeks.

Results:

The findings of this audit showed a variation of results, which can be found in figure 4. To summarise 5 out of 6 patients demonstrated an increase in their Hb levels. 3 patients discontinued treatment, this was from varying factors including safety, side-affects and compliance. 2 patients responded well to the treatment and required dose reductions appropriately. Finally, our patient who converted from an ESA therapy has required a dose increase as per the prescribing guidelines.

Conclusion:

With our audit showing a Hb level increase in 83% of the patients commenced on the HiF drug pathway, we are keen to be able to offer this treatment option to a wider range of patients. However, due to the South West having an ageing population there are barriers which have been identified during the audit process, which must be overcome.
Key challenges include addressing the perception of 'pill burden' and exploring ways to extend this drug therapy to housebound patients. By overcoming these barriers, we not only aide the growing caseloads of community nurses and community phlebotomists. But we expand the choices of treatments for our patients, creating a more holistic and equal experience for our patients future care planning.

Exploring the link between timely Sepsis-6 completion and the development of Acute Kidney Injury: examining audit data.

Mrs Karen Nagalingam[1,2], Shiny Benny[1], Dr Pratik Solanki[1], Dr Julia Arnold[1], Faizah Ahmed[1], Beth Nicholl[1], Emily Nacu[1], Clare Morlidge[1]
[1]East and North Hertfordshire, Stevenage, United Kingdom, [2]University of Hertfordshire, Hatfield, United Kingdom

Introduction
Sepsis associated acute kidney injury (AKI), is the most common organ dysfunction related to sepsis and is associated with increased mortality and morbidity (Zarbock et al., 2023), . with up to 60% of patients with sepsis developing AKI (Bagshaw et al., 2009). Sepsis-6 is a set of actions that need to be undertaken within the hour in a patient who has sepsis, and include oxygen, IV fluids, antibiotics, urine output, blood cultures and lactate. Timely management of sepsis has been shown to influence mortality (Levy et al., 2010). The aim of this study was to examine if patients with sepsis, who didn't receive the sepsis-6 in one hour were more likely to develop AKI.

Methods
Audit data on completing the sepsis 6 within one hour was collected on patients presenting with sepsis. The months of September and October 2022 and June and July 2023 were collected as these were the months with complete data. Data was collected on patient demographics, creatinine level (including baseline, admission and peak), completion of sepsis 6 within the hour (pass or fail), mortality and development of AKI.

Results
There were 231 patients identified as being septic, with 154 (67%) having the sepsis 6 completed within the hour (passes), with 77 (33%) fails. The majority of patients were categorised as White British, average age was 76 years old, with 55% were female. Peak creatinine level increased from baseline by 1.25, with 38, 8 and 7 patients with AKI stage 1, 2 and 43 respectfully. Of those patients who had sepsis-6 completed within the hour, 22% developed AKI and 27% died. Of those who did not have sepsis 6 completed in the hour, 25% developed AKI and 26% died. There were 62 deaths in total and 53 (23%) patients who developed AKI. Of the patients who had AKI, 44% died.

Discussion
The sepsis-6 is a set of tasks for managing patients presenting with elevated NEWS-2 score and risk of infection (Ahmed, 2024). It is known that patients with sepsis are at increased risk of AKI, although it is unclear the impact of completing this has on the development of AKI. A slight rise in creatinine in patients with sepsis occurs, in most patients, this is not enough for a diagnosis of AKI. In our patient cohort, completion of the sepsis 6 does not appear to influence development of AKI. However, when AKI occurs there is an increased risk of death in these patients.

Gastric Mucosal Calcinosis Case Study: A Diagnosis to Consider in People with Kidney Failure and Gastrointestinal Symptoms?

Dr Sharon Huish[1], Dr John Rogers[1], Dr Coralie Bingham[1]
[1]Royal Devon University Healthcare NHS Foundation Trust, Exeter, United Kingdom

Introduction: Gastric mucosal calcinosis is a rare condition characterised by calcium deposits in the gastric mucosa and associated with altered mineral metabolism seen in chronic kidney disease. Here we present a case of gastric mucosal calcinosis in a haemodialysis patient.

Case Presentation: A 79 male presented with a 3-month history of nausea, early satiety, abdominal pain, solid sensation to abdomen, vomiting 2-3 times a week, loss of appetite and 3kg history of weight loss (BMI 26kg/m2). Malignancy was suspected and the patient was referred to gastroenterology for investigation.

Relevant medical history: IgA nephropathy; kidney failure diagnosed 2005, renal replacement therapy history: peritoneal dialysis (2005-2008 and 6 months in 2009), renal transplant (2008-2009), and haemodialysis (2009-present). CT chest findings in 2020 revealed extensive calcification of the coronary arteries. Evidence of secondary hyperparathyroidism since 2014; refractory secondary hyperparathyroidism diagnosed 2017.

Relevant medication history: alfacalcidol (250-500ng daily), cholecalciferol (60,000units fortnightly), cinacalcet (changed to Etelcalcitide 2024), lanthanum carbonate (stopped in 2023), sevelamer carbonate (2023-present).

Investigation and Findings: CT scan was unremarkable. Gastroscopy revealed a marked abnormality in the rugal folds of the gastric body; biopsy findings reported evidence of calcium within the gastric mucosa. Laboratory results at the time of biopsy included elevated serum calcium and phosphate levels.

Management and Treatment: Alfacalcidol treatment was stopped and Etelcalcitide dose increased. The patient has been advised to have small, regular meals and has commenced nutritional supplement drinks to support dietary intake.

Discussion: Gastric mucosal calcinosis is a rare condition seen in kidney failure, driven by disturbances in calcium and phosphate metabolism, and associated with secondary hyperparathyroidism. Whilst this diagnosis was the result of an incidental finding it is highly likely the condition was contributing to the patients' symptoms. Like vascular and soft tissue calcifications, there are no proven treatments for gastric mucosal calcinosis; clinical management is targeted at managing risk factors (lowering calcium, PTH and phosphate). Dietitian support can help manage biochemistry and nutritional consequences. There is no prevalence, or outcome, data reported for gastric mucosal calcinosis; it may be underdiagnosed. The calciphylaxis rare disease registry, and UK renal registry, may offer an opportunity to undertake research to better understand the disease process, risk factors and prevalence.

SADQIP - Staph Aureus Decontamination Quality Improvement Project

Dr Jonny Gamble[1], Dr Bethany Rendell[1], Dr Aled Williams[1]
[1]Swansea Bay UHB, Swansea, UK

Background

Renal/dialysis patients are high-risk patients for infection/poor outcomes from MRSA colonisation and active surveillance and decontamination strategies are suggested areas for improvement (1). MRSA colonisation increases the risk of invasive MRSA infection fifteen-fold (2). Since 2007 MRSA infection data has been collated by the Renal Registry, in the 24th Report found Swansea Renal Unit were outside the 95% limit for MRSA infection rates and close to the 95% limit for MSSA rates. (3)

Method

There are 847 prevalent RRT patients in Swansea Bay University Health Board, the Renal ward is a 24 bed ward. Cycle 2 included prevalence data from incentre HD patients in the three outpatient dialysis areas of SBUHB also. Standard practice for all admissions was collated over ten weeks including swab performance rates and positive swab rates. This identified that 80% of admissions were swabbed for MRSA, MSSA screening was not performed, and only one of two patients with positive results were prescribed decolonisation therapy. With this, a PDSA cycle was initiated with the aim of increasing the rate of MRSA/MSSA screening and decolonisation prescribed in the renal ward to greater than 95%.

Results

Cycle 1 changes
Engagement with the nursing team to request testing patients for both MRSA and MSSA on admission.
Friday ward round sheets included a section on MRSA/MSSA status to remind doctors to check results and prescribe therapy when indicated.

In the following nine weeks, 81% of patients were swabbed for MRSA/MSSA and 34.3% of these swabs also included MSSA. This resulted in zero positive results for MRSA and seven positive results for MSSA, with zero patients prescribed decolonisation.

Cycle 2 changes,
Microbiology granted us access to ICNET reports to allow greater insight into patients swabbed and swab results.
We also introduced the prescription of warmed chlorhexidine wipes for five days for all admissions. This is nurse-led with tick sheets on nursing charts.

A further ten weeks of data was collected from ICNET reports identifying that only 31.5% of positive swabs were treated with decolonisation.

Cycle 3 changes
Education package for rotational doctors
Establishment of Bacteraemia dashboard - providing real time observational data on culture positive dialysis patients
Increased ESR compliance with IPC training
Adjustment of clerking proforma with the aim to improve decolonisation prescription.

Discussion

The ability for real time data on bacteraemia rates to be collated is limited - reflected in the delayed rates from UKRA, as such population colonisation rates were utilised - recognising that reducing the risk may impact total infection burden.

We identified several barriers to delivering change in this arena -
rotational staff
education
consistency of testing
consistency of action on MRSA/MSSA detection.

Interventions remain in place to improve these issues, education packages are now built into induction for all junior doctors. The nursing management of chlorhexidine washcloths is now well established. These 3 cycles have shown the importance of embedding change to ensure improvements are permanent.

A clinical audit and quality improvement project (QIP) on use of sodium-glucose co-transporter-2 inhibitors (SGLT2-i) in chronic kidney disease (CKD) patients at Worcestershire Acute Hospitals (WAH) NHS Trust

Dr Chi Peng Chan[1], Dr Julia Kirstie Villarica[2], Dr Amando Obieze[2], Dr Weng Chin Oh[2]
[1]Birmingham Heartlands Hospital, Birmingham, United Kingdom, [2]Worcestershire Royal Hospital, Worcester, United Kingdom

Introduction

The benefits of SGLT2-i in reducing risks of CKD progression and modifying cardiovascular risks have been demonstrated in multiple large-scale randomised-controlled trials(1-2). In April 2023, the UK Kidney Association (UKKA) has updated the clinical practice guideline recommendations on the use of SGLT2-i in CKD patients(3).

We initially carried out an audit to assess the clinical practice in SGLT2-i prescription among CKD patients across all five clinic sites at WAH NHS Trust. Following that, we undertook a QIP with the aim of improving the proportion of eligible CKD patients with an active SGLT2-i prescription.

Methods

We adopted the Model for Improvement framework for this project.

(A)Baseline Audit

A retrospective baseline audit was conducted on 60 CKD patients across all five clinic sites from July to September 2023. We have used a stratified sampling method to ensure all eligible CKD patients were reflected over a small sample size: 30 patients with T2DM (15 with eGFR 20-29 mL/min/1.73m2 and 15 with 30-59 mL/min/1.73m2) and 30 patients without T2DM (15 with eGFR 20-29 mL/min/1.73m2 and 15 with 30-59 mL/min/1.73m2). The proportion of CKD patients who have a UKKA grade 1 recommendation for use and an active SGLT2-i prescription was calculated.

(B)Intervention

We derived a trust-wide flowchart on pharmacological management of CKD, including SGLT2-i (Figure 1).

(C)QIP

We adopted the Plan-Do-Study-Act (PDSA) methodology.

For PDSA cycle 1, we prospectively collected data from all CKD patients attending our clinic sites between 06/05/2024 and 24/05/2024. Our outcome measures include:

(1)Proportion of eligible CKD patients with an active SGLT2-i prescription.
(2)Reasons and proportion for SGLT2-i not being prescribed.
(3)Proportion of patients with a documented future plan to start SGLT2-i.

As an intervention, the outcomes were presented in the departmental meeting on 26/09/2024.

Results

Our initial baseline audit revealed less than half of CKD patients with an UKKA grade 1 recommendation for use were started on an SGLT2i.

Following the implementation of the flowchart, 31% (n=51/163) of all CKD patients have an active SGLT2-i prescription. 10% (n=10/112) of the remaining patients had a documented future plan to start SGLT2-i. There was an increase in uptake of SGLT2-i prescription across most indications (Table 1).

Of the patients without an active SGLT2-i prescription, 60% (n=67/112) had a valid and clearly documented reason (Figure 2). A quarter (28/112) of these patients were not on concomitant renin-angiotensin system (RAS) blockade of any or maximum tolerated dose. It was unclear in 15% (17/112) of these patients if SGLT2-i had been considered.

Discussion/Conclusion

These results suggest that the flowchart has shown some initial success in promoting SGLT2-i prescription among eligible CKD patients. Nevertheless, clinicians should still be more vigilant and clearly document if there is a valid reason for SGLT2-i not being prescribed. There is consensus that the maximum dose of RAS blockade does not need to be a prerequisite for SGLT2-i prescription, specifically in patients who unable to tolerate higher doses or when RAS blockade is not clinically appropriate(3). Further PDSA cycles are needed to ensure sustained improvement in SGLT2-i prescription.

Managing Acute Kidney Injury via an Ambulatory Pathway

Doctor Georgina Ball, Dr Coralie Bingham, Mrs Paula D'Souza, Doctor Naomi Edney

Introduction:
Acute kidney injury (AKI) affects more than 7% of non-elective admissions. It's associated with a high mortality (18.8% within 30 days) and long inpatient stay (median length of stay (LOS) 12 days). It is estimated that £1.02 billion is spent on AKI-related inpatient care annually, equating to over 1% of the NHS budget. Acute hospital at home (AHAH) or "virtual wards" are becoming an increasingly popular way to reduce inpatient LOS and associated cost. We implemented proposed criteria for managing AKIs via AHAH and aimed to review the pathway outcomes for its first year of implementation including estimated cost-saving.
The proposed eligibility criteria were:
1. AKI requiring ongoing monitoring as inpatient
2. AND cause/likely cause identified
3. AND AKI improving OR AKI stage 1 or 2 with a completed urinalysis , bladder scan and renal ultrasound pre-booked within 24 hours

Methods
Patients who were coded as "AKI" for their main diagnosis for AHAH care between 01/01/23 to 31/12/23 were pulled from the database. Each patient's electronic record was then accessed to find the data presented below.

Results
A total of 74 patients were managed via our AKI pathway in our first year. 30(40.5%) patients had an AKI stage 1, 21(28.4%) stage 2 and 21(28.4%) stage 3 at their highest reading. 38(51.3%) met the proposed referral criteria.
26(35.1%) were managed entirely via the community, with the rest requiring at least 1 visit to an ambulatory unit. An average of 6.3 days were spent under AHAH with a total of 463 days between all patients. Median total admission time was 8 days which equates to an additional 296 inpatient days saved (compared to national median) bringing the total of inpatient days saved to 759.
The number of readmissions whilst under AHAH was 15(20.3%), 7 of which (9.5% overall) were for a worsening AKI or AKI-related complication;. 3 of these had not met the initial criteria.
Following discharge from AHAH, 9(12.2%) were readmitted within 30 days; none for a recurrence of AKI. Following discharge from AHAH, 0 patients died within 30 days. 90-day mortality was 4 patients (5.4%), all of which were under palliative care at their time of passing. 2 of these patients died in direct relation to their admission having opted for withdrawal of treatment.

Discussion
Managing AKIs via an ambulatory pathway is safe and cost-effective. With an estimated saving of over 750 inpatient bed days, each at a supposed cost of £350/day this equates to a saving of over £265k per annum for our trust.
Despite only 51% meeting the criteria, AKI-related readmissions were low, and 30-day mortality non-existent. This shows the current criteria is safe. Patients cannot have more than one main diagnosis code meaning we may have missed patients with an AKI as a secondary diagnosis.
Our next steps encompass looking to expand the criteria - as a wider cohort appears to be suitable for inclusion - with re-evaluation of LOS, mortality and cost-saving outcomes thereafter.

Analytical performance of a point of care creatinine method; trial considerations for POCT and laboratory creatinine input into the NHS England Acute Kidney Injury algorithm.

Dr Fiona Riddoch[1], Miss Reanna Allen, Ms Helen Bruce, Dr Mark Sleeman, Mrs Katy Heaney
[1]Point of Care Testing, Berkshire and Surrey Pathology Services, Frimley, UK

Acute Kidney Injury (AKI) is relatively common and has high morbidity and mortality. Since 2015 all NHS trusts in England are mandated to implement a standardised algorithm to detect and report AKI using blood creatinine results. This is programmed into laboratory information systems and reports as AKI stage 1 / 2 / 3 which is included within the pathology report.

To date only main laboratory creatinine results are used in the AKI algorithm. We propose inclusion of point of care testing (POCT) creatinine results, as a separate test code, but treated equitably by the algorithm, where;

a) the POCT creatinine method meets defined analytical requirements,
b) and gives equivalent results to the laboratory method;
c) the POCT service meets ISO 15189 (2022) standards,
d) and meets the recommendations (including specific AKI quality assurance) of Marrington et al.

The POCT method we propose to integrate into AKI is the Radiometer ABL90 Flex Plus blood gas analyser creatinine (ABL90), which is enzymatic and traceable to isotope dilution mass spectrometry. It is in use in 5 emergency departments (ED) across our network. We regressed real-world paired sample data for 2255 patients (14 days' routine POCT testing at 1 ED site) to compare ABL90 creatinine results to laboratory (Abbott Alinity c) creatinine results. There was no significant difference between the groups (Student's t-test, p=0.249) and linear regression was;
ABL90 = 0.953 * Abbott Alinity c + 5.75umol/L $R^2 = 0.9928$

CKD EPI (2009) eGFR calculated from these creatinine results were also regressed. For 1231 pairs;
ABL90 eGFR = 0.948 * Abbott Alinity c eGFR + 1.83ml/min $R^2 = 0.9706$

eGFR >90ml/min demonstrated 88.6% concordance (99.8% within 10ml/min ie ≥80ml/min). CKD staging was 90% concordant, and 100% within 1 CKD stage between POCT and lab.

Precision (CV) of the POCT creatinine method is 3.2%, which is comparable with the lab (3.4%). This meets manufacturer-stated precision (3.4–3.9%); is within biological variability of creatinine (4.5%); within the analytical goal of <4% for AKI; and meets the National Kidney Disease Education Program (NKDEP) analytical goal for creatinine of 3.2%.

POCT creatinine results are highly comparable with the lab, enabling both being included in the AKI algorithm.
Having demonstrated the performance of our POCT creatinine method we have engaged with national leads for pathology (Presidents of the Association for Laboratory Medicine and the Royal College of Pathologists, Pathology GIRFT lead, UK National External Quality Assessment Services) and renal medicine (UK Kidney Association and Renal GIRFT lead), who are supportive of trialling POCT creatinine integration into AKI algorithm alongside laboratory creatinine to gather data. We will then assess the clinical impact on patients, and operational impact on ED and renal services, by examining whether the same patients are identified, with the same AKI stage, and more quickly by POCT. This will enable reduced testing duplication between POCT and lab, bringing financial and sustainability benefits. We hope to demonstrate patient safety benefits and produce evidence that can support other services to consider making this quality improvement in a safe way.

An effective antibiotic protocol for Gram negative peritonitis in Peritoneal Dialysis patients: risk stratification based on severity at presentation– a single centre experience

Dr Akhil Jerry[1], Dr Miruna David[1], Dr Asra Karim[1], Bethan Renwick[1], Dr Lavanya Kamesh[1]
[1]Queen Elizabeth Hospital , Birmingham , United Kingdom

Title

An effective antibiotic protocol for Gram negative peritonitis in Peritoneal Dialysis patients: risk stratification based on severity at presentation– a single centre experience

Background

Peritonitis is a serious complication of peritoneal dialysis (PD) that is associated with significant morbidity, leading to catheter loss, transfer to haemodialysis and occasionally death. Whilst Gram positive organisms are the leading cause of PD peritonitis, literature suggests that patients who develop Gram-negative PD peritonitis are more likely to suffer from adverse outcomes. It is also well recognised that drug resistance amongst Gram negative bacteria is increasing worldwide.

In 2022, our institution introduced a differential treatment protocol based on severity at presentation with escalation of treatment from oral ciprofloxacin to intraperitoneal (IP) gentamicin with addition of intravenous (IV) meropenem in severe cases. Given the lack of similar protocols in current literature, this audit aimed to evaluate the effectiveness of our approach.

Methods

Using the hospital electronic records and the dedicated peritonitis database, we identified Gram-negative PD peritonitis cases and conducted a retrospective review, collecting data on hospital admissions, treatments administered and patient outcomes between 1st January and 31st December of 2023.

Results

In 2023, our centre reported an overall peritonitis rate of 0.24 episodes per patient-year. Gram-negative organisms were responsible for 25% (12/49) of peritonitis cases, with Pseudomonas sp., Klebsiella sp., and E. coli being the most common pathogens. Among these cases, 75% required hospital admission, and 25% necessitated PD catheter removal. Relapse was observed in only one case post-treatment. Two deaths occurred during the study period; however, both patients were frail, bedridden, and had multiple comorbidities, with infection serving as a terminal event. Resistance to ciprofloxacin and gentamicin was noted in Extended Spectrum Beta-Lactamase (ESBL)-positive organisms (E. coli and Klebsiella sp.). Importantly, none of the patients with ESBL-positive cultures had prior infections with the same organism, with ESBL production being identified during the peritonitis episode.

Conclusion

These results shows that our protocol with differential antibiotic treatment based on severity at presentation appears to be safe and effective in managing Gram-negative PD peritonitis. In patients with known ESBL colonisation, it is advisable to consider a suitable empiric antibiotic such as IV meropenem at presentation whilst waiting for the culture and sensitivity results. We suggest that monitoring emergence of antibiotic resistance should be part of the rolling audits in peritoneal dialysis units.

Kidney Transplant Immune Responses study (KTIR): a prospective sample collection from kidney transplant recipients in Cardiff

Dr Mohammed Al-Talib[1,2], Dr Sarah Ireland[4], Mr Paolo Rosario[3], Professor Sian Griffin[3,4]
[1]Systems Immunity Research Institute, Cardiff University, Cardiff, UK, [2]Bristol Medical School, University of Bristol, Bristol, UK, [3]Wales Kidney Research Unit, Cardiff, UK, [4]Department of Nephrology and Transplantation, Cardiff and Vale University Health Board, Cardiff, CF14 4XW

Background

Successful kidney transplantation requires lifelong immunosuppression to prevent rejection of the donor organ by the recipients' immune system. Kidney transplant recipients (KTRs) are therefore at risk of opportunistic infection and malignancy, and episodes of rejection may still occur despite maintenance immunosuppression. The highest risk period for infection is in the early post-transplant period when the burden of immunosuppression is highest, in part due to induction agents given at the time of transplant which profoundly suppress the immune system. Indeed, commonly used induction agents include anti-thymocyte globulin and Alemtuzumab (anti-CD52) which rapidly deplete lymphocytes. While numerous risk factors for opportunistic infection and rejection have been identified, the mechanisms underlying why some people appear to be at higher risk are poorly understood. We have developed the Kidney Transplant Immune Responses study within the Wales Kidney Research Tissue Bank to address these fundamental questions.

Design

The WKRTB has ethical permissions to allow enrolment of kidney transplant patients for longitudinal sample collection. Patients are consented just prior to transplant, and provide blood samples at nine time points over the first year of transplant (Baseline and months 1, 2, 3, 4, 5, 6, 9, 12). Patients who develop complication of interest undergo ore intensive sample collection over the period of this complication. Blood samples are processed to allow separation and storage of whole blood, plasma and peripheral blood mononuclear cells (PBMCs). Clinical information is collected in parallel. Separate permissions also are in place to consent patients for an extra tissue core to be taken for research purposes if they are scheduled to undergo an allograft biopsy for clinical reasons. The first patient was enrolled in December 2023 and, to date, 45 KTRs have been enrolled.

BK Polyomavirus immune responses as an exemplar study

BK Polyomavirus (BKPyV) is a ubiquitous virus that is asymptomatic in the non-immunocompromised. However, up to 30% of KTRs will develop BKPyV viraemia. Some progress to BKPyV-associated nephropathy (BKVAN), which can cause graft damage. There are no specific treatments; reducing immunosuppression clears the virus in over 90% of cases but risks rejection. Better understanding of how cellular immune responses determine the balance between viral control and immunopathology may aid prediction and tailored treatment strategies.

Already, 8 KTRs enrolled in KTIR have developed BKPyV infection. Planned studies include using multi-parameter flow cytometry and to examine whether differences in composition, phenotype and functionality of peripheral immune cells may predict infection and resolution, and scRNA-sequencing to explore differential gene expression in PBMCs among patients in patients who do and do not develop significant infection, to hopefully identify markers and pathways that may contribute to prognostication and ultimately inform management.

Conclusions

KTIR provides a platform for the laboratory study of early complications of transplantation. Future directions could include analysis of immune reconstitution after transplantation, antibody and T-cell mediated rejection, and other opportunistic infections.

Lupus myocarditis and possible methotrexate toxicity in a patient with known lupus nephritis – presentation, diagnosis, and management.

Dr Gavin Esson[1], Dr Rebecca Ryan
[1]South Tyneside and Sunderland NHS Foundation trust, Newcastle, England

Overview:
We present a case of a 32 year old gentleman with a background of Lupus Nephritis who presented with new acute kidney injury, new nephrotic syndrome, and features of heart failure. His presentation was complicated by an accidental therapeutic overdose of methotrexate in the community prior to admission. He was diagnosed with a lupus flare with evidence of lupus myocarditis and underwent treatment with IV methylprednisolone and cyclophosphamide, with subsequent addition of intravenous immunoglobulin following a plateauing of his condition. Response to this therapy has been excellent.

Case report:
This 32 year old gentleman was initially diagnosed with lupus nephritis in 2020 with mixed class III/V disease on biopsy, and was treated with prednisolone and mycophenolate mofetil at induction. His disease was relatively stable on prednisolone monotherapy. He had a flare of his disease in April 2024 and was started on prednisolone, with addition of rituximab and methotrexate in June.

He presented to our services acutely with shortness of breath and transient loss of consciousness. His presentation was complicated by the fact that he had been accidentally overdosing on his methotrexate in the community – taking 15mg three times/week prior to his admission.

Bloods revealed pancytopenia, new nephrotic syndrome and new acute kidney injury, and so methotrexate toxicity was a potential differential diagnosis, alongside a lupus flare/transformation to class V lupus. His creatinine was 195umol/L, albumin 22g/L, urine albumin/creatine ratio 370mg/mmol. His ESR was raised and he had a low C4. Chest X-Ray showed evidence of fluid overload. A NT-Pro-BNP was raised at >35000. A renal ultrasound showed no evidence of renal vein thrombosis.

He was initially treated with folinic acid for potential methotrexate toxicity, and IV methylprednisolone for possible lupus flare. His methotrexate level subsequently returned as normal and so folinic acid was stopped. His renal function deteriorated with a peak creatinine of 318 umol/L.

He had an echocardiogram which showed severely impaired left ventricular function of ~20-25%. and so lupus related cardiomyopathy was a concern. Cardiac MRI subsequently revealed myocardial oedema consistent with possible lupus myocarditis. He was therefore treated with cyclophosphamide 1g fortnightly for 6 doses. Following an initial improvement to a creatinine of 180, and BNP 16000, his condition plateaued, and his proteinuria started to increase. The decision was then made to start 3 days of intravenous immunoglobulin.

Since initiation of this treatment, his NT-Pro-BNP has improved from <35000 down to 364ng/L and his latest creatinine is 133umol/L. He is awaiting a repeat echo however he is symptomatically much improved.

This case demonstrates successful management of a systemic lupus flare including lupus myocarditis, alongside highlighting the possible presentation and management of methotrexate toxicity.

Evaluating the utility of interferon-gamma release assay (IGRA) testing in pre-transplant screening

Ms Michelle Barrett[1]
[1]Dr Martin Dedicoat Consultant Infectious Diseases, Birmingham, UK, [2]Dr Jyoti Baharani Consultant Renal Medicine, Birmingham, UK

EVALUATING THE UTILITY OF INTERFERON-GAMMA RELEASE ASSAY (IGRA) TESTING IN PRE-TRANSPLANT SCREENING

Background:
Tuberculosis (TB) poses a significant risk to renal transplant recipients due to immunosuppression. Current pre-transplant TB screening methods, such as tuberculin skin tests, are limited in accuracy. Interferon-Gamma Release Assays (IGRAs) offer a potentially superior method for detecting latent TB infections. This study evaluates the associations between IGRA positivity and demographic/socioeconomic factors to improve TB screening protocols in pre-transplant patients.

Methods:
A prospective evaluation of IGRA testing was conducted on 55 pre-transplant patients across multiple centres. Data included IGRA results, age, ethnicity, and deprivation index. Statistical analyses included Pearson correlations to explore associations, t-tests to assess age differences, and ethnicity-specific IGRA positivity rates. The deprivation index was categorized to investigate the impact of socioeconomic status on outcomes.

Results:
IGRA positivity showed moderate correlations with ethnicity (0.56) and deprivation index (0.27), indicating higher positivity rates in African Caribbean (10%) and Indian Subcontinent (5.36%) patients and those from more deprived areas. Age had no significant impact on IGRA positivity (p=0.39). The findings suggest ethnicity and socioeconomic factors play a role in latent TB risk, while age is not a strong predictor.

Conclusion:

IGRA testing in pre-transplant patients reveals noticeable associations between positivity and both ethnicity and deprivation index. These findings emphasize the importance of considering social determinants and ethnicity in TB screening protocols to enhance the detection of latent TB infections and improve transplant outcomes. Integrating IGRA into pre-transplant assessments can better target at-risk populations and tailor public health interventions.

Keywords: IGRA, latent tuberculosis, renal transplant, pre-transplant screening, tuberculosis reactivation

The Optimal Therapy Initiative for IgA Nephropathy: Maximising RAAS inhibitor and SGLT2 inhibitor use

Dr Nadia Kathrada[1], Dr Makina Lamont[1], Dr Ethraa Ismail[1], Prof SUNIL Bhandari[1]
[1]Hull University Teaching Hospitals, Hull, England

Introduction

IgA nephropathy (IgAN) is the most common form of glomerulonephritis worldwide and a leading cause of end-stage kidney disease. Proteinuria is a critical predictor of disease progression, and current evidence-based guidelines recommend the use of renin-aldosterone angiotensin system (RAAS) inhibitors and sodium-glucose co-transporter 2 (SGLT2) inhibitors to reduce proteinuria and slow disease progression. Despite established criteria for initiating these therapies, a considerable proportion of eligible people remain untreated. The aim of this QIP was to increase the proportion of people with IgAN receiving optimal therapy with both an RAAS inhibitor and an SGLT2 inhibitor to 100% within 6 months through improved education and monitoring protocols.

Methods

This QIP was conducted over 7 months at a tertiary hospital and involved a multidisciplinary team, including three specialty registrars and an IT specialist who facilitated data collection. Key secondary drivers were identified as clinicians' education on current IgAN treatment and adherence to clinical guidelines. Baseline data collected over a 3-month period showed 79% of eligible people were on maximum tolerated RAAS inhibitors and 36% on SGLT2 inhibitors. We employed the Plan-Do-Study-Act (PDSA) methodology in two cycles. In the first cycle, two interventions were implemented: an educational session for the renal team on IgAN management and the introduction of a standardised hospital protocol. The second cycle involved adjustments to the protocol based on feedback from the first cycle to further improve guideline adherence. Progress after each cycle was tracked using both qualitative (feedback surveys) and quantitative (prescription data) measures.

Results

Data was collected over a 3-month period following intervention. This demonstrated the proportion of people on maximum tolerated RAAS inhibitors increased from 79% to 88%, and SGLT2 inhibitor use rose from 36% to 54%, though 46% of eligible people remained untreated. Barriers to achieving the 100% target included primary care prescription delays and pending follow-up appointments. The results showed a sustained increase in prescription rates over the intervention period. Furthermore, the feedback collected from surveys was instrumental in refining the hospital protocol.

Discussion

The results demonstrated an increase in the use of RAAS and SGLT2 inhibitors among those with IgAN, aligning with the latest evidence-based guidelines. Although the 100% goal was not achieved, the project identified areas for further improvement, including streamlining primary care communication and improving treatment engagement among people with IgAN. The standardised protocol and ongoing education provide a foundation for sustaining improvements, with potential to apply these strategies in similar settings to enhance IgAN care and outcomes. Additionally, we aim to audit SGLT2 inhibitor use among individuals with IgAN annually to monitor guideline adherence. Although Budesonide treatment was not the primary focus of this project, it was incorporated into the hospital protocol for IgAN management, highlighting an opportunity for further QIP efforts to explore its role and optimise its use in this disease.

The first nationwide insight: comprehensive geriatric assessment (CGA) for older kidney patients across the UK

Doctor John Holland[1], Doctor Judith Partridge[1], Professor Antonia Cronin[2]
[1]Guy's and St Thomas' NHS Foundation Trust, London, United Kingdom, [2]School of Immunology and Microbial Sciences, Faculty of Life Sciences and Medicine, King's College London, London, United Kingdom

End-stage kidney disease is more common in patients aged over 60. Demand for renal replacement therapy (including dialysis and transplantation) as well as supportive care in this cohort is increasing. Concerns regarding decision-making and poorer outcomes in this cohort have been raised. Evidence suggests these relate to frailty, multimorbidity and cognitive impairment, all seen frequently in older age. Comprehensive Geriatric Assessment (CGA) is a multidisciplinary methodology proven to optimise outcomes relating to this triad. A CGA model tailored to the need of older kidney patients could be transformative.

This national UK survey aims to describe:

1. Attitudes/beliefs of UK renal physicians towards CGA for older potential kidney transplant recipients and older patients being considered for dialysis or supportive care
2. Provision of CGA services for older potential kidney transplant recipients and older patients who are being considered for dialysis or supportive care in the UK
3. Barriers and enablers to provision of CGA services in the UK

A 28-question electronic survey was developed. Renal physicians at the UK's 72 renal units were invited to participate electronically using a protected link (24/04/24-31/08/24). Response rate was 100%. Many respondents reported cognitive impairment was rarely assessed in the unit where they work (28/53) and was inadequately addressed by current services in patients being managed with dialysis (34/53). Although only 6 centres offered CGA services, respondents advocated CGA for older patients being considered for kidney transplant (47/55), patients being managed with dialysis (52/54) and patients receiving supportive care (51/54). Lack of funding to support CGA and optimisation services (45/51), lack of available staff to deliver CGA (44/51), time constraints (36/51) and insufficient training on geriatric assessment (39/51) were reported barriers to implementing CGA.

UK renal physicians support CGA for older kidney patients but have identified key barriers to establishing and sustaining these services. Research developing and implementing CGA for this population is essential to optimise outcomes and influence policy at a national level.

Impact of sociodemographic characteristics on dialysis modality choice and modality realisation at a tertiary renal centre in the UK

Dr Mohammad Jaaved Joomye, Dr Mohamed Elewa, Dr Oana Piscoran, Dr Shahid Abdullah, Dr Iren Szeki, Susan Travers, Dr Anuradha Jayanti
[1]Manchester Royal Infirmary, Manchester, United Kingdom

Background:
Chronic Kidney Disease (CKD) is a public health emergency. CKD prevalence is affected by comorbidities such as diabetes and hypertension. Increasing age and socio-demographic variables also impact development and progression of CKD, with minority ethnic groups in the most affected category. Optimising care pathways and reducing health and social care inequalities are essential to contain the growing tide of patients with advancing CKD who need renal replacement therapy (RRT). The aim of this study is to describe the renal replacement modality choice and ultimate destination at RRT commencement, of patients who attended a multidisciplinary advanced CKD clinic in one year at a tertiary referral centre in the UK, with special focus on ethnicity and socioeconomic index of multiple deprivation (IMD).

Method:
This was a retrospective study of consecutive patients with eGFR below 20ml/min/1.73m2 who attended the advanced chronic kidney clinic (AdCKD) between July 2023 and July 2024. Data were ascertained from electronic medical records. These included clinical variables, demographics, and modality choice at the outset, RRT type initially and at 6-months post RRT start. The IMD is a measure of relative deprivation for small geographic areas in the UK, based on a range of indicators grouped into seven domains, including income, employment, education, health, and crime. IMD quintile category was derived from the English IMD postcode-based database.

Results:
196 consecutive patients were included. 61.7% were male. A large proportion self-identified as White British (69.4%), followed by Asian (15.3%) and Black African (3.1%). The median eGFR at presentation in advanced CKD clinic was 14 ml/min/1.73 m² (IQR 12-17 ml/min/1.73 m²). The median time spent in clinic before dialysis commencement was 295 days (IQR 133-496.2 days). Diabetic nephropathy was the most common cause of CKD at 30.1%. Of the 196 patients, based on their IMD quintiles, 42.9% of patients were placed in the lowest quintile and 14.3% were in the highest quintile. At the first multi-disciplinary consult, most patients chose peritoneal dialysis (38.3%) as their preferred modality, and almost 10% chose home-based haemodialysis. 25% of patients remained undecided even after 6 months in the service. Length of stay in Ad-CKD clinic did not influence choice of RRT modality.
IMD based stratification (n=113 at RRT commencement and n=106 at 6 months post RRT commencement). Data are censored for supportive care modality choice, deceased patients, those who recovered kidney function, were transplanted or still pre-dialysis
Conclusion:
This study offers information on patients' choice of dialysis modality in the preparatory phase and their destination. Home dialysis remains the preferred modality of choice irrespective of the socio-economic status of the individual. Patients in the low IMD quintiles, had the highest uptake of self-care in-centre haemodialysis (SCHD), suggesting that housing barriers do not preclude ability to train and undertake SCHD. A significant proportion of ethnic minority patients is represented in this cohort of self-care RRT patients. Investment in such training programmes, would provide patient education, empowerment, and flexibility in dialysis prescriptions in areas where social housing is particularly difficult to access.

A collaborative approach to the development of Welsh guidelines for the management of immune checkpoint inhibitor induced AKI

Dr Jonny Gamble[1], Dr Tim Scale[1], Dr Wael Mohamed[1], Dr Allie Shipp[2], Dr Ricky Frazer[2], Dr Mark Davies[4], Dr Gwenno Edwards[3], Dr Stuart Robertson[3], Dr Carey MacDonald-Smith[3], Tracey Parry[3]
[1]Swansea Bay UHB, Swansea, Wales, [2]Velindre Cancer Centre, Cardiff, Wales, [3]Betsi Cadwaladr UHB, Bangor, Wales, [4]Cardiff and Vale UHB, Cardiff, Wales

Introduction

With the revolutionary addition of Immune Checkpoint Inhibitors(ICPi) to the arsenal of Anti-cancer treatments and their increased usage over the last 15 years. In 2023 in response to an increasing rate of referral of oncology patients receiving ICPi who had developed AKI, it was recognised that there was no clear pathway from a Nephrology perspective in how this was managed.

Methods

An initial fact finding meeting established the information gap that existed between the two services and agree the end point to the guideline revision.

The oncology service is increasingly comfortable managing immunotherapy related complications and has been using both international oncology guidelines (1) to form best practice treatment approaches.
Immuno-Oncology (IO) MDTs have been established in Wales, and have concentrated experience of managing these complications - aiming to manage 95% of Toxicities in house, but with named links to specialist services.
The international guidelines contained advice around “Renal referral”, it was unclear locally how often patients were referred and what the unmet need of ICPi AKI was - ie. those treated through oncology services prior to a renal referral.
A review of IO Toxicity MDT data over 2 years showed that Nephritis cases were discussed 147 times in the MDT with 26 Grade 3-4 (Referral to renal as per guideline) leaving 83% managed in house, we have no record if the 26 (17%) were discussed with Renal services.

The group commented individually on the guideline with adjustments and these were agreed in consensus - to create an “All Wales” approach the North Wales Nephrology and oncology services were included in later meetings.

The completed pathway was shared in all relevant governance meetings and is now established practice.

Outcomes

The IO MDT will now receive Renal input in relevant cases and both IO MDTs have a named renal link.

There was no significant deviation from International guidelines - adjustments were made with respect to health board testing, simplification of Glomerulonephritis screening and tightening clinical assessment for other causes of AKI, with the individual decision for Biopsy appropriately remaining the nephrologists hands - the only significant shift from the ESMO guidelines.

It was recognised that the treatment of ICPi induced Nephritis has a different pathophysiology, as well as treatment priorities to Acute Interstitial nephritis (AIN).The oncological approach is grossly - to rapidly reduce high-dose steroids and reintroduce the ICPi as quickly as feasible. There is also a far

greater utilisation of second line treatments (MMF, Tacrolimus) that from a Nephrologists perspective are less frequently used for AIN.

Conclusions

As the scope of ICPi treatment continues to widen, these complications will become evermore common for Renal services, early collaboration will streamline patients into appropriate services, create a shared learning environment, where experience of second line therapies and management of other causes of ICPi induced AKI can be developed.

References

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A regional review of optimal management of patients seen with chronic kidney disease in secondary care clinics

Dr Umair Asad[1], Dr Jeffry Milan[2], Dr Noshaba Naz[3]
[1]Wirral University Teaching Hospital , Wirral , United Kingdom, [2]Wirral University Teaching Hospital , Wirral, United Kingdom, [3]Wirral University Teaching Hospital , Wirral, United Kingdom

Introduction:

Current NICE guidelines regarding CKD advocate for the referral of patients with CKD to nephrology services if their 5-year risk of requiring renal-replacement therapy exceeds 5% using the 4-variable kidney failure risk equation (KFRE). The guidelines further recommend the maximal titration of RAAS inhibitors, in conjunction with the initiation of medications that confer prognostic benefits, such as SGLT2 inhibitors and statins.

Aim:

The objective of this study is to conduct an audit of clinical practices to determine whether patient care aligns with current guidelines.

Methods:

A retrospective analysis of data was conducted on a cohort of 50 patients who attended the General Nephrology Clinic in June 2023 across two hospitals. Data were extracted from clinic letters and primary care records. The variables collected includes age, sex, comorbidities, clinic blood pressure readings, e-GFR, u-ACR, current medications, and KFRE scores. These data were compiled six months subsequent to the clinic visits. Patients undergoing dialysis, those with glomerulonephritis on immunosuppressive therapy, individuals exhibiting isolated dipstick hematuria, and those with renal tubular pathology were excluded from the analysis.

Results:

The sample comprised 54% females and 46% males. The median age was 69 years. Ninety percent of patients had a calculated KFRE, with 13 patients (26% of total) exhibiting a KFRE risk of ≤ 5. Eight percent of patients had a KFRE < 5% or stable e-GFR > 30 for the past 12 months. Seventy-six percent of patients underwent an ACR or PCR check within three months. Documentation of urine dipstick results was noted for only 17 (34%) patients. Blood pressure assessment was conducted for 80% of patients during review and in only 33 (66%) BP was optimally controlled.

A significant observation was that over half (54%) of patients were not receiving RAAS blockade therapy. Among those on RAAS (23 patients), only 18% were on a full dosage. Thirteen percent of patients were prescribed SGLT2 inhibitors. No patients were administered Finerenone due to its non-commissioning in both hospitals during the study period.
Current NICE guidelines recommend statin therapy for QRISK3 scores of ≥ 10%. A total of 32 patients were receiving statin treatment. The mean QRISK3 score was 21.42, categorizing it as high risk. Recommendations for medication were made for 12 patients in the GP letter. The median duration from clinic visit to new medication prescription was 18.5 days, with a maximum of 60 days.

Conclusion:

A large proportion of patients are suitable for ongoing management in primary care, and does not necessarily need ongoing review in nephrology clinic. Many patients are not being optimised on medications, whether that be RAAS blockage, SLGT2i or statins. Even when medications are

prescribed, there is often a long delay in acquiring the drug in the community. There is a need of a pharmacist-led medication optimization clinic which aims to quickly up-titrate treatments in a timely manner. The utilizing the KFRE can allocate resources more efficiently and prioritize high-risk patients for interventions, facilitating their transition to primary care or secondary care follow-up.

Unplanned pregnancy in women with Lupus Nephritis is common, and associated with poor fetal outcomes

Doctor Hannah Beckwith[1,2], Dr Hannah Wilson[2], Dr Tabi Turner-Stokes[1,2], Dr Marlene Pluess[1], Dr Marie Condon[1], Dr Tom Cairns[1], Dr Phil Webster[1,2], Prof Liz Lightstone[1,2]
[1]Imperial College Healthcare NHS Trust, London, UK, [2]Imperial College London, London, UK

Introduction

Lupus Nephritis (LN) is a frequent organ manifestation of Systemic Lupus Erythematous among women of childbearing age. Whilst disease activity is known to correlate negatively with pregnancy outcomes(1), the frequency of unplanned pregnancies in people with LN and subsequent maternal-fetal outcomes have not yet been reported.

Methods

All women <35yrs at the time of diagnostic renal biopsy at our centre (01/01/1996-31/12/2016) were included in the study. Our standard practice is to offer pre-pregnancy counselling (PPC). Case notes were manually reviewed and clinical and biochemical data extracted. Pregnancies prior to LN diagnosis were excluded. Pregnancies were considered unplanned when:

a. PPC had not occurred or
b. teratogenic medication(s) were used peri-conception or
c. when pregnancies were reported as unintended.

Results

There were 179 pregnancies in 87/201 women (43%). The median length of follow up was 14.2 years (range 9.4-19.5).

37/179 (21%) pregnancies were unplanned and 129/178 (72%) pregnancies resulted in a live birth. Unplanned pregnancy resulted in significantly worse fetal outcomes (Table 1) and 50% of unplanned pregnancies did not progress >20 weeks gestation (P=0.0004).

25/201 women (12%) sought help for primary or secondary infertility following a diagnosis of LN and 3 were diagnosed with premature ovarian failure (1.5%).

Conclusion

This study is the largest single centre cohort of LN pregnancies reported to date. Planned pregnancies have excellent outcomes, however 1 in 5 pregnancies are unplanned: these are associated with poor fetal outcomes and high rates of pregnancy loss.

Reference

1. Bundhun et al (2017). Impact of systemic lupus erythematosus on maternal and fetal outcomes following pregnancy: A meta-analysis of studies published between years 2001-2016. J Autoimmun;79:17-27.

Three decades of Membranous Nephropathy management: A single centre experience.

Dr Ankit Sharma[1], Dr Rotimi Oluyombo[1], Dr Sabina Momtaz[1], Dr Lisa Willcocks[1]
[1]Cambridge University Hospitals, Cambridge, England

Introduction: Membranous nephropathy (MN) is a common cause of nephrotic syndrome in adults. This review aimed to evaluate the management practices of MN within the Nephrology department at a Tertiary hospital in England, specifically focusing on immunosuppressive medication (IM) selection and treatment response. Furthermore, we sought to benchmark our findings against contemporary literature to identify potential areas for practice improvement and optimization of patient outcomes.

Methods: A retrospective analysis of patients diagnosed with MN (diagnosed between 1995 to 2023) was conducted using data extracted from local electronic health record systems. Data included demographics (age, sex), date of diagnosis, proteinuria at presentation, estimated glomerular filtration rate (eGFR) at diagnosis and on last follow-up, and IM used (1st to 4th line). For each IM class, overall response rate (ORR) (including complete and partial remission), and relapse rates (RR) were also calculated. Concordance to uptake of Renin-Angiotensin- Aldosterone inhibitors (RAASi) as standard of care was also charted.

Results: Of the total 69 cases identified, 37 were males and 32 females. Mean age at diagnosis was 54.4 yrs. 65 cases were Primary and 3 were Secondary MN. Spontaneous remission occurred in 19% of cases. Of the remaining cases, 31% required first-line immunosuppression (IS), with 26%, 18%, and 6% subsequently needing second-, third-, and fourth line IS, respectively. Analysis of data showed that higher proteinuria at presentation conferred additional IM requirement as well as resulting in greater reductions in eGFR (Table 1).

Overall preferred class of IM used as first line were: Calcineurin Inhibitor (CNI) with or without Prednisolone (37%), Modified Ponticelli regimen (22%), Rituximab (6%), Belimumab (8%) and Mycophenolate Mofetil (MMF) (5%). ORR and RR for IM classes of interest, irrespective of the line of treatment: Modified Ponticelli (76.2%, 6.3%), Rituximab (83%, 5%), CNIs (70%, 10%), MMF (75%, 50%). Uptake of RAASi was 92.5%. Rituximab is being used increasingly, whilst use of the Ponticelli is reducing.

Discussion: This single-centre study examined three decades of membranous nephropathy (MN) management at Addenbrooke's Hospital, revealing evolving trends in immunosuppressive (IS) strategies and outcomes. Our findings demonstrate a shift from Modified Ponticelli and MMF towards increased CNI and Rituximab use as first line IM in the last decade. This is likely reflecting evolving evidence and availability of newer agents. In this review the response rates for various IM classes generally align with published data [1,2,3]. The greater eGFR decline in patients requiring multiple IS lines highlights worse renal prognosis in patients where treatments are unsuccessful in achieving remission. The high uptake of RAASi underscores adherence to recommended renoprotective strategies. Of note, Rituximab demonstrated promising efficacy, particularly with longer durations of use (average 34 months), warranting further assessment of extended use, as previous RCTs have only given a 6-month treatment course [4]. This study provides valuable insights into real-world MN management and outcomes, emphasizing the need for individualized treatment strategies and ongoing evaluation of emerging therapies.

Review of service delivery of potential renal transplant recipients with increased BMI as the only barrier to renal transplantation

Dr M Belal Soobadar[1], Sister Nicola Beavers[1], Dr Mohsen EL KOSSI[1]
[1]Doncaster Royal Infirmary, Doncaster, United Kingdom

Introduction: Doncaster has the second highest rate of obesity in the UK which also affects possible transplant recipients. The aim of this project was to understand possible transplant recipients who only have increased Body Mass Index (BMI) as barrier to transplantation perspective about weight loss services available to them and how the service could be improved. Another aim was to look at this issue in a quantitative way, the number of patients who are denied renal transplantation due to increased BMI and its consequences. It is well recognised that transplantation is the best modality of renal replacement therapy and associated with improved patient outcome and cost savings to the National Health Service.
Methodology: For the qualitative aspect of this study, a patient survey was conducted to understand the patient's journey of accessing weight loss services and how patients felt about improving these services. The questionnaire was given to patients in clinic and collected at their next visit. The quantitative aspect of the study was done by looking through the renal software called EMED. There were 3 categories of patients: patients falling under either (1) Advanced Care Clinic, (2) Haemodialysis and (3) Peritoneal Dialysis. Data about their age, sex, ethnicity, BMI , HbA1c and the outcome was collected and further analysed.
Results: It was noted that patients were satisfied with the weight loss services. There was a great interest from patients for a structured program for weight loss as well as medication to help lose weight. The quantitative study revealed the mean age of patients who were still relatively young and mean BMI was not far off the cut off value of BMI 35. It also showed that some patients were using kidney beam.
Discussion: This project has enabled us to understand the patient's view on the weight loss services available. This has led to a joint discussion with the bariatric and the dietitian team to see how this can be facilitated and the feasibility of a business case for a structured program for weight loss. Ideally, it would be a joint weight loss service run by the bariatric/dietitian and the renal team for this specific category of patients. The fact that the mean BMI was not far from the cut off of BMI 35 shows that a structured program of weight loss would possibly help these patients to get a renal transplant. Since observing the use for kidney beam, it has become a standard practice to signpost all patients to this service.

Building community for young adults with kidney disease through face-to-face events.

Miss Holly Loughton[1]
[1]Kidney Care UK, Alton, United Kingdom

Introduction
When compared to healthy peers of the same age, many young adults (YA) with CKD have had limited opportunities to develop their independence and self-confidence. This is significant because these things are important in allowing them to navigate life with a long-term condition, and to develop a positive self-image.

In order to support this, we host an annual residential weekend for patients between the ages of 18 and 30. This is an opportunity to spend time with others in similar situations, and offers space for participants to challenge themselves with activities they may not have previously tried. It also provides a supportive environment for them to independently manage their own health and wellbeing.

Methods
The weekend is held at an outdoor activity centre in the Midlands, run by staff who have a thorough understanding of the needs of our group.

In 2024, 89 YA attended, supported by a team of 26 volunteers, including healthcare professionals, charity staff and patients.

The weekend is open to YA at all stages of CKD, so long as they are well enough to attend. Prior to the weekend, YA are assigned to a “buddy group” led by a member of the volunteer team. This person answers questions, supports with travel and dialysis arrangements and facilitates connections between small groups of attendees from the same unit or region. This has allowed us to reduce our nervousness-related drop out rate to almost zero.

While the weekend runs from Friday to Monday, the benefits last much longer. Alongside going home with new friendships and increased confidence, YA are also connected to our “kidney community” on an ongoing basis.

Results
Over half of YA (50) attended the weekend for the first time, while most volunteers had attended previously. 23 YA (2 volunteers) were on dialysis, 31 YA (7 volunteers) had kidney transplants and 35 YA (1 volunteer) were not on KRT.

In terms of the impact of the weekend, 97% of YA said they would recommend it to others, and 94% said it had a “very positive” or “positive” effect on their mental health. Almost all said they “definitely” or “probably” wanted to attend again next year. There were also many requests for further similar opportunities.

Benefits for volunteers were similar, with 100% of them saying their participation had a “very positive” or “positive” effect on their mental health, and that they were keen to volunteer again in 2025.

Discussion
The weekend has a hugely positive impact on both participants and volunteers. Participants left feeling less isolated, more confident in managing their condition and with a more positive outlook on

life. They were also keen to maintain the friendships they'd established at the weekend, and many had already made plans to meet up independently.

Volunteers also left the weekend with a greater sense of wellbeing, and those who are healthcare professionals reported having developed a broader perspective on the experiences of young adults with CKD, which would change the way they worked with them going forward.

Some had also been inspired to help facilitate community building events within their own units, with the aims of strengthening existing relationships as well as introducing new patients to the group, and providing more accessible opportunities for YA for whom a Friday-Monday event is unsuitable, or who might need some encouragement to build the confidence to come to the weekend.

Screening for Fabry disease in haemodialysis population (SoFAH) study

Dr Khai Ping Ng[1], Ms Manjinder Sandhu[2], Prof Debasish Banerje[4], Prof Jim Burton[5], Dr Lisa Crowley[1], Dr Tim Doulton[6], Dr Awais Mohammed[2], Dr Rizwan Hamer[7], Dr M Menon[8], Dr J Nicholas[9], Dr S Ramakrishna[10], Dr K Shivakumar[11], Prof T Geberhiwot[3], Prof Indranil Dasgupta[2]
[1]University Hospitals of Derby and Burton NHS Trust, Derby, United Kingdom, [2]Birmingham Heartlands Hospital, University Hospitals of Birmingham NHS Trust, Birmingham, United Kingdom, [3]Institute of metabolism and systems research, University of Birmingham, Birmingham, United Kingdom, [4]St George's University of London NHS Foundation Trust, London, , [5]University Hospitals of Leicester NHS Trust, Leicester, , [6]East Kent Hospitals NHS Foundation Trust, Kent, , [7]University Hospitals Coventry and Warwickshire, Coventry, , [8]University Hospitals of North Midlands NHS Trust, Stoke-on-Trent, , [9]Shrewsbury and Telford Hospital NHS Trust, Shrewsbury, , [10]Royal Wolverhampton NHS Trust, Wolverhampton, , [11]Dudley Group NHS Foundation Trust, Dudley,

Background
Fabry disease is an X-linked inherited lysosomal storage disorder with an estimated prevalence amongst end-stage kidney disease (ESRD) population of 0.3% in men and 0.1% in women. Due to its non-specific manifestations, Fabry disease especially the later-onset variant, is often under-diagnosed. We aimed to estimate its prevalence in a large haemodialysis (HD) population in the UK.

Methods
SoFAH is a cross-sectional, multi-centre screening study. All adult HD patients at eight renal units in the Midlands, UK were invited to the study. All male participants are tested using dried blood spot alfa-galactosidase enzyme (AG) and Lyso-Gb3 assay. If either the AG (≤2.8 µmol/L/H) or Lyso-Gb3 (≥ 3.5 ng/mL) level was abnormal, genetic testing for GLA mutation was performed. All females had enzyme, Lyso-GB3 and genetic tests (Figure 1). All blood samples were taken prior to the start of hemodialysis session and sent for analysis to the Archimed Laboratories, Vienna, Austria. We also performed symptoms survey. The project was funded by Sanofi-Genzyme as an Investigator Sponsored Study. The study was approved by the UK Health Research Authority.

Results
Of the 2,452 HD patients, 1323 consented to the study (Figure 2). Their mean age was 64 (SD 15) year-old, 67% male, 64% white ethnicity, dialysis vintage of 32 (IQR 56) months and 32% had renal biopsy. Diabetic nephropathy (28%) was the most common cause of ESRD; 21% had no known cause of ESRD and 9% had hypertensive/ischaemic nephropathy. Majority had cardiovascular disease (85%), including 10% with heart failure. 27% self-reported burning pain in extremities, 25% heat intolerance, 25% gastrointestinal symptoms without a cause, 22% family history of renal disease and 41% family history of heart disease or stroke. 1,295 had both AG and Lyso-Gb3 tests whilst 573 (44%) had GLA genetic tests. Of the 14% (n=186) with AG level≤2.8 µmol/L/H, 48 were female and 138 were male. All had Lyso-Gb3<3.5ng/mL. Only 3 (0.2%) had abnormal Lyso-Gb3 but normal AG and negative genetic test. Two females had GLA mutation. Both had normal AG and Lyso-GB3 levels. One was deemed to be non-pathogenic variant (heterozygous c.937G>T (p.(Asp313Tyr))). A woman with heterozygous c.1102G>A (p.(Ala368Thr)) variant was assessed and diagnosed with probable non-classical FD.

Discussion
Symptoms commonly associated with Fabry disease were non-specific and self-reported in almost a quarter of the participants. Despite implementing stringent screening criteria, we identified only one probable non-classical FD in a female participant, giving an overall prevalence of 0.077%. Amongst the subgroup of patients with an unknown cause of ESKD, the prevalence was 0.36%. This case had both normal AG and Lyso-Gb3, highlighting the importance of genetic testing when diagnosing FD in women.

Using the in-centre haemodialysis (ICHD) carbon calculator to assess the carbon footprint of the ICHD patient pathway.

Mrs Rachel Cottam[1], Ms Rebecca Palmer
[1]Sheffield Teaching Hospitals, Sheffield, UK

Introduction

In 2024, reducing carbon emissions from in-centre haemodialysis is one of the key priorities for the Yorkshire and Humber Kidney Network (YHKN). Sheffield Teaching Hospitals NHS Foundation Trust (STH) developed a carbon footprint report; a comprehensive evaluation of ICHD delivery at STH and understanding of environmental impacts; using the available toolkit to develop metrics and a baseline measurement, identify opportunities for reducing the carbon intensive areas; and develop a roadmap to a more sustainable care pathway for patients at End-Stage Kidney Disease (ESKD).

Methods

A stakeholder analysis was used to identify and engage relevant individuals in the project. This was done to support understanding and raise awareness of sustainable healthcare and NHS Net Zero and how these translate into clinical care.

The scope of this project covers the activities of the in-centre dialysis unit at STH only and does not include satellite dialysis or home haemodialysis services. The assessment was undertaken for January - December 2023 which reflects the current practice post pandemic.

The care pathway includes the environmental impacts arising from the manufacture, distribution, use and end of life treatment of the following: electricity, fuel and water usage from shared hospital resources; dialysis machines and water plant equipment; consumable products used, e.g. dialysers and bloodlines; and pharmaceutical products used, e.g. acid dialysis concentrates and other solutions. The assessment was undertaken using the Sustainable Healthcare Coalitions' ICHD carbon calculator.

Results

The total CO2e emissions for ICHD at STH are calculated to be 827,947 kgCO2e during 2023, with 48,204 dialysis sessions this equates to 17 kg CO2e per session. Using the carbon calculator allowed us to visualise where the potential areas of improvement to reduce carbon emissions (See figure 1) Based on the carbon calculator assessment, the following recommendations will now be explored to help reduce the environmental impacts associated with providing ICHD care.

- Deep dive into patient travel arrangements.
- Explore opportunities to move patient treatment closer to home.
- Undertake a travel survey for staff working within the Renal wards at STH.
- Work with the Sustainable Healthcare Coalition to improve the metrics.
- Evaluation of the manufacture, packaging and distribution of consumables and pharmaceuticals.
- Improve estates metrics.
- Improve waste streams and recycling.
- Improve the baseline metric for water usage.
- Review opportunity to reduce flow through dialysis machines to reduce water usage.
- Agree KPI's and metrics to support the roadmap to net zero.

Conclusion

The evaluation aimed to provide the first step in developing a roadmap to deliver a net-zero renal care pathway. Recommendations will be explored to help reduce environmental impact. The calculator presented limitations highlighting the requirement to improve the data metrics to give a

more accurate baseline to work from. Following this, Key Performance Indicators (KPI) will be agreed and tracked as actions are completed.
Using the toolkit, carbon analysis is underway for the STH satellite unit at Barnsley District General Hospital.

Increasing the number of patients receiving home Haemodialysis (HD) and improving their quality of life

Mrs Karen Turner[1], Mrs Robyn Hodgson[1]
[1]Royal Free Hospital , Hampstead, United Kingdom

Home HD is known to not only improve patients' quality of life, but also increase their life expectancy. However, there has been a low number of patients receiving home HD at the Royal Free Hospital NHS Foundation Trust (RFL) due to lack of staffing, resources and patient and staff education. The Royal Free secured funding from NHSE to restructure the home HD program, including funding for a full time CNS and procuring additional dialysis machines.

Using a Quality Improvement (QI) approach, the number of home HD patients has increased from 5 to 15 patients.

A lot of work has gone into achieving this success including educating both staff and patients; recruiting patients through patient engagement session and home HD chats with potential patients. Furthermore, additional work has been down around tailored home HD training competencies. Regular education sessions to renal nurses were provided by the home HD CNS to provide an overview of the new service and referral systems. Nurses have been encouraged by the benefits its program could provide to the patients.

Furthermore, the number of patients who hear about home HD were recorded each month as a process measure. Patients were showing interest in the service and some subsequently were recruited into the program through this approach.

Questionnaires have been sent to the patients who enrolled in the program this year and the responses were positive. 100% of patients scored 10 out of 10 for home HD improving their quality of life. There was also positive feedback with the tailored home HD training competencies.

More work has been planned in the coming months to further recruit and engage potential patients including sharing home HD promotional posters and developing approaches to engage the pre dialysis patients in considering home HD as an option early on.

The hidden inequality: Prescription charges impacting access for kidney transplant recipients across the UK - A retrospective multi-centre audit

Mrs Sara Perkins, Mr Dane Howard, Mr Gareth Bryant
[1]North Bristol NHS Trust, Bristol, United Kingdom, [2]Leeds Teaching Hospitals Trust, Leeds, United Kingdom, [3]University Hospital of Wales, , United Kingdom

Introduction:
Kidney transplantation is the gold standard treatment for kidney failure, but recipients rely on medication to maintain transplant function and quality of life. Poor adherence can lead to worse outcomes, transplant loss, and, in severe cases, death.

Background:
In the UK, NHS care is free, but medications incur a fixed-fee charge per item. Some patients are exempt from charges due to age, benefits, or long-term conditions, but solid organ transplant recipients do not qualify.
In devolved nations (Northern Ireland, Scotland, and Wales), there are no prescription charges. In England, patients can choose to buy a prepayment certificate, though for many this is still unaffordable. Patients receiving home-delivered medications do not pay charges, because these routes lack infrastructure to collect a charge. However, those using hospital or community pharmacies must pay or prove exemption.

Although schemes like the low-cost HRT prepayment certificates exist, no equivalent exists for transplant recipients. Kidney Care UK and the National Kidney Federation report that transplant patients “feel discriminated against”, with some skipping or reducing medication to save costs, increasing the risk of rejection and graft loss.

Methods:
The UK Renal Pharmacy Group (UKRPG) research group developed a 12 point data collection tool to determine route and length of supply for immunosuppression and supportive therapies (e.g. antibiotic/antiviral prophylaxis, GI protection). Respondents were also asked if they have been asked by patients to help rationalise supplies, if prescription charges were subsidised by the trust and for general comments.
The survey was sent to the UKRPG’s online WhatsApp community, comprising 160 renal pharmacists in UK's referring and transplanting renal centres over a two week period.

Results:
29 units responded (69% transplanting Vs 31% referring centres). Most units maintained immunosuppression supplies long term but very few subsidise prescription charges (see figure 1).

Immunosuppression is largely supplied via homecare (45%) without a means to collect charges which likely under-represents the difficulty patients face paying for their medicines. 45% of immunosuppression is supplied directly by Trusts or community pharmacies and 10% combine both.

Non-immunosuppression is largely supplied via non-homecare routes (97%) and charges would be collected unless patients are exempt.

52% of respondents stated they had been asked by patients which medication they could “do without” but 97% of those surveyed would support a revision to the exemption classification, with the majority (69%) supporting transplantation as an exemption.

Other improvements suggested include the introduction of a low cost certificate, akin to the HRT certificate (25%) or use of pre-payment certificates (6%) but charges are only collected in England.

Conclusions:
Devolved nations offer wholesale free prescriptions. Whilst other schemes aim to reduce financial barriers to care, transplant recipients in England are disadvantaged and face costly prescription charges. This can lead to reduced medication adherence for critical medications, poorer patient outcomes, and higher healthcare costs due to the need for rejection and graft failure treatments.

Malaria is the primary cause of Acute Kidney Injury in paediatric patients in Nigeria. A study using point of care creatinine in a primary health care centre .

Prof Dimitrios Poulikakos[1], Dr Vivean Laurent-Ordu, Dr Dorathy Emem Model, Dr Oluo Doris Chiemela, Dr Siyeofori Dede, Dr Kinikawo Green, Dr Adaeze Oreh, Professor Pedro Emem-Chioma, Professor Ibi Erekosima, Dr David Lewis
[1]Northern Care Alliance NHS Foundation Trust , Manchester, United Kingdom, [2]University of Manchester , Manchester, United Kingdom

Background: The epidemiology of Acute kidney injury (AKI) in low and middle-income countries is poorly understood due to lack of prompt biochemical diagnosis. We previously evaluated the accuracy of point of care creatinine (POC Cr) technology using capillary samples (1). In this phase of the project POC Cr was used in a large primary care health centre in Nigeria.
Methods: The study was conducted in Ozuoba Model Comprehensive Primary Health Care Centre in Nigeria. Historically, decision making is based largely on clinical judgement and renal function tests when requested from external laboratories are reported in > 48 hours. During this project POC Cr was offered to high-risk adult patients based on the clinical algorithm from the previous stage. For paediatric patients, POC Cr was offered to patients with diminished urine output or according to severity of presentation based on clinical judgement. POC Cr was adjusted based on the evaluation phase as follows: POC Cr adjusted (a)= POC Cr -27.2 (1). AKI stages were calculated based on KDIGO criteria using as baseline creatinine the upper limit of normal range (100 umol/L in adults and based on age category for paediatric patients (2).
Results: In total 424, 299 adult and 125 paediatric patients, underwent POC Cr testing. Median age was 31, minimum 0.1 year maximum 97 years of age. 293 (61.1%) were diagnosed with malaria, 25 (5.8%) with gastroenteritis, 125 (5.8%) with upper respiratory tract infection, 20 (4.7%) with urinary tract infection and 4 (3%) with acute appendicitis. Median POC Cr (a) for the total population was 72.8 umol/L, Interquartile Range (IQR) 310.
In the 299 adult patients, median POC Cr(a) was 72.8 umol/L (IQR 310). There were 2 cases of AKI (0.6%) (one stage 1 and one stage 2) and both patients were diagnosed with malaria.
Amongst the 125 paediatric patients 70 (56%) cases of AKI were detected (AKI stage 1 was 20%, AKI stage 2 was 20.8% and AKI stage 3 was15.2%) with 49 (70 % of AKI cases) with a malaria diagnosis. Out of the 125 paediatric patients assessed in the centre 88 (70.4%) were diagnosed with malaria and amongst those 49 (56%) had AKI (AKI stage 1 18%, AKI stage 2 20.4% and AKI stage 3 17%). Figure 1. The AKI rate was higher in the early ages and declined to zero after the age of 12. Figure 2.
Conclusion: AKI was present in more than half of paediatric patients presenting with malaria in our study indicating that this is a common complication of malaria in young children and supports the appeal for revision of existing WHO malaria guidance (3) with incorporation of the KDIGO definition of AKI to support early detection and treatment.

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The UK FMD study: first multi-site research study in FMD

Mr Mujaahid Patel[1], Dr Constantina Chrysochou, Dr Aine de Bhailis, Dr Pauline Swift, Ms Fiona Bray, Ms Christina Summersgill, Dr Spoorthy Kulkarni, Dr Hannah Preston
[1]University of Manchester, Manchester, UK

Background
FMD is a rare condition of unknown aetiology and pathogenesis. Little is known about the risk and determinants of complications along with progression of the disease.
We herein present data from the first 100 patients recruited to the UK FMD study, the first prospective epidemiological multi-site study in this regard.

Methods
Full ethical approval. Once onboarded, data is entered via an online portal. Data fields are aligned with those of the European/ International Fibromuscular Dysplasia Registry and Initiative (FEIRI), to enable comparative data collection and pooling of information.

Results
Where data is complete, our findings show many similarities to the existing European and American registries with the majority of patients female (79%), predominantly Caucasian (77%), and a median age of 53 (range 23 - 84). Our findings differ from other registries in that the overall average BMI (M – 28, F -26) is larger, with an evident north south divide. 75% of patients had multi-vessel involvement, 36% had preceding strokes or TIAs and 12% had concomitant spontaneous coronary artery dissection. Progression rates are low with risk factors for progression including smoking (current or ex), raised BMI and poorly controlled hypertension.

Conclusion
Being a rare disease, a national initiative such as the UK FMD study has helped to advance our learning on epidemiology within the UK. Where centres have opted in, serum and DNA have been bio-banked for potential future studies. The UK data shows a higher BMI level compared to European/ American counterparts. Whether this has longer term sequelae on FMD events e.g. poses an increased risk for dissection/ occlusion, will become evident as follow up duration increases.

Preventing deconditioning on an acute inpatient nephrology ward: A multidisciplinary quality improvement project.

Mrs Emily Hardy[1], Mr Paul Moorhouse[1], Dr Hannah Young[4]
[1]Therapy Department, University Hospitals of Leicester NHS Trust, Leicester, UK, [2]Leicester Diabetes Centre, University of Hospitals of Leicester NHS Trust, Leicester, UK, [3]Department of Population Health Sciences, University of Leicester, Leicester, UK, [4]NIHR Leicester Biomedical Research Centre, Leicester, UK

Introduction

Deconditioning is a decline in physical function that can occur when someone is inactive or has a sedentary lifestyle. It can cause muscle loss, reduced mobility, increased risk of falls, digestive issues and increased infection risk. This has a negative impact on patients quality of life but also leads to increased mortality and morbidity. Inpatient deconditioning also impacts NHS trusts financially with increased length of stay and patients who are frailer needing higher levels of medical care. In 2022-2023, renal patients at our trust saw an 11% rise in bed days. From April 2021 to March 2023, 48% of admissions and 64% of bed days were attributed to patients with a Clinical Frailty Scale score of 4-8 (mild to severe frailty). Patients with chronic kidney disease particularly those on haemodialysis can have an increased level of deconditioning in an inpatient stay due to the increased sedentary time with dialysis.

Aim

To increase the number of patients on acute nephrology ward that are sitting out of bed and mobilising thus preventing deconditioning

Objectives

- To understand current usual care regarding sitting out and mobilisation on the nephrology ward.
- To identify ward-level barriers and facilitators to sitting out and mobilising patients amongst the renal multidisciplinary team (MDT)
- To create and implement a training programme to address barriers found.

Methods

A trust wide baseline audit was undertaken data regarding whether patients were sitting out of bed, alongside clinical indicators preventing sitting out were collected using a structured audit tool. We also conducted a survey of barriers and facilitators relating to sitting out and mobilising across the renal MDT.

We convened a multidisciplinary deconditioning planning group. Implementation activities driven by the data gathered from the audit and survey included:

- creating preventing deconditioning information board
- nominating a “preventing deconditioning month” where therapy staff were available at lunchtimes to promote patients sitting out and mobilising
- co-designing an deconditioning education and training programme to upskill the renal MDT.

Following this a re-audit, utilising the same methods previously outlined was completed to establish the impact of the quality improvement.

Results

On the initial baseline audit 39% of patients were out of bed at time of audit. The main barriers to sitting patients out at ward level were staff confidence, lack of manual handling training and time. Following the quality improvement project 63% of patients were out of bed at time of audit. This showed an increase in 24%. Informal feedback on training programme was gained which suggested nursing staff confidence in using equipment was increased.

Discussion

A therapy led training programme has shown to have a positive impact on the amount of patients sitting out of bed and mobilising on the ward. Further therapy work will continue to focus on supporting culture change at ward level with regards to deconditioning and promoting activity across all nephrology inpatients.

Empowering haemodialysis patients through mobile technology for vascular access care: VascuCheck App

Mrs Bernadette Ratilla[1], Mrs Aubrey Demavibas[1], Mrs Liberty Berino[1], Mrs Irene Opena[1], Mrs Komal Chauhan[1], Mrs Catherine Johnson[1], Dr Joanna Mckinnell[1]
[1]University Hospitals of Derby and Burton NHS Foundation Trust, Derby City, United Kingdom

Introduction

Patients undergoing haemodialysis require vascular access, such as permacaths and arteriovenous fistulas (AVFs), which demand diligent care to prevent complications and optimize function. Permacaths, though essential for dialysis, carry a significant risk of infection, leading to severe complications, hospitalizations, and increased mortality. Similarly, AVFs, while preferred for their longevity, require consistent self-care to maintain patency and prevent complications. Effective patient education is crucial to empower patients with the knowledge and skills for vascular access management, enabling them to actively participate in their care.

Mobile health technologies provide an innovative platform for delivering education, offering accessible information, reminders, and interactive tools that reinforce proper care techniques. This can lead to better health outcomes, fewer complications, and more empowered patients.

Methodology

A multi-platform mobile application, accessible via QR code, was developed to provide comprehensive education on various aspects of vascular access care, including maintaining cleanliness, recognizing signs and symptoms of infection, managing emergencies, and knowing who to contact when problems arise. Participants included 12 patients with permacaths and 10 with AVFs, all of whom received guidance on navigating the application.

Pre- and post-intervention surveys were conducted to assess participants' baseline knowledge, ability to recognize complications, and confidence in vascular access care. Changes in knowledge, confidence, and interest in using mobile health tools were evaluated following application use.

Results

Pre-intervention, only 25% of patients reported being "Very Confident" in the overall management of their permacath at home, which increased to 50% post-intervention, while "Not Confident" responses decreased from 16.67% to 0% (Question 10). Regarding AVF care, 75% of participants rated their knowledge below 5 on a 10-point scale pre-intervention, highlighting the need for education. Post-intervention, all participants expressed a strong interest in utilizing the application, underscoring its potential as a valuable educational tool.

Discussion

The VascuCheck application demonstrably improved patients' confidence and knowledge regarding vascular access care. This demonstrates the potential of mobile health technology to enhance patient knowledge and confidence in managing vascular access. By providing easily accessible information and reminders, the application empowers patients to take an active role in their care. It is well recognised that patient involvement (activation) is linked with improved quality of life and reduced symptom burden. Similarly health literacy in chronic kidney disease is consistently associated with favourable self management behaviours as well as health outcomes.

The use of the app did pose challenges among patients with limited digital literacy, emphasizing the need for alternative formats or additional support.

Future efforts should focus on refining the application to address user challenges, integrating feedback, and expanding accessibility through platforms like Play Store and App Store. With further

development, this technology could become a standard tool for improving vascular access care among haemodialysis patients.

Use of a surgical abdominal assessment to optimise peritoneal dialysis catheter insertion pathways

Dr Yewande Adegeye[1], Dr Evelyn Jones[1], Dr Jennifer Allen[1]
[1]Department of Renal Medicine, Nottingham City Hospital, Nottingham, United Kingdom

Introduction

Peritoneal dialysis (PD) is a well-tolerated and cost-effective form of renal replacement therapy (RRT). Patients may be considered unsuitable for PD if they have complex or obese abdomens, but with appropriate planning, these may not be absolute contraindications.

The inclusion of a timely surgical abdominal assessment in a PD catheter insertion pathway can ensure optimal planning for catheter insertion to facilitate PD starts, identify possible contraindications to PD, and allow definitive vascular access to be achieved in those patients.

We reviewed surgical assessments performed on all low-clearance patients planned for PD at a single centre over 1 year to determine outcomes and the role of the surgical assessment in a PD access pathway.

Methods

All patients receiving a surgical abdominal review from January to December 2021 were included in the study. Data was collected from access clinic letters and discharge summaries. Patient outcomes were collected over a 3-year follow-up period. Data were entered into MS Excel for analysis.

Results

82 patients underwent surgical abdominal assessment, of which 51(62%) were male. Median age was 64 years (range 21-90 years).

4 patients (4.9%) were unsuitable for PD (due to hernia, abdominal scars, or large polycystic kidneys). Of these patients, 3(75%) had vascular access surgery prior to HD start.

Of 78 patients who were suitable for PD, only 17(21.8%) had a normal, non-obese abdomen. 22(28.2%) had abdominal or inguinal hernias (17(77%) paraumbilical, 5 (23%) inguinal), 26 (33.3%) had scars from previous abdominal surgeries, and 13(16.7%) had high body mass index.

37(47.4%) patients had a PD catheter insertion within the follow-up period while 7(9%) had HD. Reasons for a change of modality choice to HD were not wanting concurrent hernia repair, unplanned dialysis starts (not fit for hernia repair), change in circumstances, and patient choice. Of the remaining patients, 2(2.6%) had renal transplant, 10(12.8%) died prior to commencing RRT, and 22(28.2%) remained on a low-clearance pathway.

For patients commencing PD within the follow-up period, the median time interval between abdominal review and commencing PD was 11 months (+/- 9).

The median eGFR at assessment (figure 1), was 12ml/min/1.73m2 (+/- 3) while the median eGFR on commencing PD was 7ml/min/1.73m2 (+/- 2)

Discussion

Surgical abdominal reviews determined that most abdomens are suitable for PD, but factors affecting PD catheter surgery were identified in a majority of patients, allowing appropriate pre-procedure planning. For some patients, the outcome of the abdominal review helped guide modality choice. Performing the abdominal review prior to catheter referral meant that 80% of patients who were unsuitable for PD underwent vascular access surgery before RRT started. Performing a review early

did mean that a significant number of patients had died or been transplanted rather than requiring PD treatment. The benefits of early review must therefore be balanced with judicious use of surgical clinic appointments.

Does renal dietitian led education improve staff knowledge and confidence in recognising the indication for and provision of bespoke diet advice to CKD patients?

Miss Madeleine Dixon[1], Miss Amy Altenberg, Miss Camille Harrison, Miss Emily Nelson
[1]Sussex Kidney Unit , Brighton, United Kingdom

Introduction

Support and education surrounding diet in chronic kidney disease (CKD) is a key part of patients care. Unfortunately, dietary modification can cause patients considerable anxiety and frustration. The UK Kidney Association (UKKA) recommends individualised dietary advice should be provided by a specialist renal dietitian. However, all members of the multidisciplinary team need to give consistent nutrition messaging to minimise patient confusion and avoid unjustified dietary change.

We designed a bespoke nutrition education programme aiming to increase staff's confidence in; identifying patients indicated for therapeutic diet advice and/or nutrition support, providing first-line nutrition advice, with hope to improve consistency of nutrition messages across the unit.

Methods

The programme was 4-part module covering 4 key areas of dietary focus for our CKD patients: malnutrition, potassium, phosphate, and fluid & salt. Presentations was created on Microsoft PowerPoint and staff could attend in-person or virtually. Timing and length of sessions were planned to accommodate staff's clinical commitments. Modules were launched internally through staff huddles, emails, posters and notification at senior meetings.

Staff were signposted to book sessions via the trusts e-learning platform allowing us to collect quantitative data relating to staff attendance and knowledge evaluation which was assessed though an e-quiz. Qualitative data regarding attendees' experiences of the sessions were collected using an anonymous Slido polls taken before & after each session; specifically measuring the attendee's self-perceived confidence in recognising non dietary causes of electrolyte disturbances, provision of first line diet advice and identifying malnutrition in our CKD patients.

Results

At time of writing, all 4 modules had been taught (8 sessions in total) over 4 months. Of 184 members of staff, 33 (18%) attended at least one session; all were nurses and health care assistants (HCA) working with renal outpatients and inpatients. Session attendance ranged from 3-13 attendees and 5 (13%) individuals DNA their booked session.

Per session engagement with the Slido poll ranged from 67-100% and indicated that all attendees improved their self-perceived knowledge regarding the attended topic and had gained confidence in their ability to assess patients' indication for nutrition support and/ or therapeutic diet advice.

Fourteen (42%) attendees completed and passed a module quiz. Completion ranged from 20-58% across the 4 modules. Five (12%) individuals attended more than one module, 2 (6%) of which completed more than one module quiz.

Discussion

Despite lower-than-expected attendance, these education sessions have improved staffs self-perceived knowledge and confidence in four areas of renal nutrition; however, lack of quantitative

data means we have been unable to assess if attendees' knowledge did improve. It is likely that clinical pressures on staff including lack of protected time for dedicated continual professional development (CPD) alongside limited access to computers will have impacted both staff attendance and attendees' completion of the knowledge quiz.

Positive qualitative data suggests this education is well received by staff but moving towards an e-learning knowledge and evaluation approach may optimise staff attendance. Staff would benefit from protected time to complete these sessions and knowledge evaluation which will require support from their senior leaders.

Value of “Developing the Clinical Teacher” opportunities over other Work-Place Based Assessment experiences towards influencing Renal Career Choice among Junior doctors posted in Nephrology

Dr Prasad Rajendran[1,2], Dr Kunigal Shivakumar[1], Dr Muhammad Ain Ul Haq[2]
[1]The Dudley Group NHS Foundation Trust, Dudley,, United Kingdom, [2]SMED, University of Dundee, Dundee,, United Kingdom

Renal Medicine is a challenging speciality requiring more trainee uptake as a career. Specific workplace based educational interventions among junior doctors through a renal placement to stimulate speciality interest has not yet been studied in detail. The aim of the current study was to detect whether encouraging more teaching opportunities in the form of Developing the Clinical Teacher (DCT) exercises, alongside similar opportunities for other Workplace based Assessments (WPBAs) such as Mini-Clinical Evaluations (Mini CEXs) and Case based Discussions (CbDs) would increase their interest to consider Renal for a career.

A mixed-methods study was performed with 14 junior trainees posted in a 5-consultant led West Midlands district general hospital renal department over a year from August 2021 to July 2022. The initial quantitative component consisted of obtaining pre placement surveys from the trainees gathering their perceptions on the utility of WPBAs to increase confidence in any speciality followed by the intervention of offering increased opportunities to perform more than the mandated number of all WPBAs through their renal placement. A post placement survey to similarly gather their perception on each of the different types of WPBAs’ influence on increasing Speciality interest in Renal and if an increased number would make them consider Renal as a career choice. The results were shared with the consultants with whom semi-structured interviews were done as the qualitative arm for a thematic analysis of their insights and suggestions on improving trainee experience to enthuse speciality uptake.

With the limitations of a small sample around the covid period, less than a third of the trainees managed to perform more than the mandated amount across various WPBAs. However, following the exercise, all felt an increase in liking for Renal and there was an increase in number wishing to consider a Renal career from 2 (14%) to 5 (36%). Their pre-placement perceptions of Mini-CEXs, CbDs and DCTs increasing confidence in any speciality was strongly agreed by 7(50%), 9(64%) and 6(43%) respectively. However, following the placement in renal, this increased to 10 (71%) for Mini-CEXs and CbDs, compared with a drop to 4(29%) for DCTs. The impression that they would be of great value towards increasing renal speciality interest was felt only by 7(50%), 8(57%) and 2(14%) respectively. The perception that an increased number of Mini-CEXs, CbDs and DCTs would stimulate them to consider renal as a career was further weakened with only 4(29%), 6(43%) and 2(14%) agreeing strongly.

The subsequent thematic analysis revealed that although an increased number of WPBAs would reinforce knowledge and DCTs would promote consolidation of wider knowledge, this may not be generalisable for all trainees, with the risk of fatigue, time constraints and varied acceptability (Figure 1). Offering a variety of high quality WPBA’s with more Mini-CEXs; CbDs and fewer well prepared DCTs alongside showcasing the speciality’s multivariate characteristics with a role-model approach was proposed to enthuse a renal career choice (Figure 2).

Junior doctors prefer more Mini-CEXs & CbDs over DCTs in Renal. However, these should be of high quality and judiciously used.

Anaemia treatment in older renal patients with high blood pressure

Specialist Nurse Yuqing Ye[1], Dr Iain Moore[1]
[1]The Newcastle upon Tyne Hospitals NHS Trust, Newcastle upon Tyne, United Kingdom

Introduction

One of our main concerns with the use of erythropoietin-stimulating agents (ESAs) is an increased risk of hypertension.

Clinical trials suggest that older age groups have the same safety risk as any age group when using ESAs. We undertook an analysis comparing blood pressure (BP) and corresponding haemoglobin (Hb) level between two groups in our anaemia cohort – one group under 80 years of age, and the other over 80. These age bands were determined by NICE/UKKA advice for clinic BP targets.

ESA treatment is only initiated when systolic and diastolic BP are controlled; we ask our patients to check their blood pressure regularly.

The approach to management of ESA treatment in older patients is generally more conservative. Older people are more likely to suffer higher BP due to physiological and biological changes and ESA may exacerbate this. With careful management using appropriate anti-hypertensives and with the correct ESA dosage titration, these patients can achieve an optimal Hb level. When the risk outweighs benefit, however, it may not possible. UKKA recommends that ESA should not be used on hypertensive patients resistant to treatment.

Results

We had 402 non-renal replacement therapy (RRT) patients on ESAs 1st November 2024. Of this cohort, 102 were over 80 years of age; 51 patients were randomly selected. Another 51 patients were randomly selected from the cohort under 80 years of age.

The most recent systolic and diastolic BPs were extracted from either a clinic visit, inpatient documentation or GP record. A corresponding Hb value was also taken from similar resources.

In the under 80 age group, 25 patients had systolic BP over 140mmHg, 6 patients had an Hb over 120g/l and 12 patients under 100g/l. In the over 80 age group, 20 patients had systolic BP over 140mmHg, 2 patients had an Hb over 120 and 11 patients under 100g/l.

Conclusion

In our cohort, it seems that we were able to maintain target BP in the older age group while also maintaining Hb level within NICE guideline range.

In the younger age group, more patients had BP outside the NICE guideline range; slightly more had an Hb level outside the NICE guideline range.

Our results may reflect the fact that older patients may be more closely managed in the community or have better antihypertensive compliance. We may also prescribe more cautiously in the older population, in order to avoid high Hb. We plan to assess this further with a patient questionnaire.

A conservative and balanced approach to treatment in the older age group is appropriate, taking the risks and benefits into account. A number of anti-hypertensive treatments can increase risk of falls; this is more likely in the over 80 age group.

We feel our cohort analysis provides a general overview of how ESA treatment affects BP control and best evidence anaemia management in younger and older age groups.

Maintaining kidney health in patients with ileostomies; a trifecta approach to reduce incidence and severity of acute kidney injury

Ms Shelagh Bickerton[1], Mrs Katie Harris, Mrs Emilia Sobczyk, Miss Lauren Catchpole, Mrs Chantal Owens, Mrs Joanna Ryder, Ms Rajbinder Khunkun
[1]Royal Wolverhampton NHS Trust, Wolverhampton, United Kingdom

Having an ileostomy is an independent risk factor for the development of acute kidney injury due to an increased risk of dehydration. 30-50% of people with ileostomies will develop high output at some point, 20% of which will require hospital admission due to severe dehydration. 25% will develop chronic kidney disease within two years of stoma formation. Colorectal clinical nurse specialists (CNSs) are often the first port of call for patients with output issues so it was vital that the approach to reducing incidence and severity of high output/AKI was a collaborative one between the Colorectal and AKI CNSs.

This abstract outlines work being done to try to address this issue, using a three-pronged approach:
1) Development of assessment tool for Colorectal CNSs to triage patients for intervention in the event of a high output ileostomy (HOI)
2) Improving in-patient care for patients presenting with HOI by extending current national guidelines to include renal-protective measures.
3) Development of a patient information leaflet to improve knowledge and self management of stoma output and strategies to maintain kidney health.

The HOI assessment tool has now being used at five acute trusts across the UK as well as one community stoma nurse group. Feedback has been excellent with users stating that it gives them confidence and a framework to formally assess patients and safety net and escalate patients where indicated. Preliminary data of own-trust use indicates the tool has reliability but more formal validity testing is required which we hope to undertake in the near future. It has been used for 12 months in Wolverhampton.

Improving in-patient care for patients with HOI has been extended from current national guidelines to include renal protective measures. This consists of a bundle of care which addresses care in the first 24 hours, then on-going care as an in-patient with high output, and then finally post discharge follow-up. The guideline is based on best evidence/national guidelines from renal, acute medical and surgical fields in order to provide a holistic and comprehensive approach to this specific patient cohort. Data has been collected on incidence and outcomes (table 1.0); 56 patients admitted with AKI stages 2 or 3 were caused or complicated by a HOI in a 12 month period resulting in 849 bed days. Only 53.6% of patients were back to their baseline renal function at 90 days, demonstrating the long term impact of high output on kidney health. It illustrates the need for prevention of high output and this has been the focus of the patient information leaflet.

This leaflet has been developed in association with the Ileostomy Association, and has engaged with service users to ensure it is clear and practical. It has been endorsed by UKKA and ANNUK and is used widely nationally by both renal/AKI teams as well as colorectal services to support this patient group.

It is hoped that the impact of these three measures will reflect in longitudinal data and reduce the risk of long term kidney health in this patient population.

Healthy Eating for Chronic Kidney Disease: A Multilingual Dietary Leaflet Promoting Disease Management, through healthy dietary patterns.

Mrs Angeline Taylor[1]
[1]Royal Devon University Healthcare NHS Foundation Trust, Exeter, England, [2]Kidney Dietitian Specialist Group (Previously the RNG), Birmingham, United Kingdom

Introduction

Healthy dietary patterns, similar to those in the NHS Eatwell Guide, that prioritise plant-based foods, such as vegetables, fruits, whole grains, legumes, nuts and seeds are associated with significant health benefits, including a reduced risk of chronic diseases such as cardiovascular disease, type 2 diabetes, and some cancers. Healthy dietary patterns, rich in plant-based foods also support and promote weight management. For individuals with Chronic Kidney Disease (CKD), a diet emphasising plant-based foods, a predominate feature of a healthy dietary pattern, can help lower potential renal acid load (PRAL), support a healthier gut microbiome, reduce uremic toxins, and potentially slow CKD progression. Additionally, healthy dietary patterns may aid in managing CKD-related complications such as hyperkalaemia and hyperphosphatemia by including foods with lower potassium and phosphorus bioavailability compared to animal products and ultra-processed foods. Healthy dietary recommendations, also align with sustainability goals, benefiting both individual health and the environment.

Methods

In response to the growing need for CKD-specific dietary information, a "Healthy Eating for CKD" leaflet was developed by a sub-group of volunteers for the Renal Nutrition Group. Once drafted, it was checked for its readability, aiming for a target reading age of 9–11 years, in alignment with NHS guidelines. The leaflet underwent a review from the Patient Kidney Association, and a final review from the Renal Nutrition Group committee, with adaption made in-line with their feedback. On approval, a freelance graphic designer contributed to the design, enhancing the leaflet, with actionable images to support understanding. To extend its reach, the leaflet was translated into seven languages, based on a survey of renal dietitians in the UK to identify the most useful languages for diverse CKD populations.

Results

The "Healthy Eating for CKD" leaflet is now available in English and seven additional languages: Urdu, Hindi, Arabic, Welsh, Polish, Punjabi, and Chinese. It provides clear, visually engaging guidance on foods to eat more frequently and those to limit, with actionable images to support recommendations. The leaflets are available on Patient Knows Best, and will be made freely accessible through the RNG website, ensuring broad patient access.

Discussion

Healthy dietary patterns, rich in nutrient-dense plant foods and lower in red meat, processed meat, and ultra-processed foods, have gained attention for their substantial health benefits and positive environmental impact. These diets, low in saturated fat, are linked to improved cardiovascular health and a reduced risk of heart disease, diabetes, and certain cancers. In CKD, healthy eating can reduce PRAL, which may alleviate metabolic acidosis and slow disease progression. Additionally, such diets promote gut health, potentially reducing inflammation, supporting immune function, and lowering uremic toxin levels. Healthy dietary patterns can also aid in managing CKD complications, with plant-based foods often offering lower potassium and phosphorus bioavailability than animal-based and ultra-processed foods, helping to address hyperkalaemia and hyperphosphatemia risks.

Implementing Clinical Frailty Score assessment for in-centre haemodialysis patients

Dr Khai Ng[1], Dr Rachel Surridge[1], Dr Naomi Higton[1], Ms Samantha Inger[1], Ms Jo Hamilton[1]
[1]University Hospitals of Derby and Burton NHS Foundation Trust, Derby, United Kingdom

Introduction:
Frailty is defined as a state of increased vulnerability resulting from decline in reserve and function across multiple physiological systems. It is common amongst haemodialysis population with an estimated prevalence of 46% and is associated with adverse outcomes. The Clinical Frailty Score (CFS) is a widely used 9-point scale, which was originally developed to summarise the overall level of frailty of older adult. CSF score of 5 and above were classified as frail. We therefore aimed to (1) examine the availability of CFS record; (2) test the feasibility and validity of CFS assessment by the nursing team; (3) explore factors associated with increased frailty, for all in-centre haemodialysis patients in a single renal unit

Methods:
This was a quality improvement project performed during March to Aug 2024. Firstly, we examined the availability of CFS for our in-centre haemodialysis cohort in our local renal database (VitalData). Secondly, the haemodialysis nursing team were asked to complete CFS assessment for their patients after short informal training. A proportion of CFS were further validated by the medical team. Thirdly, we performed a cross-sectional study and examined the prevalence of frailty based on CSF and factors associated with increased frailty. Data was analysed via SPSS v27.

Results:
In total, 264 haemodialysis patients were included. Their mean age was 64 (SD:15) years, median dialysis vintage of 28 (IQR:43) months, 62% male, 61% white and 19% Asian ethnicity; 27% attended dialysis by their own transport whilst 73% by hospital transport. Only 8% had ReSPECT document. At baseline, 16% had CFS recorded. Following the intervention, 93% had CFS completed. The median CFS was 3 (IQR:2), with 53% between CSF 1-3, 17% CFS=4, 12% CFS=5, 11% CFS=6, 7% CFS=7. Of the validation cohort (n=18), the kappa coefficient was 0.492, suggesting moderate agreement between nursing and medical assessment. Overall, 56% (n=149) were known to the renal occupational therapist (OT), of these, 43% (n=64) had CFS□5. Amongst those with CFS□5, 16% were not yet reviewed by the OT. Among those aged 65 years or more, 40% had CFS□5 compared to 19% among their counterpart. Older age (r=0.278, p<0.001) and longer dialysis vintage (rho=0.295, p<0.001) were associated with increasing CFS. No correlation was found between CFS and gender or ethnicity.

Discussion:
Overall, 30% of our dialysis cohort were frail (CFS≥5) and 7% were severely frail (CSF=7). Frailty was associated with older age and longer dialysis vintage. Implementing frailty screening with the use of CFS by dialysis nurses was feasible, and may serve as a prompt for closer dietetic, OT and medical review. Further training on accurate CFS assessment may improve its validity. The prevalence of ReSPECT documentation was low amongst all frailty groups. We aim to implement regular CFS and broader frailty assessment by the multi-disciplinary team for all our in-centre haemodialysis cohort and improve advanced care planning discussions in the dialysis clinics.

hURECs: a non-invasive tool for diagnosing and monitoring renal involvement in Fabry disease

Dr. Juliana Estefania Arcila-Galvis[1], Dr. Praveen Dhondurao Sudhindar[2], Ms. Sarah Orr[2], Dr. Katrina Wood[3], Mr Zac Sentell[1], Dr. Marco Trevisan-Herraz[1], Prof. John A Sayer[1,4,5]
[1]Biosciences Institute, Faculty of Medical Sciences, Newcastle University, Central Parkway, NE1 3BZ , Newcastle upon Tyne, United Kingdom , [2]Translational and Clinical Research Institute, Faculty of Medical Sciences, Newcastle University, Central Parkway, Newcastle upon Tyne, NE1 3BZ,, Newcastle upon Tyne, United Kingdom , [3]Royal Victoria Infirmary, NE2 4LP, Newcastle upon Tyne, United Kingdom , [4]Renal Services, Newcastle Upon Tyne Hospitals NHS Foundation Trust, NE7 7DN, Newcastle upon Tyne, United Kingdom , [5]NIHR Newcastle Biomedical Research Centre,NE4 5PL, Newcastle upon Tyne, United Kingdom

Fabry Disease (FD) is an X-linked lysosomal storage disorder caused by α-galactosidase A deficiency, leading to glycosphingolipid accumulation and progressive organ damage. Renal involvement is a major complication, yet diagnosis often requires invasive kidney biopsy, and follow-up relies on indirect biomarkers or imaging, which lack cellular and molecular resolution. Here, we present human urine-derived renal epithelial cells (hURECs) as a minimally invasive alternative for phenotyping renal Fabry disease and monitoring treatment response.

Using hURECs from a newly diagnosed male FD patient, transmission electron microscopy (TEM) revealed lysosomal inclusions diagnostic of renal Fabry pathology, consistent with kidney biopsy findings. Bulk RNA sequencing (RNAseq) identified a transcriptomic disease signature including dysregulated pathways involved in lipid metabolism homeostasis, ion transport, endoplasmic reticulum stress response, and collagen processing.

Following systemic treatment of the patient with chaperone therapy, partial amelioration of the hUREC transcriptomic signature was observed during the first few months. However, by nine months, the signature began reverting towards baseline, correlating with continued kidney function decline. This prompted a transition to enzyme replacement therapy (ERT), with early evaluations showing transcriptomic stabilization.

Our findings demonstrate that hURECs replicate key structural and molecular markers of renal Fabry disease and offer a non-invasive platform for longitudinal assessment of treatment response. TEM of hURECs provides a diagnostic alternative to biopsy, while RNAseq-based transcriptomic profiling offers a sensitive and dynamic view of molecular changes, including key dysregulated pathways. This dual utility positions hURECs as a novel tool for improving the diagnosis, monitoring, and personalized management of renal involvement in Fabry disease.

A comparison of cystatin C and Creatinine in Estimating Renal function following Acute Kidney Injury

Mr Robin Djouder[1,2], Miss Leah Torr[2], Dr Kerry Horne[1,2], Miss Claire Mcguire[2], Mrs Elita Phiri[2], Dr Nitin Kolhe[2], Professor Nicholas Selby[1,2]
[1]University of Nottingham, Nottingham, United Kingdom, [2]University Hospitals of Derby and Burton NHS Foundation Trust, Derby, United Kingdom

Introduction
Accurate assessment of renal recovery following acute kidney injury (AKI) is essential for identifying patients at risk of adverse outcomes. Creatinine and cystatin C are endogenous biomarkers commonly used to estimate glomerular filtration rate (GFR). Unlike creatinine, cystatin C is less influenced by factors such as age, gender, and muscle mass. However, the comparative performance of these biomarkers in patients recently hospitalized with AKI, who often experience significant changes in body composition, remains unclear.

Methods
A prospective cohort of 41 patients who attended a post-AKI nurse-led clinic and had cystatin C assessments of eGFR was studied. Serum creatinine and serum cystatin C levels were measured within 90 days post-AKI, and eGFR was calculated using CKD-EPI 2009 creatinine (without correction for ethnicity) (eGFRcre) and CKD-EPI 2012 cystatin C (eGFRcys) equations. Demographic and clinical characteristics, including age, sex, and cause of AKI, were recorded. Bland-Altman analysis was used to assess the difference between eGFRcre and eGFRcys. The proportions of patients with eGFR <30 mL/min/1.73m² and those classified as very high risk using the KDIGO heatmap of eGFR and albuminuria categories (KDIGO 2012) were compared using Chi-square tests.

Results
The cohort had a mean age 64.56 ± 16.01 years and included 22 males and 19 females. The mean pre-AKI eGFRcre was 68.3 ± 25.8 mL/min/1.73m². 15 patients (36.5%) had a pre-AKI eGFRcre <60ml/min/1.73m2, two of whom had an eGFRcre<30ml/min/1.73m2.
The cohort included 2 patients (4.9%) with Stage 1 AKI, 20 patients (48.8%) with Stage 2 AKI, and 19 patients (46.3%) with Stage 3 AKI. The causes of AKI were identified as follows: sepsis/infection (19 patients, 46.3%), hypovolemia/dehydration (11 patients, 26.8%), obstruction (6 patients, 14.6%), medication or contrast-induced injury (6 patients, 14.6%), and congestive cardiac failure (CCF) (3 patients, 7.3%).

At 90 days after AKI, mean eGFRcys was significantly lower than eGFRcre, with a mean difference of -13.05mL/min/1.73m². Bland-Altman analysis revealed a systematic bias across the GFR range. Seventeen patients (41.5%) had an eGFR <30 mL/min/1.73m² using eGFRcys compared to only four patients (9.8%) using eGFRcre (p< 0.001) as shown in Table 1. Furthermore, the proportion of patients classified as very high risk by GFR and albuminuria categories was significantly higher using eGFRcys (27/41, 65.9%) compared to eGFRcre (13/41, 31.7%) (p-value < 0.001).

Conclusion
Cystatin C-based eGFR measures were lower than creatinine-based eGFR measures in patients recovering from AKI. We speculate that this reflects an over-estimation of kidney function using creatinine-based methods in the post-AKI period where loss of muscle mass during the recent acute illness is common. This would be consistent with the significantly larger proportion of patients that were classified as having severe kidney dysfunction using eGFRcys compared to eGFRcre. Further work is needed to determine whether eGFRcys provides a more accurate assessment of renal function and risk stratification in this population, and whether clinical decision making will be improved if there is better identification of individuals with residual kidney impairment and at greater risk of adverse outcomes post-AKI.

Are dogs really a (wo)man's best friend

Dr Joshua Roderick, Dr Preetham Bodanna, Dr Arvind Kumar Singh

Introduction:
Peritoneal dialysis (PD) is an established treatment for patients with end-stage renal disease (ESRD). Peritonitis remains a serious complication of PD, with various pathogens identified, including the zoonotic pathogen Pasteurella multocida, which is commonly associated with close contact between pets and dialysis equipment. This report discusses a case of P. multocida peritonitis in a 56-year-old woman undergoing PD for ESRD.

Case Report:
A 56-year-old woman with ESRD secondary to hypertensive nephropathy presented with vomiting, pruritus, and abdominal pain one week after noticing cloudy PD fluid. Examination revealed a soft, tender abdomen with moderate guarding and some discharge at the PD catheter exit site. Initial laboratory tests revealed a white cell count of 2560 x10 6 /L. PD peritonitis as per International society for Peritoneal Dialysis is when at least two of the following present-

1. Clinical features consistent with peritonitis
2. Dialysis effluent WBC count of >100/µL or >0.1 × 109/L (after a dwell time of at least 2 hours), with >50% polymorphonuclear leukocytes (PMNs)
3. Positive dialysis effluent culture.

In our patient, positive culture for P. multocida on PD fluid sent. The patient denied improper aseptic handling but acknowledged her dog frequently interacted with her during PD exchanges at home.

Discussion:
P. multocida is a zoonotic pathogen typically carried by dogs and transmitted through skin lesions or mucosal contact. While rare, P. multocida has been identified as a cause of PD-related peritonitis, especially in cases with close pet contact during PD exchanges. Literature suggests that pets, particularly cats, are a significant source of P. multocida in bite and non-bite infections (1). This case adds to the evidence that pet interactions, even in the absence of direct contact with the PD catheter, may increase the risk of infection. Initial antibiotic treatment, following local guidelines, included intraperitoneal vancomycin and oral ciprofloxacin. Once organism identified patient based on sensitivity was continued on Ciprofloxacin.

Conclusion:
This case highlights the potential risk of P. multocida peritonitis in PD patients with close pet contact, emphasising

1. The importance of establishing in history any close contact with pets at home
2. Need for caution in aseptic technique and
3. Patient education in awareness of PD-related infections.

Further studies are required to understand the epidemiology and preventive measures related to zoonotic infections in PD patients.

Influence of Socioeconomic Status on Unplanned Dialysis in Advanced Kidney Disease

Dr Mohamed Elewa[1], Dr Simon Watts[1], Prasanna Hanumapura[1], Dr Anuradha Jayanti[1]
[1]Manchester University NHS Foundation Trust, Manchester, United Kingdom

Background:
Unplanned dialysis commencement is of significant concern in patients with advanced chronic kidney disease. Inadequate pre-dialysis care has been associated with higher mortality, hospitalisation, in-centre location for dialysis, and lower arteriovenous fistula / graft rates. It is hypothesized that patients from deprived socioeconomic background are at especial risk of unheralded dialysis starts.

Methods:
A retrospective observational study was undertaken at a single renal unit between January 2023 and May 2024. All incident dialysis patients were included in this observation. All patient data was further evaluated at 3 months from initiation of renal replacement therapy. Information ascertained included socio-demographics, dialysis modality type and setting, vascular access type and transplant enlisting status.

Results:
209 patients commenced dialysis in sixteen months. 49 (23%) were not known to the nephrology service prior to commencement. This unplanned cohort was significantly younger (median 47 vs 62 years, $p < 0.001$) with no significant difference in gender and ethnicity compared to the planned dialysis cohort. Higher proportion of patients who started urgent, unplanned dialysis were in the most deprived category (deprivation decile = 1), based on the index of multiple deprivation (51% vs 33%), this difference was not statistically significant ($p=0.13$). Patients known to the renal service were more likely to be on a home dialysis modality (21% vs 6%, $p=0.03$) and more likely to start haemodialysis (HD) with an arteriovenous fistula (AVF) (43% vs 8%, $p < 0.001$). At 3 months post dialysis commencement, AVF rates remained significantly low (10% vs 46%, $p < 0.001$) in patients with unheralded dialysis start. Median time from dialysis start to being placed on the transplant list was also longer in this group (146 vs - 63 days, $p < 0.001$). It should be noted that many patients in the planned cohort were listed prior to starting dialysis. During the study period (20 months), mortality was not significantly different between the two groups (4% vs 5.6%, $p = 0.954$).

Conclusion:
Access to specialist services prior to dialysis start was not limited by postcode-based deprivation scores. However, patients with unplanned dialysis starts were predominantly from the most deprived areas, though this difference was not statistically significant in our study. They were also less likely to have optimal dialysis care with lower AVF rates and delayed transplant listing, suggesting a missed opportunity for early intervention and improved outcomes. Active case finding in the primary care setting and population education should improve significantly to provide timely intervention for patients with chronic kidney disease leading to appropriate diagnosis, slowing renal disease progression and timely referral for renal replacement therapy preparation.

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Fatal Electrolyte Abnormalities Following Phosphate Enema in a Patient with Huntington's Disease and End-Stage Kidney Disease

Dr Millie Prime[1], Mr Rohan Drawid, Dr Innocent Segamwenge, Dr Bhavna Pandya, Dr Azri Nache
[1]Liverpool University Hospitals Foundation Trust, Liverpool, United Kingdon

Background

Hyperphosphataemia is a common finding in end stage Kidney Diseases (ESKD) and is associated with increased mortality. In addition to dietary phosphate, the medicinal phosphate load like phosphate enemas can significantly increase phosphate absorption and serum phosphate levels. The use of phosphate enemas in general patient population is common for constipation, pseudo obstruction and as bowel preparation for endoscopic procedures. The introduction of phosphate salts to the bowel acts by drawing water into the lumen thereby stimulating peristalsis and relieving constipation/pseudo-obstruction. However, in patients with neuropathic cause like Huntington disease who develop Chronic Intestinal Pseudo-Obstruction (CIPO), phosphate enemas remain less effective due to neurologically sluggish gut. In this situation, phosphate from phosphate enema gets absorbed. In advanced CKD and ESKD, the kidneys are unable to excrete absorbed phosphate. This can lead to severe hyperphosphataemia and electrolyte imbalance. So far there is limited literature available in this direction with some reported cases suggesting fatal hyperphosphataemia following phosphate enema.

Case presentation

We present a case of a male patient in his 60s with Huntington's disease. He was haemodialysis-dependent due to obstructive uropathy. He was admitted to an acute medical ward due to an episode of hypotension on his routine dialysis session, associated with abdominal pain and distension. He was diagnosed with pseudo-obstruction and admitted for 4 days. He was discharged by the general medical team with a plan for daily enemas to be given in his nursing home for 2 weeks. Just before discharge his serum phosphate level had increased to 2.98 after two phosphate enemas during the stay. Around 2 weeks later, the patient was re-admitted with persistent vomiting, reduced urine output, and ongoing abdominal pain and distension. He was found to have significant electrolyte disturbances, with serum phosphate level of 10.12mmol/L, potassium 2.8mmol/L, corrected calcium 1.91mmol/L, and serum bicarb 15mmol/L. His hypocalcaemia and low potassium levels were corrected with IV calcium and potassium respectively. He was referred to critical care to for dialysis. However, he passed away within 16 hours of admission before being transferred to critical care for dialysis.

Conclusion

Routine management of bowel dysfunction can have a catastrophic impact on the electrolyte balance in kidney patients, in particular with ESKD with disordered homeostasis. The phosphate enemas can lead to excessive phosphate absorption and fatal rise in serum phosphate levels along with other electrolyte abnormalities. It is important to recognize this risk, involve the nephrology team early in the patient's journey, and ensure appropriate treatment and urgent dialysis to prevent such complications. This case highlights the complexity that can arise from use of phosphate enemas in patients not only with significantly impaired renal function, but with the added issue of delayed bowel emptying with CIPO which entails a different approach and close communication with renal team.

Understanding the impact phosphate enemas can have on the delicate electrolyte balance of end stage kidney disease patients is important to prevent potentially lethal complications.

Analysis of SGLT2i prescriptions in patients with HIV – how well are we following CKD guidelines?

Dr Oliver Pfeiffer[1,2], Dr Daniel Murphy[1], Dr Carmen Perea[1], Dr Sabine Kinloch[1], Dr Ruth Pepper[1]
[1]Royal Free Hospitals NHS Foundation Trust, London, United Kingdom, [2]Addenbrooke's Hospital, Cambridge University Hospitals NHS Foundation Trust, Cambridge, United Kingdom

Introduction

SGLT2 inhibitors (SGLT2i) are an increasingly common class of medications with wide-ranging benefits, including use in type 2 diabetes mellitus and heart failure. Recently, they have shown benefit in slowing progression of chronic kidney disease (CKD) – both in patients with and without type 2 diabetes mellitus. NICE and UKKA have developed guidelines for the use of SGLT2i to slow the progression of CKD. Patients with HIV infection are a group especially at risk of developing CKD, through a variety of mechanisms, and may have barriers to involvement with healthcare. This audit will investigate how effectivel a large HIV centre is prescribing SGLT2i in patients with CKD.

Methodology

Given the prevalence of CKD in HIV patients, it was established that analysing performance at SGLT2i prescription would be beneficial. Two sets of guidelines were used to set criteria and standards – the UKKA 2023 CKD guidelines, and the NICE 2022/2023 SGLT2i guidelines. A total of 3060 patients' data was extracted from the HIV patient database. This data was compared with the NICE and UKKA criteria for SGLT2i initiation, and performance against these standards was measured. Data were also collected on how reliably measurements for eGFR and albumin/creatinine ratio were collected to identify any further areas for improvement.

Results

Analysis showed a prevalence in CKD stage 3-5 of 14% in the HIV cohort, compared with the national average of 11%. When using the UKKA guidelines, it was identified that 301 patients (10%) had an indication for SGLT2 inhibitor prescription; of this, 211 patients (70%) had an exclusively renal indication. When assessing the UKKA guidelines, 66 patients (22%) with an indication for SGLT2i initiation were prescribed an SGLT2i. In the subgroup with known type 2 diabetes mellitus, the performance was slightly better at 31%. When using the NICE guidelines, only 73 patients (21%) with an SGLT2i indication were prescribed an SGLT2i. Performance with CKD diagnosis and monitoring was generally good, with 99.9% of patients having at least one eGFR reading, and 91% of patients having an albumin/creatinine ratio recorded.

Discussion

The results suggest that targets for SGLT2i prescription are not being met, with 62-72% of patients with an indication not being prescribed SGLT2i. Performance is marginally better in the subgroup of patients with a known diagnosis of type 2 diabetes mellitus. This may be due to the CKD guidelines for SGLT2i use being new, and clinicians not being aware of their indication, or lack of experience with the medications. Another barrier to this may be that it requires starting another medication in a cohort of patients who will be on several other drugs, increasing concerns about polypharmacy.

Performance may be improved by increasing awareness amongst HIV specialists and general medicine clinicians about the utility of SGLT2i in CKD, through the use of seminars, educations sessions, and involvement in the joint renal-HIV clinic. The performance with regard to the guidelines can then be re-analysed in 1-2 years time, to ensure improvements are in place.

Clinical and pathological characteristics of Fibrillary Glomerulonephritis in a Multi-Institutional cohort from the UK

Doctor Lae Thandar Soe[1], Dr Jean Patrick, Dr Ravi Varma, Dr Anna Paterson, Dr Lisa Willcocks, Dr Chintana Galahitiyawa, Dr Oscar Swift, Gerald Glancey, Madeline Charles-Rudwick, Charlotte Quinn
[1]Renal Medicine , , UK

Introduction
Fibrillary Glomerulonephritis (FGN) is a rare glomerulopathy defined by randomly oriented fibrils measuring 10–30 nm in diameter on electron microscopy and associated with immune complex deposition. Despite advancements, FGN remains poorly understood, with limited data on prognostic factors and treatment outcomes. This retrospective observational study provides insights into a large cohort of FGN patients from the United Kingdom and aims to evaluate clinical, histological, and treatment predictors of renal outcomes.

Methods
We identified patients diagnosed with FGN between 2015 and 2024 through the histopathology database at a tertiary university hospital encompassing referrals from seven regional hospitals. FGN diagnosis was confirmed via Congo-red-negative fibrils on electron microscopy, immunoglobulin deposition, and DNAJB9 positivity where available. Clinical, laboratory, histological, and treatment data were retrospectively extracted from electronic medical records. Primary outcomes were end-stage renal disease (ESRD) or death. Secondary outcomes were complete remission (CR), partial remission (PR) and persistent renal dysfunction (failure to meet CR or PR but not reaching ESRD)

Results
Thirty-five patients were included with a mean age of 63 years and a female predominance (71%). Autoimmune diseases (28.5%), diabetes mellitus (34.2%), and malignancies (20%) were common comorbidities. Proteinuria was prevalent with 54% having nephrotic-range proteinuria (mean 7.2 g/day). Renal dysfunction was present in 88% with a mean serum creatinine of 302 µmol/L at diagnosis. Histological patterns included mesangial sclerosis/proliferative (69%), diffuse proliferative (17%), and membranoproliferative (9%). DNAJB9 staining was performed in 37% of cases and was positive in all.

Over a mean follow-up of 44.5 months, 51% progressed to ESRD. 9% achieved partial remission, 6% achieved complete remission and 34% had persistent renal dysfunction. Through univariate analysis the predictors of ESRD or death included proteinuria (p=0.005), serum creatinine (p=0.014), and the presence of a diffuse proliferative pattern (p=0.019). On multivariate analysis, only proteinuria remained a significant predictor (p=0.021).

Treatment with immunosuppression (49%) varied by histological subtype and included steroids, mycophenolate mofetil, cyclophosphamide, and rituximab. No significant difference in renal outcomes was observed between treated and untreated patients (p=0.748). Rituximab was associated with non-progression to ESRD in 4 out of 5 patients though this did not reach statistical significance.

Conclusion
This study represents a large UK-based cohort of FGN patients, providing novel insights into its clinical and pathological features. FGN is associated with autoimmune conditions, diabetes, and

malignancies. DNAJB9 staining offers diagnostic precision. Proteinuria at presentation is a key prognostic marker, emphasizing the need for early intervention. Despite the use of immunosuppression, progression to ESRD remains common, highlighting the need for more targeted therapies. Further research is essential to improve outcomes in this challenging glomerulopathy.

Our Experience in Developing a Renal Frailty Service in Satellite Haemodialysis Units of One NHS Trust

Mrs Ida Rebello, Dr Sai Krishna Duraisingham, Ms Jo Wilson, Mr Damir Tandaric, Dr Sally Hamour, Dr Jennifer Cross
[1]The Royal Free Hospital NHS Trust, London, UK

Introduction:
People living with advanced kidney disease are often more symptomatic than those living with malignant conditions. Frailty combined with advanced kidney disease presents a very real need to consider Advance Care Planning (ACP) to support patients and their families. Following a successful pilot study in one satellite Haemodialysis (HD) unit in 2020-2021, we expanded our Renal Frailty Service (RFS) across all satellite HD units within our Trust.

Methodology:
Before 2020, our centre comprising 850 HD patients across five satellite units had no dedicated RFS. Our pilot study affirmed the need for a Specialist Nurse for Frailty (SNF). Our SNF trains dialysis nurses in the use of the Clinical Frailty Score (CFS) and documenting this in our kidney database. Patients with a CFS of ≥ 7 are identified and approached for assessment using a uniquely designed Frailty assessment and POS-S Renal questionnaire. An in-depth discussion is subsequently arranged with the patient ± next of kin followed by an ACP meeting with the SNF and wider multi professional team including General Practitioners and Kidney Consultant involved in the patient's care.

Results:
Figure 1a) demonstrates the percentage of patients, by year, in each unit with a CFS ≥ 7.

Figure 1b) demonstrates the percentage of those identified with CFS ≥ 7, per unit, by year who had ACP meetings completed.

Table 1 demonstrates the number of referrals made to Palliative Care and Community Services following ACP discussions.

Table 2a) details location of patient death, per year and per unit. The secondary table 2b) details whether preferred place of death had been discussed and documented in ACP meetings.

Conclusion:
This work reinforces the need for ACP within our Frail HD cohort. A dedicated RFS led by our SNF has been well received by patients and staff. Workforce expansion is likely required to develop this work even further. We wish to take this work forward with input from local Geriatricians and community services to ensure we are respecting patient wishes, maximising their quality of life and ensuring they are living as best they can with Frailty.

Rare cause of Proteinuric Chronic Kidney Disease

Dr Mahzuz Karim, Dr Mwayi Mtekateka, Dr Victoria Bradsley
[1]Lae Soe , Renal trainee , ,

Case History

A 75-year-old man was referred by his general practitioner in October 2024 for evaluation of proteinuria and declining renal function, accompanied by worsening dyspnoea. Past medical history included hypertension, ischaemic heart disease, and heart failure, and he was taking aspirin, atorvastatin, candesartan, carvedilol, spironolactone, doxazosin, and furosemide. He was previously a heavy smoker, but had stopped 13 years earlier. On direct questioning he thought he may have lost some weight over the preceding 3 months, but he denied any haemoptysis, epistaxis, joint pain, rash, or constitutional symptoms. There was no family history of kidney disease. Physical examination revealed a blood pressure of 130/70 mmHg and mild bilateral pitting oedema of his legs, but was otherwise unremarkable. Urine dipstick showed 2+ protein and 3+ blood.

Review of previous blood results showed that his renal function had been normal in 2022, with a serum creatinine of 79 µmol/L (59-104 µmol/L) and estimated glomerular filtration rate (eGFR) of 85 mL/min; however, since June 2023 there had been a gradual decline, with a creatinine of 132 µmol/L and eGFR 45 mL/min at the time of referral in October 2024. Urine protein to creatinine ratio was 319 mg/mmol, and urine albumin to creatinine ratio 136 mg/mmol. Further investigations showed normal ANCA, ANA, complement (C3, C4), PLA2R antibodies, and serum electrophoresis and free light chains. Hepatitis B, C, and HIV were also negative. Cryoglobulins was negative and CT imaging of the chest, abdomen, and pelvis excluded malignancy . He was referred to haematology team for bone marrow biopsy.

He proceeded to undergo a renal biopsy which showed a diffuse mesangiocapillary pattern glomerulonephritis with a small subset of glomeruli showing secondary segmental sclerosis. There was a single, small cellular crescent, but no pseudo-thrombi or necrosis. There was 25% established parenchymal scarring, with non-specific interstitial chronic inflammation and background vascular sclerosis. No lymphoproliferative disorder was recognised. Immunostaining showed strong C1q staining of glomerular capillary walls but only weak mesangial and capillary wall staining for IgG, IgA and IgM, possibly non-specific. DNAJB9 was negative and kappa/lambda stains showed no differential staining. Congo red negative. Electron microscopy showed subepithelial deposits with microtubular substructure, approx 35nm diameter forming parallel arrays and also arranged more randomly. The findings were consistent with a diagnosis of immunotactoid glomerulopathy.

Discussion

Immunotactoid glomerulopathy is a rare entity (estimated to occur in 0.06% of native renal biopsy specimens). Light microscopy can show various glomerular changes, including mesangiocapillary, endocapillary, and membranous patterns. Electron microscopy classically shows large microtubular deposits, with diameters larger than those seen in conditions such as fibrillary glomerulonephritis (in which staining for DNAJB9 is usually positive) or amyloidosis. Presenting clinical features can include haematuria, proteinuria, and renal impairment. The majority of cases are associated with an underlying haematological disorder such as chronic lymphocytic leukaemia, small lymphocytic lymphoma, multiple myeloma, or other monoclonal gammopathies. The main aim in these cases is treatment of the underlying disorder. Optimal management and clinical outcomes in cases without an underlying haematological pathology is much less certain.

Mind the gap: improving transition using an integrated care pathway for young people with

chronic kidney disease

Miss Isabella Darshani Fuller[2], Dr Matthew Harmer[1], Dr Shuman Haq[1], Dr Rodney Gilbert[1], Dr Ben Reynolds[3], Dr Kay Tyerman[4], Dr Yincent Tse[5], Dr Dean Wallace[6], Mrs Sarah Shameti[1], Dr Arvind Nagra[1]
[1]Southampton Children's Hospital,, Southampton, United Kingdon, [2]University of Oxford, Institute of Human Sciences, Oxford, United Kingdom, [3]Royal Hospital for Children, Paediatric Nephrology, , Glasgow, United Kingdom,, [4]Leeds Children's Hospital, Children's Services. Nephrology, Dialysis and Renal Transplantation., Leeds, United Kingdom,, [5]Great North Children's Hospital , Paediatric Nephrology, , , United Kingdom, [6]Royal Manchester Children's Hospital, Paediatric Nephrology, , , United Kingdom

Background

Transitioning from paediatric to adult services increases morbidity and mortality risk. Over half of young people (YP) with chronic kidney disease (CKD) and parents experience a sense of being unprepared and anxious regarding this transition (Crawford et al. 2020). They express feeling powerless, have insufficient time to adequately prepare and lack control over decisions on timing of transfer and who care is transferred to. They also report a lack of clarity regarding the transfer plan and distrust in the adult team. These challenges result in adverse outcomes such as non-adherence to medical recommendations, low attendance at clinics and decisional conflict.

Empowering YP and parents to be involved in care decisions is vital for successful transition, leading to improved patient experience, treatment adherence, knowledge, and trust in the adult team.

To address this, we (Ready Steady Go-TIER Collaborative (www.readysteadygo.net)) developed a programme, 'Moving on Up Together: 16+ pathway', designed to be used 12-24 months before YP transfer to adult services. The pathway discusses the options, records decisions made, notes action plans and collects feedback from YP and parents. It ensures an acute focus on shared decision making, empowering patients to be active contributors in their care.

Aim

To assess the effectiveness of the 'Moving on Up Together: 16+ pathway' in improving the transition from paediatric to adult services.

Methods

As part of the pathway, at age 16 YP with CKD (stage 1-5) were informed:
• that their care will be transferred to adult services in 12-24 months
• they need to be involved in decisions surrounding who, where and when their care will transfer, e.g. how many joint adult-paediatric appointments there will be and where these will be held
• of the options and why some options were not appropriate, e.g. sole reliance on primary care for a kidney transplant

A feedback survey 'Making a Decision Together (SDMQ9+1)' was then completed by YP and parents to see how involved they felt in decision-making regarding the transition to adult services.

Results

From 2021 - 2024 131 responses were received (YP=69; parent = 49; YP + parent =13). 96% of YP and parents felt involved in the decision making on where, when and to whom their care would be transferred to in adult services. 93% were aware of the transition plan put in place and 92% found

this information useful. Overall, YP and parents felt reassured about the move to adult services and trusted the adult team; “I have been thinking about the future of my care for a long time ... this has completely put my mind at ease :)” (Young person, 2023).

Conclusion

Through its inclusive approach, the ‘Moving on Up Together: 16+ pathway’ ensures active participation of YP and parents and provides clarity and support, resulting in an improved transition to adult services and positive healthcare experience. Further work is needed regarding long term outcomes.

Establishing a community of practice to advance enhanced supportive kidney care

Dr Jyoti Baharani[1], Mrs Karen Jenkins, Mrs Michaela Dicks
[1]University Hospitals Birmingham , Birmingham, England, [2]East Kent Hospitals University NHS Foundation Trust, , , [3]Royal Devon University Hospitals , ,

Background:
Enhanced supportive kidney care (ESKC) is an evolving area focusing on improving quality of life and access to specialist services for people with advanced kidney disease who are not thriving on dialysis have a failing transplant or have chosen not to have dialysis It also forms an integral part of the Renal Services Transformation Programme (RSTP)
To support this a Community of Practice (CoP) for ESKC led by the Southwest Kidney Network and supported by the NHSE Clinical Advisor for ESKC has been formed across Kidney care networks in England. A CoP being a group of individuals with shared interests and expertise who collaborate to exchange knowledge, solve problems, and innovate in their field. Recognizing the potential of this model, we have established this CoP to drive innovation, improve patient care and empower healthcare professionals in delivering and improving ESKC.

Methods
The CoP formed across the Kidney care networks in October 2024 as a multi-disciplinary group of nephrologists, palliative care specialists, nurses, and patient representatives.
Aims of the ESKC CoP:

- Regular virtual and in-person forums to share experiences, challenges, and best practice.
- Development of a shared resource repository, including protocols/guidance, patient-facing materials, and educational content.
- Thematic workshops to explore innovative approaches, such as integrating digital health tools and community-based support services into ESKC.
- Collaborative quality improvement projects across participating centers.

Results
The ESKC CoP has been instrumental so far in:

- Encouraging the adoption of innovative care models, including telehealth consultations and tailored symptom management pathways.
- Enhancing the confidence and skills of healthcare professionals through peer mentoring and knowledge exchange.
- Encouraging self-assessment of ESKC using the RSTP toolkit
- Building a stronger awareness of ESKC amongst stakeholders, fostering a collaborative culture for quality improvement

Conclusion
The ESKC Community of Practice has set up a foundation for reshaping enhanced supportive kidney care delivery.
In the long term, we aim to:

- Advance guidelines for symptom management, advance care planning, and decision-making support for patients and families.
- Facilitate quality improvement projects on ESKC implementation and address barriers.
- Facilitate Increased patient engagement in care planning and ensure equitable

access to supportive care services.

- Increase awareness of ESKC to promote an increase in dedicated services to reduce variation.
- By connecting diverse stakeholders, the CoP hopes to serve as a catalyst for innovation and improvement in ESKC.

Improving staff confidence and knowledge of managing a patient admitted for renal biopsy

Dr Linn Renken[1], Dr M Belal Soobadar[1], Dr Farai Chawira[1], Dr Phoebe Swift[1]
[1]Doncaster Royal Infirmary, Doncaster, United Kingdom

Introduction

There was a perceived lack of knowledge and skills in managing post biopsy patients by Renal Ward nurses and Day Case Unit staff. Quality improvement project was done to improve the knowledge, skills and confidence of staff members on the Day Case Unit, Day Surgery Unit and Renal Ward for pre-biopsy and during the recovery process of a renal biopsy patient and to enhance patient experience.

Methodology

A pre-project survey was designed collaboratively with Nursing Team to assess skills, knowledge and confidence in managing renal biopsy patients. The second part of the project was to develop a renal biopsy protocol for nurses and staff. Lastly, after eight sessions of teaching about the protocol to the nursing team, another survey would be done to assess knowledge, confidence and skills of nurses. The aim is to see an improvement in knowledge, skills and confidence.

Results

Over the 1.5 weeks, it was noted that there was 12% increase in percentage of staff members' awareness of renal biopsy protocol. There was also an increase by 11% of the knowledge score. However, it was noted that the confidence of staff had gone down by 6%.

Discussion

It is positive to note that the Quality Improvement Project led to the increase in awareness of protocol. Before, this was not accessible and the older version needed an update. Having awareness and ease of accessibility can only enhance confidence, knowledge and skills. The increase in knowledge score pre and post survey highlighted the importance of teaching sessions about the protocol and it is hoped that with time knowledge will be on the rise. Last but not least, the decrease in confidence could be explained that the repeat questionnaire was done after short time and the staff needed more time and exposure to develop the confidence level aspired. This Quality Improvement Project has been passed on to future colleagues on the Renal Unit so that we can ascertain the trend over time. Ultimately, this will greatly help the staff and improve patient care.

A rare cause of severe anaemia in a kidney transplant recipient

Dr Abdisalan Abdullahi[1], Dr Otoabasi UKO[1], Dr David Makanjuola[1], Dr John Clark[1], Dr Mysore Phanish[1]
[1]Epsom and St Helier NHS Trust., Sutton, United kingdom
A Rare Cause of Severe Anemia in a Kidney Transplant Recipient

Introduction

Infections are a major risk for solid organ transplant recipients due to the immunosuppressive medications used to prevent graft rejection. Parvovirus B19, typically a mild childhood illness, can cause severe hematological complications in immunocompromised adults. This case report discusses a renal transplant recipient who developed symptomatic anemia and transient aplastic crisis due to Parvovirus B19 infection.

Case Report

A 55-year-old female with end-stage renal failure secondary to childhood reflux underwent a living donor kidney transplant in January 2024 through the kidney sharing scheme. Post-transplant immunosuppressive therapy included Basiliximab induction, Tacrolimus, Mycophenolate Mofetil (MMF), and Prednisolone, with Valganciclovir prophylaxis. On Day 3 post-transplant, her hemoglobin (Hb) dropped, and she received 3 units of blood. Imaging revealed a large hematoma, which was evacuated. Her Hb stabilized between 82–85 g/L, and kidney function remained excellent, with an eGFR >70 mL/min.

However, four weeks later, her Hb dropped to 65 g/L, with no evidence of active bleeding on CT angiography. Her white cell and platelet counts were normal, but ferritin levels were markedly elevated, peaking at 4500 ng/mL, and C-reactive protein was normal. Liver enzymes were intermittently raised but later normalized. There was no evidence of hemolysis on the blood film. Despite 2 units of blood and erythropoietin injections, her anemia persisted.

Parvovirus B19 IgG and IgM antibodies were initially negative, but Parvovirus B19 DNA PCR on March 25, 2024, returned highly positive results (>100 billion copies/mL). Retrospective analysis of samples from February 2024 detected Parvovirus DNA. Neutropenia developed in early April. MMF was reduced and then stopped, and intravenous immunoglobulin (IVIg) therapy (2g/kg, 50g total) was given on April 13–14, 2024. This led to a significant improvement in Hb levels and normalization of neutrophil counts. By May 2024, she seroconverted, with positive IgG and IgM parvovirus antibodies.

Despite this progress, a rebound in Parvovirus B19 DNA levels occurred after MMF was reintroduced, and MMF was stopped again. As of October 2024, the patient remains stable on Tacrolimus-Prednisolone immunosuppression, with stable Hb of 115–127 g/L and excellent kidney function. Low-grade Parvovirus viraemia persisted at 100,000 copies/mL.

Discussion

Parvovirus B19 causes a mild illness in children but can lead to severe red cell aplasia in immunocompromised hosts, as seen in this case. The virus targets erythroid progenitor cells, impairing red blood cell production. Diagnosis in transplant recipients can be delayed due to unreliable antibody testing. Whole blood DNA PCR is the gold standard for diagnosis.

This case underscores the importance of vigilant infection monitoring in transplant patients. Management with a reduction in immunosuppression and IVIg therapy was effective in treating the

severe anemia caused by Parvovirus B19. The persistence of viraemia suggests chronic infection, highlighting the need for ongoing surveillance.

Parvovirus B19 should be considered in kidney transplant recipients with unexplained anemia. Early diagnosis through DNA PCR, combined with careful management, can lead to favourable outcomes, even with persistent viraemia.

Atypical presentation of diseeminated VZV infection in deceased donor kidney transplant recepient

Dr Maged Elsaie[1], Dr Rhys Evans, Dr Inji Alshaer
[1]Royal Free Hospital , London , United Kingdom

Introduction:
Kidney transplant recipients require high-dose immunosuppression for the first few months post-transplant to prevent graft rejection. This treatment carries the risk of opportunistic infections, including reactivation of dormant viral infections. Atypical presentations and multi-organ infections complicate diagnosis and treatment. Kidney transplant candidates are routinely tested for VZV and HSV IgG, which indicate past infections. If VZV IgG is negative, vaccination is recommended to prevent life-threatening disseminated VZV infection, which has a 30% mortality rate.

Case Presentation:
A 39-year-old male with end-stage renal disease due to hypertensive nephropathy received a cadaveric kidney transplant. He required emergency re-exploration on post-transplant day 4 due to delayed graft function and abnormal venous flow. The transplant vein was normal, and a biopsy confirmed acute T-cell mediated rejection (Banff 1b), treated with IV methylprednisolone. A repeat biopsy showed partial improvement, and the patient was discharged on immunosuppressive therapy: prednisolone, mycophenolate mofetil, and tacrolimus.

Presenting Complaint:
Two months post-transplant, the patient developed progressive dysphagia, poor appetite, and significant weight loss. Despite outpatient dietary support, he became increasingly fatigued and was admitted for further investigation. He reported a productive cough with brown sputum, fever, and night sweats for one week, but no mouth ulcers, diarrhea, skin rash, or shortness of breath. He did report intermittent pain over the transplanted kidney.

Clinical Assessment:
On admission, vital signs were stable, and there were no rashes, ulcers, or lymphadenopathy. Blood tests showed lymphopenia (0.58 * 10^9/L), normal C-reactive protein (5 mg/L), and a tacrolimus level of 12.8 ng/ml (target 6-8 ng/ml). Immunoglobulin levels were normal except for low IgM (0.3 g/L), and lymphocyte subsets showed low CD4 and CD8 counts. Both VZV IgG and HSV IgG were positive from the time of his transplant.

Diagnostic Tests:
Upper GI endoscopy revealed a gastric ulcer and erosive gastritis with duodenal erosions, initially suggesting Candida infection. The patient was started on oral fluconazole for suspected esophageal candidiasis. However, five days later, he developed a generalized vesicular rash. A CT scan showed bilateral ground-glass lung nodules, suggesting an atypical infection or cavitating pneumonia, possibly septic emboli. VZV DNA PCR was positive in both blood and skin swab.

Treatment:
The patient was started on IV aciclovir (5 mg/kg twice daily), which was later increased to 10 mg/kg after confirming VZV viraemia on blood sample. Fungal cultures for duodenal samples were negative. VZV and HSV DNA were detected in dueodenal biopsy with chronic nflammatory cells on cytology analysis. Bronchoscopy revealed inflamed airways and VZV DNA in the bronchoalveolar lavage, confirming disseminated VZV with concomitant HSV infection in the gut.

Discussion:
Post-transplant immunosuppression elevates the risk of reactivating latent infections, with symptoms like fever, night sweats, and weight loss suggesting potential opportunistic infections. The lack of

typical vesicular eruptions can hinder the timely diagnosis and treatment of disseminated VZV infection. Kidney transplant candidates should be tested for VZV IgG and offered vaccination if negative to lower the risk of severe infections such as disseminated VZV, which can lead to increased morbidity and mortality in immunocompromised patients.

EXPLORING SOCIOECONOMIC AND REFERRAL PATTERNS IN DIALYSIS MODALITY CHOICES: INSIGHTS FROM A UK SINGLE-CENTRE STUDY"

Lisa Tibet[1], Dr Lama Sallout[1], Dr Jyoti Baharani[1]
[1]UHB, Birmingham, United Kingdom

EXPLORING SOCIOECONOMIC AND REFERRAL PATTERNS IN DIALYSIS MODALITY CHOICES: INSIGHTS FROM A UK SINGLE-CENTRE STUDY"
Background: Pre-dialysis nephrology care and kidney replacement therapy-directed education (KDE) play a critical role in facilitating informed dialysis modality selection and improving patient outcomes. This study aimed to evaluate the influence of pre-dialysis care, socioeconomic factors, and patient characteristics on dialysis initiation and modality choices in a single-centre cohort in the UK.

Methods: A retrospective analysis was conducted on patients initiating dialysis between 2021 to 2023 examining deprivation index, and modality choice. Statistical analyses examined associations between pre-dialysis care, socioeconomic factors, and initial dialysis modality.

Results: This retrospective analysis included 267 patients who initiated dialysis between 2021 and 2023. The median age was 65.6 years (range: 22.6–92.5), with 62.5% starting on in-centre haemodialysis (HD) and 37.5% selecting home dialysis therapies, primarily peritoneal dialysis (PD). Patients with higher deprivation indices (categories 8–10) were significantly underrepresented in home dialysis (10% vs. 25% of low-deprivation patients, $p<0.05$). Late nephrology referrals (<6 months before dialysis initiation) accounted for 38% of acute HD starts and were associated with lower rates of home dialysis uptake. While there was a trend with more acute HD starts among those in the high DI, this did not reach statistical significance.
Among the patients who opted for home therapies, key motivating factors included preservation of vascular access, compatibility with home life, and patient preference (PP). Conversely, common barriers to home dialysis adoption included lack of readiness for self-care, cultural preferences, and acute clinical presentations.

Conclusions: Despite universal access to KDE, barriers to home dialysis persist among socioeconomically deprived patients at our centre and those with late referrals to nephrology services. To address these disparities, strategies should focus on improving early referral pathways, integrating culturally sensitive educational interventions, and enhancing peer-support networks. Additionally, policies targeting socioeconomic determinants, such as support for home setup and caregiver availability, could further promote home dialysis uptake. Expanding these targeted interventions may improve equity and patient outcomes in dialysis modality selection.

Impact of multimodal presentation of information on kidney replacement therapy to patients with advanced kidney disease

Mrs Krisha Woods[1], Miss Siobhan Halligan[1], Susan Travers[1], Mrs Lindsay Gee[1], Mrs Holly Brownlee[1], Mrs Leeanne Lockley[2], Dr Rosie Donne[2], Mr Andrew Stott[3], Mr Pedro Labanca, Dr Anu Jayanti[5]
[1]Advanced Kidney Disease Nurse Specialists, Manchester Royal Infirmary, United Kingdom , [2]KQUIP project support team , , , [3]Northwest Kidney Network Quality Improvement Manager, , , [4]Senior Clinical Videographer, Manchester Royal Infirmary, , , [5]Consultant Nephrologist, MRI; Dialysis workstream operational lead, NW Kidney Network, ,

Introduction

The Getting It Right First Time (GIRFT) 2021 report set out the priorities for kidney care nationally. Central to the recommendation is an emphasis on home dialysis therapies with a recommended minimum prevalence of 20% in every renal centre and shared decision making with patients.

The renal centre involved in this study caters to a diverse socio-demographic and multilingual population. Patient and carer feedback over the years led us to create educational material on advanced kidney disease care tailored to different adult learning styles. This was in addition to the standard mode of information delivery (clinic discussions, written information and demonstration of peritoneal dialysis equipment due to its portability). The aim is to create a multimodal information platform in multiple languages for use by patients and carers. This report is the evaluation of the impact of audiovisual guide to peritoneal dialysis experience for patients, by patients.

Methods

The project was undertaken over 18 months in two parts.

a. Creation of the content for audiovisual educational material
b. Mixed methods survey of its impact on patient understanding of home therapy modality.

The project team comprised of the advanced chronic kidney disease nursing team members, working alongside patients and the institution's medical illustration services. A series of short films on home dialysis modalities, including training for home haemodialysis, Continuous Ambulatory Peritoneal Dialysis (CAPD) and Automated Peritoneal Dialysis (APD), have been created or remain in advanced stages of development. The project gained momentum with a structured QI methodology approach using the Plan-Do-Study-Act model. Expert patients and the wider multidisciplinary team ratified the final version, which was also approved by the Trust's Governance structure.

The films were viewed by 35 patients attending the Advanced Chronic Kidney Disease (AdCKD) Clinic, based upon fulfilment of the following selection criteria:

- At least one prior attendance at the AdCKD clinic
- Previous exposure to CAPD and APD demonstration at the workshop
- Undecided on dialysis modality or had already opted for PD.

After viewing the films, patients responded to questions designed to capture their understanding and perceived knowledge of the modality, on a 5-point Likert Scale (strongly agree to strongly disagree). Additional space for free text was also available for their comments.

Results

All patients (n=35) provided responses, as shown in the bar diagram below: (Figure 1)

The comments from patients are listed below: (Table 1)

Conclusion

There is appetite for multimodal information delivery systems to cater to different populations. There is opportunity for reinforcement of information through repeated access in an audiovisual format. Patients relate to peer-reported experiences and the backdrop in patient's own homes adds to the authenticity of the reported experience with the modality.

The future

- Extending the accessibility of the films on multiple platforms accessible from smart devices
- Completion of filming patients undertaking other modalities including haemodialysis and transplantation
- Completion of the addition of subtitles on all films in 5 popular languages

- An information suite in hospital to cater to more kinaesthetic learning needs

Reference:

NHS England. (2021) Getting It Right First Time website. Available at https://gettingitrightfirsttime.co.uk. (Accessed: 11 November 2024)

One Units Experience in Growing a Home Therapy Program.

Mrs June Watmore, Mrs Melissa Chateris, Mrs Rebecca Caney, Mr Osasuyi Iyasere
[1]University Hosptials of Leicester, Leicester, England

Following an organisational change, moving inpatient renal beds to another hospital site left the community home therapies team and planned care unit aligned with renal outpatients across another hospital site.

This provided an unanticipated opportunity to develop a service to support patient choice and manage home patients in a more joined-up way. The team structure was based on a nurse-led service and in the early days following the move it became apparent that both services could support each other to support patients. As a direct result of the organisational change, the team's leadership structure changed bringing both services under the same nursing leadership.

Early goals were to ensure that all patients attending the planned care hub for routine procedures like hepatitis b vaccine or iron infusions were also asked questions about their journey and if they wanted more information about treatment choices, the planned care hub staff were given some basic training to answer questions about modalities of dialysis and due to the teams working in the same clinical space they could ask the home therapies team to answer more detailed questions on the day, the idea was formed to make every contact count for the patient and support one clear message.

It was recognised that to deliver high-quality care from a nurse-led service additional training would be required, the decision was made to support two nurses to complete non medical prescribing. The team then looked to extend the make-every-contact count to patients established on a home therapy, we realised we had a unique environment to deal with troubleshooting patient problems alongside supporting routine care for home therapy patients. The expertise the established community nurse could offer ensured that patients' complications could be assessed and managed as outpatients, helping to support the patient's choice of therapy and admission avoidance.

Blending these two teams and talking about how we could support patient care brought about the idea of a peer support group for patients coming onto therapy. Watching this in action, we have witnessed patients support each other through the challenges of home-based therapy. We consider each contact with our patients and try to minimise hospital visits. Our patient numbers have grown since the change, increasing from 39 patients at home on dialysis to 85 patients over the last 30 months.

With the support of our medical and nursing leadership, we are committed to growing the service and continue to look for ways to improve the patient journey.

Utilising a staff information board to help staff prepare patients for PD catheter insertion.

Mrs Priyadarshini Sanjeev[1]
[1]University Hospital of Derby and Burton, Derby, UK

Introduction

According to Barría (2022), every day nurses face anxiety in clinical practice by having to make decisions about patient care. This occurs because nurses may not be up to date with the newest studies and information regarding their patient care. Accessible or instantly available information in clinical areas may increase their knowledge with more ease . ultimately leading to improved patient care.

Rassoul et al (2005) observed that Appropriate pre procedure protocols disseminated among healthcare practitioners improves quality of care , favours patient care and relieves staff anxiety. According to Halin et al.(2011) Notice boards in particular are incredibly useful for public displays in hospitals and health centres in staffrooms or clinical areas of organisations.

The authors were aware of a particular under-confidence amongst renal ward nurses regarding peritoneal dialysis (PD) catheter insertions so used this as the subject matter for the notice board..

Methodology

This project utilised a questionnaire to assess the ward staff's awareness regarding the preparation of patients for PD tube insertion. The questionnaire comprised of ten questions and collected responses from eleven participants to evaluate the staff's knowledge and understanding.

The results from the questionnaire were used to decide what to include in the information board. An information board was put up in several locations including the renal ward clinical areas where it would readily available.

The information board was designed as a single sheet with the use of step wise information, colour variety and cartoon art to enhance ease of access.

Results

From the questionnaire, out of the 11 participants who took part in the survey, 95 percent expressed that they would value having an information board regarding PD tube insertion procedure in the clinical area for reference. Staff members started to refer to the information boards in the key areas, increasing their awareness of the process of PD tube insertion. The staff have expressed that the information they are reading is highly beneficial.

The board is deliberately designed to address the important aspects of patient preparation before the procedure which are aimed at minimising risk of injury during the insertion to intra-abdominal organs. It also covers the post procedure period to help determine if discharge home same day is appropriate.

Discussion

This project established an information board detailing step-by-step instructions for preparing patients for PD tube insertion in a user friendly accessible format. Unfamiliar staff may look after a patient having a PD catheter insertion and the information board will serve as a valuable resource to guide them ensuring that the preparation of patients for PD tube insertion procedure is safe and efficient, alleviating anxiety and stress for both staff and patients.

Now that the information board is up it is hoped it will prove its effectiveness, acting as a bulletin for new work updates, serve as a quick reference guide and improve communication amongst co-workers (Jacobsen, D, 2013). It can be adapted and improved continuously by all team members and serve as a focal point for team huddles throughout the working day.

Perceptions around dialysis and factors influencing people to start haemodialysis after conservative kidney management

Dr Katie Prior[1], Dr Melanie Dani[1], Virginia Prout[1], Darren Duffield[1], Dr Lina Nikolopoulou[1], Dr Hannah Beckwith[1]
[1]Imperial College Healthcare NHS Trust, London,

Introduction

The number of people >80 years with end stage kidney disease is increasing. In this population, treatment decisions are challenging. Fitness for surgery can preclude transplantation, and effects of treatment on quality of life and functional status are paramount. Some older people initially choose conservative kidney management (CKM) but ultimately start haemodialysis. Little is known about factors influencing these decision pathways.

Methods

People >80 years old who were started on haemodialysis between 01/01/2021-01/01/2024 at a single tertiary unit were identified. Casenotes were reviewed and demographic data at the time of dialysis initiation (including age, gender, ethnicity, frailty score and living arrangements) were collected. Clinic letters were reviewed to identify conversations surrounding treatment choices. Patients who initially indicated a preference for CKM were identified. Casenotes were extracted and thematically analysed:

1. To understand perceptions and attitudes prior to commencing haemodialysis

2. To identify potential themes resulting in a switch to preference for haemodialysis.

Results

77 people were included in the study. Of these, 15 (19.5%) people were found to have indicated a preference for CKM prior to starting haemodialysis. Patients who initially opted for CKM but ultimately started on dialysis had a similar demographics to our baseline cohort (Table 1). In both groups, patients who had a lower frailty score were more likely to cite travel as a barrier to starting haemodialysis.

Seven patients (47%) initially chose CKM, then chose haemodialysis after further discussions in renal clinic. They started haemodialysis as an outpatient. The importance of family appeared to be a key theme in influencing this decision and was cited by 3 people (43%). Symptoms also played a role, but symptom burden was variable and less problematic, including itch, shortness of breath and peripheral oedema (Table 2).

Eight patients (53%) initially chose CKM, then were started on haemodialysis acutely following hospitalisation. A troublesome symptom burden was more prevalent in this cohort, with shortness of breath and pulmonary oedema the most frequent symptom (reported by 5/8 people, 63%) (Table 3). People spent on average 25 days in hospital when starting dialysis.

Out of the total 77 people in this cohort, only 2 people opted to stop haemodialysis electively. Both of these people had previously chosen CKM, prior to starting on haemodialysis (Table 4).

Discussion

People in this cohort had high levels of family support, and this may explain the significant influence that family held when choosing to start haemodialysis. Breathlessness was a troubling symptom which influenced people's decision to start haemodialysis both as an outpatient, and more frequently during acute admissions.

This was a retrospective casenote review: we did not have ethical approval to interview people included in the study. Further work should explore whether people regretted their treatment decisions, or if the improvement in symptom burden was sufficient to prioritise this over other aspects of care (e.g. loss of time at home).

Breathlessness is a very challenging symptom to manage in CKM, but this study highlights a potential need for increased palliative support in people who have chosen CKM.

ORCHARD-BEET: A feasibility study of dietary nitrate (beetroot juice) to protect kidney function in pregnant women with chronic kidney disease.

Dr Priscilla SMITH[1], Dr Kathryn Dalrymple[1], Ms Katherine Clark[1], Prof Yanzhong Wang[1], Dr Andrew Webb[1], Dr Danielle Ashworth[1], Dr Kate Wiles[2], Prof Lucy Chappell[1], Dr Kate Bramham[1]
[1]King's College London, London, United Kingdom, [2]Queen Mary University of London, London, United Kingdom

Introduction: Nearly half of women with moderate-severe chronic kidney disease (CKD) will require dialysis or lose at least 25% of kidney function within six months of delivery. No interventions have been developed to ameliorate this risk. Dietary nitrate has been demonstrated to reduce CKD progression and acute kidney injury but has not been explored in pregnancy, nor feasibility of study delivery in high-risk women and birthing people. The objectives were to assess feasibility, safety and recruitment rates of pregnant women with CKD in a multi-centre intervention study of beetroot juice versus routine care.

Methods: Women and birthing people with CKD (eGFR <90mls/min/1.73m2 or pregnancy Cr>70µmol/l) at eight UK centres with singleton pregnancies <25 weeks were recruited to an observational cohort with embedded modified Zelen feasibility trial. If eligible, participants were randomised to standard care or daily beetroot juice supplement (nitrate 400mg). Trial exclusions were chronic dialysis, <18years, known major congenital abnormality, multiple pregnancy and beetroot allergy. Randomisation was stratified by site, gestational age (<12weeks), site and pre-pregnancy GFR (<45 or >=45 ml/min/m2). Primary outcome was recruitment rate. Secondary outcomes included safety, pregnancy outcomes and function at six weeks and six months after delivery.

Results:108 out of 119 (91%) eligible cohort participants were randomised and 29 (56%) consented to intervention (Figure 1). Baseline maternal data are presented in Table 1. Recruitment rate was 0.86 participants /site /month. No serious adverse events (SAEs) were assessed to be intervention related (Maternal N=36: 5 intervention, 31 standard care; fetal/neonatal N=28: 6 intervention 22 standard care). One fetal death in standard care arm at 17 weeks after premature rupture of membranes. No major congenital abnormalities were reported. Special interest AEs were hyperkalemia >6 mmol/L (2 cases, one per treatment arm); symptomatic hypotension (0 cases).
Pregnancy outcomes are presented in Table 2. Mean gestational age and live birth rates were high with no difference between intervention and standard care arms. There was a trend for higher mean birthweight and lower neonatal intensive care admission with intervention compared to standard care but the study was underpowered to detect differences in these outcomes. Two standard care and no intervention participants started haemodialysis before delivery. There were no differences in pre-pregnancy renal function compared to 6 weeks or 6 months post-partum. However, there was a trend to reduced creatinine concentration after delivery in participants with pre-pregnancy eGFR <45ml/min comparted to >= 45ml/min in the intervention arm compared to standard care. (Figure 2)

Discussion:This is the first interventional RCT embedded in observational cohort of CKD pregnancy. Sites were able to successfully recruit and randomise participants in these high-risk pregnancies. There was no evidence of maternal or neonatal harm related to the intervention with signals of overall neonatal benefit associated with dietary nitrate supplementation and prevention of progression of kidney disease in those with advanced CKD. Evidence of efficacy is needed from a fully powered RCT.

How do patients and clinicians make heart attack treatment decisions in the presence of chronic kidney disease? A qualitative study.

Dr Jemima Scott[1,2], Professor Lucy Selman[1], Professor Fergus Caskey[1,2], Dr Tom Johnson[1,3], Professor Yoav Ben-Shlomo[1], Dr Matthew Graham-Brown[4,5], Dr Pippa Bailey[1,2]
[1]University of Bristol, Bristol, UK, [2]North Bristol NHS Trust, Bristol, UK, [3]University Hospitals Bristol and Weston NHS Trust, Bristol, UK, [4]University of Leicester, Leicester , UK , [5]University Hospitals of Leicester NHS Trust, Leicester , UK

Introduction
People with chronic kidney disease (CKD) receive more conservative care following a heart attack than those without kidney disease. These disparities appear counter to international guidelines and may contribute to the increased heart attack mortality and morbidity experienced by the CKD population. It remains unclear why disparities exist however. Identifying the drivers of treatment variation is crucial not only to differentiating appropriate from inappropriate variation, but to develop effective interventions to reduce inequity in care (if identified). The aim of this study was therefore to develop an in-depth understanding of the process of heart attack treatment decision-making by patients with CKD and their clinicians.

Methods
Semi-structured qualitative interviews were conducted with patients and clinicians from four National Health Service hospital trusts in the United Kingdom from February 2022 to July 2024. All centres offered cardiology and acute medical services; some offered nephrology in addition. Participants were purposively sampled, aiming for diversity in gender, ethnicity, specialty (clinicians only) and/or use of kidney replacement therapy (patient participants). Clinicians were registrars or consultants in cardiology, nephrology, acute or emergency care or cardiac surgery. Patient participants had chronic kidney disease, defined as an estimated glomerular filtration rate of less than 60ml/min/1.73m2, or receipt of kidney replacement therapy. They had experienced a heart attack within the prior 48 months. Braun and Clarke's reflexive thematic analysis was used to analyse interview data and generate themes associated with heart attack treatment decision-making for, and by, patients with chronic kidney disease.

Results
Participants included 32 clinicians (12 cardiologists, 9 nephrologists, 8 acute and emergency clinicians and 3 cardiac surgeons) and 14 patients with chronic kidney disease. Seven main themes were identified:(1) Limited patient involvement in treatment decisions, (2) Inter-clinician communication supports high-risk decision-making, (3) Variation in use of written guides to decision-making, (4) The safety net of associated health services support intervention, (5) The value assigned to experience over evidence, (6) Individual perception of risk and benefit, (7) Harm from action perceived as worse than inaction. Despite holding strong health preferences, patients had minimal involvement in inpatient heart attack treatment decisions. Multiple factors were identified that contributed towards conservative ACS treatment decision-making by clinicians for people with CKD (Figure 1). The primary driver however, was the fear of causing harm by active intervention (versus inaction). Fear and self-blame for negative outcomes biased them towards making conservative treatment decisions for high-risk patients with CKD. This was despite evidence and guidelines recommending more aggressive treatment (Figure 2a). Collaborative decision-making between trusted colleagues and the existence of a clinical safety-net for managing treatment complications were however reported by clinicians to counter this bias and facilitate more aggressive treatment decision-making (Figure 2b).

Discussion
Interventions to foster teamworking between specialists and ensure adequately resourced clinical service safety-nets may improve access to perceived "higher-risk" heart attack treatments for people with CKD, with the potential to improve both quality of care and outcomes.

Exploring disease signature of NPHP1 whole gene deletion using patient derived renal epithelial cells.

Dr. Juliana Estefania Arcila-Galvis[1], Zachary Sentell[1], Dr. Praveen Dhondurao Sudhindar[2], Dr. Colin Miles[1], Dr. Marco Trevisan-Herraz[1], Prof. John A Sayer[3,4]
[1]Biosciences Institute, Faculty of Medical Sciences, Newcastle University, Central Parkway, Newcastle upon Tyne, NE1 3BZ, United Kingdom , [2]Translational and Clinical Research Institute, Faculty of Medical Sciences, Newcastle University, Central Parkway, Newcastle upon Tyne, NE1 3BZ, United Kingdom , [3]Renal Services, Newcastle Upon Tyne Hospitals NHS Foundation Trust, , Newcastle upon Tyne, NE7 7DN, United Kingdom , [4]NIHR Newcastle Biomedical Research Centre, Newcastle upon Tyne, NE4 5PL, United Kingdom

Nephronophthisis is an autosomal-recessive ciliopathy and is a frequent cause of kidney failure before the age of 30. Genome sequencing analysis can identify a molecular cause in two-thirds of cases, with the NPHP1 whole-gene deletion accounting for about 20% of nephronophthisis cases.

We identified a homozygous NPHP1 whole-gene deletion in three siblings with nephronophthisis. The two older siblings (16 and 19 years old) progressed to kidney failure, requiring transplantation. The youngest male sibling (8 years old, CKD Stage 3) presented an opportunity to investigate early disease mechanisms before kidney failure onset.

To characterize the nephronophthisis disease signature, we performed detailed phenotyping of human urine-derived renal epithelial cells (hURECs) from the youngest sibling. We analysed primary cilium morphology and performed bulk RNA sequencing (RNAseq) to identify transcriptomic changes and early disease pathways. This study aims to elucidate molecular and cellular defects preceding kidney failure, providing insight into potential early diagnostic markers or therapeutic targets.

Immunofluorescent staining of the hURECs revealed renal epithelial cells with elongated primary cilia and increased axonemal tortuosity, indicative of structural ciliary abnormalities. Differential gene expression analysis, comparing patient hURECs to healthy controls, identified a disease signature characterized by dysregulation of genes associated with extracellular matrix (ECM) interactions and adherens junctions. These findings are consistent with the established role of nephrocystin-1 as an adapter protein at adherens junctions. Additionally, disrupted pathways included those related to actin cytoskeleton dynamics, inflammation, apoptosis, cellular senescence, and nephron development.

We also investigated Alprostadil, previously reported to rescue ciliary phenotypes in NPHP1-/- immortalized URECs. However, in our primary hURECs, Alprostadil exacerbated the ciliary defect, suggesting a distinct response in primary patient-derived cells. Currently, we are investigating a novel drug targeting one of the most significantly overexpressed pathways, to achieve both phenotypic rescue of the ciliary defect and establish a drug-responsive disease signature.

In conclusion, hURECs provide a robust platform for deep phenotyping of kidney disease, enabling the assessment of primary ciliary morphology and the development of disease pathway signatures. This approach offers valuable insights into disease pathogenesis and holds potential for identifying new therapeutic targets.

Health inequalities and outcomes following acute kidney injury: a systematic review & meta-analyses of observational studies

Dr Chris Grant[1], Dr Anita Dahiya[2], Ms Taylor Palechuk[2], Dr Emilie Lambourg[1], Dr Beatrix Tan[1], Prof Ravindra Mehta[3], Prof Neesh Pannu[2], Dr Samira Bell[1]
[1]Division of Population Health & Genomics, University of Dundee, Dundee, United Kingdom, [2]Division of Nephrology, Department of Medicine, University of Alberta, Alberta, Dundee, [3]Division of Nephrology-Hypertension, Department of Medicine, University of California San Diego, , USA

Introduction: Inequalities in health describe the uneven distribution of health outcomes that result from genetic or environmental factors. The social determinants of health (SDOH) represent the socioeconomic context within which people are born, grow, work, live and age. Inequalities have been described in relation to AKI incidence and aetiology, including by sex/gender and race/ethnicity, but the extent to which inequalities and the SDOH impact on AKI outcomes is uncertain. The aim of this systematic review and meta-analysis was to determine the impact of health inequalities on AKI outcomes.

Methods: This review has been registered on PROSPERO (CRD42023422307). We included observational studies of adults who experienced at least one episode of AKI that reported outcomes with stratification or subgroup comparison by sex/gender, race/ethnicity, socioeconomic status, income, education, employment, housing, smoking, mental health conditions, geography or insurance status. The primary outcome was all-cause mortality at any time post-AKI. Secondary outcomes were: progression to acute kidney disease; incident chronic kidney disease (CKD); progressive CKD; AKI recovery; cardiovascular events; hospitalisations; intensive care unit admission and hospital length of stay. The search was conducted in MEDLINE, Embase and Web of Science from inception to 10th January 2024. Study selection, extraction and risk of bias via the Newcastle-Ottawa scale were performed independently and studies meta-analysed where possible.

Results: 7,312 titles/abstracts were screened, and 36 studies included (n=2,038,441 patients with AKI). Most studies were from high-income countries (n=31) based on the World Bank classification. No studies contained data from low-income settings and few included data from lower-middle income countries (n=3) (Figures 1 & 2). Evidence predominantly related to sex/gender (n=25), race/ethnicity (n=14) and socioeconomic status (n=11). Table 1 summarises the results for the primary outcome. In random-effects meta-analyses, no sex/gender differences in all-cause mortality (OR 1.02 [95% CI 0.83-1.25], I2 99%, n=14) or AKI recovery (OR 0.88 [95% CI 0.69-1.11], I2 67%, n=7) were seen. Of twelve studies reporting mortality by race/ethnicity, six found no variation by racial/ethnic group. Nine studies reported mortality by socioeconomic status, six of which showed an increase in all-cause mortality among the most deprived sub-populations compared to the most affluent with relative effect sizes varying from minimal (i.e. HR 0.999 least vs most deprived) to modest (i.e. HR 1.20 most vs least deprived). Few studies assessed the impact of mental health (n=3), insurance (n=1), housing (n=2), geography (n=1) or smoking status (n=3) and no reports quantified the impact of income, education, employment or substance use. Heterogeneity and level of evidence were not formally assessed.

Discussion: This systematic review highlights a paucity of evidence related to health inequalities and AKI, specifically from low-income settings and pertaining to the impact of mental health conditions, substance use, income, education, employment, insurance access, housing and geography. No sex/gender differences in AKI mortality or recovery were identified. Our results support the need for increased resource allocation for patients with AKI who live in socioeconomic deprivation due to increased mortality. There is a need for evidence to inform policy and target interventions to achieve equitable kidney care.

Disparities in the prescription of SGLT2 inhibitors in people with chronic kidney disease: A UK primary care analysis using the CPRD.

Dr Jemima Scott[1], Dr Tim Jones[1], Dr Matthew Graham-Brown[3,4], Professor Yoav Ben-Shlomo[1], Professor Fergus Caskey[1,2], Dr Dominic Taylor[1,2]
[1]University of Bristol, Bristol , UK , [2]North Bristol NHS Trust, Bristol , UK, [3]University Hospitals Leicester NHS Trust , Leicester , UK, [4]University of Leicester , Leicester , UK

Introduction

SGLT2 inhibitors (SGLT2is) are recommended within NICE and UKKA guidance to reduce adverse cardiovascular and kidney outcomes in people with type two diabetes mellitus (T2DM), heart failure and/or chronic kidney disease(CKD). People with CKD have historically been less likely to receive guideline-directed therapies for comorbid conditions, compared to those without CKD. Within this population, further inequities in access to care exist in association with socioeconomic status, ethnicity, age, gender, mental health and disabilities. Early prescribing data suggests a similar trend with regard to SGLT2is; those with the highest risk of the poorest kidney and cardiovascular outcomes are least likely to be prescribed these new medications. Tackling these issues requires a comprehensive understanding of relationships between patient and prescriber characteristics and patterns of prescribing. We aimed to describe variation in prescribing rates of SGLT2is in the UK over the past ten years, comparing people with and without CKD as well as describing variation within the CKD population.

Methods

A retrospective clinical cohort study will be performed using routine UK primary care data from the Clinical Practice Research Datalink (CPRD) and Hospital Episodes Statistics – Admitted Patient Care (HES-APC) (2012-2023). Patients meeting NICE criteria for prescription of SGLT2is will be identified from within three 'indication groups' (T2DM, heart failure, proteinuric CKD). Within each group, the proportion of patients prescribed SGLT2is at timepoints pre and post- publication of each NICE guideline will be determined. Prescription data will be compared by CKD stage (based on coded CKD and estimated glomerular filtration rate (eGFR)), other comorbidities, patient sociodemographic data and cardiovascular risk. Interactions between variables will be explored. Potential confounding by primary care practice will be investigated by generating a score that describes how likely a practice is to prescribe SGLT2is per 1000 population and adjusting for this in a clustered analysis. We will examine the possibility that frailty might mediate any identified association between demographic or comorbid variable(s) and prescription of SGLT2is. We will identify predictors of discontinuation which might further exacerbate inequity in treatment benefits. Within these data we will model the number of events that could have been prevented by optimised prescribing of SGLT2is in any individual subgroup, based on the absolute event risk.

Results /Discussion

As of December 2024 we have completed extraction of data from CPRD and expect to have completed analysis well before UKKW 2025. This analysis, funded by Kidney Research UK as part of their focus on health inequalities, will be of relevance to national prioritisation of CKD by the NHS, and the development of interventions to mitigate against disparities in access to recommended treatments.

A needs assessment of renal dietetic prescribing of phosphate binders in haemodialysis population to identify current practice and opportunity for innovation

Mrs Caroline Ritchie[1]
[1]NHS Forth Valley, ,
Renal Dietetic Clinical Lead qualified as a non medical prescriber in 2021 and commenced prescribing phosphate binders to haemodialysis population in March 2023 and was the first Renal Dietitian to gain the qualification in Scotland.

Phosphate management is an essential role of the Renal Dietitian and the discussion and timings of phosphate binders is an integral part of this. Despite in depth discussions with renal patients regarding phosphate binders, the prescribing of these was previously devolved to Consultant Nephrologists.
Despite the ongoing support from the Consultant Nephrologists, the biggest barrier for renal dietetic prescribing in the haemodialysis population currently is capacity and there is an unmet need for patients requiring assessment of their phosphate binder medication.
Renal Dietetic prescription changes were made for 17 patients between April 23 to June 24.

From April 23 to June 24 there were 628 patients with a raised phosphate, 130 of these patients were not prescribed a phosphate binder (21%) and a binder was likely required. The remaining 79% were prescribed a binder but dose may have needed increased. Of these 628 patients, only 23 had a 'one off' high PO4 during this 15 month period and 3 patients had a raised PO4 each month.
From April 23 to June 24 there were 37 patients with a low phosphate who were prescribed a phosphate binder.

During this 15 month period, of the 37 patients with Low PO4 on a binder, only 14 patients had a 'one off' low PO4 and 9 had a low PO4 for 2-4 months. The binder dose varied from 1 binder per day to 6 binders per day
From April 23 to June 24 665 patients were therefore identified with a phosphate level outwith the target level (1.1-1.7mmol/l) who may have benefited from review of their phosphate binder medication.

Although phosphate data is captured on a monthly basis in by the Renal Dietitians and shared with the Renal Multidisciplinary team, these patients are not allocated a Renal Dietetic review based solely on this information and phosphate management is only addressed by the Renal Dietitian if levels remain chronically high or a Dietetic review is indicated or requested for another reason.
This data highlights a large unmet need each month for phosphate binder medication review in the management of mineral bone disease.

Renal Dietetic prescribing can reduce delays in patient access to the appropriate medication supporting dietetic care, increasing concordance and compliance in addition to easing pressure on clinicians. The ability to prescribe can aid patient centred practice, ensure timely intervention and improve the multidisciplinary approach to healthcare.

Extended roles may be important to provide a sustainable health service for the future however additional resources would be required to cover other aspects of Dietitians role are still fulfilled

Acute haemodialysis in acute kidney injury - understanding aetiology, assessing adverse events during initial haemodialysis and long term outcomes.

Dr Samuel Brockbank[1], Dr Richard Hull
[1]St Georges Hospital, London, UK

Introduction:
The acute dialysis unit sees patients newly commenced on haemodialysis (HD) as a result of acute kidney injury (AKI). Those newly starting on HD commence a standardised regime in the first three dialysis sessions which is derived from a standard operating policy (SOP) last updated in 2020. This audit is part of a larger quality improvement project that aims to improve and standardise HD in AKI patients.
Aims:
1. Incidence of 'new starter' dialysis patients
2. Patient demographics of those requiring acute haemodialysis
3. Adverse events during initial 3 sessions of dialysis
4. Long term outcomes of these patients

Methods:
Data was collected from electronic patient records and paper dialysis records. Patients who were coded as receiving a 'first dialysis session' between August 2023 and August 2024 on CV5 were included. Data including aetiology of renal failure, baseline renal function, ICU admission and outcomes were collected. Paper records were cross checked to ensure no patients fulfilling our criteria were missed. Those who were already established on renal replacement therapy (RRT) or known to the AKC service were excluded from this audit.

Results:
In total 44 patients required HD for AKI and were included in the study; the mean age was 61 years old. 22/44 (50%) of patients had an ICU admissions during or prior to their first HD session. The majority of patients had no previous CKD diagnosis.
The causes of the AKI were as follows:
Pre-renal: Sepsis (9), HRS (3), Post-op (3), Hypovolaemia (3), Cardio-renal (3), Malignant HTN (2), Toxicology, DRESS, TLS, Drug induced, Carcinoid crisis.
Intrinsic: Glomerulonephritis (4), Myeloma (2), Rhabdo (2), Lymphoma, TTP, Surgical trauma, Scleroderma crisis.
41% of patients experienced at least one adverse event during one of their first three HD sessions, leading to 25% of patients having a HD session terminated early. The main complications included: issues with the line (33%), filter clotting (20%), intradialytic hypotension (14%). 40% of patients recovered and no longer required RRT, 18% continued on RRT longer term and 42% of patients died.

Discussion:
The aetiology of AKI was varied. Pre-renal insults make up the majority of cases with sepsis being the biggest cause. Intrinsic renal disease with rapidly progressive glomerulonephritis made up 10% of the cohort, highlighting the need for thorough work-up and investigation into AKI.
Adverse events during dialysis were not uncommon, though the majority were minor issues with line flows and pressure. Notably, a quarter of patients needed their session stopped early. The above results highlight that inpatient AKI requiring RRT carries a significant mortality. The UK Kidney association AKI report (2022) found a mortality of 35% in those with AKI 3. The mortality in our cohort is comparable to this group, though there will be a significant proportion of patients with AKI 3 who avoid HD which weren't included in this project.

This work will feed into updating the standard operating policy for acute haemodialysis across both renal and critical care to ensure adverse outcomes are minimised, care is standardised and optimal therapy is provided.

Quality of Life after Acute Kidney Injury, Not Just an Acute Problem

Dr Rebecca Noble[1,2], Professor Nicholas Selby[1,2]
[1]University Hospitals of Derby and Burton, Derby, England, [2]The University of Nottingham, Nottingham, England

Introduction:
Patients who suffer acute kidney injury (AKI) are at increased risk of long-term health consequences including Chronic Kidney Disease (CKD), but relatively little is known about how patients feel after an episode of AKI. We aimed to evaluate quality of life (QOL) 90 days after an episode of AKI, and compare QOL between those with and without recovery of kidney function.

Methods:
QOL was assessed in a prospective observational cohort of hospitalised patients recruited at the time of AKI and then followed-up at serial timepoints until day 90. We also compared QOL scores between those who did and did not meet the kidney components of Major Adverse Kidney Events at day 90 (MAKE90), either GFR drop of >25% from baseline or new renal replacement therapy. Two QOL questionnaires were assessed at day 90, EQ-5D-5L, and Modified Brief Fatigue Inventory (MBFI), a validated assessment tool of 9 items relating to how well a person is able to function and assessment of symptoms of fatigue. A mean score of more than 2.38 is classified as higher than normal fatigue. Scores for QOL measures were compared between those with and without MAKE90 outcomes.

Results:
From a cohort of 92 surviving participants, 73 (79%) completed the questionnaires in full. The mean age of these participants was 65 +/- 11years. Comorbidities included ischaemic heart disease (n=25, 34%), heart failure (n=16, 22%), and diabetes (n=32, 44%). Median baseline GFR was 67ml/min/1.73m2 (IQR 45 – 89ml/min/1.73m2). Participants had AKI of all stages; stage 1 (n=12, 16%), stage 2 (n=18, 25%), and stage 3 (n=43, 59%). Overall, mean EQ-5D-5L was 9.8 +/- 3.9, where no or mild symptoms would be a score of less than 5. The domains with highest reported symptoms were ‘ability to perform usual activities’, ‘reduced mobility’ and ‘anxiety/depression’. MBFI showed higher than normal fatigue with a mean average score of 3.4 +/- 1.7, and 68% (n=50) had a higher than normal fatigue score.
Of the 73 participants, 53 (73%) did not have a MAKE90 kidney outcome, whilst 20 did (27%). Across each domain of EQ-5D-5L, participants had higher scores (i.e. were more dependent/symptomatic) when they had a MAKE90 outcome compared with those who didn't. This was most pronounced in ‘self-care’ (mean 1.25 +/- 0.62 vs 1.80 +/- 0.95, p=0.005), ‘usual activities’ (mean 2.04 +/- 1.13 vs 2.90 +/- 1.33, p=0.007) and ‘anxiety/depression’ (1.77 +/- 0.97 vs 2.50 +/- 1.15, p=0.009). Mean total EQ-5D-5L score was 8.98 +/- 3.61 in those without MAKE90 vs 11.8 +/- 4.03 those with MAKE90 (p=0.005). MBFI score was 3.07 +/-1.6 for those without MAKE90 compared with 4.36 +/- 1.43 for those with MAKE90 (p=0.002) indicating higher levels of fatigue in the latter.

Conclusions:
Recovery from AKI is associated with significant reductions in QOL and increased fatigue. Symptoms were worse in those who had a significant decline in kidney function, which supports the relevance of MAKE90 as a patient-centred outcome. Post-discharge AKI care should incorporate holistic assessment of these symptoms as a first step towards development of targeted interventions.

Minimal change disease with biopsy features associated with anti-nephrin antibody-mediated disease: a case series. Do they behave differently?

Dr Kevin Breen[1], Dr Maria Soares[1], Dr Thomas Connor[1], Professor Ian Roberts[1]
[1]Oxford University Hospital NHS Foundation Trust, Oxford, United Kingdom

Background

The recent discovery that the majority of patients with minimal change disease (MCD) have circulating antibody to nephrin, a key protein within the split diaphragm, has raised the hope of better understanding the pathophysiology of this condition. For many years, several groups have observed a delicate punctate staining for IgG by immunofluorescence (IF) staining ("podocyte dusting") in renal biopsies of some patients with MCD. The significance of this staining was previously unclear. However, with the development of assays for anti-nephrin antibody, it has been shown that podocyte dusting for IgG is strongly associated with circulating anti-nephrin antibody.
Whereas most MCD patients have detectable anti-nephrin antibodies in the serum, only a minority (<20%) show podocyte dusting on IF. The clinical significance of the IF finding is unknown. Here, we present a case series of patients with MCD and IF positivity, with a focus on presentation and disease course of this cohort.

Methods

We retrospectively analysed the electronic health records of six patients that had been identified over a 10-year period between 2015-2023 from a single tertiary centre. All patients had a diagnosis of MCD with podocyte dusting for IgG on IF (figure 1).
We carried out a chart review, collecting information on demographics, clinical presentation, initial therapy, history of relapses and subsequent therapy. Remission status, relapse and steroid-dependence were defined as per KDIGO guidelines. Complete remission was defined as a reduction of proteinuria to UPCR <30mg/mmol, stable creatinine and serum albumin >35g/l.

Results

Analysis included 6 patients (table 1). Patients were aged between 41 – 92 years old. Three (50%) presented with an associated acute kidney injury, one of which required renal replacement therapy. All patients received high dose prednisolone as initial therapy. Five were steroid-responsive (83%), one of whom relapsed as soon as steroids were stopped. One patient was steroid-resistant.
Relapses occurred in 3 of the 5 steroid-responsive patients (60%) with time from remission ranging from 1–25 months. The steroid-resistant patient suffered multiple relapses despite the use of several lines of immunosuppressive therapy.

Discussion

It has been postulated that MCD patients with circulating anti-nephrin antibody are more likely to have steroid-resistant nephrotic syndrome (SRNS). In this small MCD cohort with podocyte dusting for IgG on IF, we show that rates of steroid responsiveness and relapse are comparable to rates seen in other patients with MCD. However, there were features that suggested this is perhaps a more challenging cohort to treat. Firstly, 50% of patients had acute kidney injury at presentation and, of the steroid-responsive patients, one was steroid-dependent.
This is one of the first studies to attempt to elucidate how MCD patients with podocyte dusting on IF behave. As the entity becomes more widely recognised and serological testing more available, further larger scale studies will be important to determine the clinical significance of the IF findings, and the optimum treatment regime for these patients, in particular the efficacy of B-cell targeted therapies.

Assessing Adherence to Post-Acute Kidney Injury (AKI) Care. A Retrospective Audit of NICE Quality Standard [QS 76] Statement 6.

Aaron Acquaye[1], Mr Samuel Tandoh[1], Ms Fidan Ahmad[1]
[1]Hull University Teaching Hospital NHS Trust, Kingston-Upon-Hull, United Kingdom
Assessing Adherence to Post-Acute Kidney Injury (AKI) Care. A Retrospective Audit of NICE Quality Standard [QS 76] Statement 6.

Background and Introduction
Adults discharged from the hospital following an AKI are at risk of significant ongoing health complications. A follow-up clinical review in primary or secondary care is essential to identify any issues and may help prevent hospital readmissions(1). This audit was completed to explore the gaps in best practice regarding follow-up care post discharge.

NICE Quality Statement [QS 76, Statement 6]:
Adults discharged from hospital after AKI should have a clinical review within 3 months, or sooner if they are at higher risk of poor outcomes.

This audit defined a clinical review as primary care acknowledgement of the discharge letter and a repeat urea and electrolyte test performed.

Standard:
100% of patients discharged from hospital post AKI should have a clinical review within 90 days.

Aim
- To evaluate compliance to NICE QS76, Statement 6, among patients discharged post AKI from Hull University Teaching Hospitals NHS Trust [HUTH].
- To identify the timeframe within which patients discharged post-AKI are reviewed by either primary or secondary care.

Method
This retrospective audit reviewed discharge letters of adults who had a primary or secondary diagnosis of AKI during their hospital stay. Patients were identified from the NHS Trusts Patient Management Software.
A data query of discharge letters for adult patients who had a documented primary or secondary diagnosis of AKI between 1st June 2023 and 31st August 2023 was requested.

A total of 527 patients were identified for eligibility.

After exclusions, 320 patients [60.7%] were eligible for analysis.
Data was analysed using Microsoft Excel.
Results
320 patients were eligible for review. 56.6% [n = 181] were male. Median age was 74 years.
83.6% [n = 276] were at risk of poor outcomes. 57.8% [n= 185] had a clinical review in either primary or secondary care within 90 days of discharge. Mean time for review was 18 days. 42.2% of patients did not have a clinical review within 90 days post discharge.

Among those at risk of poor outcomes [n=276],. The mean time-frame for review post-discharge was 19.3 days. 42.6% of patients discharged post AKI at risk of poor outcomes were not reviewed within 90 days of discharge.

Limitations.

The study's brief duration and limited sample size may restrict the generalizability of the findings. Additionally, the reliance on discharge letter documentation as the primary data source could exclude patients whose discharge letters were not completed.

References

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Exploring the Dialysis Experience Through an Artificial Intelligence Image Generator: Insights from a Novel Qualitative Approach

Dr Clare Mckeaveney[1], Dr Julie Doherty[1], Prof Helen Noble[1], Mr Stephen O'Neill[2,3]
[1]School of Nursing and Midwifery, Queen's University Belfast, Belfast, Northern Ireland, [2]Department of Transplant Surgery and Regional Nephrology Unit, Belfast City Hospital, Belfast, Northern Ireland, [3]Centre for Medical Education, Queen's University Belfast, Whitla Medical Building, Belfast, Northern Ireland

Despite being life-sustaining, dialysis is associated with physical, mental, and social deterioration, leading to existential boredom and distress. The benefits of several physical and mental health intra-dialytic interventions have been identified. However, such interventions encounter significant hurdles due to the heterogeneous nature of the population and systemic barriers. There is a requirement for simpler activities that can be implemented more effortlessly. While existing studies are limited in this population, Warsame et al. (2018) found that individuals engaging in non-passive activities during dialysis, such as reading or completing puzzles, experienced greater improvements in mental health and health-related quality of life compared to those involved in passive activities.

The study aimed to explore how dialysis experiences could be enhanced using Artificial intelligence (AI) image generation technology as a qualitative approach.

This study adopted a participatory approach using AI image generation technology called Adobe Firefly® to transform participants' concepts for enhancing dialysis treatment into detailed images. Six individuals with experience of dialysis took part. Participants were provided with an art pack to create an initial collage. This activity served as a starting point, enabling them to visually express their thoughts, experiences, or ideas, laying the foundation for further exploration or discussion. Next, participants engaged in a one-hour session facilitated by an artist with expertise in Adobe Firefly®. A.I. prompts and artist notes during the session were recorded. Eighteen images were generated. A follow-up focus group using the SHOW technique with patients and Health Care Professionals (HCPs) were completed to consider the images. Thematic analysis was used.

Initial findings identified three themes; 'Patient innovation through AI', 'Sensory safety on dialysis' and 'Opportunities to learn'. Patient innovations included a portable dialysis machine to help participate in 'normal life' events like going out for a meal or attending work. Spending time in nature, paying attention to sound, and especially focusing on smell, was found to be beneficial for patients in helping them cope on dialysis. Finally, participants acknowledged that, cognitively, they understood what they could do while receiving treatment, but they expressed a desire for the opportunity to try something new. Several solutions included collaborating playlists on Spotify, burning incense, the role of supportive animals and learning a new skill. An evaluation of the participatory approach using Adobe Firefly® found the experience engaging and enjoyable. However, the lack of images accurately reflecting experiences was notable. For instance, Adobe Firefly® was unable to provide a precise depiction of a dialysis machine, and there was limited representation of diverse ethnicities. HCPs reported the AI images of patient experiences to be an invaluable resource, providing highly impactful information.

AI is regarded as a powerful instrument in medicine. For patients, this approach could help shape service content and delivery to meet their precise needs, as well as ensure more effective engagement with research. The active involvement of individuals living with kidney disease and HCPs in developing this qualitative approach ensures a sense of ownership and guides the process, increasing the likelihood of becoming agents of change within the system.

Post-transplant diabetes: An audit and pilot MDT service in kidney transplantation

Amita Godse[1], Angeles Maillo-Nieto[1], Dr Deepika Manoharan[1], Ahmad Abou-Saleh[1], Dr Ian Logan[1]
[1]Newcastle Hospitals NHS Foundation Trust, Newcastle upon Tyne, United Kingdom

Introduction

Post transplant diabetes mellitus (PTDM) causes morbidity following kidney transplantation. To reduce complications and optimise patient experience, clinicians should be proactive in managing this. Our aim was to understand the scale of this problem and to improve diabetes care.

Methods and results

Between 2011 and 2013, sixteen percent of 402 patients developed PTDM, and 9 % had a diagnosis of Type 2 diabetes. Both PTDM and Type 2 diabetes had an increased risk of death (unadjusted HR 4.7, $p<0.01$ and HR 4.4, $p<0.01$, respectively). Kaplan Meier analysis showed these deaths occurred late after transplantation.

A multidisciplinary (MDT) transplant-diabetes service consisting of a renal dietician, a diabetologist and a nephrologist was piloted.

Fifty stable kidney transplant recipients with PTDM or Type 2 diabetes were reviewed in a monthly MDT. Diabetes medication was optimised and patients triaged to a diet and lifestyle group education session, with a follow-up telephone consultation 3 months thereafter. Glycaemic control, body weight and patient experience data were collected.

Following intervention, median Hb A1c fell significantly from 65 to 58.5mmol. Fifty six percent of patients had an Hb A1c improvement of 5mmol or more, whereas 34% improved by 10mmol or more. Weight significantly reduced with 44% losing 2Kg or more. Patient experience was universally positive.

Discussion

We show a high diabetes prevalence in our kidney transplant population. We show that diabetes management can be improved, at least in the short term, through bridging the gap between specialties, in a way that patients perceive as positive.

Scoping Review: Diabetes Technology in People on Kidney Replacement Therapy (Dialysis) – Current Trends and Future Directions

Dr Hellena Habte-Asres[1], Dr Jospeh Suglo[2], Dr Khuram Chaudhry[2], Professor Angus Forbes[2], Professor David Wheeler[1], Dr Janaka Karalliedde[2]
[1]Royal Free London NHS Foundation Trust, UK, london, United Kingdom, [2]Florence Nightingale Faculty of Nursing, Midwifery and Palliative Care, King's College London, UK, london, United Kingdom

Introduction

This scoping review explores the role of diabetes technologies in improving glycaemic management for people with diabetes undergoing dialysis. The focus was on continuous glucose monitoring (CGM), insulin pumps, and automated insulin delivery (AID) systems, evaluating their accuracy, clinical effectiveness, and impact on glycaemic outcomes in dialysis populations.

Methods

Following the Joanna Briggs Institute framework, a comprehensive search of databases, including MEDLINE, CINAHL, and Embase, was conducted. Studies investigating diabetes technologies in haemodialysis (HD) or peritoneal dialysis (PD) populations were included. Out of 2,527 studies initially identified, 68 met the inclusion criteria. Thematic areas assessed included CGM validation, comparisons of diabetes treatments, glycaemic outcomes, and AID system effectiveness in dialysis settings.

Results

Validation of CGM Accuracy

Eighteen studies evaluated the accuracy of CGM devices in dialysis populations, comparing CGM readings to laboratory glucose values. Results demonstrated strong correlations, with mean absolute relative difference (MARD) values ranging from 10% to 15%. While slightly less accurate compared to non-dialysis populations, CGM was still considered reliable for clinical use in dialysis patients.

Comparison of Diabetes Treatments

Eighteen studies assessed various diabetes therapies using CGM data. Closed-loop insulin delivery systems and treatments such as GLP-1 receptor agonists were shown to significantly enhance glycaemic control. These therapies reduced time spent in hyperglycaemia and hypoglycaemia, offering safer and more effective options for managing diabetes in dialysis populations.

Glycaemic Outcomes

Thirty-four studies highlighted the effectiveness of CGM in improving glycaemic outcomes for dialysis patients. CGM was particularly beneficial on dialysis days, helping to reduce glucose variability and allowing for more personalised insulin adjustments. This contributed to improved patient safety and overall glycaemic stability.

Automated Insulin Delivery (AID)

Four studies examined the use of AID systems in dialysis populations. AID systems improved time spent in the target glucose range, reduced mean glucose levels, and decreased glucose variability. They were effective in minimising hyperglycaemic episodes without significantly increasing the risk of hypoglycaemia or the need for higher insulin doses. One study demonstrated a 69% time-in-range achievement with AID compared to 31.5% with conventional therapy, while another reported an increase in time-in-range from 43.5% to 64.8%. These systems were also associated with reduced

glucose fluctuations and better glycaemic management overall. Although results are promising, larger trials are required to confirm their safety and effectiveness in this population.

Discussion and Conclusion

The review highlights the potential of diabetes technologies in addressing the unique glycaemic challenges faced by dialysis patients. CGM devices provide accurate and actionable glucose data, enabling more precise and safer management strategies. AID systems offer additional benefits by automating insulin delivery, reducing the burden of care, and improving glycaemic outcomes. Together, these technologies represent a significant advancement in diabetes care for dialysis patients.

While the findings underscore the clinical utility of these devices, further research is necessary to optimise their use in this high-risk population. Expanding access to these technologies could significantly improve the quality of care and outcomes for individuals with diabetes undergoing dialysis.

Success of hepatitis b vaccination in renal patients at the advanced kidney care (AKC) clinic

Mrs Melai Watkins[1]
[1]University Hospital Birmingham (Queen Elizabeth Hospital), Birmingham, UK

Introduction: Hepatitis B is a viral infection of the liver that can cause acute or chronic disease. Chronic infection significantly raises the risk of liver cirrhosis and hepatocellular carcinoma. The disease is transmitted through contact with infected bodily fluids, such as blood. Fortunately, an effective and safe vaccine exists for prevention. According to the World Health Organization (WHO, 2024), vaccination is the most effective measure against Hepatitis B.

Patients with chronic kidney disease (CKD) are at an elevated risk for Hepatitis B due to their increased susceptibility to infections and the potential for exposure to virus through dialysis machines and organ transplantation. Studies, such as those by Johnson and Fleming (1992), show that CKD patients who receive the vaccine before requiring dialysis exhibit higher rates of seroprotection and stronger antibody titres.

Methods: In previous years, General Practitioners (GPs) were responsible for vaccinating renal patients. However, this approach faced challenges due to poor communication, which often led to confusion among patients regarding the vaccinations they had received. To address these issues, the AKC team implemented a more structured approach by vaccinating patients within a dedicated clinic at our hospital and satellite unit. This shift in strategy allowed for better tracking, more consistent administration, and improved patient education regarding the Hepatitis B vaccination series.

The targeted vaccination program focused on patients with an estimated glomerular filtration rate (eGFR) of less than 20 or those with a Kidney Failure Risk Equation (KFRE) score greater than 20%. Over a span of two years, the program emphasized early identification, patient education, and the timely administration of the full vaccine series to ensure optimal protection against Hepatitis B for those at the highest risk.

Results: The vaccination program yielded the following distribution among participants:

128 (40%) patients achieved full immunity.

135 (42%) patients are still in the process of completing the vaccination series.

30 (9%) patients required annual boosters.

12 (4%) patients were identified as non-responders to the vaccine.

13 (4%) patients refused the vaccination.

Additionally, none of the patients in the program were vaccinated by their general practitioner, and no patients tested positive for Hepatitis B. Two patients (1%) were placed on referral hold due to complications unrelated to vaccination.

These results highlight the overall success of the program, with a high percentage of participants achieving or progressing toward immunity, while also identifying areas for focused follow-up, such as managing non-responders and addressing patient refusal.

Discussion:

The AKC Clinic's targeted Hepatitis B vaccination program has successfully achieved high immunity levels among high-risk renal patients while maintaining low refusal rates and preventing any Hepatitis B infections. This initiative demonstrates the value of structured, patient-centred vaccination strategies in specialised renal care settings. It provides a model for integrating preventative healthcare measures into routine patient management, ultimately contributing to better health outcomes and reduced disease burden. Continued evaluation will help refine the program and inform broader application in renal care services.

Reference:

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A critical review of patient information leaflets and online information used to inform decision making about the treatment of autosomal dominant polycystic kidney disease,

Dr Matt Gittus[1,2], Mr John Mekhali[1], Ms Anna Winterbottom[3], Professor Albert Ong[1]
[1]University of Sheffield, Sheffield, United Kingdom, [2]Sheffield Kidney Institute, Sheffield, United Kingdom, [3]University of Leeds, Leeds, United Kingdom

Introduction:
Autosomal Dominant Polycystic Kidney Disease (ADPKD) affects ~70,000 in the UK. Tolvaptan slows disease progression but presents considerable challenges including aquaretic side effects, intensive monitoring and risk of liver injury. Accessible high-quality information is important to support patient decision-making. This study evaluates the quality of online resources for Tolvaptan, their ability to assist people making reasoned, shared decisions, and explores ChatGPT's potential in assisting healthcare professionals to enhance resources.

Methods:
Searches for resources were designed to simulate patient behaviour. Patient facing resources were identified by three search methods: 1) selecting the first 30 resources identified using keywords "ADPKD" and "tolvaptan" entered into three internet search engines; (2) an online Google search combining the keywords with UK kidney unit names; and (3) a manual search of NHS trust websites for tolvaptan leaflets. Two reviewers systematically assessed quality using a 99-dimension coding framework informed by eight existing quality assessment tools, UKKA recommendations, Otsuka guidance and expert input. Readability was assessed using the average score from four readability tools. ChatGPT-4.0 was prompted to improve the readability of the hardest-to-read leaflet and to create new content integrating all identified leaflets. Statistical analyses were conducted in STATA/MP 18.

Results:
Twelve resources were identified. Eight from keyword-driven searches (methods 1 and 2) comprising four kidney unit leaflets, three polycystic kidney disease organisation webpages and one NHS webpage. Four additional kidney unit leaflets were identified through the NHS trust website search (method 3). None met all the criteria to qualify as patient decision aids under the International Patient Decision Aid Standards version 4.0.

Leaflets had a readability equivalent to Year 10 level (mean 9.05, range 7.80-10.23). Overall quality scores ranged from 42.48%-67.39% (mean 52.95%, SD 6.46). While resources generally balanced benefits and risks, they did not clearly present not taking tolvaptan as an option, describe consequences of no treatment, address uncertainties or display risks in multiple formats. Content analysis identified inconsistencies in expected side effects, practical advice and recommended fluid intake. Webpages had comparable readability scores but lower overall quality scores (mean 36.0%). They provided only brief overviews with minimal support for shared decision-making. Although leaflets were more informative, they lacked transparency, varied in content and did not sufficiently support shared decision-making.

ChatGPT improved the readability of the hardest-to-read leaflet from 11.9 (Year 12) to 9.2 (Year 10), without compromising quality. The new leaflet synthesised by ChatGPT improved the overall quality score from 63.21% to 73.68% and readability from 9.3 (Year 10) to 7.2 (Year 8), excluding transparency dimensions.

Conclusion:
Leaflets are a popular method of reinforcing information provided in consultations. However, both online patient-facing resources and written patient information leaflets are inconsistent in quality,

lack some key information, and may not fully support patient decision-making. Providers should be aware of these limitations and explore the development of patient decision aids for those considering tolvaptan. These findings could be applied to other disease areas and treatments. ChatGPT shows promise in improving readability and content quality, offering a potential tool for future patient-facing materials.

A quality improvement project to improve kidney PREM response rate using Plan-Do-Study-Act methodology

Mr Steven Wise, Mina Thakor

Kidney PREM is a national annual survey of kidney patients led by the UK Kidney Association in partnership with Kidney Care UK. The aims of Kidney PREM are to help teams understand how patients feel about their care, show where improvements can be made, and gives a national picture of peoples experience of care. In addition patient experience is recognised as a key aspect of delivering quality care with enhanced patient experience being associated with improved treatment concordance and outcomes. In PREM 2023 the PREM response rate at University Hospitals Coventry and Warwickshire (UHCW) was 10. In a large unit, with 5 satellite units, this presented a missed opportunity to understand our patients experience and how we can improve and develop our service. In 2024 the aim was to improve the response rate by utilising a Plan-Do-Study-Act (PDSA) model of quality improvement.

The 'Plan' phase consisted of collating feedback from the previous year whereby it was established there was a preference for paper surveys and a general lack of engagement across the department. A senior member of staff was therefore identified as PREM lead who adopted a transformational approach to work alongside departmental leads and coordinate PREM response rate. In addition to paper surveys the department planned to send out PREM cards to home therapies patients and included PREM cards in outgoing correspondences over an 8 week period. The PREM period was advertised through internal communications and departmental meetings. The 'Do' phase consisted of implementing the plan with data being collated daily by the PREM lead. The data was presented at departmental meetings throughout the PREM period with weekly return rates being distributed across the department via internal communication. During the 'Do' phase the PREM lead was present and visible in the clinical areas to speak with staff and promote PREM completion. Throughout the 'Do' phase the PREM lead used characteristics of transformational leadership through clear communication, inspiration, and positive reinforcement. The utilisation of transformational leadership built team commitment, high staff involvement, and individual autonomy within a positive climate. The 'Study' phase demonstrated consistent responses over the PREM period with a total return of 340 surveys compared to a return rate of 10 for 2023.

The results show that PREM returns can be significantly improved by utilising a quality Improvement methodology such as PDSA. The impact of which gives us greater insight into patient experience and how our services can be improved for the benefit of patients. The key learning from our experience is the importance of a dedicated PREM lead and engaging departmental leads through transformational leadership. Whilst there may be some limitations in that interpersonal nature is irreplicable our experience shows that adopting a methodological quality improvement approach can improve engagement and PREM response rate.

The Preparing a clinical outcome assessment set for Nephrotic Syndrome (Prepare-NS) Project: A Core Set of Clinical Outcome Assessments and Endpoints for Nephrotic Syndrome Related to Rare Kidney Diseases

Professor Devin Peipert[1], Dr Noelle Carlozzi[2], Ashley Rahimi[3], Courtney Hurt[4], Jin-Shei Lai[4], Trivellore Raghunathan[5], Somayeh Hashemi[3], Becky Scherr[3], Maja Kuharic[4], Yan Zhai[3], Eloise Salmon[3]
[1]Centre for Patient Reported Outcomes Research, University of Birmingham, Edgbaston, Birmingham, United Kingdom, [2]Center for Clinical Outcomes Development and Application in the Department of Physical Medicine and Rehabilitation and the Center for Health, Policy and Innovation (IHPI),University of Michigan Medical School, Ann Arbor, USA, [3]Division of Pediatrics - Nephrology, University of Michigan, Ann Arbor, USA, [4]Department of Medical Social Sciences, Northwestern University, Chicago, USA, [5]School of Public Health, Survey Research Center, University of Michigan, Ann Arbor, USA

Aims: Nephrotic syndrome (NS) occurs in rare kidney diseases among children and adults, causing debilitating swelling that devastates patients' health-related quality of life. Active drug development aims to reduce NS-associated swelling impact, and suitable patient-centric clinical outcome assessments (COAs), required to determine the treatment benefit of emerging therapies, are not available. As part of the US FDA's CDER Pilot Grant Program, Prepare-NS is developing a core set of COAs focused on the impact of NS-related swelling on physical symptoms and functioning to support COA endpoints in NS clinical trials.

Methods: Prepare-NS is taking a comprehensive approach to identifying, developing, and validating COAs relevant to patients aged 2 and above for focal segmental glomerulosclerosis, membranous nephropathy, minimal change disease, IgM nephropathy, and childhood-onset NS. Identification of COA concepts, study design considerations and endpoint design has been facilitated through multi-stakeholder input, literature review, and extensive qualitative research with patients and caregivers.

Results: We formed an external advisory committee (6 members with scientific and regulatory expertise), a clinical expert panel (12 members with expertise in clinical nephrology), and a stakeholder engagement group (14 members including patients, caregivers, and industry and medical society representatives). Interactions with these groups was complemented by iterative interviews with pharmaceutical companies and trialists actively engaged in NS drug development. These interactions, along with concept elicitation interviews with 26 caregivers of children aged 2-11 years with NS and 32 individuals aged >8 years with NS helped us identify concepts and create a conceptual model for developing observer-reported (ObsRO) and patient-reported (PRO) measures focused on physical symptoms and functioning. (Figure 1) After systematic content mapping, newly developed items and items selected from existing item banks and libraries for ObsROs and PROs are being examined in cognitive debriefing interviews. The study team developed a validation study protocol for these COAs that will examine their fitness for regulatory review. The protocol was informed by FDA guidance, stakeholder groups, and qualitative research.

Conclusion: At the conclusion of Prepare-NS, we will have a patient-driven and scientifically supported set of NS-specific COAs that include ObsRO and PROs. We will also make recommendations for endpoints using these measures.

Exploring primary care staff experiences and insights on implementing 'My Kidneys & Me' (MK&M): a pilot implementation project in primary care

Naeema Patel[1,2], Professor Alice Smith[1,2], Dr Courtney Lightfoot[1,2], Dr Matthew Graham-Brown[3,4]
[1]Leicester Kidney Lifestyle Team, University of Leicester , Leicester, United Kingdom , [2]NIHR Leicester Biomedical Research Centre, Leicester , United Kingdom , [3]Department of Cardiovascular Sciences, University of Leicester, Leicester , United Kingdom , [4]4. Department of Renal Medicine, University Hospitals of Leicester NHS Trust, Leicester, United Kingdom

Introduction:
Effective self-management can improve health outcomes in people with CKD, but implementation of CKD self-management education and support is lacking. To understand how to embed evidence-based interventions into routine clinical practice, we undertook a quality improvement project of My Kidneys & Me (MK&M) (an evidence-based digital CKD self-management programme) in a primary care setting. We explored the implementation processes used by primary care staff and their experiences of using MK&M in practice.

Methods:
Data were collected using a mixed methods approach between February and October 2024. Staff completed two online surveys: 1) before commencement to explore perceptions of CKD management and care, 2) part way through to explore experiences of using MK&M in practice. Staff were invited to participate in semi-structured interviews to explore the implementation processes and strategies used, and discuss their survey responses. Interviews were audio recorded and transcribed verbatim. Data were analysed using descriptive (survey) and conventional content (interviews) analysis.

Results:
Four staff (2 clinicians, 1 GP partner, and 1 admin) completed survey 1; three completed survey 2. All respondents took part in an interview. Findings from the survey and interviews were drawn together, and five key points were identified:

1. Proactive approach to improving CKD care: Clinical staff reported confidence in discussing CKD with their patients, enthusiastically adopting CKD projects, gaining leadership buy-in, and using coding to identify CKD patients.

2. Smooth integration of MK&M: Providing MK&M to patients was described as 'easy' as the practice's text messaging and data systems facilitated mass invitations. Staff described the process of embedding MK&M which involved searching for CKD stages 3-5, offering the MK&M programme through text messaging link, and adding patients to the MK&M dashboard.

3. Collaborative teamwork and shared roles: A minimal increase in workload was perceived. A collaborative effort was used to support the implementation process, with medical students assisting with coding, IT team setting up the system, and performance (admin) team sending out invitations. Whilst the initial workload was considered to be significant, staff indicated that over time the process became routine.

4. Signposting of MK&M during personal consultation: Staff discussed how the initial plan was to offer personal consultations; however, the large number of patients coded for CKD made it impractical. Staff suggested involving a wider team within the practice, including well-being coaches, nurses, and chronic disease specialists in promoting MK&M to address this.

5. Providing an MK&M staff training guide: The MK&M staff handbook was deemed useful, but staff recommended accessible training, primary care sessions, and personal drop-ins to discuss MK&M with staff, and the development of a FAQ for staff to address patient queries.

Discussion:
The findings highlight a desire to improve CKD self-management in primary care and MK&M was seen as a useful tool to support this. This data will inform the design of a larger trial implementation. Whilst this pilot project serves as an example for future initiatives, consideration of the context and culture of individual practices is required to develop a comprehensive implementation plan.

Structural variant detection from whole-genome sequencing data in the diagnosis of inherited early-onset kidney disease

Zachary Sentell[1,2], Dr. Juliana Arcila-Galvis[1], Dr. John Sayer[3,4]
[1]Biosciences Institute, Faculty of Medical Sciences, Newcastle University , Newcastle upon Tyne, United Kingdom, [2]Department of Human Genetics, McGill University, Montreal, Canada, [3]Renal Services, Newcastle Upon Tyne Hospitals NHS Foundation Trust, Newcastle upon Tyne, United Kingdom, [4]NIHR Newcastle Biomedical Research Centre, Newcastle upon Tyne, United Kingdom
Targeted genetic testing and exome sequencing can yield molecular diagnoses in up to 30-40% of genetic kidney disease cases, but many patients remain undiagnosed. WGS can detect complex genomic alterations, including structural variants (SVs) and copy number variants (CNVs), often missed by routine diagnostic methods. However, the clinical utility of SV and CNV variants remains underexplored due to detection and validation challenges. This study aims to define the contribution of SVs and CNVs to the genetic landscape of early-onset kidney diseases.

We analyzed WGS data from rare disease participants in the Genomics England 100,000 Genomes Project. Probands with kidney disease or congenital anomalies of the kidneys and urinary tract that were diagnosed before the age 30 were included. SVs and CNVs were detected using MANTA, CANVAS, and SYNOD (Simple copY Numbers frOm Depth), and filtered for rarity (MAF < 0.5%), and prioritized based on overlap with genes in the Renal Superpanel (PanelApp UK) and gene-specific inheritance patterns.

Among 2,767 probands, 453 (16.4%) had prior diagnoses within the Genomics England project. Notably, the Cystic Kidney Disease category had the highest diagnostic rate (above 40%), while the Congenital Anomaly of the Kidneys and Urinary Tract (CAKUT) group had the lowest proportion of solved cases (4.8%), demonstrating the significant genetic heterogeneity of this cohort. The most frequently diagnosed disease-causing CNV/SVs included the 17q12 heterozygous deletion and NPHP1 homozygous deletions. Here, reanalysis of unsolved cases identified additional pathogenic CNV/SVs, including large heterozygous deletions in PKD1, PKD2, HNF1B, IFT140, COL4A5, and NPHP1, demonstrating the increased diagnostic yield from short-read WGS for detecting complex genomic alterations. Many of the early-onset kidney disease participants remain undiagnosed, highlighting the need for further investigation.

This study underscores the value of WGS in improving diagnostic rates for early-onset kidney disease by uncovering clinically significant CNV/SVs. Future work will focus on validating candidate CNV/SVs through transcriptomic analysis and exploring the contribution of compound heterozygous variants in autosomal-recessive cases to refine the genetic landscape of early-onset kidney diseases.

Know Your Kidneys: breaking institutional barriers to make chronic kidney disease education accessible to all

Mrs Joana Teles[1], Kathleen Lynch[1], Andrew McAllister[2], Ginitha Sathianantham[1], Emma Jeyaratnam[1], Dr Kuldhir Johal[3], Dr Mohammad Haidar[3], Elizabeth Dalby[1], Cristina Horpos[1], Olivia Ferres[1], Dr Andrew Frankel[1]
[1]Imperial College Healthcare NHS Trust , North West London , United Kingdom, [2]London Kidney Network , London, United Kingdom, [3]North West London Integrated Care Board, North West London , United Kingdom

Introduction

Effective treatments for chronic kidney disease (CKD) are available, and early intervention can significantly reduce disease progression and mortality. These treatments require lifestyle changes and the use of multiple medications, making a patient-centred approach crucial for promoting understanding and engagement.

"Know Your Kidneys" (KYK) is an interactive group education program for people with early-stage CKD, which has been available in secondary care for several years (solely virtual since 2020). As part of the North West London (NWL) CKD transformation program, we wanted to make KYK accessible at diagnosis, when disease management is still in primary care. Following external evaluation by people with CKD, the program was restructured, reducing session length, incorporating live testimonies, and increasing time for discussion and sharing experiences.

This project aimed to increase KYK attendance by 10% from April 2023 to March 2024, with referrals from primary, secondary, and integrated care, and a strategy to minimize barriers to access.

Methods

Simplicity in referring patients to KYK was key to expanding across the eight NWL boroughs in primary care. The administrative work involved in patient invitations was unsustainable, so a self-registration process was implemented. The team adapted a patient leaflet with step-by-step instructions that clinicians could easily use during consultations.

This leaflet was integrated into primary care systems (Emis and SystmOne), with template text messages and referral guidance added to local CKD guidelines. An ongoing marketing campaign raised awareness through education initiatives for primary care professionals.

A major challenge was ensuring education accessibility, particularly for those facing significant health inequalities. To reduce barriers, the team produced short videos translated in multiple languages (the top three non-English Languages spoken in NWL) to address some language and IT literacy issues.

Results

From April 2023 to March 2024, 277 people attended KYK: 38% female, 56% male, and 6% unknown. This represents a 123% growth, compared to the previous year noting that 17% of referrals came from primary care. Preliminary data indicates 327 attendees from April to November 2024, predicting a 50-75% increase in the second year.

The social demographics showed a widespread across the index of social deprivation levels and good geographical representation across 8 boroughs (graphs 1 and 2).

Feedback from attendees was very positive. Common responses to what was good about the seminar included the opportunity to ask questions and share experiences.

The user-friendly simplicity of the referral was quickly recognized across the department, leading to a similar approach for registering advanced kidney care and transplant seminars by expanding the website's functionality.

Discussion

The first year's success demonstrates resilience in a patient-centred service led by a single nurse. Key achievements, such as team expansion and IT automation on Cerner, have supported sustainable growth.

Virtual seminars are not accessible to all, particularly to those with limited IT literacy, but they overcome geographical and institutional barriers, reaching a wider audience. Plans for 2025 include offering in-person sessions.

This pioneering service has attracted attention from other organisations and is highly transferable. KYK's legacy includes aligning educational services in the department, supporting a nearby centre in establishing a similar program, and assisting a national KYK pilot session.

Case report: persistent microscopic haematuria and impaired renal function associated with Ibrutinib treatment

Dr Emilia Hobson[1], Dr Christina Ali, Dr Arvind Singh
[1]Gloucestershire Hospitals NHS Foundation Trust, Gloucester, United Kingdom, [2]Department of Nephrology, Gloucestershire Royal Hospital, Gloucester, United Kingdom

Introduction

Tyrosine kinase inhibitors (TKIs) have revolutionised the treatment of malignancies by selectively inhibiting key enzymes involved in signalling pathways that regulate cellular proliferation, differentiation and survival. There is a growing evidence base implicating TKIs with the development of renal complications including impaired glomerular filtration and haematuria. Here we report the case of persistent microscopic haematuria and renal impairment associated with ibrutinib use.

Case Report

A 57-year-old male with a background of chronic lymphocytic leukaemia (CLL), undergoing treatment with ibrutinib, presented with intermittent visible haematuria and urinalysis positive for blood. Investigations revealed a decline in renal function with his serum creatinine (SCr) having risen to 141 µmol L-1 and estimated glomerular filtration rate (eGFR) reduced to 49 mL min-1 1.73m-2. Repeat urinalysis was positive for blood however the albumin-creatinine ratio was normal at 0.9 mg mmol-1.

Infective causes of haematuria were ruled out as there was no dysuria and urinalysis was negative for nitrites and leukocytes. He was not anticoagulated, platelet counts and coagulation studies were normal. An absence of significant exercise/trauma excluded March haemoglobinuria. Renal tract Ultrasound found no evidence of hydronephrosis or masses, discounting obstructive uropathy, corroborated by CT abdomen and pelvis. A degree of cortical scarring affecting both kidneys was noted. His cystoscopy was normal, and prostate specific antigen was within the age-adjusted range.

Kidney biopsy was negative for IgG, IgA, and C3 immunostaining, with artefactual precipitation of C1q and IgM stained slides. Renal cortical material indicated areas of mild mesangial expansion with increased cellularity, but glomerular basement membranes (GBMs) showed no evidence of reduplication or spike formation. There were no features of endocapillary hypercellularity, crescent formation, segmental scars or tubulointerstitial nephritis. Blood was noted within tubule lumens with haemosiderin deposition in the tubular epithelial cell cytoplasm, in keeping with microscopic haematuria. Fibrosis affected less than 20% of cortical interstitial area.

Electron microscopy demonstrated focal podocyte foot process effacement however the GBMs were of normal thickness, excluding thin anti-GBM disease. There were no features of amyloid deposition, nor Alport syndrome and ultimately no clear evidence of a primary glomerulonephritis.

Throughout Ibrutinib treatment, there was consistent microscopic haematuria and persistently deranged renal function, macroscopic haematuria resolved.

The patient recently discontinued ibrutinib citing concerns regarding risk of hypertension and atrial fibrillation. Following discontinuation, he will be followed up with further urinalysis and renal function tests. Second opinion of the kidney biopsy is awaited by a national expert.

Discussion

This case adds to reports of haematuria and/or impaired renal function associated with TKIs. This appears to be without evidence of interstitial nephritis, contrary to previous reports. A meta-analysis looking at adverse renal manifestations associated with TKI use found ibrutinib monotherapy is associated with the highest risk of developing elevations in SCr. Review of the patient post discontinuation of ibrutinib will be beneficial in establishing whether his impaired renal function and

microscopic haematuria has persisted. More work is required to establish if correlation in symptom manifestation and commencement of ibrutinib therapy is causative and to investigate a potential underlying mechanism.

Implementing ‘My Kidneys & Me’ in primary care: a pilot project exploring patient registration uptake

Naeema Patel[1,2], Professor Alice Smith[1,2], Dr Courtney Lightfoot[1,2], Dr Pritti Aggarwal[3], Samantha White[3], Charlotte Holden[3], Dr Johanna Curtis[3], Dr Kristin Veighey[4], Alison Northern[5], Dr Matthew Graham-Brown[6,7]
[1]Leicester Kidney Lifestyle Team, University of Leicester, Leicester , United Kingdom , [2]NIHR Leicester Biomedical Research Centre, Leicester , United Kingdom , [3]Living Well Partnership Trust, Southampton, United Kingdom , [4]University Hospital Southampton NHS Foundation Trust, Southampton, United Kingdom , [5]Leicester Diabetes Centre, University Hospitals of Leicester NHS Trust, Leicester, United Kingdom , [6]Department of Cardiovascular Sciences, University of Leicester, Leicester , United Kingdom , [7]Department of Renal Medicine, University Hospitals of Leicester NHS Trust, Leicester , United Kingdom

Introduction:
Early identification of CKD allows timely support and intervention for people living with CKD, and primary care providers are ideally positioned to identify and manage people with earlier stages of CKD. There are national and regional drivers to improve CKD care, particularly through enhancing CKD coding, risk stratification, and therapy optimisation. There is a need and opportunity to provide education and self-management resources like ‘My Kidneys & Me’ (MK&M), an evidence-based digital self-management programme for people with non-dialysis CKD, in primary care. This pilot project implemented MK&M in a single GP practice and evaluated patient uptake of the programme, and which outcomes were feasible to capture to refine the processes of a long-term implementation trial.

Methods:
From February 2024, a GP practice in a city in the South of England invited patients who were coded with CKD stages 3-5 to sign up for the MK&M programme. Patients were invited via text messages using the primary care ‘Accurx’ system, or face-to-face by a primary care clinician during their appointment. Primary care staff collected patient sociodemographic data at three levels: 1) patients who were invited to MK&M, 2) patients who expressed interest, and 3) patients who registered to the programme. Patients were sent a feedback survey 4 weeks after registration. Data were analysed using descriptive statistics.

Results:
Data collected up to 9th October 2024 are presented and displayed in Table 1.

A total of 1236 patients were invited to sign up to MK&M; of which 137 (11%) expressed an interest, with 69% (94/137) subsequently registered.

18 patients (67% male, mean age: 72.3 (±7.04) years, and 94% White British) responded to the feedback survey. 12 patients reported receiving information about MK&M from their clinician or GP centre, with five stating the information was given to them via email or text messaging system. Many patients (n=12) were happy with the method by which they received information about MK&M. Most patients (n=13) joined the programme to understand and gain advice about CKD and lifestyle, whilst three patients mentioned they did not know about their CKD before receiving the information.

Discussion:
This small-scale pilot implementation project showed that whilst primary care practices can utilise text messaging systems to disseminate information about kidney healthcare resources to a large number of patients, personal engagement is likely to be needed to support patients to access the programme. Sociodemographic data including age, sex and postcode, can easily be obtained from GP

practice records. Work is needed to improve the uptake of the resource in diverse populations of patients. Future implementation studies are planned to assess the effects of refined processes and strategies for implementation, which include increased engagement, clinician prompts, and webinar support for staff. Work exploring primary care staff experiences of the processes of implementing MK&M in their routine practice is presented separately.

The association between the use of shared haemodialysis care and shared decision making: results from the Kidney PREM survey

Dr Kevin Breen[1], Dr Shalini Santakumaran[2], Professor Martin Wilkie[3], Dr Neill Duncan[4], Dr Tania Barnes[3], Georgina Hamill[2], Catherine Stannard[2], Amanda Busby[5], Paul Bristow[6], Dr Udaya Udayaraj[1]
[1]Oxford Kidney Unit, Oxford, United Kingdom, [2]UK Kidney Association, Bristol, United Kingdom, [3]Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield, United Kingdom, [4]Imperial College Healthcare NHS Trust, London, United Kingdom, [5]University of Hertfordshire, , United Kingdom, [6]Kidney Care UK, Alton, United Kingdom

Introduction
Shared decision-making (SDM) is an important area to consider when measuring patient experience and is consistently rated one of the lowest areas of care by patients with renal disease. Strategies to improve SDM remain poorly defined.
Shared haemodialysis care (SHC) empowers suitable in-centre haemodialysis (ICHD) patients to undertake their own dialysis-related tasks. Centre-level data on SHC is not routinely reported.
Using results from the Kidney Patient Report Experience Measure (Kidney PREM) 2023 survey, we examined the variation in SHC offered in 67 adult UK kidney centres. Furthermore, we assessed the association between SHC and SDM scores amongst ICHD respondents.

Methods
SHC offer and acceptance was assessed by a single survey question. A measure of SDM was derived from three questions, with respondent scores between 1 (lowest) and 7 (highest) for each.
Patient-level analyses were performed using linear mixed models to investigate differences in mean SDM scores depending on whether they were offered SHC. Each SDM question was analysed separately, as well as the mean SDM score across all 3 questions. Random intercept and slope terms were used to assess centre variation in the SDM-SHC association.
We explored the SDM-SHC association at centre-level by plotting the mean SDM score against the percentage of patients offered SHC at each centre. We performed a linear regression (weighted by the number of respondents at each centre) to investigate associations.

Results
Analyses included 6,861 patients. A total of 53% respondents were offered SHC in 2023, with the percentages offered SHC at each centre varying from 13% to 93%. SHC was more likely to be offered to those aged 31-55 years, ethnic minorities and in satellite units. There was no difference in acceptance of SHC, once offered, between age groups (Table 1).
Those offered SHC gave higher scores in each of the three SDM questions individually, and an increase of 0.61 (95% CI 0.51 to 0.70, p<0.0001) for the mean across the three SDM scores (p<0.0001) (Table 2). There was centre-variation in the association between SHC and SDM for question 20 only (discussing treatment and life goals). The difference in SDM score between those offered and not offered SHC was larger in centres with lower rates of SHC (p=0.019).
At centre level, there was an increase in score for question 22 only (discussing active role in care) of 0.07 (95% CI 0.009 to 0.130, p=0.026) per 10% increase in the percentage of patients offered SHC (Figure 1).

Discussion
SHC is not universally offered to all patients despite Getting It Right First Time (GIRFT) recommendations, with considerable variation between centres. This study shows inequitable access to SHC opportunities according to patient age, ethnicity and dialysis unit location.
This study is the first to demonstrate a positive association between offering SHC and SDM, suggesting that offering SHC can support SDM and improve ICHD patient experience of care. This association seems strongest in those centres where rates of SHC were the lowest, indicating that these centres are likely to gain most by increasing SHC opportunities for their patients.

Improving the experience of carers in home dialysis: the development of a Dialysis Carer Support Meeting

Miss Gemma Hardy[1], Mrs Fran Valencia[1], Mrs Jenny Allen[1]
[1]NUH, Nottingham, England, [2]NUH, Nottingham, England, [3]NUH, Nottingham, England

Introduction

Patients with chronic kidney disease (CKD) receiving home dialysis (both home haemodialysis (HHD) and peritoneal dialysis (PD)) in the community often have carers who are heavily involved with their care. This can lead to significant burden for carers. Problems faced by carers include burnout (when carers take on much of the responsibility of the dialysis for the patient) financial issues, practical issues (such as limitations on work, travel and competing responsibilities such as childcare) and emotional issues.

There is currently no local support in our area for carers of patients on home dialysis. There is National support online from Kidney Care UK which patients are encouraged to access, but this may not meet all their needs. The aim of this project is to provide support to improve the experience of both patients receiving dialysis in their homes and their carers, through the introduction of a carers support meeting. Support will involve access to information including practical, emotional, psychological, financial and peer support via regular meetings.

Methods

We identified a need for further support for carers. We commenced a Plan-Do-Study-Act (PDSA) cycle to address the needs of carers in our home dialysis unit.

Plan

Set up six monthly meetings. This involves a presentation and access to advice from various renal specialists including a dietician, psychotherapist and peer support.

Identify patients/carers of whom this would benefit via their assigned nurse.

Do

Advertise meetings on the Renal Home Therapies newsletter.

Offer an informal setting to all including access to specialist and peer support in a relaxed environment.

Allow time during the meeting for patients and carers to communicate with each other, gaining peer support.

Offer refreshments at meeting.

Study

Ask for verbal feedback. It was felt that informal feedback was preferable in order to maintain a relaxed and informal environment for patients and carers.

Record uptake of invitations and number of attendees.

Request ideas for improvement going forward.

Action

Use feedback to direct format and content of future meetings.

Results

We held a meeting in June 2024 with 20 patients and carers in attendance.

Informal feedback from patients was that they had found the meeting beneficial. The main areas of benefit highlighted were chatting to peers and sharing information.

Comments for future topics and improvements were that people felt that they would like information about finances and benefits.

A further meeting was scheduled with a plan to incorporate the suggestions for improvement from the first meeting.

Discussion

A need for support for carers was identified and this quality improvement initiative aims to address this need. An informal and friendly approach to this intervention was felt to be essential, and the. Moving forwards the aim is for the meetings to be guided by informal feedback from participants.

Early actions identified are to address carers concerns regarding finance, by to including financial advice from a specialist at Kidney Care UK. The positive feedback received suggests that we have identified an unmet need.

Empowering people living with diabetes to drive kidney health checks through a public health campaign

Mrs Joana Teles[1], Dr Tony Willis[2], Ian Reddington[2], Chandrakuma Nitharshan[2], John Shanko[2], Dr Aoife Lenihan[3], Dr Richard Corbett[1], Dr Andrew Frankel[1]
[1]Imperial College Healthcare NHS Trust , North West London , United Kingdom, [2]North West London Integrated Care Board, North West London , United Kingdom, [3]Northwick Park Hospital , Harrow , United Kingdom

Introduction
Chronic Kidney Disease (CKD) is a public health emergency, primarily driven by the rise in diabetes cases(1). To improve clinical outcomes in a cost-effective manner, the health model needs to shift from reactive to proactive where early diagnosis and intervention is key (2). This study focuses on the impact observed by a single public health campaign delivered by email to people living with diabetes type 1 and (T1DM) and type 2 (T2DM) in North West London. The campaign emphasised the importance of promoting a “kidney health check”, empowering individuals to request a urine albumin creatinine ratio (ACR) if this had not been done in the last 12 months.
Methods
A kidney Centre, the Integrated Care Board and Know Diabetes (KD) collaborated on a public health campaign to raise awareness about Kidney Health/CKD and the importance of ACR testing. The campaign featured video patient testimonies, guidance on interpreting kidney health results and additional information about CKD.
KD is the leading portal for people living with diabetes in area and is fully integrated with primary care systems and pathology. Using KD the team sent two separate emails: one for individuals affected by T2DM and another for those with T1DM. The T1DM and T2DM cohorts were locked one week before the campaign launch. The approved email was sent to both groups, including individuals non-registered to KD, on World Kidney Day, March 2024.

Results
The campaign was sent to 108,730 people, with a 57% email open rate and 10% interaction rate (based on clicks on embedded links). Data for evaluation, reflecting privacy settings, is limited to 100,399 people (43% female, 61.3 ± 13.8 years old [mean ± sd]). The available data does not allow for linking clinical results with the individuals who opened the email campaign. Therefore, the effectiveness of the campaign was evaluated through the impact of ACR testing following the email circulation. This was analysed using a simple time series approach (Graph 1) over three-month epochs before and after the campaign release.
The significant increase in ACR testing observed in the first quarter of 2023 may be linked with the end of the Covid-19 pandemic as suggested by sensitivity analysis looking at the uptake of testing across the NW London boroughs.
There was a 65.8% increase in ACR uptake compared to the quarter before the campaign, and a 23.1% increase compared to the same quarter the previous year. Furthermore, of the individuals who completed an ACR within the three-month follow-up, 33.8% had not had this test in the previous 12 months.

Discussion:
Empowering people living with diabetes to drive kidney health checks through a public health campaign appears to be a low-cost highly-effective intervention. While the data do not prove causality, there is a strong correlation between the campaign and the increase in ACR testing. Approximately a third of the individuals who completed ACR in the three months following the campaign had not had analysis performed in the previous year. This suggests the campaign may engage people who were previously hard to reach. Adjustments will be trialled in the future to

improve cohort targeting and to improve effective use of primary care resources. Furthermore, there is scope to transfer this work to other groups at risk of CKD.

Use of gastric acid suppression in a PD population

Dr Muhammad Naveed Khawaja[1], Jennifer Pritchard, Dr Jennifer Allen
[1]Nottingham University Hospitals NHS Trust, Nottingham, UK

INTRODUCTION

Peritoneal dialysis(PD)is an integral part of management of chronic kidney disease (CKD). PD reduces pressure on in-centre haemodialysis (HD) programmes and facilitates autonomy and flexibility. A major reason for unplanned switch to HD is PD peritonitis, and efforts should be made to minimize this risk. There is a potential association between gastric acid suppression (GAS) and enteric peritonitis. The latest International Society for Peritoneal Dialysis (ISPD) guidelines (2022) recommend avoiding or limiting the use of histamine-2 receptor antagonists (H2RA) and to a lesser extent proton pump inhibitors(PPIs) as a preventative measure. We performed an audit at our centre to examine adherence to ISPD recommendations in minimising GAS use and reviewed the association with enteric PD peritonitis.

METHODS

We performed a review of patients receiving PD in our centre from 1st Jan 2022 to 31st Dec 2023. We recorded GAS prescription and peritonitis episodes. We classified organisms as enteric vs non-enteric based on microbiological characteristics. Baseline demographics, clinical diagnosis, microbiology and medications were retrieved from our electronic renal database (eMED). Data was analysed using Microsoft Excel.

RESULTS.

197 patients were included in the audit: mean age 59 (SD18) years, males 145 (74%), APD 119 (60%), CAPD 66 (34%) and Assisted APD 12 (6%). 65 (33)% of these were new starters within the study period.

122 (62%) patients were prescribed GAS. 114 (93) % were on PPI, 8 (7) % on H2RA.

There were 138 episodes of peritonitis in total affecting 88 patients: 71(81) % primary, 12(14%) relapses and 4 (5%) recurrences. 32 (23%) episodes were caused by potential enteric organisms (Enterococcus Escherichia coli, Klebsiella, Enterobacter, Candida, Citrobacter, Coliform, Serratia, Bacteroides). The most common enteric organism was Klebsiella (8 (25%) of enteric episodes). Non-enteric organisms (Acinetobacter, Staphylococcus, Streptococcus, Corynebacterium, Pseudomonas, Propionibacterium, culture negative) caused 106 (77%) of total episodes.

Within the PPI group 11 (10%) of patients had PD peritonitis . 6 (55%) had enteric, 5 (45%) non-enteric PD peritonitis. The most frequent enteric organism was Klebsiella (3 (27%)) and the most frequent non-enteric organism was Staphylococcus (2 (18%)). Within the H2RA group 1 (12.5%) patient had non-enteric PD peritonitis, (Pseudomonas).

In the non-GAS group 75 patients had PD peritonitis. Of these 60 (80)% were by non-enteric organisms with only 15 (18) % caused by enteric organisms (Enterobacter, Escherichia coli and Serratia) 29%.

DISCUSSION

There was high use of GAS (62%) in our PD population (mainly PPI) H2RA use was low. This compares to reported prevalence of PPI use worldwide around 23% and nearly 50% haemodialysis dialysis patients in USA. The high use may relate to treatment of common PD-related symptoms. Non-enteric peritonitis was more common in our unit: 77% in GAS group 60% non-GAS group. However enteric peritonitis was more common in patients receiving GAS than in those without 55% vs 18%. With limited numbers it is not possible to make an association to PPI or H2RA use. Our findings would justify a QI project to ensure appropriate GAS prescription, minimise polypharmacy and ensure adherence to ISPD recommendations.

A simple test of walking speed at the time of kidney transplant pre-assessment predicts likelihood of positive cardiac investigations and activation on the waiting list.

Dr Pranav Satish[1], Dr Gareth Jones[1], Dr Paramjit Jeetley[2], Dr Marc Wittenberg[3], Professor Reza Motallebzadeh[1]
[1]UCL Centre for Kidney & Bladder Health, London, UK, [2]Department of Cardiology, Royal Free London NHS Foundation Trust, London, UK, [3]Department of Anaesthetics, Royal Free London NHS Foundation Trust, London, UK

Introduction
Prior to kidney transplant listing, cardiovascular screening is performed to stratify the risk of cardiovascular disease (CVD), although the benefit remains unclear. In our centre, patients being assessed for transplant underwent a timed assessment to walk 130m to quantify exercise tolerance, in addition to a standardised protocol of cardiac screening based on risk. We studied whether this rapid, non-invasive test predicts cardiovascular screening results and outcomes.

Methods
A retrospective analysis of 995 patients who underwent assessment. Patients were divided into quartiles of the time taken to perform the walk test.

Results
995 patients were assessed. Median age was 56 and 64% were male. 19.1% had a history of CVD and 38% were diabetic. Median clinical frailty score was 3 and BMI of 27.1. Patients in the fastest quartile (Q1) of walk times (<71 seconds) were younger, had lower BMIs, were less frail, had lower rates of CVD and diabetes at baseline. At follow up, they had the lowest rates of cardiac events and mortality compared to the slowest quartile (Q4) (1.62% vs 10.6% in Q4, $p < 0.001$,). Fast walk times had lower rates of abnormal cardiac stress testing (13.8% in Q1 vs 22.8% in Q4, $p = 0.052$) and higher rates of activation for transplantation (90.6% in Q1 vs 55.3% in Q4, $p < 0.001$). Transplant rates amongst activated patients were similar between quartiles in those able complete the test (69.7 in Q1 vs 71.2 in Q4, $p = 0.767$). 649 (65%) patients underwent cardiac stress testing, of which 174 (26%) had an abnormal test, 77 (11%) required a coronary angiogram and only 20 (3%) required coronary intervention (PCI or CABG) as part of the listing process. On regression modelling, walk time was a significant predictor of cardiac events. Sensitivity analysis showed a high negative predictive value (86.2%) for walk time as a predictor of stress test results.

Conclusion
We present a rapid, non-invasive method of assessing cardiorespiratory function before renal transplantation. Current protocols for pre-transplant assessment may over-investigate patients with low cardiovascular risk, thereby delaying activation and subsequent transplant. Frailer patients may benefit from more focussed cardiac screening.

Vascular endothelial glycocalyx dysfunction as a therapeutic target in sepsis-associated acute kidney injury (sAKI)

Dr Laura Carey[1], Dr Matthew Butler[1], Vaishnavi Lalam[1], Dr Nesreen Hamad[1], Haijie Wu[1], Dr Aldara Martin Alonso[1], Dr Monica Gamez[1], Sevil Erarslan Catak[1], Dr Holly Stowell-Connolly[1], Jasmine Aldam[1], Dr Sarah Fawaz[1], Prof Gavin Welsh[1], Dr Rebecca Foster[1], Prof Simon Satchell[1], Dr Raina Ramnath[1]
[1]University of Bristol, Bristol, Bristol

Background: Microcirculation dysfunction is a key driver of sAKI. Endothelial glycocalyx (eGLX) is a carbohydrate-rich gel-like structure, comprised of different components, including core protein syndecans. It lines the vascular endothelium throughout the body, including the renal microvasculature. EGLX maintains vascular homeostasis and is damaged in disease states. Matrix metalloproteinase (MMP)9-mediated eGLX shedding is a key mechanism in glomerular endothelial cell (GEnC) damage and microvascular dysfunction in diabetic kidney disease. We hypothesise that MMP9-mediated eGLX loss contributes to microvascular dysfunction in sAKI and represents a potential novel therapeutic target.

Methods: MMP9 activity assay and ELISAs for syndecan 1 and angiopoietin 2, an endothelial damage marker, were performed on serum from patients with sAKI (n=16) or healthy controls (n=18). Human GEnC was treated with Click-iT™ ManNAz (tetraacetylated N-Azidoacetyl-D-Mannosamine) to label cell surface sialic acid-containing glycoproteins, therefore identifying the eGLX. Control and sAKI serum were added to Click-iT™ ManNAz-labelled human GEnC and eGLX was imaged and quantified (blind) using confocal microscopy and ImageJ software. The efficacy of MMP2/9 inhibitor 1 (MMP9i) on eGLX protection was evaluated in GEnC and a mouse model of sAKI induced by a single, intraperitoneal,10 mg/kg lipopolysaccharides (LPS) injection in C57BL6 mice. Lycopersicon esculentum (tomato) lectin staining and membrane marker Octadecyl Rhodamine B Chloride (R18) were used to acquire confocal images to quantify kidney eGLX and red blood cell (RBC) GLX depth.

Results: Serum MMP9 activity, syndecan 1 and angiopoietin 2 were increased by 2.8, 1.5 and 2.1 fold ($p<0.05$) respectively in human sAKI. In vitro, exposure of ManNaz labelled human GEnC to sAKI serum reduced eGLX by 1.5 fold ($p<0.05$), suggesting a direct endothelial action. MMP9i increased syndecan 4 expression by 3 fold ($p<0.001$) compared to LPS-treated GEnC, confirming that blockade of MMP2/9 restores eGLX loss in human GEnC. In mice, sAKI increased serum MMP9 by 5 fold ($p<0.0001$) and shedding of syndecan 4 by 4.6 fold ($p<0.01$). These were associated with reduced glomerular and peritubular eGLX by 1.5 and 1.4 fold ($p<0.05$) respectively and decreased RBC GLX by 1.6 fold ($p<0.05$). LPS also caused an upregulation in intercellular adhesion molecules-I and vascular cell adhesion molecule-1 gene expression by 31.7 and 7.3 fold respectively ($p<0.05$), indicating renal microvascular damage. MMP9i enhanced glomerular and peritubular eGLX by 1.4 fold ($p<0.05$) and reduced RBCGLX damage in sAKI by 1.5 fold ($p<0.05$).

Conclusion: The results suggest MMP9-mediated eGLX dysfunction in renal endothelial cells may contribute to the development of sAKI and could represent a novel therapeutic target.

Pre-dialysis arteriovenous fistula formation: Ensuring seamless haemodialysis initiation and sustainable vascular access patency

Mrs Tamasin Stevenson[1], Dr Rabiah Ahmed, Miss Fareeha Gulfam, Miss Fahma Said, Dr Jyoti Baharani, Mrs Heidi Jimenez, Mrs Leah-kate Butler, Miss Sarah White, Mrs Tracy Carter
[1]Birmingham Heartlands Hospital, Birmingham, England

BACKGROUND:
Arteriovenous fistulas (AVFs) remain the vascular access modality of choice for patients with end-stage renal disease (ESRD) undergoing haemodialysis (HD), due to well-documented advantages in long-term patency, reduced infection risk, and lower overall morbidity and mortality compared to alternative access options such as arteriovenous grafts or tunnelled catheters. Primary patency, defined as the interval from AVF creation until the first access-related intervention, occlusion, or abandonment, is a critical determinant of AVF utility and a cornerstone for ensuring effective and sustainable renal replacement therapy. Establishing an AVF prior to the initiation of HD is frequently advocated, as it can facilitate a smooth transition to treatment and minimize reliance on central venous catheters, which carry higher complication burdens and threaten long-term access preservation.
AIM:
This retrospective analysis aimed to evaluate primary patency and long-term outcomes of AVFs created at our centre between March 2019 and September 2024. By examining the intervals from AVF creation to first cannulation and assessing the frequency of pre-cannulation interventions, this study seeks to identify potential factors influencing AVF maturation, durability, and overall suitability for initiating and maintaining HD therapy.
METHODS:
A comprehensive retrospective audit was performed using data from 487 patients who underwent AVF creation. The cohort included both pre-dialysis patients (i.e., those with an AVF placed before HD initiation) and patients already receiving HD via a central venous catheter or a failing AVF. Data extracted included, timing of AVF creation, time to successful cannulation, necessity and nature of any pre-cannulation interventions, and subsequent AVF performance. Outcomes were assessed with particular attention to primary patency and the feasibility of using the AVF as the initial HD access.
RESULTS:
Over the five-year period, 487 AVFs were created, with 285 (58.5%) formed in pre-dialysis patients. Among these, 265 (92.9%) AVFs achieved successful cannulation and served as the initial vascular access for HD initiation. Only three AVFs (0.7%) required intervention before cannulation; two of these AVFs recovered fully after corrective measures and continued to function effectively, while one ultimately failed. Additionally, two patients died before AVF use could be established, and in five patients, the final AVF outcome remained indeterminate due to recovery of renal function, kidney transplantation, or transfers to other HD centres.
CONCLUSION:
These findings highlight the high rate of AVF utilization as the initial HD access among patients who underwent pre-dialysis AVF creation, supporting current recommendations favouring early vascular access planning. The minimal requirement for pre-cannulation interventions underscores the potential benefits of timely AVF formation in stabilizing dialysis initiation and reducing reliance on central venous catheters. Further prospective studies, ideally involving larger patient cohorts and standardized assessment protocols, are warranted to elucidate the determinants of AVF maturation and long-term patency. Such data could inform evidence-based guidelines, optimize vascular access strategies, and ultimately improve patient outcomes in ESRD management.

Potential strategies to increase early detection of chronic kidney disease: a Midlands perspective

Dr Laura Desai[1,2]
[1]The Dudley Group NHS Foundation Trust, , United Kingdom, [2]London School of Hygiene and Tropical Medicine, London, United Kingdom

Introduction

Chronic kidney disease (CKD) is a growing public health concern worldwide, and is responsible for 40,000 - 45,000 premature deaths each year in the UK. Individuals with CKD are at risk of numerous associated health problems, which may be averted if kidney disease is detected at an earlier stage. Given the recent proliferation of drug therapies shown to improve outcomes in the early stages of CKD, timely detection is increasingly pertinent. The Midlands has a diverse population with a disproportionate burden of CKD and its associated conditions, including diabetes and hypertension. However, there has to date been limited evidence relating specifically to this region and its large CKD population. This project aimed to inform an evidence-based strategy to increase rates of early detection of CKD in the Midlands.

Methods

A literature review of peer-reviewed and grey literature was conducted to identify existing evidence on strategies to increase early detection of CKD. The quality of evidence selected for inclusion in the review was assessed using validated tools, and specific consideration was given to its applicability to the Midlands context. A questionnaire was designed and distributed to healthcare professionals working with individuals with kidney disease in the Midlands to explore perceptions of the barriers to early detection, as well as any previous success stories, in a local context. The findings of the literature review and questionnaire were then used to generate recommendations for regional policy strategies.

Results

The literature review identified several common themes noted to facilitate early detection of CKD. These include inter-professional working, kidney disease education for both healthcare professionals and the public, community screening initiatives, and financial incentives for CKD screening in primary care. Many of these themes were reflected in the questionnaire findings, with the lack of funding and absence of quality indicators for CKD testing in primary care specifically cited as barriers to early detection in the Midlands.

Discussion

This project shed further light on strategies with the potential to increase early detection of CKD in the Midlands, although supporting evidence from the literature was of variable quality. Barriers to early detection were well described, which is useful for proactively addressing potential hurdles when devising policy. Expert opinions from the local context provide an additional unique and valuable resource. Subsequent recommendations for policy strategies include further developing inter-professional partnerships between primary care and nephrology, joining the call for primary care indicators to incentivise CKD screening, and focusing on vulnerable population groups.

Amino acid and protein losses in adult patients receiving maintenance dialysis: a literature review.

Mr Bruno Mafrici[1,2], Dr Matthew Hall[1], Dr Daniela Viramontes-Hörner[2], Prof Nicholas Selby[2], Prof David Gardner[3]
[1]Nottingham University Hospital NHS Trust, Nottingham, UK, [2]University of Nottingham, Derby, UK, [3]School of Veterinary Medicine and Science, Leicestershire, University of Nottingham, Nottingham, UK

Introduction
Amino acid and protein losses occur during haemodialysis (HD) and peritoneal dialysis (PD) and have been documented for over 40 years. They have been identified as a potential contributing factor towards the development of protein energy wasting (Hanna et al., 2020). The aim of this literature review was to provide an updated summary regarding these losses in patients receiving in-centre HD, PD, home HD (HHD) and nocturnal HD (NHD).

Methods
From 2000 to 2024, a comprehensive literature review was undertaken. The search focused on the following question: what are the protein, amino acid and peptide losses in adult patients receiving one aforementioned types of dialysis (HD, PD, HHD, NHD)? The literature search was performed using a search matrix and five search databases: CINAHL (Cumulative Index of Nursing and Allied Health Literature) Ultimate, Cochrane library, EMBASE (Excerpta Medical Database), MEDLINE, and Web of Science. All records that measured amino acid, peptide and/or protein losses in the dialysate effluent in adults receiving any form of maintenance dialysis were included.

Results
The initial search identified 14,498 records. After removing duplicates, 12,907 records remained and subsequent screening of titles and abstracts produced 29 eligible records were identified: 14 HD and 15 PD records (Figure 1). Mean (±SD) amino acid losses ranged from 9.3±2.9g to 12.0±2.0g per four-hour HD session. Mean peritoneal protein losses (PPL) ranged from 4.37±1.71g to 10.0±0.6g per day. Nine PD studies were excluded based on pre-specified search criteria because participants included those who had been receiving dialysis for less than three months, but all other eligibility criteria were met. No studies that measured amino acid or protein losses in patients receiving HHD or NHD were found.

Discussion
This review has highlighted extensive heterogeneity in how amino acid and protein losses are measured from study-to-study, making direct comparison of losses difficult to interpret. Another limitation of this review is the inability to critique nutritional status of the participants because most of the authors reported only weight and body mass index (BMI), which are affected by body fluid and reflect fat mass composition and not muscle mass or muscle function. Nevertheless, one of the strengths of this review is that we only included studies with patients receiving maintenance dialysis. This is because those with acute dialysis would have significantly different nitrogen balance and increase heterogeneity. While clinical guidelines recommend a protein an intake of 1.0-1.4g/kg/body weight for people receiving dialysis (UKKA 2019; Ikizler et al., 2020; Dukkipati et al 2010), it remains to be established if (a) the timing, quantity, and quality of protein intake during dialysis treatment is of clinical relevance, and (b) whether individualisation of dietary protein intake based on modality-specific losses is linked to clinical outcomes.

Emotional and mental health gaps and support needs in adult IgA nephropathy as a priority: Qualitative interviews with patients, family, and kidney healthcare professionals

Dr Kristina Newman[1], Professor Jonathan Barratt[1], Mrs Justyna Szklarzewicz[2], Dr Roisin Thomas[1], Dr Haresh Selvaskandan[1]
[1]University of Leicester, Leicester, United Kingdom, [2]University Hospitals of Leicester NHS Trust, Leicester, United Kingdom

Introduction:
There is an overall link between mental health and kidney disease which can lead to poorer clinical outcomes, a lower quality of life, reduced ability to manage physical symptoms, and lead indirectly to kidney failure (KRUK Economics Report, 2023; National Psychosocial Working Group, 2022). The NHS, in England alone, spends £8-13 billion per annum on comorbid mental health problems in patients with chronic disease, with mental health problems two to three times more likely in long-term conditions (KRUK Economics Report, 2023). While research has highlighted a need for psychological research in chronic kidney disease, specific research on rare kidney diseases such as IgA nephropathy (IgAN) are also necessary to inform gaps in need and tailored support.

Method:
Participants were recruited via advertisement in IgAN social media, within a RaDaR survey, charity newsletters, and professional kidney networks. 48 remote individual semi-structured interviews asking about perceptions and experiences of IgAN generally and with loin pain were conducted including 21 patients, 13 family of patients, and 14 healthcare professionals. 33 were conducted by Microsoft Teams and 15 by telephone following informed consent. Interviews were audio-recorded via encrypted dictaphone and transcribed verbatim. Data was coded and reflexively thematically analysed by two researchers, one with clinical IgAN experience.

Results:
While data collection focused on loin pain, there were pronounced emergent discussions of emotional and mental health impact in IgAN experience, highlighting this as a priority for patients, family, and kidney healthcare professionals. Patients, family, and healthcare professionals identified key areas of emotional and mental health impact in IgA nephropathy including: 1) Personal impact of IgAN on patients and families, 2) Access and availability of information and support, and 3) Mental health impact and IgAN outcomes. Concerns around uncertain disease progression, fertility, limited and difficult treatments, unknown cause and cure, challenging symptoms, and socioeconomic impact had a significant effect on patients and carers across genders, age, and disease progression, with a call for accessible support. Healthcare professionals highlighted that there was a psychological impact of CKD but that they did not feel best equipped for these conversations. Conflict in patient and carer communication with healthcare professionals was also expressed, with patients often feeling dismissed or confused in appointments, with limited options and excess use of jargon.

Discussion:
A diagnosis of IgAN had a significant impact on patients and their families as they adjusted to a new normal of a condition they previously did not know existed. Uncertain futures and limited information made living with IgAN challenging, negatively impacted quality of life, led to increased health anxiety and distress, and with limited support available to navigate these. As secondary content from a pain-focused study, this highlights mental health in rare kidney diseases such as IgA nephropathy as a priority.

Recommendations for future research in IgA nephropathy: What do patients, their loved ones, and healthcare professionals in the UK see as priority?

Dr Kristina Newman[1], Professor Jonathan Barratt[1], Mrs Justyna Szklarzewicz[2], Dr Roisin Thomas[1], Dr Haresh Selvaskandan[1]
[1]University of Leicester, Leicester, United Kingdom, [2]University Hospitals of Leicester NHS Trust, Leicester, United Kingdom

Introduction:
Research into IgA nephropathy (IgAN) has progressed significantly since first identified as a distinct clinical diagnosis in 1968, demonstrated by advancement in clinical practice (e.g. Rout et al., 2024), an increase in publications including "IgA nephropathy" (e.g. 1834 in Kidney International total; 7 in the first year of 1973-4, and 69 in the last year of December 5th 2023-4; and 801 in Kidney International Reports total; 26 in the first year 2016-17, and 156 in the last year), and abstracts at nephrology conferences such as the American Society of Nephrology (103 in 2019, 203 in 2024). Despite this increase in research, and that IgAN is one of the most common glomerular diseases, much remains unknown about this disease, leading to challenges in diagnosis and management, and impacting patients and their families. As research interest in IgAN continues to grow and progress, we asked patients, family, and kidney healthcare professionals their thoughts on current gaps and priorities in IgAN research and practice.

Method:
Participants were recruited via advertisement in IgAN social media (e.g. IgAN Facebook group) with permission of admins, within a RaDaR survey, kidney charity newsletters, and professional kidney networks. 48 remote individual semi-structured interviews asking about gaps, perceptions and experiences of IgAN were conducted including 21 patients, 13 family of patients, and 14 healthcare professionals. 33 were conducted by Microsoft Teams and 15 by telephone following informed consent. Interviews were audio-recorded via encrypted dictaphone and transcribed verbatim. Data was coded and analysed with reflexive thematic analysis via NVivo.

Results:
Themes on 1) improving methods of IgAN diagnosis and use of biopsies, 2) treatment options in IgAN, 3) lifestyle factors and recommendations to slow kidney decline, 4) mental health support for patients and family, and 5) accessible and consistent information about IgAN, were highlighted in all groups. While acknowledging the progress in recent years for IgAN research, participants highlight that furthering understanding of IgAN as a disease overall is a priority.

Discussion:
IgAN patients, family, and healthcare professionals emphasise the importance of research driving understanding of IgAN mechanisms and impact, methods of slowing kidney function decline, treatments, and increasing support to meet patient needs. These areas may facilitate management, and improve kidney outcomes, as we work towards better lives for patients with IgAN.

How hyperkalaemia limits optimisation of treatment in a community chronic kidney disease (CKD) setting

Mrs Jacqueline Gandy[1]
[1]Royal Free NHS Foundation Trust, Hampstead, United Kingdom

Introduction:
More than 1 in 10 people in the UK live with chronic kidney disease (CKD), a high-risk condition for cardiovascular disease (CVD). Failing to identify and treat CKD optimally doubles mortality (UKKA). Starting an angiotensin-converting enzyme (ACE) inhibitor or angiotensin-receptor blocker (ARB) and titrating to the maximum tolerable dose is crucial for mitigating CVD risk in adults with CKD either with or without Type 2 diabetes (LKN, 2024 and NICE, NG203).

Patients with worsening CKD are at higher risk of hyperkalaemia due to impaired potassium homeostasis and the use of renin-angiotensin system inhibitors (RAASi), which are critical for reducing CVD risk (Sumida et al, 2023). Clinicians are advised not to offer these medications when serum potassium is above 5.0mmol/l and to stop them if levels reach 6.0mmol/l (NICE, NG203), denying some patients optimal RAAS therapy. Sodium zirconium cyclosilicate (Lokelma) is recommended for patients with CKD stage 3b to 5 and persistent hyperkalaemia, where serum potassium is 6.0mmol/l or above, who are not on an optimised dose of RAASi (NICE TA599, 2024), to reduce potassium and enable medication up-titration. However, many patients with potassium levels between 5.0-5.9mmol/l are not eligible for Lokelma.

The dietetic community CKD Clinic, started on March 6th, 2024, allows referrals from the community CKD team. This audit aimed to investigate how many patients experienced hyperkalaemia, and whether a) they had their RAAS blockade reduced or stopped and b) they were offered dietetic advice and Lokelma where appropriate.

METHODS:
Data was extracted from the Community Database for all CKD patients (n=5199) over six months (March 6th, 2024, to September 6th, 2024, n=427). Data on hyperkalaemia (potassium levels >5.1mmol/l) was collected. Further data was extracted on:

- Whether ARBs or ACE inhibitors were reduced or stopped
- Number of patients with a dietetic appointment
- Number of patients appropriately prescribed Lokelma

RESULTS:
54 patients (13%) had potassium levels above 5.1mmol/l. Of these, 28 (52%) were referred to a dietitian, and 27 (50%) of these attended an appointment. All patients with a potassium >6mmol/l received dietetic intervention. 42% of eligible patients (with K >5.1mmol/l) were not offered a dietetic appointment.
35% of patients with hyperkalaemia had their RAAS blockade stopped or reduced (stopped = 10, reduced = 9) during the 6 month audit period.
6 patients were eligible for Lokelma. Only 2 received the drug. An additional 3 people who did not meet NICE criteria also had the drug prescribed.

DISCUSSION:
13% of our CKD service experienced hyperkalaemia. RAAS blockade was reduced or stopped in over one-third of these patients, with implications for increased CVD risk.

Only half of people with hyperkalaemia were referred to a dietitian, missing an opportunity for dietary management in the other half. Reviewing the dietetic referral criteria for potassium intervention could help capture these patients.

Lokelma was used appropriately in most instances, but only 6 patients of the 54 were eligible. This further demonstrates the importance of access to dietetic advice where drug therapy is not supported by NICE guidance.

Impact of having a dedicated departmental research nurse team

Miss Kelly White[1,2], Mrs Karen Jones[1,2], Professor Nicholas Selby[1,2], Professor Maarten Taal[1,2]
[1]Centre for Kidney Research and Innovation, Derby, UK, [2]University Hospitals of Derby and Burton, Derby, UK

Introduction

Across the UK, the clinical nurse workforce has developed in an inconsistent manner, often shaped by local and external influences. At our hospital, a central research nurse team supports delivery of clinical trials across all areas. In the renal department, this model limited the type and quantity of clinical trials that could be undertaken, as clinical trials nurses didn't have a renal background or specialist skills required to carry out renal specific activities such as haemodialysis. A lack of confidence with perceived 'complicated' patients was also a barrier to clinical trials nurses engaging with potential participants.

Methods/design

In 2016, our renal unit appointed a full-time renal research nurse who had 10 years renal experience as a haemodialysis nurse. The aim of this abstract is to describe how the team has grown over the last 8 years, the trials we have been able to undertake and the participants we have been able to enrol.

Results

Since appointing the renal research nurse in 2016, the team has grown from one to a team of three, a research practitioner joined the team in October 2020 and an RN in October 2022. All three team members have a renal background. In 2016 we had five clinical trials open to renal patients which has increased progressively to 16 (see Table 1).

The team has supported delivery of a range of studies including commercial Clinical Trials of Investigational Medicinal Products (CTIMPs), observational and interventional trials. We have recruited from all subspeciality areas including CKD, AKI, Transplant, HD & PD, thereby increasing the opportunities available for patients to take part in research if they wish. Overall, 97% of these trials have recruited to time and target.
We have conducted highly complex dialysis studies that have used multi-organ MRI to assess the impact of haemodialysis on organ structure and function. This has required delivery of haemodialysis at an MRI centre away from the hospital site and having scans pre, post and in one study, during dialysis. The renal research nursing team has been integral in the delivery of these studies. We have also been able to support research fellows with their PhD studies.
The renal research team has also allowed increased research participation in satellite dialysis units broadening opportunities for patient participation and helping to reduce historical inequities. These initiatives were supported by the award of targeted funding from the local NIHR clinical research network.

Discussion
Since the introduction of a department dedicated research team the number of open clinical trials in nephrology has increased by over 300%. By increasing our capacity and capability we have been able to successfully deliver a wide range of high-quality research that is multidisciplinary, inclusive, accessible and improves the outcomes of our renal patients. By being present within the renal department, the team are well known to the patients and staff which has a had a positive impact on our recruitment. Our positive experience provides evidence to support establishing and maintaining research nurse teams within renal departments.

A randomized prospective crossover study on the effects of medium cut-off membranes on FGF-23 and inflammatory mediators in patients receiving regular haemodialysis

Dr Saif Al-Chalabi[1,2], Professor Smeeta Sinha[1], Professor Philip A. Kalra[1], Dawn Evans[1], Professor Darren Green[1], Professor Leon Schurgers[3], Prof Dimitrios Poulikakos[1]
[1]Donal O'Donoghue Renal Research Centre, Salford, United Kingdom, [2]Faculty of Biology, Medicine and Health, University of Manchester, Manchester, United Kingdom, [3]Cardiovascular Research Institute (CRIM), Department of Biochemistry, University Maastricht,, , Netherlands

Background
High-flux dialysis (HFD) membranes effectively remove small molecules during haemodialysis but have limited capacity in clearing middle molecules that may contribute to the uraemic milieu. Medium cut-off membranes (MCO) have the potential of removing a wide range of middle molecules. Our study aimed to compare the clearance rate (CR) of Fibroblast growth factor 23 (FGF-23) and other selected inflammatory cytokines between medium MCO and HFD membranes and investigate the intrasubject stability of these biomarkers.
Methods
This prospective randomised case-crossover study recruited adult patients receiving regular haemodialysis. Twenty patients were randomised into two groups: Group A: to start with 1 week of thrice-weekly dialysis using HFD membrane followed by a 3-weeks washout period and then 1 week of dialysis with an MCO membrane; Group B, to start with 1 week of thrice-weekly dialysis using MCO membrane followed by a 3-weeks washout period then 1 week of dialysis with HFD membrane. Blood samples were taken before and after each dialysis session for analysis of the assessed biomarkers (FGF-23, interlukin-6 [IL-6], interlukin-18 [IL-18], high-sensitivity C-reactive protein [hsCRP] and dephosphorylated uncarboxylated matrix Gla protein [dp-ucMGP]). Average values over the 3 sessions in each arm were used for comparison between the membranes using Wilcoxon signed rank test and paired-t test depending on the distribution of the data. One-way repeated measures ANOVA or Friedman Repeated Measures Analysis of Variance tests were used for the intrasubject stability of the biomarkers depending on the distribution of the data.
Results
There was no significant difference in the CR when using MCO and HFD membranes for the assessed biomarkers: FGF-23 (0.31 vs 0.23], p=0.242), IL-6 (0.19 vs 0.12, p = 0.215), IL-18 (-0.05 vs -0.03, p = 0.704), dp-ucMGP (0.33 vs 0.33, p=0.903) and hsCRP (-0.05 vs -0.08, p = 0.107) (Table 1) (Fig.1). There was no significant intrasubject variability for all assessed biomarkers except in pre-dialysis high hsCRP levels when using HFD membrane.
Conclusions
The use of MCO membranes for a short period did not substantially reduce FGF-23 levels or other selected inflammatory cytokines. There was no significant intrasubject variability for all assessed biomarkers apart from hsCRP.

Psychosocial training for our renal MDT

Ms Amanda Bevin[1], Ms Bethan Pettifer[2]
[1]EKHUFT, Canterbury, UK, [2]Swansea Bay University Health Board, Port Talbot, Wales

In 2022 the Psychosocial Manifesto proposed as one of their ten recommendations, to rectify the lack of a standardised psychosocial training for staff. A working group of representatives from the three practitioner groups was formed in 2023 and we have developed a level one training as per the four-tier model for psychosocial provision. To upskill our MDT in recognising the psychosocial needs of our kidney patients; and the necessary skills for patient facing staff to feel confident and competent to have conversations with patients who may be experiencing distress.

Along with a web training designer at UKKA an e-learning package with themed modules has been designed, and will be hosted on the UKKA training website. The modules are interactive and a mix of theory, case histories, video's and the patient voice – actual real-life experiences. A certificate will be provided on completion and we plan to have the training package validated by a professional body. There will also be a separate in person skills half day training to complement the e-learning modules. It is everyone's role to identify what matters to our kidney patients and to be curious enough to have a conversation - No health without psychosocial health.

The benefits of a multi-disciplinary specialist clinic for a rare kidney disease

Doctor Aries Connolly[1], Dr Coralie Bingham[2], Doctor Rhian Clissold[3], Maggie Shepherd[4], Mrs Angeline Taylor[5]
[1]Exeter Kidney Unit: Royal Devon University Healthcare NHS Foundation Trust, Exeter, United Kingdom, [2]Exeter Kidney Unit: Royal Devon University Healthcare NHS Foundation Trust, Exeter, United Kingdom, [3]Exeter Kidney Unit: Royal Devon University Healthcare NHS Foundation Trust, Exeter, United Kingdom, [4]Royal Devon University Healthcare NHS Foundation Trust // Biomedical Research Centre at The University of Exeter, Exeter, United Kingdom, [5]Exeter Kidney Unit: Royal Devon University Healthcare NHS Foundation Trust, Exeter, United Kingdom

Introduction

Hepatocyte nuclear factor 1B (HNF1B) encodes a transcription factor involved in the embryonic development of the kidney, pancreas, genital tract and liver. Disease -associated variants are either intragenic mutations or a 1.3 Mb deletion at chromosome 17q12 and are the most common cause of monogenic developmental kidney disease. Renal cysts are the most frequent clinical feature; other clinical features include early-onset diabetes mellitus, pancreatic hypoplasia and exocrine deficiency, genital tract malformations, abnormal liver function, hypomagnesaemia, hyperuricaemia and early-onset gout. An increased risk of neurodevelopmental disorders is only observed in patients with the 17q12 deletion. In 2022 we established an HNF1B multi-disciplinary specialist clinic with adult and paediatric nephrologists, a diabetologist, genetic diabetes nurse and dietitian. The clinic takes national and international referrals and offers both virtual and face-to-face appointments. We aimed to review the clinical cohort who have attended the HNF1B clinic to date.

Methods

We collected data on 21 individuals who attended the clinic over a two-year period including reason for initial referral, demographics, genotype, phenotypic presentation and outcome.

Results

19 referrals originated from within the United Kingdom, 2 were international. 8 patients identified as male and 13 as female, their mean age was 28.3 years. 14 patients were found to have a deletion and 7 patients an intragenic mutation of HNF1B. 9 patients had a family history suggestive of HNF1B disease, 5 had confirmed affected family members. 14 patients had renal cysts, 6 asymmetrical or a single functioning kidney and 3 had normal renal ultrasound scans. The mean eGFR of those recorded was 75 (13 adult patients). 8 patients had confirmed hypomagnesaemia, in 2 it had been a trigger to genetic testing. 11 patients had diabetes with a mean age at diagnosis of 18.7 years (9 patients). 7 patients were managed on insulin, 2 on a combination of insulin and oral diabetic medications and 2 on oral medications. The mean HbA1C was 68.6 mmol/mol (9 patients) with challenging glycaemic control noted in patients with concurrent autism spectrum disorder (highest HbA1C 176 mmol/mol). 3 patients had an abnormal pancreas on imaging, 1 required pancreatic enzyme supplementation. 9 patients had deranged liver function tests. 9 patients with deletions were highly suspicious for, or had confirmed neurodevelopmental disorders. Genital tract malformations affected 4 female patients. 10 patients were referred following a diagnosis of diabetes, and 8 patients were identified through antenatal screening or early renal ultrasound. 3 patients were tested for the disease as part of investigation into their neurodevelopmental disorders.

Discussion

All patients received education on the condition and were offered tailored dietetic support. All diabetic patients were offered a review of their current management and preconception counselling was offered to those planning imminent pregnancy. Screening for family members was discussed.

Patients were signposted to support groups. Recommendations were made to referring clinicians including registration of patients on the renal rare disease registry (RaDaR). In the future we plan to survey patient satisfaction with the clinic.

Empowering non-obesity specialist therapists to start a weight management service

Mrs Jacqueline Gandy[1], Mrs Natasha Aruk, Mrs Roshni Patel
[1]Royal Free NHS Foundation Trust, Hampstead, United Kingdom

Introduction

Obesity and chronic kidney disease (CKD) are increasing. The Health Survey for England (2022) reports that 25% of adults with obesity have CKD stages 1-5, and 10% have stages 3-5. A local audit identified obesity as the main modifiable barrier to kidney transplantation.

Despite its importance, obesity management in CKD patients lacks focus due to limited funding and multidisciplinary team (MDT) support. Many transplant centres use Body Mass Index (BMI) to assess surgery fitness, requiring many patients to lose weight before joining the transplant list. Lifestyle interventions are the first treatment but succeed in only a few patients (Hsu et al., 2006). Bariatric surgery is an option for those with a BMI over 50, but waitlists are long. GLP-1s (Hojs et al., 2023) offer another treatment, though less researched (Hsu et al., 2006).

Managing obesity in CKD is challenging due to insufficient tier 2 and 3 weight management services. To address this, a new weekly in-house program with specialist renal clinicians was developed. This program aims to help patients lose weight, improve transplant fitness, and reduce in-centre dialysis.

Methods

Following NICE guidelines3; the Kidney Fitness in Transplant (K-FiT) service was established to address complex renal needs through behavioural, dietary, exercise, and pharmacological approaches. Supported by a renal transplant surgeon, clear service criteria were collaboratively developed.

To enable renal, non-obesity specialist therapists to deliver this service effectively, the following steps were taken:

-Benchmarking similar UK services

-Shadowing local MDT weight loss services

-Consulting weight loss experts and patients

-Researching pharmacological approaches, especially semaglutide for renal patients

-Reviewing current exercise and dietary recommendations

-Establishing appropriate outcome measures

A patient pathway and standard operating procedure were developed. Approved patients enter a 4-week carousel model, engaging with exercise and diet therapy by a physiotherapist and dietitian, with pharmacological support if appropriate.

Results

K-FiT launched in May 2024 and is at full capacity with a waitlist. 43 patients are enrolled, and 27 are attending weekly appointments with various specialists.

3-month data for 7 patients (table 1):

-Mean weight loss: 6.5 kg

-Mean percentage weight loss: 6.1%

-Mean reduction in waist circumference: 6 cm

-Mean reduction in Waist-to-height ratio (WHR): 0.5

-Mean Duke Activity Status Index (DASI) score improvement: 5.79

Four patients are now on the transplant waitlist, one achieving this through non-pharmacological means. These patients will continue for another 3-9 months and receive a total 12-month prescription. Data for the entire cohort will be available at 12 months.

Discussion

Despite previous MDT interventions showing limited effectiveness in reducing weight in kidney transplant populations (Castle et al., 2021); our results show a promising decrease in weight and waist circumference, along with an improvement in DASI scores.

Empowering non-obesity specialists to lead weight management services can expand access to care, especially in under-resourced settings like the NHS; however clear referral protocols are essential for patients needing specialised care. Non-obesity specialist therapists can significantly impact the obesity epidemic, improve outcomes for renal patients, aid in transplantation access, and reduce dialysis pressures.

Acute Kidney Injury and patient lived experiences of hospital admission and follow-up care: A qualitative study from a 'Lifeworld' perspective.

Dr Mark Jeffries[1], Dr Kelly Howells[1], Dr Duncan McNab[2], Professor Caroline Sanders[1], Professor Robbie Foy[3], Dr Tom Blakeman[1]
[1]University of Manchester, Manchester, United Kingdom, [2]Frew Terrace Surgery, Irvine, United Kingdom, [3]University of Leeds, Leeds, United Kingdom

Cancer, kidney and cardiovascular disease, Tregonwell 2, June 10, 2025, 14:00 - 15:30

Introduction
Acute kidney injury (AKI) is a common, harmful and costly clinical syndrome. Affected people experience potentially avoidable adverse outcomes following hospital discharge, including high rates of unplanned readmissions and poor long-term health outcomes. Current guidelines for follow up after AKI include tailored and timely follow-up that takes into account an individual's existing co-morbidities. For patients the meanings of their health and wellbeing reside within their contextual lived experience; the subjective embodied physical experiences, perceptions of other health conditions and social contexts of their lives. Such meanings have been grouped around the phenomenological understandings of experiences expounded in the concept 'Lifeworld'. Drawing upon existential phenomenological understandings of patients' 'Lifeworld', we examined their experiences of their AKI and post discharge follow-up care.
Methods
Patients who experienced an episode of care complicated by AKI were identified by clinical care teams across six NHS secondary care sites. Following written consent, semi-structured interviews exploring patient experiences of AKI took place after discharge with invitations to a follow-up interview four to six months later. The same six NHS secondary care sites were approached to recruit a range of secondary and primary healthcare professionals for focus groups. Written consent was obtained prior to focus groups. Focus groups explored views on the management of AKI in hospital, through discharge and particularly the organisation of follow-up care. A reflexive thematic analysis enabled interpretation of themes, whilst also considering personal stories as holistic accounts. Once analysed the results were further interpreted through the lens of 'Lifeworld' theory.
Results
Twenty-six interviews were conducted with patients from across all six hospital sites. Follow-up interviews were conducted with eleven of those patients. Six focus groups were conducted at separate hospital sites with a total of 35 healthcare professionals. We interpreted four interrelated and interconnected themes from the interview data:- Embodiment - Patients understood, situated and articulated their health concerns through related physical, psychological, and social accounts; Lived Spaces and the Social World - Patients gave accounts of their different experiences across different lived spaces, often expressed in terms of anxieties and worries; The acknowledgement and support for patients 'Lifeworld' and relational work from healthcare staff; Introducing kidney health - Navigating the challenge of introducing patient understanding as situated within their 'Lifeworld'. Analysis of the health professional focus groups corroborated and reinforced these themes.
Discussion
AKI became part of patients' 'Lifeworld' as it was experienced, understood and navigated, in the context of other health conditions, bodily experiences, lived spaces and the social world. Patients who have had a hospital admission impacted by AKI may require holistic person-centred care and coordinated personalised follow-up care to optimise care and avoid harms. Healthcare professionals might embrace and acknowledge the full depth and complexity of peoples lived experiences, illness and wellbeing and that patients' 'Lifeworld' impacts upon patient experience of AKI follow-up. In doing so they might adopt relational approaches that meet patients' holistic needs and place the patient narratives at the centre.

An Updated Evaluation of Urinary RNA as a Biomarker Matrix for Paediatric Inflammatory Kidney Diseases

Dr Joseph Brown[1]
[1]University of Liverpool, Dept of Women's and Children's Health, Liverpool, United Kingdom

Urine is a routinely collected non-invasive sample that is typically clinically assessed for proteins such as albumin, creatinine and globulins. Whilst the workflow for many of these tests are well established, there are some limitations when it comes to void urinary protein as a matrix for longer term research studies, including processing to storage time, freeze thaw stability and un-reliable normalizations.

In recent years there has been large research interest into RNA species as biomarker candidates in human biofluids, measurable through liquid biopsy. Whilst they have not yet been applied to routine clinical practice, RNAs such as microRNA and long-non coding RNA have shown diagnostic promise in preclinical studies.

In terms of urinary RNA biomarker candidates, many discovery studies have investigated urinary cell pellet or micro vesicle fractions. Whilst these show promise, this may not always be applicable to the more routinely stored cell free urine samples, especially for historical samples that have already been processed and bio-banked.

Our exploratory study aimed to characterise the potential of cell-free urinary RNA as a biomarker matrix for application into diagnostics in inflammatory kidney diseases. This first involved assessment of healthy donor urine, where a variety of processing and storage conditions were compared for their impact on RNA content and stability. Broad urine RNA was shown to be largely unaffected, with total RNA and microRNA shown to be consistent in samples left at room temperature for up to 7 days. Individual RNA biomarker candidates were then assessed for stability including complement mRNAs and miR-33a.

Finally, biomarker candidate miRs were then assayed in the supernatant of in vitro kidney cells treated with pro-inflammatory IgA vasculitis-like conditions. This represented a surrogate of the extracellular milieu that may be seen in urine samples, and differences could be seen in control media versus IgA vasculitis-like conditioned media. This exploratory approach is ongoing, however data so far suggests that cell-free urinary RNA may be a useful for biomarker studies investigating inflammatory kidney disease, and that urinary RNA species should be considered when undertaking new approaches into biomarker discovery for kidney disease.

Sparsentan (SPAR) as first-line treatment of incident patients with IgA nephropathy: interim analysis of the SPARTAN trial

Chee Kay Cheung[1], Stephanie Moody[2], Neeraj Dhaun[3], Sian V. Griffin[4], Alexandra Louise Howson[1], Radko Komers[2], Alex Mercer[5], Matthew Sayer[3], Smeeta Sinha[6], Lisa C. Willcocks[7], Jonathan Barratt[1]
[1]University of Leicester & Leicester General Hospital, Leicester, United Kingdom, [2]Travere Therapeutics, Inc., San Diego, United States, [3]Department of Renal Medicine, Royal Infirmary of Edinburgh, Edinburgh, United Kingdom, [4]Department of Nephrology and Transplantation, University Hospital of Wales, Cardiff, United Kingdom, [5]JAMCO Pharma Consulting, Stockholm, Sweden, [6]Department of Renal Medicine Salford Royal Hospital Northern Care Alliance NHS Foundation Trust, Salford, United Kingdom, [7]Department of Renal Medicine, Addenbrooke's Hospital, Cambridge University Hospitals, Cambridge, United Kingdom

Background: SPAR is a non-immunosuppressive, dual endothelin and angiotensin receptor antagonist (DEARA) approved in the United States, European Union and United Kingdom for the treatment of adults with Immunoglobulin A nephropathy (IgAN). SPARTAN (NCT04663204) is an open-label, single-arm, multicentre, exploratory trial investigating the safety, efficacy, and mechanistic action of SPAR as first-line therapy in patients newly diagnosed with IgAN. We report interim findings.
Methods: Twelve patients ≥18 y old with biopsy-proven IgAN, proteinuria of ≥0.5 g/day, estimated glomerular filtration rate (eGFR) of ≥30 mL/min/1.73 m2, and no prior treatment with angiotensin-converting enzyme inhibitors/ angiotensin receptor blockers (≤12 months) were enrolled. SPAR is given for 110 weeks with 4-week safety follow-up. In a prespecified 24-week interim analysis, proteinuria, eGFR, blood pressure (BP), body weight, total body water (bioimpedance), and safety were assessed.
Results: Mean age at enrolment was 35.8 (standard deviation [SD] 12.2) years (5 female), with median (interquartile range) proteinuria of 1.7 (0.6–3.3) g/day and mean eGFR of 70.2 (SD 25.0) mL/min/1.73 m2 at baseline (BL). Proteinuria reductions were rapid (−61.9% [± standard error −66.9 to −56.1] from BL to Week 4) and sustained over 24 weeks (Figure); 58% of patients achieved complete proteinuria remission (<0.3 g/day) at any time during the first 24 weeks of treatment. After an initial decrease from BL (125/78 mm Hg), BP remained stable during follow-up; eGFR, total body water, and body weight were generally stable (Table). The most frequent adverse event (AE) was dizziness (50% of patients); 1 patient discontinued due to hypotension. A rapid and sustained reduction in urinary soluble CD163 (sCD163), a biomarker for alternatively activated macrophages, was observed with sparsentan treatment (-49.7% from BL to Week 6).
Conclusions: In patients newly diagnosed with IgAN, interim findings show that SPAR as first-line treatment was generally well tolerated and led to rapid and sustained reductions in proteinuria by approximately 70% over 24 weeks, with reductions in urinary sCD163 indicative of a direct anti-inflammatory effect.

A collaborative approach, coupled with data forecasting, was successfully utilised to increase dialysis capacity and enhance patient experience and choice.

Mrs Melissa Charteris[1]
[1]University Hospitals Leicester, Leicester, England

A large multi-site renal and transplant service faced challenges with its existing dialysis facilities, which were listed high on the trust's risk register due to capacity limitations leading to substantial difficulties in transitioning patients from community advanced chronic kidney disease (CKD) services to in-centre Hemodialysis (ICHD). Between January and September 2024, many patients requiring ICHD had to begin treatment as hospital inpatients, often with temporary access. They would then continue with 'ad-hoc' dialysis sessions in the hospital ward until an outpatient slot became available. This disrupted patients' work-life balance, had the potential for worsening outcomes and limited the service's ability to offer dialysis slots based on patient preferences.

The 2021 Getting It Right First Time (GIRFT) report highlighted the growing demand for renal replacement therapy (RRT), predicting a 3% annual increase. Local dialysis data, extrapolated from prior years, indicated this trend, aiding in capacity modeling for future growth. Using a multi-professional team (MPT) approach, it was determined that a new purpose-built dialysis unit was necessary, leading to a collaborative design and build project.

The tender process was successful, and the NHS MPT worked alongside external partners to design and construct a new off-site dialysis unit. Postcode mapping was used to select an appropriate location based on factors like space, safety, transport links, and cost. The new dialysis unit opened in the summer of 2024, after two years of planning and collaboration. It immediately provided brand new facilities, additional capacity for patients waiting for outpatient dialysis slots and room for future growth based on GIRFT and local data projections. The centre comes with fully equipped home therapies suite and consultation rooms for outpatient clinics as well as large, welcoming staff facilities to support retention following a significant management of change.

In a person-centered approach, all patients were asked to provide feedback on their preferred dialysis slots and satellite unit choice, ensuring that the new unit met their needs and preferences where possible and taking into consideration the geographical proximity to the patients' home.

During the first three months of opening, several quality initiatives are in place to enhance patient experience and support choice. This includes:

98% of patients already having therapy in their dialysis unit and time of preference.

2 patients are already taking advantage of auto-dialysis which having extra capacity has allowed and was previously unable to be offered due to space limitation.

ShareHD shall relaunch in January 2025 working in partnership with the local renal community team, projections for home therapies is continued growth with the area seeing a 5% growth during 2024.

Transition ICHD days where patients will be invited to view the unit, express dialysis slot preferences and gain education regarding therapy and shared-care/decision making tailored to their individual needs.

Joint quality improvement venture with local specialist palliative care team to explore how earlier referral to specialist community services can improve patient experience during last 12 months / final stages of illness.

Concomitant sparsentan (SPAR) and SGLT2 inhibitors in adults with IgA nephropathy in the ongoing phase 2 SPARTACUS trial

Kate Higgs[1], Isabelle Ayoub[2], Sydney Tang[3], Laura Kooienga[4], Priscila Preciado[5], David S. Lee[5], Stephanie Moody[5], Brad H. Rovin[2]
[1]CSL Vifor, Maidenhead, United Kingdom, [2]Division of Nephrology, Ohio State University Wexner Medical Center, Columbus, United States, [3]Division of Nephrology, Department of Medicine, The University of Hong Kong, Queen Mary Hospital, Hong Kong, China, [4]Colorado Kidney Care, Denver, United States, [5]Travere Therapeutics, Inc., San Diego, United States

Background: SPAR is a non-immunosuppressive, dual endothelin angiotensin receptor antagonist (DEARA) approved in the United States, European Union and United Kingdom for adults with Immunoglobulin A nephropathy (IgAN). In patients with IgAN, SPAR showed sustained proteinuria reduction and preservation of kidney function in the phase 3 PROTECT trial. In a subgroup analysis from DAPA-CKD and EMPA-KIDNEY, SGLT2is reduced the risk of progression to kidney failure in patients with IgAN. The combination of SPAR and an SGLT2i may therefore provide therapeutic benefits with potentially additive kidney protection. The ongoing phase 2 SPARTACUS trial will evaluate the efficacy and safety of SPAR added to an SGLT2i in adults with IgAN.
Methods: SPARTACUS is a 28-week, open-label, multicentre study of the efficacy and safety of SPAR added to a stable SGLT2i in patients with IgAN at high risk of disease progression. Patients had biopsy-proven IgAN, urine albumin-to-creatinine ratio (UACR) of ≥0.3 g/g, and an estimated glomerular filtration rate (eGFR) of ≥25 mL/min/1.73 m2 despite a stable SGLT2i and maximised renin-angiotensin-system inhibition for ≥12 weeks. Endpoints include change from baseline in UACR at Week 24 (primary); achievement of UACR of <0.2 g/g or 30% or 50% reduction in UACR at Week 24 (secondary); change from baseline in UACR, urine protein-to-creatinine ratio, eGFR, and blood pressure at each visit (secondary); and adverse events. We describe patients in a prespecified interim analysis 24 weeks after approximately 20 patients were enrolled.
Results: Patient demographics and baseline characteristics are reported in the Table.
Conclusions: Enrolment in SPARTACUS will allow for assessment of the efficacy and safety of SPAR added to a stable SGLT2i in patients with IgAN. The poster will include data from the interim analysis.

Concomitant sparsentan (SPAR) and SGLT2 inhibitors in patients with IgA nephropathy in the PROTECT open-label extension (OLE)

Kate Higgs[1], Laura Kooienga[2], Robert Malecki[3], Priscila Preciado[4], Heeral Nandola[4], Alex Mercer[5]
[1]CSL Vifor, Maidenhead, United Kingdom, [2]Colorado Kidney Care, Denver, United States, [3]Nephrology Department of MSS in Warsaw, Warsaw, Poland, [4]Travere Therapeutics, Inc., San Diego, United States, [5]JAMCO Pharma Consulting, Stockholm, Sweden

Background: SPAR, a non-immunosuppressive, dual endothelin angiotensin receptor antagonist (DEARA), demonstrated superior efficacy for proteinuria reduction and better preservation of kidney function vs irbesartan in patients with Immunoglobulin A nephropathy (IgAN) in the PROTECT trial. SPAR combined with an SGLT2i may offer additive kidney protection. We report data from patients who were prescribed an SGLT2i added to ongoing SPAR treatment in the PROTECT OLE.
Methods: Patients who completed the PROTECT double-blind period and met eligibility criteria were enrolled in the PROTECT OLE. All patients received SPAR (target dose, 400 mg/d). Concomitant SGLT2i treatment could be initiated at any time during the OLE at investigator discretion. Patients were excluded from this analysis if they participated in the randomised controlled OLE SGLT2i sub-study. Body weight, systolic and diastolic blood pressure, and urine protein-to-creatinine ratio (UPCR; based on 24-h urine sample) were evaluated at baseline (defined as the OLE visit closest to SGLT2i start) and at Weeks 12, 24, 36, and 48 after baseline. Treatment-emergent adverse events (TEAEs) were examined.
Results: At data cutoff, 62 patients (mean [standard deviation, SD] age, 46 [11.3] years; female, n=16 [26%]) had received SPAR and add-on SGLT2i in the OLE. Median (interquartile range [IQR]) time from OLE start to SGLT2i start was 273 (148.0–429.0) days. Summary data for body weight, blood pressure, and proteinuria over the 48 weeks are presented in the Table. Body weight and blood pressure remained relatively stable. Forty-one (66%) patients had TEAEs; the most common were COVID-19, hyperkalaemia, hypertension, and hypotension.
Conclusions: These data show that an SGLT2i added to a stable dose of SPAR is generally well tolerated and may lead to further reductions in proteinuria. The safety and efficacy of sparsentan with or without concomitant SGLT2i treatment are also being investigated in a separate randomised sub-study within the PROTECT OLE.

Introduction of a single access point for nephrology referrals across an Integrated Care Board (ICB) in London.

Ms Sarah Milne[1]
[1]Royal Free London NHS Foundation Trust , London , , [2]Middlesex University, London,

Background
Early identification and treatment of chronic kidney disease (CKD) can reduce adverse outcomes and identify those at risk of progressive disease who require input from specialist clinicians. A successful business case enabled the expansion of an integrated CKD service across all 5 boroughs in a London ICB. The service is comprised of three components; nephrologist led triage of nephrology referrals, community specialist nurse/pharmacist CKD clinics held in kidney care centres and primary care locations; and an education programme to support CKD management in primary care. The standardised single electronic access point for referrals launched in January 2024 using e-RS. A team of nephrologists spanning three hospital trusts triage incoming referrals with access to the patient's primary care record (EMIS) facilitated by robotic process automation (RPA) an innovative digital technology. Triage outcome includes (1) appointment in secondary care clinic, (2) appointment in community CKD clinic, (3) tailored management plan.

Methods
A mixed methods evaluative study was undertaken as part of an MSc work-based project. The aim was to describe the introduction of the new virtual triage process and its impact on service users. Routine monitoring reports were reviewed to analyse the number and outcome of referrals. Semi-structured interview data informed the development of an electronic survey that sought to assess primary care clinicians' satisfaction and experience of the referral pathway.

Results
1465 referrals were received into the triage hub from 19.01.24-31.08.24. 98.6% of referrals were triaged within 2 weeks. 62% did not require a secondary care appointment, 45% received tailored management advice and 17% were referred to community CKD clinics. 98% of GP practices in the ICB made a referral during the study period. Referrals from practices situated in the most deprived IMD quintile were more likely to be triaged to an appointment. Of the 49 clinicians who completed an online survey the majority (75%) were satisfied (very satisfied or satisfied) with the new triage hub. 75% reported that the new triage hub had improved access to the nephrology team. Physicians' associates (100%) and Pharmacists (83%) were more likely to report improved confidence in managing CKD following a referral than GP's (73%). 38% reported an increased workload in primary care.

Discussion
The new ICB wide referral pathway delivers timely access to nephrology advice, with 98.6% of referrals triaged within two weeks. It has been generally well received by primary care clinicians. The RPA has made it is feasible to support interoperability between two clinical systems, but further evaluation is required to review possible benefits and risks. Facilitators to adoption in primary care include improved access to nephrologists, and confidence in managing CKD. Awareness, triage turnaround time and perception of increased workload in primary care were identified as barriers. The main findings are being relayed to key stakeholders which include primary care teams, commissioners, trust and ICB leaders. Targeted communications to primary care teams to raise awareness of the referral pathway and process have been sent. Following our success there is potential for a standardised electronic triage service to be implemented in other specialties.

Improving AKI outcomes – impact of a comprehensive AKI service in a DGH

Ms Shelagh Bickerton[1], Dr Babaniji Omosule[1], Emilia Sobczyk[1], Mrs Katie Harris[1], Miss Lauren Catchpole[1], Mrs Chantal Owens[1], Manivarma Kamalanathan[1], Shashi Cherukuri[1]
[1]Royal Wolverhampton Hospital NHS Trust, Wolverhampton, United Kingdom

Introduction

AKI is a significant contributor to hospital admissions, mortality and morbidity and is associated with long hospital stays and substantial healthcare costs. Prior to September 2020, there was only a consultant and a registrar offering this service in a large 950 bed district general hospital. A business case built on GIRFT, SHMI and audit data which showed the hospital was an outlier for AKI mortality, length of stay (LOS) and also showed AKI follow-up deficits, led to expansion of the existing AKI service and an AKI Consultant and Nurse-lead were appointed. One band 7 and 3 band 6 specialist nurses were also added to ensure a full 7 days a week service. The service was then able to provide timely in-reach review of all AKI stages 2 and 3, nurse-led post discharge follow-up and weekly AKI hot clinic. Our aim was to assess the impact of this service on outcomes such as length of stay, recovery time from AKI, need for Renal Replacement Therapy (RRT), mortality associated with AKI and readmission rate.

Methods

All cases of AKI between August 2023 and July 2024 were retrieved from the database and outcome parameters such as length of stay, recovery time from AKI, need for RRT, mortality associated with AKI and readmission rates were determined and compared with the Pre AKI service era (where available) or the national average.

Results

There were 2,029 patients with AKI stages 2 and 3 during the period under review. Median length of stay of these patients was 8.4 days which is an improvement on the 2021 figure of 11 days and also less than the national median of 12 days. Inpatient mortality associated with AKI was 31% and this was equal for both stages 2 and 3 and was largely in line with national figures.

Median duration of AKI was 4 days and there was no difference in duration between community-acquired AKI and hospital-acquired AKI. 6% of these patients required renal replacement therapy during admission. Readmission rate at 30 days was 19% which is comparable to the national average of 18% while readmission rate at 90 days dropped to 10% which is far less than the national average of 25% and demonstrates the effectiveness of comprehensive follow-up.

At 90 days, 55% of the patients had good recovery (defined as serum creatinine ≤25% above baseline) while 21.3% had not made good recovery, demonstrating the impact of AKI on long-term kidney health. Renal recovery was unknown in 23.2% but the likelihood is that AKI has left residual damage in a proportion of them. 100% of all suitable patients were followed up, a significant improvement from 50% in the pre-AKI service era.

Conclusion

The establishment of a dedicated AKI service has led to an improvement in outcomes such as length of stay and readmission rate. Reduced length of stay and readmission rate will help free potential bed space in the midst of unending pressure on acute hospital beds. Expansion of the service is needed to provide community outreach support.

Using the IPOS-Renal symptom score to better understand the symptom burden of patients receiving dialysis: a Quality Improvement Project

Dr Jack Gibbs[1], Miss Emma Wiseman, Dr Nay Aung, Dr Rhys Jones, Dr Abeel Naseer, Dr Syed Faisal Ali, Ms Mary Fuller, Dr Alexander Hamilton, Doctor Naomi Edney, Dr Robert Kimmitt
[1]ROYAL DEVON UNIVERSITY HEALTHCARE NHS FOUNDATION TRUST, EXETER, UNITED KINGDOM

Introduction:

Patients receiving dialysis often carry a high symptom burden, which negatively impacts their quality of life. Kidney teams often underestimate this burden, but recognition can be improved by use of validated symptoms scores, such as the Integrated Patient Outcome Scale - Renal (IPOS-Renal). Recent international kidney guidelines (KDIGO) recommend regular and routine use of symptom scores along with as open questioning for all dialysis patients, but this practice is not yet widespread.

Methods:

We designed a Quality Improvement project aiming to pilot the routine use of IPOS-Renal in our local hospital-based haemodialysis (HD) unit before expanding to local satellite HD units and patients receiving peritoneal dialysis (PD).

Our SMART goal was >70% completion of IPOS-Renal symptom questionnaires within 6 months of project commencement in each HD unit and within the PD recipient population.

In cycle 1 we focussed on the hospital-based haemodialysis unit population. In cycle 2 this was expanded to include a local satellite HD unit and consultant-led PD clinics. Future cycles will involve introducing the IPOS-Renal into other satellite units and will aim to engage the home care PD team to include a greater proportion of patients receiving PD in the community. During the project we adapted our data collection methodology to facilitate the different working practices of different dialysis units. This included changing the information collection from the scanning of hand completed paper forms to the completion of an electronic note.

Results:

142 IPOS-Renal questionnaires were completed for 138 patients between December 2023 and December 2024 (123 HD recipients, 15 PD recipients).

In cycle 1, 68% of hospital HD recipients completed an IPOS-Renal over a 6-month period. Cycle 2 is on-going. 67% of in-hospital HD recipients (over a 6-month period) and 39% of satellite HD recipients (over a 4-month period) completed an IPOS-Renal. So far ~19% of PD recipients (over a 2-month period) have completed an IPOS-Renal.

Symptom burdens were significant. The most common symptoms identified in haemodialysis recipients were ‘weakness or lack of energy’ (80%), followed by ‘poor mobility’ (70%), and ‘itching’ (66%). The most common symptoms identified in peritoneal dialysis recipients were ‘weakness or lack of energy’ (87%), followed by ‘itching’ (80%), and ‘difficulty sleeping’ (73%). Patients receiving haemodialysis reported an average of 9.2 symptoms, compared to 7.9 symptoms per patient in those receiving peritoneal dialysis (p=0.23).

Discussion:

Routine collection of IPOS-Renal symptom questionnaires was a feasible and effective way to better understand the symptoms experienced by our haemodialysis population. High symptom scores were

fed back to patients' nurses and nephrologist, discussed at MDT meetings and led to real changes in patient management, often leading to referrals for further support.

During the project we learnt to adapt our practice to difference contexts to support uptake. We hope in future cycles to develop an 'eForm' for patients to complete in their own time which can then be integrated into their electronic healthcare record.

Fibrillary Glomerulonephritis: A clinicopathologic report of 2 cases highlighting different clinical and pathologic presentations but similar outcome.

Dr Babaniji Omosule[1], Dr Taimoor Shafiq[2], Dr Owen Cain[3], Dr Kassiani Skordilis[3]
[1]Royal Wolverhampton Hospital NHS Trust, Wolverhampton, United Kingdom, [2]Worcestershire Acute Hospitals NHS Trust, Worcester, United Kingdom, [3]University Hospitals NHS Trust Birmingham, Birmingham, United Kingdom

Introduction

Fibrillary glomerulonephritis(FGN) is a rare cause of glomerular disease that is present in 0.5-1% of biopsies. Idiopathic FGN is the commonest presentation, but disease associations have been reported with Hepatitis C virus, dysproteinaemia, autoimmune disease, diabetes mellitus, and malignancy. We report 2 cases of fibrillary glomerulonephritis with rapid progression to end stage renal disease.

Case 1

A 78-year lady who presented on account of progressively worsening pedal oedema. Past medical history- hypothyroidism, hypertension and hypercholesterolemia

At presentation, urine Acr was 531 mg/mmol, albumin 24mmol/l and creatinine was 88 µmol/l (egfr 55 ml/min) . Ultrasound, virology, renal immunology, protein electrophoresis and PLAR2 were unremarkable.

She had kidney biopsy which showed 4 globally sclerosed glomeruli out of 24 available and mild thickening of peripheral capillary loops. Initial diagnosis was membranous glomerulonephritis, but electron microscopy revealed straight and randomly orientated subepithelial filaments. Immunohistochemistry was also positive for DNAJB9.

CT TAP showed a mild enlargement of the left lobe of the thyroid gland and mild dilatation of the common bile duct. She had an unremarkable MRCP and was seen by the otolaryngologist who made a diagnosis of benign multinodular goiter.

She was on ACE-inhibitor and had 2 doses of Rituximab 2 weeks apart . Unfortunately, her proteinuria continued to worsen and egfr deteriorated over a 30-month period to 15 ml/min. She is currently being worked up for hemodialysis

Case 2

A 58-year-old lady who was admitted with a decline in renal function, microscopic hematuria and proteinuria. Admitting Creatinine was 243 µmol/l (from baseline of 98) and there was no history suggestive of hypovolemia, rash, or nephrotoxic use. Examination was unremarkable and past medical history included Hypertension, Angina and memory impairment.

Urinalysis revealed protein 4+, blood 3+ while Ultrasound ruled out any obstruction. Urine Pcr was 331 mg/mmol and albumin was 35mmol/l. Vasculitis and myeloma screen were normal while ENA was positive but anti ro, la,sm,Jo1,scl70 and anticentromere were negative.

Light microscopy had 5 globally sclerosed glomeruli out of 16 available, segmental scarring in additional 6 glomeruli and mild mesangial expansion in the non-sclerosed glomeruli. There were also RBC casts with mild diffuse granular C3d staining. The summary was chronic glomerulopathy with significant segmental scarring and features suggestive of burnt out vasculitic glomerulopathy. Eventually, electron microscopy confirmed fibrillary glomerulonephritis and DNAJB9 was positive

She was reviewed by the rheumatologist who felt the antibodies were of doubtful significance in the absence of clinical features of myositis or rheumatoid arthritis

CT TAP was unremarkable. Based on the chronicity seen on biopsy, immunosuppression was not offered. Proteinuria and renal function continued to worsen and she is now dialysis dependent.

Conclusion

FGN's poor prognosis and rapid progression as seen in both patients makes it a disease of concern to the nephrologist . It's distinct EM feature and positive DNAJB9 are key in making a diagnosis as seen

in both patients. Various treatment options tried so far have not been promising with only Rituximab showing stabilization of kidney function in some patients.

An Exposition on Stratified Receptors –

The Idiosyncrasy Surrounding Early Transplant Immunobiology – Contemplative Perspective

Mr Shahid Muhammad[1], Mrs Eva Zielhuis[2]
[1]Coventry University, Coventry, United Kingdom, [2]Gloucestershire University, Gloucestershire, United Kingdom

Introduction: In renal transplantation, the occurrence of one or more episodes of Acute Allograft Rejection (AAR) is a major determinant of graft survival. Most episodes of AAR are caused by cell-mediated processes and require the infiltration of allo-activated T-cells into the engrafted organ. Several important points had emerged from these in-vivo-based mechanistic investigations. First, targeting of a single chemokine is typically ineffective in prolonging allograft survival. Second, chemokine receptors differ in importance as targets in allo-responses. Thus, chemokine receptors such as CCR1 and CCR2 primarily promote macrophage recruitment to an allograft, such that targeting in knockout mice has only a modest effect on allograft survival. Third, the effects of containment Immunosuppression (IST) can modulate some of the rather black and white outcomes of chemokine receptor targeting in untreated laboratory mice. Aims/ Objectives: The review looks at an exposition on stratified receptors and the idiosyncrasy surrounding Early Transplant Immunobiology. Methodology: The aims/ objectives will additionally be met investigating early literature highlighting importance of Bridging Healthcare Disparities and Inequalities through Patient and Public Involvement (PPI) and summarised workings of social media platforms, i.e. 1) The Renal Patient Support Group (since 2009) and 2) The Kidney Disease and Renal Support (KDARs) Group for Kids (since 2014), and additionally the value of an effective Multidisciplinary Team (MDT) and healthcare science workforce. Literature: In research as far as beginning the new millennia, investigations have shown that expression of multiple chemokine receptors allow navigation by leukocytes, systemically through a variety of multiple chemokines, so different chemokine receptor pairs may be necessary for activation, transmigration and retention, respectively. The varied expression of chemokines within the allograft brings into question the best approach to targeting chemokines for IST pharmacotherapy. In this context, investigations surrounding CXCR3 AND CCR5 have been extensive. Whilst online spaces and Patient Centric/ Patient and Public Involvement (PPI) initiatives co-exist in as part of healthcare services, they are seldom approached to bridge and enhance healthcare service user and professional experiences in context of Transplant Immunobiology. Conclusion: PPI to help understand where healthcare service improvement/ enhancements are needed are important when it comes to pertaining transplant educational services and joined-up thinking. Works surrounding The RPSG and KDARs platforms have been encouraging integrative practices, and pertinence of PPI, patient and healthcare professional co-developing efforts since 2009, and 2014, respectively. Keywords: Acute Allograft Rejection; Chemokines; Chemokine Receptors; Transplantation; Immunobiology; Educational Services

REDUCING CENTRAL VENOUS CATHETER UTILIZATION AT HAEMODIALYSIS INITIATION: IDENTIFYING PREVENTABLE AND UNAVOIDABLE FACTORS- SINGLE CENTRE RESULTS

Kidney Cns Hollie Clark[1], Mrs Tamasin Stevenson[1], Dr Jyoti Baharani[1]
[1]University Hospitals Birmingham- Heartlands Hospital, Birmingham, UK
"REDUCING CENTRAL VENOUS CATHETER UTILIZATION AT HAEMODIALYSIS INITIATION: IDENTIFYING PREVENTABLE AND UNAVOIDABLE FACTORS- SINGLE CENTRE RESULTS"

Background Central venous catheters (CVCs) remain a common vascular access option for patients initiating renal replacement therapy (RRT), despite thorough pre-dialysis education provided at the pre-dialysis stage. CVC usage is associated with heightened infection risk and reduced patient satisfaction. The aim of this study was to quantify the proportion of patients requiring CVC placement at the start of dialysis despite receiving comprehensive education, and to identify preventable and unavoidable factors contributing to their use. By clarifying these underlying factors, our goal is to inform strategies that minimize unnecessary CVC dependence, improve clinical practice pathways, and enhance patient outcomes.
Method A 6-month retrospective review of a Root Cause Analysis (RCA) database was conducted. This multidisciplinary team-reviewed database, maintained through quarterly meetings, provides detailed clinical and logistical data on patients who underwent dialysis initiation with a CVC. Inclusion criteria encompassed all patients known to the advanced kidney care team who had received standardized pre-dialysis education. Patient records were examined for reasons necessitating CVC insertion, including late referral, unanticipated clinical deterioration, and unforeseen vascular access issues.
Result Out of 107 patients who started dialysis within the 6-month timeframe and who were managed by the advanced kidney care team, 26 required CVC placement at dialysis initiation (24%) .All had previously received thorough RRT education. Almost all the CVC placements resulted from factors beyond patient education, notably late referral to nephrology services, rapidly evolving clinical condition, and unexpected vascular access complications.
Conclusion:
While comprehensive patient education and advanced care planning are integral to optimal dialysis initiation, they alone are insufficient to eliminate CVC use in all patients. Unavoidable clinical factors and delayed clinical presentations frequently necessitate CVC placement. To further reduce reliance on CVCs, concerted efforts are needed to improve early nephrology referral processes, streamline vascular access planning, and rapidly address emergent clinical issues. Implementing these measures may lead to improved patient safety, reduced infection risk, and better long-term RRT outcomes.

Clinical Utility of KFRE at point of discharge from general nephrology outpatient clinics after a “DNA”. A Retrospective Evaluation of Re-Referral Rates.

Dr Weaam Ali[1], Dr James Tollitt, Paul Robinson
[1]Northern Care Alliance NHS Foundation Trust, Manchester,

Background:
CKD is a disease which disproportionately affects patients from low socioeconomic groups and low health literacy. None-attendance at outpatient clinics is higher in this population driven by patient, economic and work-related factors. CKD care can be particularly difficult to engage patients with given it is predominantly symptomless in the earlier stages. None-attendance at clinic is costly to health care providers and offers no patient or population benefits.

Aim:
This audit aims to evaluate the clinical utility of KFRE at time of discharge following a DNA. Is it a useful adjunct to predict re-referral rates, renal disease progression in this population and can it risk stratify patients who do not attend clinics, to consider alternative methods of follow-up.

Methods:
All patients immediately discharged after one or more none attendance at general nephrology outpatient clinics between April and December 2019 from a single renal centre but from different spoke clinic locations were analysed. Data collected from the Electronic Patient Record (EPR) system included patient demographics (age, gender, ethnicity), appointment details (new or follow-up), and kidney function indicators (eGFR, ACR) at discharge and at re-referral. KFRE was calculated for patients discharged with eGFR < 60mL/min and recent (< 12months from discharge date) urine ACR or PCR results. Urine PCR was converted to urine ACR where applicable by multiplying by 0.7. Patients were followed up for 5 years (up to December 2024) to detect if patients were re-referred. GP records were used to check for PRD in absence of re-referral. Progressive Renal Dysfunction (PRD) was defined as drop in eGFR of >/=2 mL/min/year.

Results:
A total of 151 patients were discharged after a DNA (60 new patients, 91 follow up patients), with a gender distribution of 53% male (80 patients) and 47% female (71 patients). The age of patients ranged from 17 to 98 years, with the majority (53%) aged 60 and above. Ethnic diversity was predominantly White British (65%), followed by other groups including Pakistani (4%) and white and Black African (2%). The highest number of patients discharged after none-attendance was from Fairfield General (31 patients) and Bolton (29 patients).
89 patients discharged from renal outpatient clinics had an eGFR <60mL/min at discharge. 30 patients did not have a uACR at discharge or within 12 months and KFRE could not be calculated. 16/21 (76%) patients who were discharged with KFRE >5% were re-referred to the service, 13/16 (81%) of whom had demonstrated PRD at time of re-referral. 5/21(24%) patients with KFRE >5% at discharge were not re-referred, 3 of these (60%) have demonstrated PRD. Only 9/38 (24%) discharged with KFR < 5% were re-referred.

Conclusion:
Calculating KFRE at time of discharge following DNA may be a useful strategy to avoid duplication of referrals from primary care and avoid potentially avoidable PRD. Alternative strategies to engage patients with high KFRE may be appropriate.

Expanding a Peritoneal Dialysis Programme: A Single-Centre Experience

Mrs Lisa Tebbit[1], Dr Jyoti Baharani[1]
[1]UHB Heartlands Hospital, Birmingham, UK
Expanding a Peritoneal Dialysis Programme: A Single-Centre Experience

The Advanced Kidney Care Team at Heartlands Hospital aims to promote Peritoneal Dialysis (PD) as a first-line treatment for kidney failure. PD offers preservation of residual renal function, improved survival, reduced cardiovascular morbidity, enhanced quality of life, and cost-efficiency for the NHS compared to in-centre haemodialysis (HD) (1). To address barriers to PD uptake, our multi-disciplinary team implemented tailored solutions.

Key Strategies
1. Flexible PD Catheter Insertion: Four insertion approaches accommodate diverse needs:
o Medical: For virgin abdomens or anaesthesia risks.
o Radiological: For anxious patients or large abdomens requiring guidance.
o Surgical (BHH): Minor abdominal surgery history.
o Surgical (QE): Major abdominal surgery or hernia repair.
2. Assisted PD Services: Providing connect-disconnect support and up to two CAPD exchanges daily, ensuring access for elderly or disabled patients.
3. Patient Engagement:
o Meet and Greet: Address concerns early to support informed decisions.
o AKI Alerts: Educate inpatients with AKI on CKD to avoid defaulting to HD.
4. Pro-PD Surgical Collaboration: Vascular surgeons promote PD for patients with poor vascular access or cardiac comorbidities.
5. Flexible Training: Options include regional Baxter centres or home-based training.
6. Social and Practical Support: Early social work referral for housing adjustments and funding support via Auriga for essential equipment.
7. Proactive Patient Identification: Regular review of home therapy reports to engage undecided patients and prevent unplanned HD starts.

Outcomes and future directions
In 2018, our PD programme supported 88 patients. By 2024, this number has grown to 120, reflecting a significant 37 % increase. A dedicated Acute PD Start Team could further support timely PD initiation and reduce defaults to HD.

Antineutrophil cytoplasmic autoantibody levels in patients in the avacopan phase 3 trial

Professor David Jayne[1], Dr Frank Cortazar[2], Professor Duvuru Geetha[3], Associate Professor Salem Almaani[4], Dr (PhD) Christina Song[5], Dr (PhD) Tomasz Wilmanski[5], Dr Alana Bozeman[5], Professor Peter Merkel[6]
[1]University of Cambridge, Cambridge, United Kingdom, [2]Saint Peter's Hospital-Albany, Albany, United States of America, [3]John Hopkins Hospital, Baltimore, United States of America, [4]The Ohio State University Wexner Medical Center, Columbus, United States of America, [5]Amgen Inc, Thousand Oaks, United States of America, [6]University of Pennsylvania, Philadelphia, United States of America

Introduction: The utility of measuring serial antineutrophil cytoplasmic autoantibodies (ANCA) levels to guide treatment in ANCA-associated vasculitis (AAV) is controversial. This analysis reports on circulating myeloperoxidase (MPO) and proteinase-3 (PR3) ANCA levels in patients in the avacopan and prednisone taper (PT) arms of the ADVOCATE trial.

Methods: Serum MPO- and PR3-ANCA levels were measured by enzyme-linked immunosorbent assay on day 1 (pre-treatment), and weeks 13, 26, 39, and 52. Linear mixed effect models were used to evaluate the association of a) avacopan and PT; b) background therapy (rituximab [RTX] or cyclophosphamide [CYC]); and c) treatment response (sustained remission at week 52) on MPO- or PR3-ANCA levels.

Results: In patients with MPO-ANCA (n=188) or PR3-ANCA (n=142), baseline mean MPO-ANCA levels (IU/mL) were higher than PR3-ANCA levels (IU/mL), but both decreased from baseline over time. At week 13, mean ANCA levels decreased more in patients in the PT arm vs the avacopan arm (both PR3/MPO p=0.002), but levels converged by week 26 for MPO-ANCA and week 39 for PR3-ANCA (Figure 1A). While the decrease in mean PR3-ANCA was greater in patients treated with RTX vs CYC regardless of study treatment ($p<0.001$), the mean MPO-ANCA trajectories were similar between background therapies (p=0.49) (Figure 1B). When stratified by treatment response, the reduction in mean ANCA levels was independent of sustained remission status (Figure 1C).

Discussion: The addition of avacopan to RTX or CYC for treatment of AAV does not appear to impact ANCA levels. The lack of correlation between ANCA levels and outcome of treatment in the ADVOCATE trial suggests that ANCA levels are an unreliable marker of treatment response.

Management of a Complex Renal PEComa with renal and mesenteric blood supply in Tuberous Sclerosis: a Multidisciplinary Approach

Dr Asif Mahmud, Dr Robert Jones, Dr Kassiani Skordilis, Dr Samuel Walker, Mr Rupesh Bhatt, Mr Max Almond, Dr Graham Lipkin, Dr Lavanya Kamesh

Title:
Management of a Complex Renal PEComa with renal and mesenteric blood supply in Tuberous Sclerosis: a Multidisciplinary Approach
Introduction:
Tuberous sclerosis complex (TSC), a rare genetic multi-system disorder associated with hamartomas in multiple organs. TSC involves disinhibition of the mammalian target of rapamycin (mTOR) pathway. Inhibitors of mTOR (Everolimus, sirolimus) have improved renal outcomes with reduced angiomyolipoma (AML) size and bleeding risk. Perivascular epithelioid tumours (PEComa) are very rare mesenchymal tumours strongly associated with TSC.
Case Report:
We report a 39-year-old female with TSC diagnosed in childhood, and previously treated with bilateral partial nephrectomies for bleeding renal AMLs. Imaging in 2022 showed multiple small angiomyolipoma in both kidneys and a new solid mass (7.8 X 7.5 X 12.2 cm) on the left kidney with significant vascularity and large pathological venous drainage. She underwent two sequential selective arterial embolization procedures to occlude the lower and mid pole branch renal arteries supplying the mass. Repeat imaging six months later demonstrated no decease of the left AML but confirmed the tumour derived blood supply from both the inferior mesenteric artery and renal artery with venous draining via the inferior mesenteric vein.
As this was atypical, biopsy of the lesion was required to confirm pathology. This revealed a spindle cell neoplasm with no evidence of mitosis or necrosis but with an immune profile consistent with PEComa, of the spindle cell variant. Major surgical excision was considered to be highly morbid and following a local and national multidisciplinary team discussion, the patient was treated with everolimus therapy and is under close follow-up in the Birmingham regional TSC clinic.
Conclusion:
This case underscores the importance of surveillance renal imaging in patients with TSC as recommended by UK and International Guidelines. A multidisciplinary approach is essential in managing complex PEComas. If excision of tumour is not feasible, medical therapy with mTOR inhibitors such as Everolimus offers a viable alternative.

Can a rapid access acute kidney clinic be of benefit to patients in a semi-rural health trust?

Dr Jason Mcminn[1]
[1]Antrim Area Hospital, Antrim, United Kingdom

Introduction

According to the latest UK Renal Registry Acute Kidney Injury (AKI) annual report for England (2023), people in hospital with acute kidney injury spend a median of 12 days in hospital and have a median age of 74 years. Older adults are at risk of a number of complications from hospitalisation, such as infection, pressure sores and deconditioning. Following discharge from an admission with AKI, 20% of patients are readmitted to hospital and 5% die within the subsequent 30 days. We set up an acute kidney clinic to try and facilitate earlier discharge, admission avoidance and early post-discharge follow-up for these patients. This project looked at data from the first six months of the clinic to examine if a benefit can be delivered to patients and assess resource implications.

Methods

A retrospective case note review was performed, noting patient demographics, investigations and treatments received and whether management was changed. Reduced bed days or avoided admissions were estimated by a judgement as to how the patient would have been managed through other existing pathways if the clinic was not available as an option.

Results

54 patients were seen in the first six months, over 99 appointments, with a median patient of 77.5 years. 15% of patients received imaging, 17% received intravenous treatment and 28% had a new prescription dispensed at the clinic. Overall, medications were changed in 67% of patients.

6 hospital admissions were avoided by being redirected to the clinic and a further 19 bed days were reduced through earlier discharge. 11 patients (20%) were admitted within 30 days, but 6 of these 11 were admitted via the clinic and therefore were able to avoid an emergency department visit. One patient (2%) died within 30 days.

Conclusion

A rapid access acute kidney injury clinic can offer patients an alternative pathway to hospital admission. Being based in an ambulatory care unit allows access to timelier investigation and treatment than what would generally be available in a standard outpatient setting. Readmission rate remains high, however the ability to see a senior physician with an interest in AKI at the point of admission rather than having to go through the emergency department is likely to be of benefit, particularly with current pressures in unscheduled care.

Acute kidney injury associated with acyclovir-induced encephalopathy: A case report.

Ibrahim Saleem[1], Dr Thomas McDonnell[1], Rajkumar Chinnadurai[1]
[1]Department of Renal Medicine Salford Care Organisation Northern Care Alliance NHS Foundation Trust, Salford, United Kingdom

Introduction:
Uremic encephalopathy is a serious neurological complication characterized by a spectrum of cognitive and neurological abnormalities usually seen in patients with severe uremia. We present an interesting case of AKI-associated encephalopathy where the diagnosis was a dilemma.

Methods:
Review of records of a case presented with AKI and encephalopathy in terms of presentation, clinical course, management, and outcome.

Case presentation:
A 74-year-old lady with a background of type 1 diabetes mellitus, hypertension, treated breast cancer, CKD stage 4 (baseline creatinine 160 mmol/l, eGFR 28 ml/min/1.73 m^2), and a clinical frailty score of 6, was admitted to the acute medical unit due to recurrent vomiting.
On admission, she was confused, hyperglycemic, acidotic, and septic. Blood revealed AKI-3 with a urea of 25.8 mmol/L, creatinine of 328 mmol/L, and eGFR of 12. She was managed for diabetic ketoacidosis (DKA), sepsis of unknown source, and possible meningoencephalitis due to being confused. She was treated with IV acyclovir and ceftriaxone, the appropriate dose for weight and renal function. Her admission was also complicated by acute coronary syndrome.

Over the next 8 days, DKA and infection markers improved. However, the patient became progressively more obtunded with a low GCS of 5-7/15. All her investigations for a reduced GCS, including a lumbar puncture, CT brain, and EEG, were normal, apart from a small unilateral infarction in the MR brain, which was not felt to explain her condition by the stroke team. Given her frailty and lack of a clear reversible cause, it was felt she would not be a candidate for escalation by the ICU team. A renal team referral was made on day 10 of hospital admission in view of worsening renal functions with encephalopathy (Cr-530umol/L, urea 25.1mmol/L). The renal team felt the urea level was unlikely to explain her encephalopathy and did not feel that intermittent hemodialysis (IHD) would be appropriate given the lack of reversible cause, cardiac event, and poor functional status.

A neurology review raised the possibility of acyclovir toxicity for her encephalopathy. As this was deemed a potential reversible cause, she was started on a trial of intermittent hemodialysis (IHD). A dramatic resolution of encephalopathy was noted after three consecutive sessions of IHD, with GCS improving to 11/15 after the second session and 15/15 after the third session. AKI resolved gradually without further need for dialysis, and the patient was discharged home and remains well. The blood acyclovir level was reported after three weeks to be at the higher limit of normal at 2.4 mg/L, 36 hours post the last dose.

Conclusion:
This was a challenging case of unresolving encephalopathy in association with sepsis, AKI, and acyclovir treatment. The dramatic resolution of the symptoms following IHD and raised blood levels raised the possibility of acyclovir toxicity as a contributing factor. Routine access to acyclovir levels or its metabolites is not commonplace; however, it would certainly be helpful in decision-making. The case highlights the need for a multidisciplinary and holistic approach to the management of complex cases.

Longitudinal, granular profiling of novel biomarkers to define remission and guide induction immunosuppression in ANCA-associated vasculitis

Dr Kashif Anwari[1], Dr Marilina Antonelou[1], Dr Rhys Evans[1], Prof Alan Salama[1]
[1]UCL Centre for Kidney and Bladder Health, Royal Free Hospital, University College London (UCL), London, United Kingdom

Introduction: Whilst many patients with acute anti-neutrophil cytoplasmic antibody (ANCA) associated vasculitis (AAV) have a kidney biopsy at presentation, this invasive test carries limited longitudinal applicability. Consequently, clinicians rely on several traditional surrogate markers of kidney damage (e.g. creatinine, haematoproteinuria) but these are insensitive to dynamic inflammatory changes. Current clinical decisions to provide protocolized induction immunosuppression (IS) for 3-6 months may therefore lead to some patients being under- and others over-treated. There is, therefore, an unmet need to identify and validate better non-invasive biomarkers that can accurately define remission to allow personalised induction IS in AAV. Urinary soluble CD163 (usCD163) is one of several novel biomarkers that has demonstrated promise in defining active disease from remission in patients with acute AAV. However, the temporal trends of these novel biomarkers remain unclear and granular longitudinal studies may inform the time of renal remission more precisely based on a single or combination of biomarkers at varying timepoints, thereby strengthening the case for personalized IS. We have started to investigate this concept using usCD163 and incorporating other markers sequentially.

Methods: Adult patients with de-novo or relapsing AAV with renal involvement were recruited at diagnosis, ideally prior to receiving induction IS, and followed up for 4-6 months. At baseline and thereafter at 1–2-month intervals, traditional biomarkers were prospectively recorded (haematoproteinurea, serum creatinine, C-reactive protein, PR3/MPO autoantibodies, disease activity scores). Urine samples were processed at each visit for usCD163 quantification using a commercial ELISA kit following the manufacturer's instructions (DuoSet DY1607; R&D systems). usCD163 values were normalized to urine creatinine (usCD163:Cr) and assessed for positivity based on a previously described cutoff of ≥250ng/mmol by Moran et al.

Results: Eight patients were recruited with a mean age (SD) of 60 (17) years; 5 were female and 5 were of white ethnicity. Six presented with de-novo disease, 2 with relapse, 5 with anti-PR3 and 3 with anti-MPO ANCA. Biopsy of six patients showed focal (n=2), crescentic (n=2) and mixed (n=2) Berden classes. Further baseline information is presented in Table 1. Patients were studied for a mean (SD) of 143 (29) days with a minimum of 84 days. The median (IQR) time to peak and achieve negative usCD163:Cr was 7 (0-16) and 80 (60-131) days, respectively, with the quickest and longest time to achieve the latter being 28 days and 177 days, respectively (see Figure 1). The induction IS patients received by the time of achieving negative usCD163:Cr varied from 2 rituximab infusions +/- 2-5 cyclophosphamide infusions in addition to steroids +/- avacopan. All patients achieved clinical remission by the end of their study periods although normalisation of traditional biomarkers was still not achieved for the majority.

Discussion: usCD163 remains positive for varying timeframes in acute renal AAV patients following induction IS. Improving the confidence of declaring clinical remission, in the absence of a biopsy, may be achieved by correlating usCD163 results with other promising biomarkers such as urinary T lymphocytes, calprotectin or MCP-1 to guide bespoke induction IS plans.

Baseline characteristics of the first patients in AvacoStar, a real-world study of avacopan in antineutrophil cytoplasmic autoantibody (ANCA)-associated vasculitis (AAV)

Professor David Jayne[1], Professor Raashid Luqmani[2], Professor Benjamin Terrier[3], Dr Achim Obergfell[4], Dr Shaun Flint[4], Ms Marie Boff[4], Ms Monica Balcells-Oliver[4], Professor Bernhard Hellmich[5]
[1]University of Cambridge, Cambridge, United Kingdom, [2]University of Oxford, Oxford, United Kingdom, [3]Hôpital Cochin (Hôpitaux Universitaires Paris Centre), Paris, France, [4]CSL Vifor, Glattbrugg, Switzerland, [5]Medius Kliniken , Kirchheim unter Teck, Germany

Introduction: Avacopan, an oral, selective C5a receptor antagonist, was approved by the European Medicines Agency (EMA) in January 2022 for the treatment of adults with severe, active granulomatosis with polyangiitis (GPA) or microscopic polyangiitis (MPA), in combination with rituximab or cyclophosphamide. The safety of avacopan is now studied in a real-world cohort followed beyond 1 year.

Methods: AvacoStar (NCT05897684) is a non-interventional, multinational, prospective, post-authorisation safety study (≤6 months of data may be collected retrospectively). It will enroll 500 patients in Germany and the UK, in two cohorts of 250: (1) avacopan treated, and (2) receiving a cyclophosphamide- or rituximab-based induction regimen without avacopan. Patients aged ≥18 years with severe, active GPA or MPA in the opinion of the investigator, at the time of commencing avacopan or non-avacopan standard of care induction therapy are eligible. The primary objective is the incidence of defined medical events of special interest (MESI) in the avacopan cohort. MESIs are liver injury, cardiac safety, serious infections, and malignancy. Patients will be followed for up to 7 years. We present the baseline characteristics of the first patients enrolled.

Results: Between September 2023 and March 2024, 122 patients were enrolled and 118 included in this analysis (n=60 avacopan cohort; n=58 non-avacopan cohort). To date, most patients enrolled are newly diagnosed with renal involvement (Table 1). Other baseline characteristics are also tabulated.

Discussion: AvacoStar baseline characteristics are currently similar between groups and consistent with clinical practice, suggesting study outcomes may yield generalisable insights on safety and use patterns of avacopan.

Improving Patient Satisfaction by Reducing Waiting List Times for Arterio-Venous Fistula Formation - Single Centre Experience

Mrs Heidi Jimenez[1]
[1]University Hospitals Birmingham NHS FT, Birmingham, United Kingdom

An arteriovenous fistula (AVF) is considered gold standard for primary vascular access. The UK Renal association state the target AVF/AVG rate should be 80% for all long term prevalent patients. AVF's are created in theatres by vascular surgeons, with this in mind operations are likely to be cancelled due to emergency cases taking priority.

When operations are cancelled this has an effect on waiting list times, patient satisfaction, and determines whether they require alternative access to start dialysis.

Data from 2018 suggests, the cost of lost operating theatre time is as high as £400 million per year.

In order to reduce cancellation rates and reduce waiting list times, a minor operations theatre was created to facilitate a fistula only list. This list consists of 4 radial cephalic or brachial cephalic AVF creations.

The aim of this study is to see if utilising a minor operations theatre for AVF creations, reduces waiting list times.

The minor operations theatre started in July 2023, data was gathered using excel spreadsheet over the year (July 2023-July2024).

Data was also collected via the teams excel spreadsheet which includes information such as procedures completed and cancelled. The data collected was for all Radial cephalic and Brachial cephalic AVF creations between July 2022 to July 2023.

Prior to the minor operations theatre list being set up 229 patients were booked to have a radial cephalic or brachial cephalic AVF. 147 AVF's were created, and 82 patients were cancelled. 28 patients from this cohort were cancelled due to emergency cases taking priority.

The minor operations theatre data alone from July 2023- July 2024, 139 patients were booked to have a radial cephalic or brachial cephalic AVF created. 105 patients had their AVF created, and 34 patients were not completed.

Reasons for operation cancellations included; patients being unwell, patients unbale to consent, patients refusing, patients did not attend, medical reasons and patients having poor options on the day.

From these cancelations the hospital cancelled 18 procedures and 16 patients cancelled their own procedures or did not attend.

Although utilising our minor operations theatre between July 2023 and July 2024 was our main approach, there were some patients who needed to be done in main theatres for reasons such as Brachial basilic AVF's, arterio-venous grafts, patients requiring general anaesthetic or having other procedures at the same time as AVF creation.

Main theatres between July 2023 and July 2024 cancelled 28 patients for reasons such as industrial action, medical reasons, patient did not attend, patient unable to consent, emergency cases and no bed availability. From this cohort 4 patients were cancelled due to emergency cases.

Utilising a minor operations theatre dedicated to radial cephalic and brachial cephalic AVF creations has been effective in reducing cancellation rates.

Since utilising the minor operations theatre there has been a reduction in cancelled theatres due to emergency cases which in turn has improved patient satisfaction and waiting list times.

It was also found that those patients that were cancelled from surgery whilst utilising minor operations theatre were not due to emergency cases.

Poster: An evaluation of the impact of Geriatrician input within the Advanced Kidney Care Service

Dr Sian-Marie Kelly[1], Dr Joanna Hawkins[1], Dr Catherine Vinen[1], Dr Ambika Irving[1]
[1]Kings College Hospital NHS Foundation Trust, London, United Kingdom

Introduction:

A shared decision-making approach is recommended when considering dialysis in patients with end-stage renal disease (ESRD) (1). The survival advantage of dialysis, compared to conservative care (CC), reduces as patients advance in age and comorbidity (1) (2) (3). Moreover, initiation of dialysis in patients with geriatric impairments, is associated with poor outcomes, including accelerated decline of cognitive function and increasing hospitalisation (2) (4) (5).

Methods:

The Advanced Kidney Care (AKC) service at Kings College Hospital has introduced a fortnightly Geriatrician-led clinic, to support decision-making and care of older adults and those living with frailty. Retrospective review of electronic clinical records between October 2023 and October 2024, comprised 55 patients; 50 of whom received a single contact and 5 patients, over two contacts. The demographics of this cohort was reviewed by age and frailty. Modality decisions prior to, and following Geriatrician input were reviewed; as well as outputs following comprehensive geriatric assessment (CGA), including new diagnoses of cognitive impairment or dementia, DNACPR and advanced care planning discussions (ACP), medication reviews and onward “frailty” referrals.

Results:

Demographics:47% of adults had a Rockwood clinical frailty score of ≥6 (moderate or severe frailty) and 64% were aged ≥ 80.

Modality decisions: Prior to Geriatrician review, 27% had provisionally chosen Dialysis, 6% were considering or had decided on CC, 42% of patients were undecided and 25% were new to AKC. Following their review, 76% of patients were established for CC, 4% of patients for Dialysis and 20% remained undecided (with 9% of these patients likely to proceed with CC).

Family or patient representatives were involved or contacted by the Geriatrician in 84% of cases. 29% of patients required a best interest decision-completed by the Geriatrician in 94% of cases, with the remaining cases pending an IMCA.

Additional inputs: During their contact with the Geriatrician, 29% of patients received a new formal diagnosis of dementia or mild cognitive impairment, with 9% of patients having an existing dementia diagnosis. A DNACPR decision was agreed for 64% and ACP was offered to 40 of the 55 of patients, and completed for 62% of the patients. 50% of patients received medication alterations and optimisation for issues other than their CKD and 47% received onward referrals to additional frailty services (memory clinics, social services, integrated therapies and community palliative care teams).

Discussion:

Age did not necessarily correlate with advancing frailty, highlighting the importance of a multifaceted assessment when considering care decisions. Geriatrician input markedly increased the number of patients proceeding with CC using the shared decision-making model. The reduced numbers of patients for Dialysis could suggest Geriatrician input supported identification of patients who had chosen Dialysis, who were no longer felt to benefit from dialysis initiation.

The prevalence of undiagnosed cognitive impairment and dementia amongst this cohort was highlighted with 29% of new diagnoses during reviews. The clinic was able to address additional frailty syndromes and ACP as a result of comprehensive geriatric assessment, to support the care of adults with ESRD.

Urinary Tract Infections in Kidney Transplant Recipients: A Single-Centre Experience

Mr Nicholas Evans[2], Mr Rouven Calayag[1], Dr Rosa Montero[1,2]
[1]St George's University Hospitals NHS Foundation Trust, London, UK, [2]City St George's University London, London, UK

Background: Urinary tract infections (UTIs) occur in 25% of kidney transplant recipients (KTR) within one year post transplant accounting for 45% of infective complications. Recurrent UTIs are associated with bacteraemias, impaired allograft function, allograft loss, acute T-cell mediated rejection causing increased morbidity and mortality.

Methods: A cross-sectional retrospective observational study of all KTR at our centre with a UTI between April 2022- April 2023. Data was extracted from electronic patient records and microbiology electronic system. Recurrent UTIs was defined as 2 episodes of acute bacterial cystitis with associated symptoms within 6 months or 3 episodes within a year. Data on organism and sensitivities was collected, immunosuppression regimens. Postcodes were collected to determine deprivation scores 1-10 with 1 most deprived, 10 least deprived. Paired t-tests and ANOVA were used to perform statistical analysis with a $p<0.05$ significant level.

Results
167 of 516 KTR had a UTI between 2022-2023 with a total of 294 UTIs in the 167 KTR. 58 (35%) Male, 109 (65%) Female. Median age 59 years old (range 18-92 years). 24% White, 20% Black, 16% Asian, 1% Chinese, 8% Other, 31% unknown. Number of UTIs in KTR: x1 65% (109), x2 20.4%(34), x3 6.6%(11), x4 3%(5), x5 0.6%(1), x6 1.2%(2), x7 0.6%(1), x8 0.6%(1), x10 1.8%(3). UTIs predominantly occurred median 31 weeks (range 9 days to 16.4 years) post-transplant. Deprivation scores were insignificant ($p=0.08$). There were 20 different organisms grown with 54% UTI due to Escherichia coli (E.coli), 15.5% Enterococcus, 8.8% Klebsiella pneumonia, 7.7% staphylococcus organisms, 4.7% proteus, 3% pseudomonas, 6.3% a combination of different organisms. Tacrolimus based immunosuppression regimens had more UTIs ($p<0.05$) compared with non-tacrolimus regimens. 24% of UTIs were fully sensitive with 60% of all UTIs resistant to Amoxicillin 16% other antibiotic resistant micro-organisms.

Conclusion
Thirty-two percent of KTR had UTI between 2022-2023 irrespective of time post transplant with 35% of KTR having more than 2 in a year. Consistent with previous results there were more UTIs in females compared to men. UTIs were gram negative and positive with a dominance toward gram negative. E.coli was the commonest organism followed by Enterococcus and Klebsiella pneumonia. Multi-resistant UTIs continue to be challenging with some KTR having up to 10 UTIs in a year in the post-transplant period. Repeated treatments lead to increasing resistance with eradication being increasingly difficult to achieve. New strategies are needed to treat UTIs in KTR to avoid allograft dysfunction, morbidity and mortality.

Exploration of healthcare workload, patient capacity and treatment burden during transition onto kidney replacement therapy: a longitudinal qualitative study

Miss Catrin Jones[1], Miss Karen Stevenson[2], Professor Patrick Mark[1], Dr Bhautesh Jani[1], Dr Katie Gallacher[1]
[1]University of Glasgow, Glasgow, Scotland, [2]Queen Elizabeth University Hospital, Glasgow, Scotland

Introduction: Treatment burden has been defined as the effects of healthcare workload on patient functioning and wellbeing. Capacity is defined as the personal, physical, emotional, social, environmental and financial resources and abilities that the patient can mobilise to meet that workload. Both are dynamic entities that are modifiable and change over time. When workload exceeds patient capacity, termed workload-capacity imbalance, patients can become overburdened resulting in worse adherence, quality of life and health outcomes. Patients with advanced chronic kidney disease face an imminent need to start kidney replacement therapy (KRT), a disease state associated with a significant burden of treatment and serious consequences of not meeting that workload. However, little is known of the impact of treatment burden during transition onto KRT or how it evolves over time. The aim of this study is to explore the patient experience of treatment burden in the first year following recognition of the imminent need to start KRT.

Methods: 30 participants were recruited: 15 haemodialysis (HD), 8 pre-emptive transplant (KTx) and 7 peritoneal dialysis (PD) patients. Serial semi-structured interviews were conducted with each participant. Participants were interviewed once prior to or at the time of initiation of KRT, and up to three times in the following 12 months to explore their experiences of healthcare workload, their capacity and their treatment burden, and how these evolved over time. Data were analysed qualitatively with a framework analysis informed by Normalisation Process Theory, Theory of Patient Capacity and Burden of Treatment Theory.

Results: Participants reported a high level of treatment burden which evolved over serial interviews. Burdens could be categorised into three broad categories. Firstly, the general treatment burdens relating to the management of advanced CKD which were common across all participants such as understanding their kidney disease and treatment options, recruiting the help of others and enacting healthcare tasks such as attending appointments. Secondly, there were modality specific treatment burdens such as the emotional workload burden of accepting a live donor transplant. Thirdly, there were treatment burdens associated with changing KRT modalities. Workload-capacity imbalance was an important influence on the evolution of treatment burden over time. Some patients reported a decrease in their treatment burden as they became more established on KRT and had a better understanding and growing familiarity with their workload and increased confidence in their ability to undertake it. Other patients reported burdens that remained high or increased over time, especially in the context of the interaction between factors that decreased their capacity such as worsening health or poor support from their social network, and factors that increased their workload for example complications or modality changes such as preparing for a KTx whilst also starting PD or HD.

Conclusion: Patients describe significant treatment burdens associated with transition onto KR. Better understanding of these burdens will enable the development of interventions that minimise treatment burden, improve patient experience and improve access to optimal treatment trajectories such as pre-emptive live donor transplantation.

Per-PLEXED by ANCA - plasma exchange and ANCA associated renal vasculitis

Dr. Agnes Masengu[1], Dr. Zaw Thu Aung[1,2]
[1]Belfast Health And Social Care Trust, Belfast, United Kingdom , [2]East Kent University Hospitals NHS foundation Trust, Canterbury, United Kingdom

INTRODUCTION

KDIGO 2024 guidelines advise considering PLEX in patients with a serum creatinine > 300 µmol/L (as do EULAR), those requiring dialysis or with a rapidly rising serum creatinine, or for individuals with pulmonary haemorrhage and hypoxia.

A retrospective review was undertaken in our region to look at survival and ESRD rates in the incident population with renal ANCA associated vasculitis (AAV) who had presented with a creatinine >300µmol/L over a ten year period.

METHODS

Study population

Individuals with a first presentation of renal AAV who were managed by the Nephrology service between 2011-2022 were identified using the regional renal electronic database system EMED. Demographic and clinical outcome information were obtained via electronic care records.

Follow-up and Study Outcome

The primary outcomes measured were survival and ESRD.

Secondary outcomes measured were rates of relapse, malignancy, severe infection and major adverse cardiovascular events (MACE).

Statistical analysis

All statistical analyses were performed using IBM SPSS Statistics software version 26 SPSS Windows (SPSS, Inc., Chicago, IL, USA). Logistic regression was used to identify predictors of progression to ESRD and survival adjusting for confounders.

RESULTS

We identified 257 individuals with a mean age of 66 years old with a first presentation of renal AAV. The mean age was 66 yrs with a mean peak creatinine of 305 µmol/L. Majority of patients had a renal biopsy (79%) and cyclophosphamide induction therapy (71%).

Only 17% (45/268) were treated with plasma exchange (PLEX) (mean number of exchanges 8). The most common indication for PLEX was pulmonary haemorrhage (35%).

Almost half (47%) had at least one significant infection requiring hospitalization for treatment. Rates of malignancy and first MACE post first presentation with renal vasculitis, over 5 years were at 11% and 12 % respectively.

After adjusting for confounding, the only predictors of progression to ESRD in this cohort were a maximum creatinine at first presentation of > 300µmol/L and haemodialysis within three months of presentation, which were associated with a six-fold increased odds (P value=0.008) and a nine-fold increased odds (P value=0.001) of developing ESRD respectively.

PLEX was associated with borderline odds of ESRD at 3 months (P value 0.05).

A sub-group analysis was then undertaken of three different groups defined as follows:

GROUP A Maximum creatinine >300 µmol/L treated with PLEX

GROUP B Maximum creatinine >300 µmol/L not treated with PLEX

GROUP C Maximum creatinine <300

The use of PLEX in the cohort with a maximum creatinine > 300 µmol/L was not associated with a reduced risk of death (P value =0.23), reduced risk of ESRD (P value=0.75) or increased risk of infection (P value= 0.44).

DISCUSSION

In this population, PLEX was not associated with a reduced risk of ESRD.

A maximum creatinine > 300µmol/L at presentation conferred significantly increased risk of ESRD.

The use of early biopsies may help identify which patients will benefit from PLEX rather than just a specific creatinine target, by identifying individuals with viable and salvageable renal tissue.

A comprehensive regional review of unplanned emergency admissions in CKD patients alongside proposed pathway improvements

Dr Daniel Kimber[1], Dr Millie Prime[1], Dr Harsha Wodeyar[1]
[1]Royal Liverpool University Hospital, Liverpool, United Kingdom

Introduction:
Evidence from the national CKD audit suggests that patients with pre-existing CKD experience multiple unplanned hospital admissions related to their multimorbidity. Trust episode-statistic data shows these unplanned admission costs of CKD are much greater than diseases such as stroke and heart failure.

CKD also disproportionately affects both those from high-deprivation areas and ethnic minorities. These cohorts experience faster disease progression, are more likely to experience worse outcomes and make up a large proportion of our catchment area.

This review aimed to evaluate practices across the LUHFT site to identify opportunities to prevent complications in CKD patients and inform the development of strategies to reduce future harm.

Methods:
A retrospective data analysis was carried out on a random sample of 100 hospital inpatients referred to nephrology services from October to December 2023 for the purpose of AKI on pre-existing CKD. Patients were excluded if they had no pre-existing CKD prior to admission, were on dialysis or were referred for other reasons such as vasculitis. Data was obtained from patient notes, clinic letters and primary-care records. Data variables collected included patients' blood and urine test results, medications, observations and coded diagnoses.

Results:
The sample consisted of 60 males and 40 females, with a median age of 77. Pre-admission, 39% of patients were established on a renin-angiotensin-aldosterone system inhibitor. 65% were prescribed a statin. 11% of eligible patients were taking an SGLT2 inhibitor.

Within the preceding 12 months, 46% of patients had a urinary ACR recorded. 66 patients had accessible primary-care records. Nearly 1/3rd of them (32%) were not coded for CKD.

20% of patients were prescribed 'nephro-sensitive' medications and 22% of hypotensive patients continued to inappropriately receive antihypertensive agents.

Almost half of patients (46%) developed their AKI more than 48 hours after admission, with a median onset of 5 days post-admission. Those with no CKD coding on GP record were 50% more likely to develop a hospital-acquired AKI.

Upon discharge, 63% of patients had a suitably detailed discharge letter according to UK Kidney Association guidance. 25% of patients had a cardio-reno protective medication suspended during admission. Only 17% had the medication restarted in the community 3 months post-discharge.

Discussion:
The data indicates large gaps in the use of guideline-directed treatment prior to admission. The inadequate uptake of urinary ACR remains a problem which contributes to incorrect coding, underestimation of disease severity and subsequent increased rates of complications and mortality.

Almost half of AKI in CKD patients is hospital acquired, with the continued use of antihypertensives or nephrotoxic medications being key contributing factors. Also, poor quality discharge letters and

fragmented care post-discharge leads to poor reintroduction rates of essential medications, compromising patient outcomes.

Pathway changes are being implemented. The introduction of a pharmacist-led, protocol-driven medicine optimisation clinic aiming to increase the uptake of evidence-based treatments and delay CKD progression is now live. The clinic allows for initiation and titration of medications, alongside providing an outlet for the re-initiation of treatments following an AKI, relieving the burden from an inundated primary-care service.

Antenatal diagnosis of Antineutrophil Cytoplasmic Antibody (ANCA)-associated vasculitis and latent Tuberculosis (TB) managed with Rituximab during the 2nd trimester: A Case Report of a Successful Pregnancy

Dr Nicole Tan[1], Professor Lorraine Harper[1], Dr Martin Dedicoat[1], Dr Anjali Crashaw[1], Dr Ellen Knox[2], Dr Graham Lipkin[1], Dr Nadia Sarween[1]
[1]Queen Elizabeth Hospital Birmingham, University Hospitals Birmingham NHS Foundation Trust, Birmingham, United Kingdom, [2]Birmingham Women's Hospital, Birmingham, United Kingdom

Introduction :
ANCA-associated vasculitis (AAV) during pregnancy is rare but can be associated with increased risk of adverse pregnancy outcome such as preterm labour, miscarriage and pre-eclampsia. Immunosuppressive agents including corticosteroids and biologics are used to induce and maintain remission of AAV but opportunistic infections remain a recognised complication. There is limited literature on the optimal pharmacological management of AAV during pregnancy. Here, we highlight a successful pregnancy with an antenatal diagnosis of biopsy proven AAV and latent TB managed with Rituximab infusions in early pregnancy.

Case presentation:
30-year-old white British woman was identified as having abnormal kidney function (creatinine 122 µmol/l) on routine blood tests performed for thyroid function monitoring at 9 weeks gestation with normal renal function 2 years prior. She had an active urine sediment (2+ blood and 1+ protein, urine albumin creatinine ratio (ACR) 90mg/mmol). There were no symptoms suggestive of vasculitis at the time of presentation. Renal immunology demonstrated positive ANCA with negative myeloperoxidase (MPO) and proteinase 3 (PR3). Native renal biopsy was performed at 12 weeks' gestation which demonstrated pauci-immune glomerulopathy with 6 globally sclerosed glomeruli and 4 fibrous crescents out of the 14 glomeruli identified from the sample. No active lesions were found in the sample.

A chest x-ray was performed to look for evidence of pulmonary vasculitis, this showed evidence of calcified right upper lobe pulmonary nodules confirmed on a subsequent CT scan. Her Interferon Gamma Release Assay (IGRA) was positive which was consistent with latent TB. A multidisciplinary approach involving the obstetric renal physicians, respiratory physicians, infectious disease physicians and the obstetrics team was adopted for the patient's management. The patient received an induction course (2 x 1g) Rituximab at 15-17 weeks' gestation to reduce the risk of a vasculitis flare in pregnancy.

Outcomes:
The patient had a successful delivery at 39 weeks' gestation via induction. At 1-month post-delivery date, eGFR was 47, creatinine was 131 µmol/l and urine ACR was 56.7 mg/mmol. The patient was commenced on a six-monthly rituximab infusion to maintain AAV remission which was started at 4 months post-delivery. She was also started on enalapril which is safe in breast feeding. Treatment for latent TB was also planned after breast feeding was completed. The paediatric team was also consulted with regards to delaying the child's first Bacillus Calmette Geurin (BCG) vaccine. She continues to have stable kidney function with eGFR of 59, Creatinine of 107 µmol/l and urine ACR of 31.1 mg/mmol. Renal immunology remains negative for MPO and PR3.

Conclusion:
This case report highlights a successful pregnancy in a patient with AAV and latent TB diagnosed in the 1st trimester who was treated with Rituximab only to reduce the risk of vasculitis flare. The importance of multidisciplinary involvement for complex pregnancy patients is highlighted to optimise better health outcomes for mother and child.

Scleroderma with ANCA associated vasculitis: a case series

Dr Alastair Brown[1], Dr Arvind Singh[2], Dr James Moriarty[2]
[1]North Bristol NHS Trust, Bristol, England, [2]Gloucestershire Hospitals NHS Foundation Trust, Gloucester, England

Introduction

We present two interesting cases of ANCA associated vasculitis (AAV) in the context of known systemic sclerosis (SS). Both cases were from the same centre within a two year period. They are notable as there is a known association between these conditions, with the incidence of AAV being higher than the general population in retrospective studies.

It is important diagnostically, as there are multiple aetiologies of acute kidney injury (AKI) in SS. One important differential is scleroderma renal crisis (SRC), which can similarly present with hypertension and AKI. Other common causes of AKI in SS include: non-steroidal anti-inflammatory drug (NSAID) induced nephritis, heart failure causing cardiorenal syndrome and gastrointestinal involvement of SS causing diarrhoea and a pre-renal AKI.

These cases clearly highlight the link between AAV and SS. It is important that the physician keeps this association in mind, as timely diagnosis and treatment in AAV is crucial to reduce the risk of permanent end-organ damage.

Case 1

A 38 year old female was referred to the renal clinic with a rise in creatinine (140 µmol/l from a baseline of 69 µmol/l) and haemoproteinuria (4+blood, 3+protein). She had a background of schizophrenia on clozapine and escitalopram. Six months prior to referral she was admitted to intensive care for presumed pneumonia and at this point was diagnosed with SS with Scl70 positivity. Clinical features of SS included oesophageal dilatation and NSIP (non-specific interstitial pneumonia) pattern pulmonary fibrosis on HRCT (fig 1) (high resolution CT).

In renal clinic, her ANCA was positive with a significantly raised MPO (myeloperoxidase) titre of >134 U/ml. A renal biopsy was performed (fig 2, 3) showing both cellular and fibrocellular crescents. A diagnosis was made of pauci-immune crescentic glomerulonephritis consistent with AAV. She was started on intravenous methylprednisolone which was weaned to oral steroids and rituximab. Her creatinine a month post-treatment was static at 208 µmol/l with no further decline.

Case 2

A 48 year old male was referred to the renal clinic with AKI in June 2022. He had a background of limited cutaneous SS with pulmonary fibrosis and T2DM (type 2 diabetes mellitus). Medications included MMF (mycophenolate mofetil) and omeprazole. Routine monitoring bloods showed a rise in creatinine to 156 µmol/l from a baseline of 89 µmol/l and a urine dipstick was performed showing an active sediment (3+blood, 3+protein). He complained of fevers, shortness of breath and cough two weeks before the bloods. He had also experienced epistaxis and erythematous patches on his hands bilaterally (fig 4). ANCA was positive with an MPO titre of 74.9 U/ml (normal range 7-10). He was started on methylprednisolone and a renal biopsy showed pauci-immune crescentic glomerulonephritis. He was started on rituximab and his renal function started to improve. His eGFR increased to 39 ml/min/1.73m2 from a nadir of 31 ml/min/1.73m2

Conclusion

AAV is a rare but serious condition associated with SS. It is important that it is always considered in the differential diagnosis in a patient with AKI or proteinuria in the context of SS.

PPAIRENTS: PREDICT and PAIRS Educational and Neurodevelopmental Targets in Offspring Survey

Vinuthy Vijayakaandeepan[1], Dr Kate Bramham[1,2], Dr Kate Wiles[3,4], Dr Liz Lightstone[5], Dr Priscilla SMITH[1,2]
[1]Division of Women's Health, King's College London, , United Kingdom, [2]King's College Hospital NHS Trust, , , [3]Department of Women's Health, Royal London Hospital, Barts Health NHS Trust, London, United Kingdom, [4]Wolfson Institute of Population Health, Queen Mary, University of London, , United Kingdom, [5]Centre for Inflammatory Disease, Department of Immunology and Inflammation, Faculty of Medicine, Imperial College London, , United Kingdom

Introduction
Data are lacking on long-term effect of maternal CKD on childhood development. We investigated whether offspring of females with CKD during pregnancy achieve cognitive, language, and motor development comparable to population norms when tested with a validated health related quality of life (HRQOL) survey.

Methods
Single centre, ethically approved observational study in UK. Patients with CKD and a live birth were identified from clinical records and sent an information sheet and unique study ID with link to a secure online survey. After e-consent participants completed baseline demographics and Paediatric Quality of Life Inventory (PedsQL4.0) according to child age through parent proxy reporting. PedsQL4.0 mean scores were compared to age-matched healthy population means using T-tests.

Results
The response rate was 38.6% (54/140) including 23/54 (42.6%) of non-white ethnicity and 25/54 (46.3%) living in high deprivation postcodes. The majority had CKD stage 2-3 diagnosed prior to or during pregnancy (79.4%) and 4 had CKD stage 4/5. Renal replacement during pregnancy included 7 kidney transplants and 2 females on haemodialysis. Analysis included 79 children from 54 mothers. Median age was 7.6 years (Range 13.7 / IQR 4.9). All but one attended mainstream school. Preterm birth occurred in 18/79 (21.5%) with 9 (11.4%) children born before 34 and none before 28 weeks' gestation. Low birthweight (<2500g) occurred in 19/79 (24.1%) infants of which 4 were very low birthweight (<1500g).
Medical or neurodevelopmental diagnoses had been made in 18/79 (23%) children. Medical diagnoses included asthma, amblyopia, strabismus, polycystic kidney disease and congenital cardiac anomaly. Diagnoses of autistic spectrum disorder (ASD), attention deficit hyperactivity disorder (ADHD) and combined ASD/ADHD had been made in 5 (6%), 4 (5%) and 2 (3%) respectively. Delayed speech and language in the absence of ASD occurred in 4 (5%). The prevalence of ASD (6%), ADHD (5%) and use of SEN support (13.9%) were comparable to UK population data.

There were no measurable differences in cognitive, language and motor developmental outcomes measured by PedsQL total score between children of mothers with CKD compared to age matched controls (Table 1). Total PedsQL mean score was within 1 SD for all age groups and was higher than controls aged 5-7 which was the only group without any ASD diagnoses in our cohort. Children aged 5-7 also had a higher physical health summary score compared to controls (91.28 (SD 8.59) vs 80.11(SD 20.85), p=0.009). Adolescents (13–18-year-olds), had measurably lower psychosocial summary score compared to controls (65.7 (SD 18.9) vs 80.55 (SD 15.8), p 0.04) though this was nonsignificant when adjusted for a single participant with severe ASD.

Conclusion
Our study suggests that children born to mothers with CKD in pregnancy achieve normal childhood cognitive, language and motor development. Pre-term delivery and co-existent childhood disorders

including ASD are important confounding factors. Further prospective research with a larger sample size and formal paediatric assessment are needed to confirm these findings.

Novel deep PKD1 intronic variant as a cause of Autosomal Dominant Polycystic Kidney Disease (ADPKD) in Northeast England

Dr Lucy Hong[1], Alexandra Lazarova[2], Ian Berry[2], Mr Zac Sentell[1], Dr Juliana Arcila Galvis[1], Professor John Sayer[1]
[1]Sayer Laboratory, Centre for Life, Newcastle University, United Kingdom, [2]Bristol Genetics Laboratory, South West Genomics Laboratory Hub, North Bristol NHS Trust, United Kingdom

Introduction

Autosomal dominant polycystic kidney disease (ADPKD) is the most common hereditary kidney disease, characterised by the progressive formation of multiple cysts in both kidneys, destruction of renal structure, changes in renal function and eventually leading to kidney failure. ADPKD is most often caused by mutations in PKD1, and although much rarer, PKD1 intronic variants have also been reported as a cause of ADPKD.

Methods

In this study, whole-genome sequencing (WGS) via the NHS-GMS was used to identify the responsible mutation of ADPKD in six apparently unrelated families from the Northeast of England. WGS showed that these six families shared the same deep intronic variant: NM_001009944.3(PKD1):c.1606+44T>A p.?. Family pedigrees and clinical phenotypes were recorded. We confirmed the position of this PKD1 variant (GRCh38 Chr16:2116789) within intron 7 using UCSC and Ensembl Biomart. In silico analysis of this variant was carried out using allele frequency and pathogenicity prediction, using GnomAD, Genomics England 100,000 Genomes Project (GEL) and Mobidetails.

Results

7 individuals from 6 families with the PKD1:c.1606+44T>A heterozygous allele all had evidence of polycystic kidney disease. A positive family history for ADPKD was seen in 4 out of the 6 families. The evidence for the extreme rarity of the PKD1:c.1606+44T>A variant includes its absence in both GnomAD and GEL databases. Other variants in intron 7 (GRCh38 Chr16:2116644–2116833) were identified within the GEL Rare Disease cohort using IVA (v.2.3.3). 5 large heterozygous deletions affecting exons 7 and 8 were excluded, due to difficulty in delineating pathogenic impact from the intron level. 5 single nucleotide variants (SNV) were identified, all of which had very low splicing impact scores (0.0). The clinical phenotype in carriers of these SNVs was very heterogenous, including ophthalmological, neurological and ultra-rare monogenic disorders, but excluding any renal involvement. In contrast, the PKD1:c.1606+44T>A variant has a SpliceAI Donor Gain score of 0.91, with high predicted impact on splicing and the variant may be classified as Likely Pathogenic.

Discussion

The newly discovered PKD1 variant in this study can expand the database of gene variants and understanding of ADPKD. Functional assays are required to confirm how deleterious this variant is at the RNA level. Due to the significant genetic heterogeneity of ADPKD, a greater understanding of molecular mechanisms and more data on causative gene mutations will provide valuable information for diagnosis and genetic counselling of ADPKD families. It remains to be seen whether this allele is a founder allele from the Northeast of England or will be observed in other populations.

Bleeding Complications of Outpatient Renal Biopsies

Dr Kennagh Marsh[1], Dr Timothy Woo[1], Dr Michael Turner[1], Dr Thomas MF Connor[1]
[1]Oxford Kidney Unit, Oxford University Hospitals, Oxford, United Kingdom

Introduction:

Percutaneous ultrasound-guided renal biopsy is the gold-standard investigation for diagnosing renal parenchymal disease. It can be complicated by bleeding, which may require transfusion and radiological or surgical intervention. Renal biopsies are usually an outpatient procedure at our high-volume tertiary nephrology centre. Our protocol is to monitor patients for four hours afterwards and discharge them when they have passed two clear urine samples. This is at the shorter end of the spectrum of usual practice in the UK. Here we present a six-month retrospective evaluation of the frequency of biopsy-associated bleeding complications for outpatient renal biopsies, and the efficacy of four-hour observation for identifying complications.

Methods:

All patients scheduled for an outpatient renal biopsy between 1 July and 31 December 2023 at our Renal Day Case Unit were eligible for inclusion. For each patient, baseline demographics including age, sex, type of biopsy (native or transplant), and the use of antiplatelets or anticoagulants were extracted from the electronic patient record (EPR). The duration of post-procedural observation was calculated from the time elapsed between the first set of vital signs following the biopsy to the last. Frequency of complications and interventions required were also identified from EPR. Statistical significances of differences between observed and quoted complication rates were assessed with the test of proportion.

Results:

Of 138 patients that underwent biopsy, mean age was 58 years (range 20-88 years), and 102 (73.9%) were native kidney biopsies. Forty (29.0%) were taking an antiplatelet or anticoagulant, all of which were appropriately suspended beforehand. The documented observation time was 240 minutes in 67.5% patients (range 132-489 minutes). 98.6% patients were documented to pass two urine samples. Bleeding occurred in nine patients (6.5%, p=0.0076 vs quoted 3% risk), of whom three were admitted. Four patients had mild, self-limiting haematuria, and were safely discharged home. Two patients without initial haematuria returned within 24 hours of biopsy having developed haematuria at home, despite meeting criteria for discharge. Twelve patients were admitted for ‘social’ reasons, most commonly due to being unaccompanied at home overnight post-biopsy. Of the patients who experienced bleeding, one required a blood transfusion (0.7%, p=0.63 vs quoted 1% risk), but none needed any further intervention for haemostasis.

Discussion:

Most bleeding complications were detected by our four-hour observation protocol, even in those patients with advancing age and anticoagulant use. The observed rate of haematuria (6.5%) was significantly higher than that quoted in our existing consent process (3%). Our sample size was small, and it will be helpful to look at rates in future audit cycles. We are in the process of moving towards using a fully-digital consent process, which will provide the opportunity of updating the consent process with each cycle. Documentation of observations in the EPR provides an easy route to audit protocol adherence. Almost all our patients were documented to pass urine post-procedure, however nearly one-third did not have observations documented over the required four hours prior to discharge. This shows a need for staff training on our protocol and data recording in the EPR.

Minimal Change Disease as a Paraneoplastic and Post-Infectious Manifestation: Coincidence or Causal? A Rare Case Report

Trust Grade Ajith Abraham Kurien[1], Trust grade Sameh Shehada[1], Renal Trainee Simon Peter Hosein[2], Renal Department Soubhik Pal[1]
[1]Peterborough City Hospital, Northwest Anglia Foundation Trust, Peterborough, United Kingdom, [2]East Midlands Renal trainee, Nottingham,

Background-
Malignancy associated MCD is frequently linked to lymphoma, but rarely with prostate cancer. Salmonella infection causing nephrotic syndrome secondary to MCD is also extremely rare in literature.

Presentation -
A 76year old gentleman presented with oedema of the hands and feet and worsening cough. He gave history of falling into a lake 1 week back, following which he had some cough and diarrhoea. He then visited the GP, who prescribed him a short course of doxycycline. However, his symptoms worsened. His past medical history included type 2 diabetes, HTN and PMR for which he was on 5mg of prednisolone. His baseline GFR was near 60.

Progress-
The urine dip at admission showed 3+ protein and 1 +blood. PCR sent came back as above 5gm/L with serum Albumin at 19g/L. The acute renal screen including PLA-2R ab was sent and he was initiated on intravenous antibiotics and diuretics. With the exception of low levels of Immunoglobulins IgG /IgM, the renal screen came back negative. A renal biopsy was performed once his diarrhoea and fluid status improved. A CTCAP with contrast ruled out malignancy. Stool culture grew Salmonella and antibiotics were optimised. The renal biopsy revealed partial foot process effacement on the electron microscopy suggesting Minimal change disease with acute tubular injury as the most likely diagnosis. He was started on high-dose steroids with bone and gastric protection. Meanwhile, his renal function worsened and hence was initiated on dialysis. He needed 4 sessions of dialysis in total. Meanwhile, his ACR began to improve in parallel with his serum albumin. During this period, he developed a lower limb DVT despite of anticoagulation. The temporary line was removed and was continued on the steroids. During his recovery, there was on episode of new severe haematuria that warranted blood transfusion. It was deemed unrelated to the biopsy as time in excess of 2 weeks had lapsed. Urine cultures grew E.coli and hence he was started on oral antibiotics. He subsequently became polyuric and the diuretics were discontinued. An outpatient Urology appointment was arranged for haematuria. His renal function recovered to baseline and he was discharged on steroids.

Subsequently, at his Urology appointment he had a cystoscopy done that was normal. However, a digital rectal examination revealed a moderately enlarged prostate with 2 firm nodules. Previous Sr.PSA was normal. An MRI prostate was advised that revealed a PI-RADS 5 lesion in the prostate with extracapsular extension. A transperineal biopsy confirmed a new diagnosis of adenocarcinoma of the prostate and he was then referred to Oncology for further management.

Discussion
Our patient developed nephrotic syndrome and AKI-3 which closely related to a Salmonella enteritis and diagnosis of prostate cancer. Infectious agents such as HIV,TB, Mycoplasma and Schistosomiasis and solid cancers have previously been implicated in secondary MCD. Minimal change disease presenting post infection and pre-cancer detection in the same patient is extremely rare in literature. The low dose steroids long-term probably delayed the presentation and reduced foot process effacement seen on the biopsy .

Identification of genetic causes of young onset end-stage renal disease in renal transplant recipients

Dr Natalie Phare[1], Dr Coralie Bingham[1], Doctor Rhian Clissold[1]
[1]Royal Devon University Healthcare NHS Foundation Trust , Exeter, United Kingdom

Introduction

The National Genomic Test Directory R257 test uses whole genome sequencing to seek a genetic explanation for patients with unexplained young onset end-stage renal disease (ESRD). The testing was initially established for patients under the age of 18 years but the age was subsequently extended to under 36 (since October 2021). Patients should have no identifiable cause for their kidney disease detectable by renal biopsy, biochemistry, imaging or clinical assessment to be eligible for the R257 test.

We aimed to review our transplant population for patients who developed ESRD under the age of 36 to identify those eligible for R257 genetic testing.

Methods

We reviewed all our renal transplant patients under the age of 60 to establish the age they developed ESRD (including pre-emptive transplantation) and if they had a documented cause. Eligible patients were then flagged for discussion of genetic testing in their next clinic appointment. Genetic testing was explained and offered at this time and samples sent on the same day if appropriate.

Results

316 transplant patients under the age of 60 were identified; of these 62 had developed ESRD under the age of 36 with no clear aetiology. Of these patients 13% had documented a combination of renal dysplasia and reflux nephropathy, 14.5% had renal dysplasia, 40% had reflux nephropathy and 17.8% were documented as chronic kidney disease of unclear cause. The remaining patients had nephronophthisis (3.2%), cystic disease (1.6%), Dents (1.6%) and other (8%).

So far 21 patients of the 62 have had genetic testing sent with 2 positive results, 16 negative results and 3 results awaited. Regarding the positive results, one patient had a heterozygous ALG5 pathogenic variant c.727C>T p.(Arg243Ter) and another patient was heterozygous for two NPHP4 variants.

The patient with the ALG5 variant presented in childhood with hypertension, renal scarring and one small kidney. He did not have renal or hepatic cysts. He had chronic kidney disease that was attributed to reflux nephropathy. He reached ESRD aged 25 years and was transplanted aged 27. His mother had a history of early onset hypertension with normal renal function, she does not carry the ALG5 variant. He is estranged from his father, who is not known to have renal disease.

The patient with nephronophthisis had reached ESRD aged 19 years and was transplanted aged 20. Her parents were confirmed to be carriers of the NPHP4 variants. She received genetic counselling as well as consideration and review for possible extra-renal manifestations (retina, brain, liver and ear).

Discussion

ALG5 variants have been reported to cause atypical autosomal dominant polycystic kidney disease with multiple small cysts, interstitial fibrosis or tubulointerstitial damage and deterioration in renal function after the age of 50. ALG5 is an emerging gene and our patient may represent a new phenotype. The number of positive results from R257 testing is small but for these patients it enables referral to the clinical genetic service for familial follow-up. Gaining this information adds to the data available regarding additional phenotypic presentations of lesser described renal genetic diseases.

The Power of Teamwork: Highlighting the Need for Multidisciplinary Team Efforts to Improve Mineral Bone Disease Management in Chronic Kidney Disease.

Dr. Aparna Sebastian[1], Dr. Omer Jasif[1], Dr. Jonathan Law[1], Dr. Bhamini Gutty[1]
[1]Birmingham Heartlands Hospital, University Hospitals of Birmingham, Birmingham, United Kingdom

Introduction:
Chronic Kidney Disease-Mineral Bone Disorder (CKD-MBD) is characterised by abnormalities in calcium, phosphate and parathyroid hormone (PTH) metabolism due to CKD. CKD-MBD is prevalent in over 90% of patients with advanced CKD who are not yet on dialysis and is strongly associated with all-cause mortality from both cardiovascular and non- cardiovascular causes. This quality improvement project was conducted to assess the Multidisciplinary Team (MDT) management of CKD-MBD in patients with CKD stage 5 who are not yet on dialysis at a large teaching hospital in East Birmingham.

Method:
Data from 146 pre-dialysis patients with CKD stage 5 seen in our Advanced Kidney Care (AKC) Clinic between January to March 2023 were collated. The Kidney Disease: Improving Global Outcome (KDIGO) 2017 CKD-MBD guidelines were used to determine minimum monitoring frequencies, target ranges and management of serum calcium, phosphate, parathyroid hormone and vitamin D level. Evidence of dietetic input was noted. Charlson Comorbidity Index was calculated from clinical noting, and those who experienced an endpoint of death or bony fracture in the six months following clinic review were recorded.

Results:
Patients had a mean age of 69 ± years (88 females, 58 males) and a mean eGFR of 12 ± 2 mls/min/1.73m2. 40% patients were hyperphosphataemic (PO4 > 1.5 mmol/L).Of these, 50% had received a dietetic review and 14% were on phosphate binders. PTH levels were < 31 pmol/L in 36%; 31-85 pmol/L in 58%; and > 85 pmol/L in 6% of patients, with a mean PTH level of 40 pmol/L across the whole cohort. Vitamin D analogues were prescribed in 64% of patients with PTH range 31-85 pmol/L and 75% in those with PTH >85 pmol/L. Calcium and phosphate levels checks were conducted every 1-3 months in 84% of patients; PTH was assayed in 58% patients as per the recommended 3-6 monthly frequency. 11% had a fracture and 13% died. Charlson Comorbidity Index was higher in those who died (mean score = 6 vs 5 in survivors, $p < 0.5$), but did not reach statistical significance.

Discussion:
In our cohort of patients with pre-dialysis stage 5 CKD, we identified gaps in the adherence to the KDIGO 2017 CKD-MBD guidelines. Whilst there is no agreed target range for PTH in non-dialysis CKD, 42% did not have PTH levels checked as recommended. Patients who were hyperphosphataemic did not routinely receive dietetics input, and a large proportion were not prescribed phosphate binders. Following discussions with AKC nurses, dieticians and physicians, staffing shortages within the dietetics department were identified as a key challenge, in addition to better adherence to KDIGO guidelines in terms of biochemical monitoring by all members of the AKC MDT. The following actions were implemented: In-person training conducted for members of the AKC MDT and presented at trust-level renal audit meeting; improvements to renal dietetic staffing e.g. recruitment, job planning; the lead renal dietician has obtained non-medical prescribing qualifications. Future work includes implementing a regular CKD-MBD audit cycle and investigating other barriers to prescription e.g. medication compliance and intolerance.

The Transform AKC national QI project - Year 1 – Staff and patients define ideal advanced kidney care and barriers to achieving it

Dr Rosie Donne[1], Ranjit Klare[2]
[1]Northern Care Alliance, Salford, United Kingdom, [2]Kidney Quality Improvement Partnership, UKKA,

INTRODUCTION

The advanced kidney care (AKC / low clearance) clinic is a pivotal stage in the patient pathway. The GIRFT report highlighted AKC as a key target for Quality Improvement activity. Ideal AKC care has not yet been defined and there are multiple unmet needs from patient and staff perspectives. There is unwarranted variation in AKC provision, team expertise and training. The 3-year Transform AKC project is a partnership between KidneyCareUK and UKKA, aiming to improve equity of access for all patients to the highest quality AKC. It will capitalise on the widespread expertise across the UK multidisciplinary renal community, expert patients and kidney charities. The new Renal Data Collaborative (RDC) affords the opportunity for renal units to submit daily automated measurement of AKC patient care planning milestones, with data visible on the RDC portal to drive improvement. In the first year (2024-25), the project aims to define the elements of ideal care from patient and staff perspectives, as well as understanding the current barriers to achieving it.

METHODS

A 3-year project plan was created, and widespread stakeholder engagement was achieved across the renal multiprofessional team. 5 UK pilot renal units were recruited to focus on quality improvement as well as developing and testing elements of an AKC toolkit to address unmet needs. Webinar 1 (patients' insights) was held to understand patients' priorities for care including examples of good care and unmet needs. Findings were presented and discussed during webinar 2 (professionals' insights), where attendees defined ideal care and barriers to achieving it across 8 themed breakout rooms facilitated by experts.

RESULTS

46 patients with experience of AKC attended Webinar 1. Patients' insights were grouped into themes and summarised in table 1. A patient focus group was then formed to ensure ongoing involvement throughout the project. 110 multidisciplinary renal staff attended webinar 2. Tables 2a and b summarise the outputs across 8 themes (service delivery models, patient education, shared decision making, symptoms detection, allied health professional support, live donor transplant, psychosocial care and peer support). General barriers to ideal care across all themes included geographical inequities within the unit's catchment area; the need to tailor care better according to individual needs; multimorbidity; limited health literacy; inadequate appointment time to address needs; staff and funding shortages; lack of specialist training; lack of awareness of existing resources.

CONCLUSIONS

The detailed insights from patients' and staff perspectives have defined ideal care and exposed the barriers to achieving it. This work will shape years 2 and 3 of the project including the quality improvement activities of the pilot renal units, project metrics, elements of the future AKC toolkit and future commissioning needs. The ongoing patient focus group will ensure their voice is integral to QI work, including recruitment of local patients to the project team. Year 3 plans will include staff training to support use of the AKC toolkit. An annual Transform AKC summit will be held to provide staff education and training to improve advanced kidney care and address unmet needs.

"Confidence in Women's Health: A Survey of UK Nephrologists' Approach to Women's Health in Everyday Practice"

Dr Anna Harrison, Dr Nadia Sarween, Dr Awais Hameed, Dr Jyoti Baharani
[1]University Hospitals Birmingham, NHS Trust, Birmingham, UK
Introduction:

Women with chronic kidney disease (CKD) face unique health challenges, including fertility concerns, menstrual irregularities, and sexual dysfunction, alongside increased pregnancy complications and adverse foetal outcomes. However, studies indicate that nephrologists often neglect to consistently address these issues, leaving many women feeling unsupported in managing their reproductive health. This study aims to assess how confident UK nephrologists and trainees are in discussing and managing women's health concerns, the frequency with which these issues are addressed in practice, and the barriers that hinder comprehensive, holistic care for women with CKD.

Method:

We compiled a 23-point survey on Google Forms and disseminated this via a variety of methods to the relevant stakeholders. We used different question types: Likert scales, multiple-choice and free-text. Three key themes emerged: participant characteristics, fellowship training, current clinical practices, and confidence levels in counselling/managing women's health.

Results:

A total of 147 respondents participated, with 52.4% being female, 51.7% Caucasian, and 59.9% aged 31-45 years. The majority (70.8%) were UK graduates, with consultants representing 57.8% of respondents and registrars 38.7%. In the past year, most had counselled fewer than five women with CKD/ESRD on menstrual issues (43.4%), menopause (53.1%), or breastfeeding (51%). In contrast, over a quarter had managed 5-10 pregnant CKD/ESRD patients (26.5%) or provided pre-conception counselling (30.6%). Over their entire careers, 42.2% had managed fewer than three pregnant dialysis patients, with 25.2% having no experience in this area.

Seventy-eight percent of UK renal centres provided pre-conception counselling, and 65.8% offered a combined Nephrology and Obstetrics clinic for these patients.

Most respondents (69.2%) had received formal training in obstetrics or women's health, with inpatient and outpatient consultations being the next most common learning methods (55.9% and 65%, respectively).

Regarding confidence, the majority of respondents felt "not at all confident" in counselling on menstrual disorders (n=62), menopause (n=77), and sexual health concerns (n=84). However, confidence in managing pregnancy-related concerns was somewhat higher. Only 4.1% reported a lack of confidence in recognizing pre-eclampsia.

Time constraints, knowledge gaps, and inexperience were the primary barriers identified in discussing and managing women's health issues in routine clinical practice.

Discussion:

Our survey reveals a significant gap in the confidence and experience of UK nephrologists and trainees when it comes to managing women's health issues in CKD, particularly in areas such as menstrual disorders, menopause, and sexual health. While there is greater confidence in addressing pregnancy-related concerns, many respondents acknowledged their limited experience and comfort in tackling broader women's health challenges. Time constraints, knowledge gaps, and lack of experience were identified as key barriers to delivering comprehensive care. These findings highlight the urgent need for improved education, training, and dedicated clinical resources to better support women with CKD throughout their reproductive years.

Failing Kidney Transplant Outcomes Registry Analysis – A cross-sectional analysis of failing transplant outcomes from UK Renal Registry data

Dr Samuel Westaway[1,2], Dr Shalini Santhakumaran[3], Dr Maria Pippias[1,2], Professor Sian Griffin[4], Professor Dorothea Nitsch[3], Dr Lucy Plumb[1], Dr Matthew Robb[5], Dr Rachel Hilton[6], Dr Barny Hole[1,2], Dr Matt Beresford[1], Dr Sherry Masoud[3], Dr George Greenhall[5], Dr Pippa Bailey[1,2]
[1]Bristol Medical School: Population Health Sciences, University of Bristol, Bristol, United Kingdom, [2]North Bristol NHS Trust, Bristol, United Kingdom, [3]UK Renal Registry, Bristol, United Kingdom, [4]University Hospital of Wales, Cardiff, United Kingdom, [5]NHS Blood and Transplant, , United Kingdom, [6]Guy's and St Thomas' NHS Foundation Trust, London, United Kingdom

Introduction

In the UK, approximately 25% of kidney transplants fail within 10 years post-transplantation, with failing transplant management recognised as an international research priority. UK survey data confirms inter-centre management variability. Inter-centre variability in pre-emptive listing for re-transplantation and sex-based, ethnic and socioeconomic inequalities in access to re-transplantation have been described. The FAiling Kidney Transplant Outcomes Registry (FAKTOR) study was designed to investigate the management and outcomes of people following kidney transplant failure in the UK. Workstream 1 investigated variation in post-transplant failure kidney replacement therapy (KRT) modality and eGFR at dialysis start. We also investigated whether differences in outcomes exist according to centre, demographic, socioeconomic and clinical factors.

Methods

We used UK Renal Registry data on patients aged ≥18 with failing transplants from January 2012 to December 2021 from all centres in England, Wales and Northern Ireland. Patients with failing transplants were defined as those with two consecutive quarterly eGFR results of ≤15ml/min/1.73m2, or one eGFR ≤15ml/min/1.73m2, followed by re-transplantation, dialysis or death in the next quarter. We followed patients for 5 years. The outcomes of interest were assessed at each year post-failure as the first of: i) pre-emptive re-transplantation, ii) haemodialysis, iii) peritoneal dialysis, iv) died; patients remaining alive without changing KRT modality were classed as, v) manged conservatively if eGFR was <7.5ml/min/1.73m2, or alternatively, vi) being on the same transplant. Multiple patient characteristics were described by outcome at 1-year post-failure: age, sex, ethnicity, socioeconomic deprivation level (Index of Multiple Deprivation 2019 quintile), primary renal disease, pre-dialysis eGFR (if applicable), centre (transplanting vs non-transplanting) and clinic type (identified in our previous UK-wide survey). Chi-squared tests were used to test for associations with categorical variables and Kruskal-Wallis tests for continuous variables.

Results

5553 patients with a failing transplant were identified. Figure 1 (Sankey chart) shows the outcomes for up to five years post-failure. Thirteen were lost to follow up before 1 year, leaving 5540 in the analysis of outcomes at 1 year (Table 1 and 2). Haemodialysis was the most common 1-year outcome (47.0%), followed by remaining alive on the same transplant (27.7%), peritoneal dialysis (10.5%), dying (9.3%), pre-emptive re-transplantation (5.1%) and conservative management (0.5%). Age, sex, ethnicity, socioeconomic deprivation, primary renal disease and clinic type were all associated with 1 year outcome (p<0.0001). 6.6% in the least deprived socioeconomic quintile had received a new transplant at 1 year, compared to 3.3% in the most deprived regions. Median pre-dialysis eGFR was 9.53ml/min/1.73m2 (IQR 7.58-11.63) and higher pre-haemodialysis (9.64ml/min/1.73m2 (IQR 7.67-11.72)) than pre-peritoneal dialysis (9.08ml/min/1.73m2 (IQR 7.31-11.08) (p=0.0001)).

Discussion

This is the first UK-wide description of outcomes following kidney transplant failure. We found variation in post-failure treatment modality associated with demographic and socioeconomic factors, along with primary kidney disease and centre practice. Why strong gradients according to

socioeconomic deprivation and ethnicity were observed is vitally important to investigate. The remainder of the FAKTOR study aims to further describe and understand variation in care, re-listing, re-transplantation and causes of death. Observed variation in practice-related outcomes might provide evidence of optimal management.

CMV Viraemia in renal transplant patients: A single tertiary centre experience

Dr Aissar Abou Trabeh[1], Dr Adel Alalwan[1], Dr Mohamed Mujahith Salahudeen Buhary Ahamed[1], Dr Eirini Synodinou[1]
[1]Wessex Kidney Centre, Portsmouth NHS Hospitals, Portsmouth, United Kingdom
Abstract:
Background:
Cytomegalovirus (CMV) is a widespread virus globally and renal transplant recipients are particularly vulnerable as CMV can reactivate frequently and cause disease in the setting of immunosuppression. CMV infection and disease in these patients are associated with an increased risk of allograft failure and death. CMV disease can still occur despite preventive therapy, especially when they are not dosed adequately or following their discontinuation. It's vital to acquire descriptive data on CMV viremia to improve our understanding of the challenges this condition poses following renal transplantation.

Methods:
This is a retrospective observational cohort study of 53 adult renal transplant recipients who developed CMV viraemia in the first year post-transplantation at Wessex kidney centre, a tertiary transplant centre in Portsmouth, United Kingdom. In this study we aim to describe CMV viraemia in our renal transplant recipients in terms of clinical characteristics, laboratory parameters, CMV-related variables, co-infections and hospitalizations. In addition, we will describe the indications of CMV testing and changes in maintenance immunosuppressive therapy.

Results:
The data obtained from 53 transplant recipients were reviewed. Average age 56.5 ± 14.5 years (53% males and 47% females). Almost half of the patients had CMV viremia following their first renal transplantation (52.8%), with the highest percentage being in the seropositive donor to seropositive recipient subgroup (59.6%). Most of the study cohort did not receive treatment for rejection (83%) or CMV prophylaxis (81.1%). The median duration from renal transplant to Infection diagnosis was 87 days, and the duration to CMV resolution was 92.5 days. Most of CMV testing was triggered by raised serum creatinine in transplant recipients and gastrointestinal symptoms. Most patients did not have neutropenia at diagnosis. Almost 40 percent of participants required treatment for CMV viraemia, and mycophenolate dosage was modified in 72% of patients.

Conclusions:
Awareness and vigilance are vital when addressing CMV infection and disease post-renal transplantation. This study provides essential descriptive information on CMV viremia in a tertiary transplant centre in the United Kingdom, with insights on clinical characteristics, presentations, and indications for testing. In addition to key information on maintenance immunosuppressive therapy and CMV treatment.

A regional standardised approach to tackling Acute Kidney Injury – AKI, Think 'Fluids 24'

Dr Shahed Ahmed, Ms Amanda Balshaw-Greer, North West AKI Network Members, Mr Robert Finnigan
[1]North West Kidney Network, Liverpool, United Kingdom, [2]Liverpool University Hospitals Foundation Trust, Liverpool, United Kingdom

Introduction: Acute Kidney injury (AKI) is a high-cost clinical issue and the quality of care for AKI remains suboptimal in many acute trusts despite the measures that have been implemented for over a decade. Many acute trusts continue to struggle with high mortality, thirty-day readmission and increased length of hospital stay. Our Acute Kidney Injury Network embarked on the challenge to address these issues as our region has some of the highest incidence of AKI nationally. Collaborating with multi-specialty partners and facilitating the multi-professional team formed the regional network, the platform to drive forward change. We developed and implemented the collective vision of a single standardised approach to improve AKI care at the bedside.
Method: Early collaboration meetings demonstrated that an integrated, whole-system approach was necessary to improve AKI across the region. The focus to simplify and modify AKI care bundles, and the development of an AKI care manual, that would optimise care across a plethora of care settings. Following 12 months of collaboration our AKI-Think Fluids 24 campaign that aligned to NICE quality indicators 2023 was launched.

NW AKI care bundle: 'AKI Think Fluids 24':
The care bundle follows a simple step wise process, that is easily memorised and incorporates care processes that are already undertaken with other acute illness. The bundle follows the patient through to discharge and will support ongoing primary care initiatives. The care manual is a guideline for AKI care within acute and primary care setting.
The collaborative working in the AKI Network has resulted in a regional multi-professional approach to improving AKI care within the acute trusts. The network has more than fifty clinicians from twenty trusts that represents critical care, critical care outreach, renal medicine, acute medicine and pharmacy. We have provided AKI education to more than one thousand staff within the region who are now implementing the AKI-Think Fluids 24 to their clinical area.
We are continuing to roll out education and implementation of the regional AKI bundle which has demonstrated improvements in mortality within early implementation sites. We are continuing our work with post discharge AKI care including a regional patient information leaflet.
Conclusion: In a region with high incidence of AKI, collaborative working to improve suboptimal AKI care has resulted in a regional standardised approach. The 'AKI-Think Fluids 24' bundle campaign has been a success as per available data from early implementation sites and the care bundle highlights the importance of re-assessing measures within '24 hours'

The Kidney Failure Risk Equation – lessons learned after 1 year of implementation

Dr David Green[1,2], Dr Brian Shine[3], Dr Udaya Udayaraj[1,4]
[1]Oxford Kidney Unit, Oxford, United Kingdom, [2]Sussex Kidney Unit, Brighton, United Kingdom, [3]Department of Clinical Biochemistry, Oxford University Hospitals NHS Foundation Trust, Oxford, United Kingdom, [4]University of Oxford Nuffield Department of Medicine, Oxford, United Kingdom

The Kidney Failure Risk Equation (KFRE) is a validated risk prediction tool to help stratify and optimise the patient journey for adults with CKD. Its use is recommended by NICE and KDIGO guidelines. This project aimed to integrate the KFRE into the routine care of individuals with CKD within the catchment of a UK kidney unit.

Using QI methodology, Plan-Do-Study-Act cycles were completed to effect change in various ways. Buy-in was established from departmental and ICS governance structures with input from primary care clinicians, patients and the UKKA KFRE working group. Education sessions and resources were delivered for primary and secondary care multidisciplinary clinicians and a departmental guideline was developed. Finally, automated KFRE reporting was implemented in staged timelines within laboratories across the catchment of the unit, with 2-year and 5-year risk scores delivered to primary care requesters as well as secondary care electronic patient records.

Between 1st September 2023 and 1st September 2024 in the central laboratory alone 12,298 KFRE results were generated. Of which 1225 unique KFRE 5-year results were ≥5%. The majority (914/1225) of those with 5-year risks of ≥5% were known or referred to the kidney unit, leaving a minority (311/1225) who may have unappreciated higher risk CKD and could benefit from referral. Of those subsequently referred from primary care, the KFRE result was specifically referenced in 43% of cases. There was a small trend in increased referrals to the unit and the absolute number of ACR requests increased during the project period.

This project demonstrates that the KFRE can be effectively adopted by both primary and secondary care. It may have a role in CKD case finding and could act as a driver to increase community ACR testing. The methods described are generalisable to other kidney care providers both within the UK and internationally.

Self Management and Realisation of Target Blood Pressure in Chronic Kidney Disease (SMaRT BP CKD)

Dr Bethany Lucas[1,2], Dr Ashveer Randhay[1,2], Miss Kelly White[2], Professor Nicholas Selby[1,2], Professor Maarten Taal[1,2]
[1]Centre for Kidney Research and Innovation, Academic Unit for Translational Medical Sciences, Nottingham, United Kingdom, [2]Department of Renal Medicine, Royal Derby Hospital, University Hospitals of Derby and Burton NHS Foundation Trust, United Kingdom

Introduction

Blood pressure (BP) control is one of the most important therapeutic interventions in chronic kidney disease (CKD) but BP targets are frequently not met. Moreover, there is debate as to the optimal BP target for patients with CKD and whether stricter BP targets are achievable and safe for this complex patient group. The SMaRT BP CKD trial aims to assess the feasibility of a supported self-management of BP for participants with CKD in secondary care using an approach previously trialled successfully in a primary care setting.

Methods

SMaRT BP CKD is a single centre randomised feasibility trial. Eligible participants from CKD outpatient clinics had CKD stages 1-4, were aged >18years, prescribed <4 anti-hypertensive agents and were invited based on an average clinic BP in the preceding 12 months of >120mmHg, or >130mmHg systolic if they had diabetes. Eligibility was confirmed with an unobserved standardised BP reading taken by the research team. Participants were randomised 1:1 to either intervention or standard care. The self-management intervention was home BP monitoring (Microlife WatchBP) and an agreed medication plan. Participants assessed the need for treatment escalation every 2 months based on their home readings and contacted the research team for prescriptions. Follow up will continue for 12 months; here we report outcomes at 6 months.

Results

Of the 390 participants eligible from 1464 screened, 58 were recruited between July 2023 and May 2024. One participant was excluded after randomisation due to a postural BP drop so 27 participants were randomised to intervention and 30 to standard care. Baseline characteristics are described in Table 1. Median (IQR) baseline systolic BP (SBP) for the cohort was 143 (135-154) mmHg and diastolic BP (DBP) 79 (70-89) mmHg. At 6 months, four participants (15%) in the intervention group had withdrawn. A total of 16 (70%) in the intervention group escalated anti-hypertensive treatment versus 14 (47%) in the standard care group. BP decreased in both groups at 6 months: standard care SBP 135 (126-141), DBP 74 (70-82) mmHg (p=0.02 versus baseline); intervention group: SBP 130 (125-136) mmHg; DBP 75 (63-80) mmHg (p<0.001 versus baseline). The median difference in SBP between baseline and 6 months was -5 (-19 to 1.25) mmHg in the standard care group and -15 (-30 to -4) mmHg in the intervention group (p=0.069).
Of the 24 participants that were aiming for the stricter 120 mmHg SBP target, only 3 participants achieved this at 6 months, 2 in the intervention group and 1 in the standard care group. For the 130mmHg SBP target, 7 of the intervention group, and 5 of the standard care group achieved target.

Discussion

At six months, SMaRT BP CKD trial has shown that participants are willing to be randomised to and complete a self-management BP intervention, though 15% withdrew. There have been more escalations in anti-hypertensive treatment in the intervention group and a larger median reduction in

SBP. The lower target of 120mmHg systolic is difficult to reach even with more intensive BP management.

The Association Between Proteinuria and Stroke: Results from the Non-Communicable Diseases Screening Programme of Chiang Mai Region, Northern Thailand

Dr Charles Hall[1]
[1]The Royal Free Hospital NHS Trust, London, UK, [2]The London School of Hygiene and Tropical Medicine, London, UK

Stroke is a significant global health issue, representing the second leading cause of death and a major contributor to disability. It can be classified into two main types: ischemic stroke, caused by blockage of a brain blood vessel, and haemorrhagic stroke, resulting from blood vessel rupture. Chronic kidney disease (CKD) is another prevalent health concern, affecting approximately 10% of all populations worldwide. CKD impairs kidney function and has been associated with an increased risk of cerebrovascular events, including stroke. Within the Northern Thai population, the prevalence of CKD is higher than the global average, underscoring the importance of investigating the relationship between CKD and stroke in this region.

Methods

All patients for which accurate proteinuria measurement was obtained as part of the NCD screening program in Chiang Mai, Northern Thailand were included in the study.
Multilinear cox regression analysis was used to estimate the hazards ratio for the association between proteinuria on stroke. The model was adjusted for other significant confounders of the association including age, sex, CKD, diabetes, hypertension and hypercholesterolaemia

Results

In a cohort of 3,967 patients for which accurate proteinuria measurements were obtained and for whom had complete data for covariates, there was no evidence for an association between proteinuria and stroke. Hazards ratio for stroke in patients with trace proteinuria (adjusted for covariates) was 1.08 (95%CI 0.80-1.45) and positive proteinuria 0.06 (0.78-1.44) compared to a baseline of no proteinuria.

Conclusion

This study provides important insights into stroke risk factors in the Northern Thai population. The lack of substantial association between proteinuria and stroke suggests that proteinuria may not independently contribute to stroke risk in this cohort. Generalizability, however, is limited due to overrepresentation of diabetes and hypercholesterolaemia in the cohort, which is a strong independent risk factor for stroke. Increasing age is identified as the most critical risk factor for stroke. Understanding these associations can guide targeted interventions and public health strategies for stroke prevention in this population. The study limitations highlight the importance of analysis of a cohort that is more representative of a wider population in terms of chronic disease, such as diabetes and hypercholesterolaemia, and highlights the importance of longer follow up to fully elucidate whether proteinuria has an association with stroke. Furthermore the study raises questions as to whether measurement of proteinuria via urine dipstick analysis may limit conclusions that can be drawn compared to more robust methods such as urine albumin:creatinine or urine protein:creatinine ratios. Finally this study may be underpowered to detect subtle changes of a hazards ratio of less than 1.2, so is at risk of a type 2 statistical error.

A quality improvement project to improve peritoneal dialysis associated peritonitis outcomes.

Dr Kay Boon Tan[1], Dr Babaniji Omosule[1], Jenny Bayliss[1], Sharon Woolams[1], Darren Wheale[1], Yvonne Wilson[1], Dr Jibrin Hussaini[1]
[1]Royal Wolverhampton NHS Trust, Wolverhampton, United Kingdom

ABSTRACT
TITLE:
A quality improvement project to improve peritoneal dialysis associated peritonitis outcomes.
INTRODUCTION:
Peritoneal dialysis (PD) peritonitis is a serious and common complication of peritoneal dialysis. It is associated with significant harm such as peritoneal membrane changes, increased treatment cost, transfer to hemodialysis and death. Prevention and treatment of peritoneal dialysis peritonitis is crucial in reducing morbidity and mortality in peritoneal dialysis patients.
We observed that our PD peritonitis outcomes such as peritonitis rates and catheter removal rates were high and variable. Most of the outcomes were higher than the proposed targets as specified by the ISPD guideline 2022. Data on peritonitis was accurately collected by the Nurses however, calculation of infection rates was not standardized. As part of a regional network quality improvement project, we aimed to improve our PD peritonitis outcomes to achieve an average peritonitis infection rate of <0.4 per patient year by 2023 as outlined by the ISPD guidelines.

METHODS:

We standardized our outcome specific rates according to ISPD guidelines to ensure we could review the impact of our interventions accurately. A program was designed to reassess handwashing technique and technique of PD periodically in the unit. This was to be done monthly on all PD patients by PD nurses. Retraining was administered if deviations were observed. Technique check was performed in the home setting within four weeks post peritonitis. To support objectivity, a check list was designed to ensure essential areas were covered and areas of retraining visited. All new and existing patients were involved and informed of the purpose of this assessment.

RESULTS:
The re-assessment commenced in January 2022, there was an initial challenge of compliance however, it improved after discussing the importance of the assessment with the patients. This has now become established as routine in the department.
The re-assessment/retraining had significant positive outcomes on our PD population with a decline in our peritonitis rate from 0.66 per patient year in the first year, to 0.43 in the second year, to 0.34 in third year. Other outcomes such as catheter removal rates and peritonitis related deaths improved and were within targets specified by the ISPD guideline.
DISCUSSION:
The ISPD guideline 2022 recommends regular assessment of PD exchange technique and knowledge with emphasis on direct inspection to prevent peritonitis. Although frequency of retraining and reassessment was not recommended, this should be guided by local resources and patient's needs. Proper hand and personal hygiene are essential for preventing PD peritonitis. Several studies have shown significant improvement in peritonitis with formal assessment of personal and hand hygiene. Our peritonitis rates significantly improved following the introduction of periodic retraining and handwashing; however we acknowledge this could be due to other factors. We conclude that continuous quality improvement initiatives such as scheduled retraining and reassessment of hand washing hygiene could reduce peritonitis rate in PD.

Towards understanding immunometabolism in Chronic Kidney Disease (CKD): is impaired infection control in CKD reversible by targeting perturbed metabolic pathways?

Dr Joseph Sturman[1], Professor Lorraine Harper[1], Professor Adam Cunningham[1], Professor Matthew O'Shea[1], Dr Sarah Dimeloe[1]
[1]University of Birmingham, Birmingham, United Kingdom

Introduction

Infection is one of the commonest causes of death in patients with Chronic Kidney Disease (CKD) and end-stage CKD patients have a 20% yearly chance of dying from infection. The risk of severe infection increases as renal function decreases and has changed little in recent decades. Although patients have increased susceptibility to all infections, this has been especially well-characterised for latent Mycobacterium tuberculosis (Mtb) infection, where dialysis patients have a 50-fold increased risk of reactivation. Mtb therefore offers a model to study infection risk in CKD.

The mechanisms underpinning impaired control of infection are poorly understood, limiting the ability to develop effective treatments. Since infection risk increases as kidney function worsens, it has been suggested that CKD impacts the generation, differentiation and metabolism of immune cells, ultimately impacting their functional responses and activity. CKD is commonly viewed as a state of irreversible immune dysfunction with reduced lymphocytes and increased pro-inflammatory myeloid cells. However, the lessons from SARS-CoV-2 vaccination and my data provide evidence that modulating the immune system in CKD patients can decrease the risk of infection. Therefore, we suggest CKD is a state of reversible immune dysregulation related to altered metabolism that may be therapeutically modifiable to improve the control of infection.

Methods

Peripheral blood mononuclear cells (PBMCs) were isolated from age-matched healthy controls and patients with end-stage CKD on haemodialysis. Samples (n=24) were used to perform high-throughput transcriptomic analysis of >1400 genes related to immune regulation and metabolism to identify perturbed pathways. Putative altered metabolic pathways were further investigated using the flow cytometry-based kynurenine entry assay. The functional consequences of modulating specific pathways were then tested by using the mycobacterial growth inhibition assay and co-culturing PBMCs with M. bovis Bacillus-Calmette-Guérin (BCG) under various conditions.

Results

PBMCs from dialysis patients control BCG growth as effectively as cells from healthy controls in an ex vivo functional assay suggesting immune cell function is influenced by the extracellular environment (Figure 1). Transcriptomic analyses identified dysregulated pro-inflammatory and metabolic pathways that co-correlate, including increased expression of components of the immunosuppressive tryptophan-Aryl hydrocarbon receptor pathway (adjusted $p<0.01$). Flow cytometry analysis confirmed these gene signatures translate into altered protein expression and function of this pathway. Finally, administration of tryptophan metabolites (which accumulate in CKD and are not cleared by dialysis), impair the control of BCG (Figure 2).

Discussion

We provide evidence that CKD-associated immune dysfunction and impaired infection control is reversible by targeting specific metabolic pathways perturbed as a result of renal dysfunction. Excitingly, these pathways have been extensively investigated in cancer, meaning there are existing therapeutics that can potentially be repurposed to reverse immune defects and reduce infection risk in CKD patients.

For years, CKD immunology has been synonymous with understanding how the immune system leads to CKD progression. Our data highlights the importance of investigating the converse question of how CKD itself contributes to immune dysregulation and impaired infection control. In an age of growing antimicrobial resistance, developing new therapies to combat infectious disease is a research priority.

Reducing unnecessary carbon in haemodialysis by recycling acid concentrate canisters

Laura Traviss[1], Dr Stephanie Choo[1], Vicky Fairclough[1], Mrs Leeanne Lockley[2], Dr Mark Wright[1], Dr V R Latha Gullapudi[1]
[1]Leeds Teaching Hospitals NHS Trust, , United Kingdom, [2]Kidney Quality Improvement Partnership, ,
In collaboration with the UK Kidney Association (UKKA) Kidney Quality Improvement Partnership (KQIP) and the regional sustainability initiative Trying to Reduce UnNecessary Carbon in Haemodialysis (TRUNC-HD), our centre has actively worked to minimise the carbon footprint of haemodialysis. A key focus has been on improving the waste management of dialysis acid concentrate canisters, a significant source of plastic waste in dialysis. During a KQIP regional meeting, we learned that other dialysis units recycled these canisters contrary to our practice.

The team carried out an information-gathering phase to quantify canister usage, evaluate their weight and environmental impact, and identify barriers to recycling. Stakeholders, including waste management teams and product manufacturers, were engaged. A liaison from the product manufacturer confirmed that canisters used in their industry-run haemodialysis units were sent for recycling. Subsequently, the waste manager conducted a review to determine whether recycling of the canisters was possible in our organisation. The carbon footprint of recycling was calculated using the 2024 UK government conversion factors for greenhouse gas (GHG) and other waste streams using Rizan et al. (2021) paper on “The carbon footprint of waste streams in a UK hospital”. The emission factor for recycling only include emissions attributed to the transportation of waste to the recycling facility as the emissions from the recycling process is attributed to the user of the recycled materials and not the producer of the waste.

Through advocacy and systematic changes, our canister waste transitioned from being disposed in the infectious waste stream, to domestic waste and finally, to recycling. The recycling plant processes the plastic into new plastic products such as garden furniture and pipes. Now, six of our eight dialysis units recycle plastic canisters which amounts to 19,344 canisters annually. The remaining two units, located at a different hospital trust sites, are working towards implementing a recycling program following discussions with their sustainability teams.

Each individual 4.7L and 6L canisters weighs 259g and 292g, respectively. 19,344 canisters amounts to 5-5.6 tonnes of plastic waste annually. The change from infectious to recycling waste stream is estimated to save 2.8-3.1 tonnes of carbon dioxide equivalent (CO_2e) emissions annually, with financial saving of between £1800-2000. The impact of the environmental and financial implications of the different waste streams are summarised in Table 1. To prepare canisters for recycling, they are drained of residual acid and rinsed with water. Rinsing requires an estimated 0.5L of water per canister, amounting to approximately 9672L annually. Despite this, the environmental impact of rinsing is minimal, contributing only 3.28kgCO_2e annually.

This initiative underscores the critical need to reevaluate waste classification and disposal practices in healthcare. Collaboration with external stakeholders and learning from other units were instrumental in driving this change. Further efforts are underway to review whether other consumables used in our units can be recycled, advancing our commitment to sustainability.

Outcomes of younger adults in an advanced kidney care service in the United Kingdom

Dr Hannah O'Keeffe[1,2], Dr Rosie Donne[1,2], Professor Philip A. Kalra[1,2], Dr Constantina Chrysochou[1,2], Dr Ibrahim Ali[1,2]
[1]Northern Care Alliance, Manchester, United Kingdom, [2]University of Manchester, Manchester, United Kingdom

Introduction

Information provided to patients in advanced kidney care services (AKCS) often focuses on overall outcomes, with an emphasis on quality versus quantity of life, including consideration of conservative care. This is usually not appropriate for younger patients, with a gap identified by young adults and clinicians in our service regarding the requirement for more bespoke education materials. Working towards this, we have considered outcomes of younger adults in a longitudinal cohort.

Methods

Patients between 18 and 30 years old who first attended AKCS in our organisation between September 2011 and September 2018 were included. Patients are routinely referred to AKCS once their estimated glomerular filtration rate (eGFR) falls below 20ml/min/1.73m2. Patients had a minimum of five years follow-up to September 2023. Patients with a prior transplant, and those who recovered renal function and were discharged from AKCS were excluded, leaving 53 aged 18 to 30 years at first attendance. Analyses were conducted using SPSS.

Results

Of the 53 patients, 25 (47.2%) were female and 28 (52.8%) male. At first AKCS attendance median age was 26.4 years (IQR 23.3-28.0) with median eGFR 13.0ml/min/1.73m2 (IQR 10.5-17.5). Median follow-up was 9.1 years (IQR 7.2-10.6). 73.6% (n=39) were of white ethnicity, 18.9% (n=10) asian, 1.9% (n=1) black, 3.8% (n=2) mixed and 1.9% (n=1) other or not stated. A wide variety of CKD aetiologies was observed, the most common being IgA nephropathy in 17.0% (n=9), an obstructive cause in 15.1% (n=8), and diabetes in 9.4% (n=5).

The median time from first AKCS visit to renal replacement therapy (RRT) commencement was 24.8 months (IQR 13.2-36.0). The first RRT modality was haemodialysis in 32.1% (n=17), peritoneal dialysis in 28.3% (n=15), and a pre-emptive transplant in 30.2% (n=16). The remaining 5 patients (9.4%) had not reached RRT by the end of follow-up. The majority of patients (71.7%, n=38) were transplanted by the end of follow-up, with median time to transplantation of 24.4 months (IQR 7.7-37.8). Of those transplanted, 55.3% (21/38) received a deceased donor transplant, 42.1% (16/38) a living donor transplant, 2.6% (1/38) a simultaneous pancreas and kidney transplant, and 42.1% (16/38) of the transplants were pre-emptive. Unfortunately, there were 3 deaths in the cohort during follow-up. The 95% 5-year survival of this younger cohort contrasts to the 5-year survival of 50% for the overall AKCS cohort (median age 66.1 years) for the same period.

Discussion

Approximately a third of patients started RRT on each of haemodialysis, peritoneal dialysis, or with a pre-emptive transplant, with a significant proportion (71.7%) transplanted during follow-up. First visit to AKCS was at a median eGFR of 13ml/min/1.73m2, and earlier review would be expected to further increase pre-emptive transplantation rates by enabling greater time for evaluation and listing. A patient-identified gap in our young adult service is the requirement for targeted and age-appropriate education materials which should be co-designed with patients to reflect the information they require. These results can help improve information shared with these patients, by providing an improved understanding of the outcomes of young adults with advanced kidney disease.

POCUS-Guided Fluid Removal Using LVOT VTI in a Patient with Complex Hemodynamics

Mr Ben O'Sullivan[1], Dr Vandse Aithal
[1]Glangwilli Hospital, Carmarthen, Wales

Background

Fluid removal during hemodialysis plays a vital role in achieving optimal patient outcomes, as most individuals with end stage renal disease rely on dialysis to manage fluid balance. Traditional methods to guide dialysis prescription such as pre - post weights are simplistic, and do not consider the interplay between venous and arterial physiology for complex patients.

Case presentation

A 70-year-old gentleman with end-stage renal disease (ESRD) had a history of congenital hydronephrosis in one kidney and long-standing hypertension. He initially underwent peritoneal dialysis (PD); however, poor ultrafiltration resulted in persistent fluid overload, including recurrent pleural effusions, which necessitated a switch to hemodialysis in September 2021. An echocardiogram in October 2019 revealed significant pulmonary hypertension, severe tricuspid regurgitation (TR), and moderate mitral regurgitation (MR). Fluid management during hemodialysis proved challenging due to persistent predialysis hypotension and further blood pressure drops during sessions. Determining an accurate dry weight was particularly difficult because of these intradialytic hypotensive episodes. To address this, ultrasound was employed to refine the estimation of dry weight. Notably, while portal vein pulsatility remained unchanged, Left Ventricular Outflow Tract Velocity Time Integral (LVOT VTI) and stroke volume improved, even in the setting of intradialytic hypotension. By prioritizing LVOT VTI measurements over blood pressure as a guide, we successfully increased fluid removal per session and lowered his dry weight by 4kg. The patient reported significant symptom relief as a result of this optimized fluid management approach.

Conclusion

Fluid removal was guided by POCUS to address the patient’s complex hemodynamics, characterised by pulmonary hypertension, severe torrential tricuspid regurgitation, and moderate mitral regurgitation. While traditional Portal vein pulsatility did not show improvement, we observed a significant increase in the patient’s LVOT VTI. This metric was employed as an alternative tool to guide the determination of an optimal dry weight. This case highlights the value of using ultrasound-derived hemodynamic measurements to enhance understanding of fluid removal in patients with complex hemodynamics.

Is the increased left ventricular mass in advanced chronic kidney disease caused by extracellular or intracellular expansion?

Dr T Anderton[1], Dr Andrew Mooney[2], Dr YS Chin[1], Dr B Chambers[1], Dr R Patel[1], Dr M Kalaitzoglou[1], Dr R Tomoaia[1], Prof S Plein[1], Dr P Swoboda[1], Dr Shanmugakumar Chinnappa[1]
[1]University of Leeds, Leeds, United Kingdom, [2]Leeds Teaching Hospitals NHS Trust, Leeds, United Kingdom

Background and aims
Although it has been well established that left ventricular hypertrophy (LVH) is the predominant cardiac structural abnormality of chronic kidney disease (CKD), the relative contribution of the extracellular and intracellular expansion remains hitherto unknown.
Cardiac magnetic resonance (CMR) has the unique ability to non-invasively evaluate myocardial tissue characteristics and assess the pathological changes underlying the increase in LV mass. In the present study, we set out quantify the relative changes in the left ventricular intra- and extra-cellular compartments in patients with advanced CKD compared to healthy volunteers.

Methods
A cross sectional study (n=50) of advanced, non-diabetic CKD patients (eGFR <30, n=33) without any known cardiac disease and healthy volunteers (n=17). The participants underwent comprehensive CMR evaluation with contrast including left ventricular (LV) volumetric quantification, Native T1 mapping, extracellular volume (ECV) quantification and late gadolinium enhanced imaging. Extra cellular volume calculation – quantified following pre- and post-contrast T1 Mapping techniques – allowed us to quantify the relative contribution of the intracellular and extracellular compartment to any changes in LV mass seen in the CKD cohort. Late gadolinium enhanced imaging was utilised to report the presence of myocardial infarction or non-ischaemic fibrosis. All patients completed written informed consent. Independent sample t-test and $\chi 2$ tests were employed as appropriate. Data is presented as mean±SD. $P<0.05$ is considered significant.

Results
CKD patients had a mean age of 57 years (73% men) and the healthy volunteers had a mean age of 48 years (41% men). Three patients with CKD and 4 healthy volunteers declined gadolinium contrast and did not complete ECV mapping. Therefore, 30 CKD patients and 13 healthy volunteers were used to calculate the relative intra- and extracellular components of the myocardium. The results are presented in Table 1 and Figure 1. The ECV volume in CKD was 26.1±3.6% vs 23.2±1.6% in health controls (P=0.013).

Conclusion
The overall LV mass and maximal wall thickness were increased in CKD patients compared to healthy volunteers. Our results reveal that this hypertrophy is not caused by an increased intracellular compartment but rather by an increase in the extracellular compartment. The quantity of replacement fibrosis seen in CKD patients was relatively low, suggesting the increase in LV mass seen in CKD to be primarily driven by global changes especially diffuse collagen deposition.

“Not So Good Pastures”-A review of anti-GBM disease renal outcomes

Dr Sarah Chetcuti[1]
[1]Altnagelvin Area Hospital, Derry, Northern Ireland, [2]Belfast City Hospital, Belfast, Northern Ireland

Introduction

Anti-glomerular basement membrane (Anti-GBM) disease has an incidence of 1-2 cases per million population per year. Management involves immunosuppression with plasma exchange (PLEX), steroids and cyclophosphamide. However, patients who present with a severe acute kidney injury requiring haemodialysis, or those who have a high proportion of cellular crescents on a renal biopsy only have about 5% chance of recovery of self-sustaining renal function. We conducted a retrospective review to look at the outcomes of patients who were diagnosed with anti-GBM disease between January 2008 and December 2022. The aim was to identify potential predictors of these outcomes to help us reduce morbidity and mortality in this cohort of patients.

Methods

We used the renal electronic database EMED and histology samples confirming anti-GBM disease to identify our cohort of patients. Demographic and clinical outcome information in May 2024 was obtained from EMED and the Electronic Care Record (ECR).

Results

43 patients were diagnosed with anti-GBM disease between January 2008 and December 2022. 27 of these patients were only positive for anti-GBM antibodies.
70% of these patients were female, with a mean age of 67 years. The mean presenting creatinine was 786 umol/L. 81% of the patients received PLEX. The patients who did not receive PLEX had a higher average age and average presentation creatinine compared to those who received PLEX.

There are two centres in our region who provide PLEX. The median number of PLEX sessions was 9 sessions in centre A and 18 sessions in centre B. The cohort of patients who received a higher median number of PLEX sessions had a similar rate of end-stage renal disease (ESRD) compared to the cohort of patients who received less PLEX sessions.

Despite the KDIGO guidelines suggesting that a renal biopsy should be done within 24 hours of presentation, 50% of the patients across both centres had a renal biopsy done after receiving PLEX.

5 of the patients who required haemodialysis recovered, with 60% recovering within 3 months of treatment. 2 of the patients maintained self-sustaining renal function and never needed haemodialysis.
20 patients remained with ESRD. Poor prognostic factors amongst this group were: anuria at presentation, a presenting creatinine of ≥ 500umol/L, and 100% crescents on renal biopsy.

At five years follow-up, 48% of Group A patients were deceased. 46% of these patients died from sepsis, 15% died of cardiac disease and 24% following withdrawal of dialysis.

Conclusion

Immunosuppression is key to the treatment of anti-GBM disease. Sepsis is a big contributor to mortality, as evidenced by our results. Not all patients who are diagnosed with anti-GBM disease benefit from treatment with PLEX, steroids and immunosuppression, especially those who have poor renal prognostic factors on admission.
Performing a renal biopsy early in the admission would help to guide the patient’s chance of renal recovery, and therefore help physicians weigh risks and benefits of treating with PLEX.

Reducing unnecessary carbon in haemodialysis by optimising dialysate acid concentrates

Jurgita Matusaitiene[1], Dr Stephanie Choo[1], Peter Jones, Terence Simpson[1], Leeanne Lockley[2], Dr Mark Wright[1], Dr V R Latha Gullapudi[1]
[1]Leeds Teaching Hospitals NHS Trust, , United Kingdom, [2]Kidney Quality Improvement Partnership, , United Kingdom

Our centre has undertaken efforts to reduce the carbon emissions associated with haemodialysis, focusing on switching from a 1:34 to a 1:44 dialysate acid concentrate. This project was guided by participation in Kidney Quality Improvement Partnership (KQIP) workshops and Trying to Reduce UnNecessary Carbon in Haemodialysis (TRUNC-HD) regional meetings.

Stakeholder analysis, process mapping, and a prioritisation matrix were used to identify impactful changes. The project began with a single unit with clear prior communication to nursing and clinical staff to ensure readiness. Coordination with manufacturers, delivery team, materials management, and haemodialysis staff facilitated a smooth transition. Weekly acid usage was tracked, and a target date set for the switch to minimise 1:34 acid wastage. The implementation process involved confirming machine compatibility, ordering 1:44 acid and ceasing 1:34 orders, updating prescriptions, technicians preparing the system for the new acid and redistribution of leftover 1:34 acid canisters to other units. An after-action review was conducted to refine processes and integrate lessons learned before implementation in the next chosen haemodialysis unit. This iterative approach ensures a smooth transition with minimal disruption.

The unit has 54 patients on centralised acid delivery (CAD), with an average dialysate flow rate of 420 ml/min, requiring 100.8L of dialysate per dialysis session. To produce this, 2.88L of 1:34 or 2.24L of 1:44 acid concentrate is needed per session, with weekly volumes of approximately 466L and 362L, respectively. Weekly monitoring of the acid tank levels demonstrated that weekly acid usage averaged at 500L on 1:34 acid. After changing to 1:44 acid, acid usage was approximately 350L, aligning with the predicted requirement.

Annually, this shift reduces central acid usage by 5391L, lowering delivery weight by 5315kg. Switching to 1:44 CAD and canisters reduces greenhouse gas emissions by 278kgCO2e (Table 1). Delivery frequency is also expected to decrease from weekly 500L deliveries of 1:34 acid to 3000L deliveries of 1:44 acid every two months. While bulk 1:44 acid is costlier per litre (£500/1000L vs. £420/1000L for 1:34 acid), reduced volume requirements result in projected savings of £1000 annually (Table 2). Six patients who were on 1:34 acid canisters were switched to appropriate 1:44 formulations. As 1:44 canisters are cheaper (£2.85 vs. £3.00 for 1:34), this saves £140.40 annually.

This initiative is currently being expanded to six additional haemodialysis units in our organisation, with projected environmental saving of 3844kgCO2e and financial savings of £10261 annually. Challenges in monitoring and implementation include limited accuracy in assessing tank levels as tanks are marked in 500L increments and restricted access to CAD storage areas in some units. Improved access and awareness have facilitated better monitoring of tank levels. In addition, baseline assessment uncovered wastage at one unit due to over-ordering, highlighting the importance of adjusting orders to match demand.

This project highlights the environmental and financial savings of switching to 1:44 acid concentrate and provides a replicable model for carbon reduction for in-centre haemodialysis. Lessons learnt include the importance of baseline assessments, continuous process improvements and stakeholder engagement to achieve sustainable practices in healthcare.

Evaluation of a haemodialysis-specific chart for dosing and duration of intravenous vancomycin for haemodialysis catheter-related infections.

Miss Damini Amin[1], Nafeesa Khanum[1], Farzana Patel[1], Corrine Ashton[1]
[1]University Hospitals of Leicester NHS Trust (UHL), Leicester,

Introduction:
Infection is a common complication amongst patients on chronic haemodialysis.1 Catheter-related blood stream infections alone have been reported to make up 1.1 to 5.5 episodes per 1000 catheter days and are associated with increased morbidity, hospitalisation and death.2 The University Hospitals of Leicester (UHL) guideline on the management of haemodialysis catheter-related blood stream infection recommends the use of intravenous vancomycin with initial weight-based dosing adjusted according to serum trough vancomycin levels.3 A previous audit found a lack of compliance with the vancomycin dosing and monitoring of serum vancomycin levels recommended in this guideline and established that a haemodialysis-specific vancomycin chart would be beneficial to support.
This audit aimed to measure compliance with the UHL guideline on the management of haemodialysis catheter-related blood stream infection after the implementation of a pilot vancomycin chart specifically used for haemodialysis patients.
Objectives:
1. To evaluate the appropriateness of intravenous vancomycin dosing and monitoring of serum vancomycin levels in patients with a haemodialysis catheter-related blood stream infection on inpatient nephrology wards.
2. To measure the effectiveness of implementing a vancomycin chart specifically for haemodialysis patients on vancomycin dosing and monitoring of serum vancomycin levels.

Methodology:
Data was collected over a 4-week period for haemodialysis patients initiated on vancomycin for catheter-related blood stream infections on the inpatient nephrology wards. Patients were identified from the Trust electronic prescribing system NerveCentre with patients on vancomycin but not on haemodialysis or with a vancomycin allergy excluded. Results were compared to those from a previous audit conducted by the Trust prior to the implementation of the pilot chart. Ethical approval was not required.

Results:
Out of the 5 patients audited, 100% had the correct loading and maintenance dose of vancomycin prescribed based on the UHL guidelines. 100% of patients also had trough vancomycin levels taken at the correct times and any necessary dose adjustments were correctly done. This was an improvement compared to results obtained in the previous audit conducted by the Trust prior to implementing the pilot haemodialysis-specific vancomycin chart. The previous audit found that 80% of haemodialysis patients were prescribed the correct loading dose of vancomycin, 57% of patients were prescribed the correct maintenance dose and 64% had vancomycin levels taken as recommended in the UHL guideline.

Discussion:
The results suggest that the pilot haemodialysis-specific chart for vancomycin has resulted in improvements to both the initial and maintenance dosing of vancomycin in haemodialysis patients with catheter-related bloodstream infections and also monitoring of vancomycin levels in this patient cohort. A limitation of the study is the small sample size. It is planned for the pilot to be continued with further collection and evaluation of data. Results will be shared with relevant staff. Depending on further results, the use of this haemodialysis-specific vancomycin chart will be considered for all haemodialysis patients on intravenous vancomycin for all indications in the Trust.

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Empowering patients and clinicians: managing chronic kidney disease and diabetes in a primary care setting

Ms Aamina Beebi[1], Miss Alice Pennock[1]
[1]Leeds Community Healthcare NHS Trust, Leeds, United Kingdom

Introduction

Chronic Kidney Disease (CKD) is a public health emergency driven by an ageing population and multi-morbidity combined with health and economic inequalities (Kidney Research UK, 2023). Leeds established CaRe4Me to enhance early CKD pathways and improve health outcomes in a 12-month project (2024-2025). This publication has been developed as part of the CaRe4Me Joint Working initiative between NHS West Yorkshire (WY) ICB and AstraZeneca UK.

Methodology

Four Primary Care Networks (PCNs) with high rates of CKD, diverse demographics and low IMD scores, were identified to work collaboratively with the WY ICB (Leeds), Leeds Community Diabetes Service and nephrologists. Baseline questionnaires tailored education provision, which were repeated to ensure ongoing needs were supported and to assess clinician confidence. CKD resources were sourced and embedded in clinical templates. Fortnightly MDT support was provided from specialist pharmacists, nurses and nephrologists. Weekly clinical drop-in sessions were provided. Populations were risk stratified using Clinical Digital Resource Collaborative searches. Sodium-glucose cotransporter-2 (SGLT2) inhibitors were initiated at pace and tracked.
Health literacy and accessibility was prioritised. Measures included leaflets in 9 languages, easy-read SGLT-2i leaflet, videos in 4 languages. Digital literacy was considered, and hard copies made available.

Results

Questionnaire data evidenced an increased clinician confidence rating in diagnosing and managing CKD with and without diabetes. The safe and appropriate prescribing of SGLT-2i increased over time.

Figure 1,2,3

53 people declined treatment with an SGLT2i. Polypharmacy, tablet burden, fear of adverse effects, previous adverse reactions, unwillingness to make changes to medication or personal beliefs contributed.

Clinicians improved CKD management through targeted training and clinical drop-in sessions. Close working links were formed with nephrologists, helping with A&G requests and systems learning.

Discussion

Population health strategies enabled identification of people for review. Reflecting on the proportion of people unaware of their CKD diagnosis, improved health messaging and communications were developed.

The high proportion of people declining treatment raises concern that effective conversations, highlighting the pros and cons of treatment are not resulting in a positive initiation of SGLT2is. Further research and review is needed of the mandated safety information e.g. Fournier's gangrene should be considered as a barrier to good care.

This project has built an integrated care team for CKD, with tridirectional value added in the connections made between MDTs, streamlining processes and doing upstream work to benefit downstream outcomes.

PCNs are now equipped to incorporate good CKD management in their routine practice. Learnings from the project is helping to shape future proactive population health level work and is being evaluated as part of a research bid led by the University of Leeds and WY ICB (Leeds) This Systems Engineering Innovations Hub for Multiple Long-Term Conditions (SEISMIC) is funded by a research grant from the National Institute for Health and Care Research (NIHR) and the Engineering and Physical Sciences Research Council (EPSRC).

The learnings from this project are being shared across other PCNs in Leeds; empowering clinicians to confidently manage CKD, fostering a long-term legacy of improved patient care and sustained upskilling within the system.

Non-Adherence to ACE Inhibitors and ARBs in Chronic Kidney Disease and Proteinuria: A Systematic Review of Prevalence, Causes and Clinical Impact.

Mr Rory Donnelly[2,1], Ms Ayca Eren[1], Prof John Weinman[1]
[1]Kings College London, London, England, [2]Hammersmith and Fulham Partnership Primary Care Network, London, England

Introduction: Despite their importance in slowing disease progression, research on the prevalence of non-adherence (NA) to angiotensin-converting enzyme inhibitors (ACEi) and angiotensin receptor blockers (ARBs) in the treatment of chronic kidney disease (CKD) or proteinuria is limited. Understanding the causes behind non-adherence is crucial to intervene early to prevent increased risk of disease progression and death.

Methods: This systematic review followed PRISMA guidelines to identify and review research published from 1995 to 2024. Initial searches were conducted using EMBASE, Medline, Web of Science and PsycINFO complemented by manual searches on Google Scholar. The criteria for inclusion contained studies with an adult population prescribed ACEi/ARBs for the treatment of CKD or proteinuria, evaluated the prevalence of NA, causes and clinical impact using qualitative or quantitative methods for analysis. Study characteristics and design, methods of measuring NA, prevalence, causes and clinical impacts were extracted and summarised into a table. Critical Appraisal Skills Programme (CASP) and Newcastle-Ottawa Scale (NOS) were used to assess the validity of the studies included to evaluate the risk of bias. The causes that were identified were categorised into the Capability, Opportunity, Motivation-Behaviour (COM-B) model.

Results: Out of 339 studies found from initial search of databases, twelve were included after comprehensively screening title, abstracts, and full text. The prevalence of NA to ACEi/ARBs was 28.50% ± 11.84%. When analysing the COM-B model, Opportunity and Motivation domains were the most common causes of NA, including the lack of patient counselling and patient awareness of CKD. Discontinuation and switching of ACEi/ARBs by clinicians due to adverse effects were also a pressing issue. Furthermore, this study observed a strong correlation between non-adherence to ACEi/ARBs with increased risk of end-stage renal disease (ESRD) and death. Most of the studies were high and medium-quality therefore risk of bias was limited. However, limitations such as exclusion of possible confounding factors influencing NA and use of self-reported measures of NA resulted in an underestimation of the prevalence of NA to ACEi/ARBs.

Discussion: More than a quarter of the population prescribed ACEi/ARB therapy were non-adherent, contributing to increased albuminuria, worsening CKD and increased risk of death. This review found that addressing both healthcare professionals and patients' understanding of CKD, its testing and treatment and the benefit of ACEi/ARBs in its management is crucial to improving NA and therefore preventing CKD progression and improving patient outcomes.

Cryptosporidium infection in a kidney transplant patient with recent rejection

Doctor Maria-Cristina Cusu[1], Dr Matthew Graham-Brown, Dr Apexa Kuverji, Dr Samantha Wu
[1]Department of Renal Medicine, University Hospitals of Leicester NHS Trust, Leicester, UK, Leicester, United Kingdom

Cryptosporidium is an intracellular protoazoan and one of the most common enteric parasite pathogens in humans. In immunosuppressed patients, specifically those with solid organ transplants, cryptosporidium can cause a prolonged debilitating illness with diarrhoea and potential for organ failure. We present the case of a kidney transplant recipient with cryptosporidium infection.

A 42 year-old white female was admitted to hospital with a decline in her renal transplant function (eGFR 26 mL/min/1.73 m2, Creatinine 201 umol/L) Her past medical history included a live related donor kidney transplant two and a half years prior, mismatch was
1-1-0. This was secondary to primary reflux nephropathy and recurrent urinary tract infections. Her immunosuppression therapy included adaport 3mg twice a day, and myfortic 360mg twice a day. She had been completely weaned off prednisolone six months prior to her admission. She underwent a renal biopsy that showed acute cellular rejection banff 1a. There were no donor specific antibodies detected and no CD4 positive staining with no vascular involvement noted on the biopsy sample. For rejection she was treated with three pulses of intravenous methylprednisolone, followed by oral prednisolone 30mg once daily. Furthermore, myfortic was increased to 720mg twice a day and adaport increased to 3.5mg twice a day. Her eGFR improved to 34 mL/min/1.73 m2 with management of rejection from a previous baseline of 80 mL/min/1.73 m2.

One month later she developed non-bloody diarrhoea and abdominal pain and was admitted with a further decline in her transplant function secondary to this. Stool samples were negative for C. difficile, E. coli, Campylobacter, Salmonella and Shigella alongside Entamoeba histolytica, Giardia, Adenovirus and Rotavirus. CMV IgM was negative and DNA level insignificant. Stool parasite PCR was positive for Cryptosporidium DNA, later identified as Cryptosporidium hominis. She was treated initially with paromomycin on the advice of microbiology. Her renal function declined so this was switched to Nitazoxanide. Her oral intake and renal function improved. One month later she developed a relapse of her gastrointestinal symptoms. Cryptosporidium PCR remained positive on stool sample, and Nitazoxanide was restarted. A further renal transplant biopsy was performed to determine if her immunosuppression can be reduced. This showed no evidence of active inflammation or rejection. As a result, her myfortic dose was reduced to 360mg three times a day, and prednisolone continued to be tapered. The patient's gastrointestinal symptoms completely resolved with no recurrence after this.

Parasite infection should always be considered in immunosuppressed patients with corresponding symptoms, particularly when more common pathologies have been excluded. This case also highlights the therapeutic balance of immunomodulation to prevent transplant rejection, and maintaining host defences against infection. This requires a multidisciplinary approach, particularly collaboration with microbiology colleagues, and close monitoring of symptoms and renal function. The decision to re-biopsy the patient in this case was helpful in planning appropriate changes in immunosuppression to support clearing the infection.

Identifying Kidney Failure Risk - utilising eGFR and urine ACR to identify risk of kidney failure

Miss Haleema Ahmed[1]
[1]Haringey GP Federation, Haringey, United Kingdom

Introduction:

The Kidney Failure Risk Equation (KFRE), though recommended by NICE Guidelines, is an underutilised tool in primary care despite being a referral criteria for specialist assessment (NICE, 2021). The KFRE allows for case finding of patients at high risk of requiring renal replacement therapy. The aim of this project is to identify and calculate KFRE score for at least 70% of patients diagnosed with Chronic Kidney Disease (CKD) Stage 3 and above by 31st July 2024.

Methods:

Data was gathered using a dedicated EMIS search which targeted patients on the CKD register (Stage 3, eGFR < 60 ml/min) with an eGFR and urine Albumin to Creatinine Ratio (uACR) conducted between 1st April 2023 and 31st July 2024. Patients with outstanding measurements (i.e. missing eGFR and/or uACR) were contacted. The results were input into the 4-variable KFRE (takes into consideration gender, age, eGFR and uACR). A secondary EMIS search was used to identify patients with a 5-year KFRE score above 5%.

Results:

Prior to the project, no patients on the CKD register had a KFRE score calculated. After completion of the project, out of 290 patients on the CKD register, 225 (77.58%) had their KFRE score calculated as part of their CKD review. The remaining patients did not have KFRE scores due to the absence of albuminuria or eGFR assessment within the appropriate timeframe. Of the 30 patients with a 5-year KFRE score exceeding 5%, 29% (9 patients) were not under renal service care and were subsequently referred, with all referrals being accepted.

Discussion:

The project aim was met through engaging and updating key stakeholders in a timely manner regarding wider dissemination of findings and increasing patient access to specialist medication that requires initiation from the renal team through appropriate referrals. Furthermore, the importance of reflecting on the recall system for patients on the CKD register to ensure blood tests and uACR are requested promptly to identify at risk patients using the KFRE. The project has assisted in evaluating the quality of referrals to the local community CKD clinic. The aim is for future expansion of the KFRE quality improvement project in primary care.

Reference:

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Tubulointerstitial nephritis with uveitis syndrome: A case series

Dr Nidhi Agrawal[1], Professor Dimitrios Poulikakos[2], Professor Smeeta Sinha[2], Dr Constantina Chrysochou[2]
[1]Senior Clinical Fellow, Renal , Salford Royal Hospital, Northern Care Alliance, United Kingdom, [2]Consultant Nephrologist, Salford Royal Hospital, Northern Care Alliance, United Kingdom

Introduction:
Tubulointerstitial nephritis with uveitis (TINU) syndrome is an uncommon entity characterized by simultaneous or successive involvement of the eyes and kidneys in the form of uveitis and acute tubulointerstitial nephritis respectively, in the absence of any systemic disease. TINU accounts for 5% cases of interstitial nephritis and 2% cases seen in uveitis clinic.

Review of cases:
We present a case series of eight patients with TINU diagnosed between 2016 and 2023 at a tertiary referral hospital. Median follow up was 44 months. Median age at presentation was 26 years with a range of 15-59 years. There was female preponderance (female:male = 5:3). Five (62.5%) patients presented with renal disease and developed uveitis later in the course while three patients presented with concurrent renal and eye disease. Seven (87.5%) patients presented with creatinine >200 µmol/L and one of them also required two dialysis sessions. Median urine protein creatinine ratio at presentation was 88 mg/mmol. Angiotensin converting enzyme (ACE) level was normal for all seven patients with available results. Immunology results including ANA, ANCA and complements were available for all the patients and only one patient (15-year-old female) had positive anti-chromatin antibodies. All patients underwent kidney biopsy which showed features of tubulointerstitial nephritis with normal glomeruli. Initial treatment consisted of oral steroids as well as topical steroids for those with eye disease. Average duration of initial steroid therapy was four months. Four (50%) patients had renal relapse on steroid taper or soon after stopping steroids and were treated with longer course of steroids or with second line immunosuppression (mycophenolate mofetil). The duration of relapse treatment varied from 3 months to 3 years based on clinical response. Three of the patients with relapsing disease were <18 years of age and one was >50 years of age. Relapsing disease was more common in females (75%).
Currently, the mean creatinine of our cohort is 89 µmol/L and all patients have urine protein creatinine ratio <30 mg/mmol. Two patients have progressed to CKD (stage G3a); both these patients were above 50 years of age and had acute kidney injury (AKI) at presentation. The patient who required dialysis at presentation, has current eGFR of 63 ml/min.

Discussion:
We herein present one of the larger single center case series of patients with TINU. Whilst rare, a diagnosis of TINU should be considered in any patient presenting with AKI and eye symptoms with negative renal immunology, even if the eye symptoms present after the initial tubulointerstitial nephritis.
A combination of renal disease and uveitis can be seen in a number of auto-immune and infectious conditions such as Sjogren syndrome, sarcoidosis, tuberculosis, fungal infections etc. Thus, TINU is a diagnosis of exclusion. First line treatment is systemic +/- topical steroids along with cycloplegics. Our data showed a good prognosis, even when presenting with dialysis requiring AKI. The long term prognosis is good, but where TINU presents with AKI, we suggest long term monitoring of renal functions in light of some of our patients having mild CKD on follow up.

Access to waitlisting & kidney transplantation for patients with incident kidney failure in Australia and the United Kingdom – a binational comparative analysis.

Dr Lachlan McMichael[1], Dr Shalini Santhakumaran[2], Professor Dorothea Nitsch[2], Dr Matthew Kadatz[3], Associate Professor Philip Clayton[1]
[1]The University of Adelaide, Adelaide, Australia, [2]United Kingdom Renal Registry, Bristol, England, [3]University of British Columbia, Vancouver, Canada

Background
System processes for evaluating and managing patient access to kidney transplantation (KTx) presents complex policy challenges. These processes are influenced by system frameworks operating at national, regional and centre levels, where both explicit policy directives and implicit clinical decisions shape patient evaluation and access pathways.

Research has highlighted regional and centre-level differences in practice resulting in variations in access to kidney transplantation. Limited comparative studies have been conducted at an international level to assess the impact of national policy decisions on evaluation and access to kidney transplantation.

The purpose of this study was to compare access to and predictors of waitlisting and kidney transplantation among patients with incident kidney failure in the United Kingdom (UK) and Australia.

Methods
Incident adult patients commencing kidney replacement therapy (KRT) between 2010-2020 recorded in the United Kingdom Renal Registry (UKRR) and Australian & New Zealand Dialysis & Transplant (ANZDATA) Registry were included for analysis.

The primary outcome was time-to-waitlisting with death and living donor kidney transplantation (LDKT) prior to waitlisting treated as competing risks. Secondary analysis included time-to-deceased donor transplantation. The cumulative incidence of the first observed outcome was recorded for each country. Multivariable competing risk time-to-event models were used to compare predictors of waitlisting between countries.

Results
The study cohort comprised 29,901 & 70,583 patients from Australia & the UK, respectively. Similar clinical and demographic characteristics were seen across the two groups. In Australia, 7,044 (23.6%) patients were waitlisted and 1,743 (5.8%) received a LDKT, compared to 22,745 (32.2%) patients waitlisted and 4,336 (6.1%) receiving a LDKT in the UK (Table 1 & Figure 1a).

In examining predictors of a combined outcome of waitlisting/LDKT with the competing risk of death, the disparity of women having a lower likelihood of waitlisting/LDKT compared to men was more pronounced in Australia (sub-distribution hazard ratios (SHR) 0.78 in Australia (95% confidence interval (CI) 0.74-0.81 compared to 0.91 in the UK (0.89-0.93)). There was a larger disparity in the likelihood of waitlisting/LDKT for patients with diabetic kidney disease in Australia compared to the UK (Australia SHR 0.35 (95%CI 0.33-0.37) vs. UK SHR 0.55 (0.53-0.57). Age, socio-economic status and smoking status were similar between the two countries.

A secondary analysis examined deceased donor transplantation as the primary event with competing events of LDKT and death. The analysis identified 5,254 (17.6%) and 2,053 (6.9%) patients in Australia received deceased and living donor transplants respectively compared to 14,872 (21.1%) and 6,511

(9.2%) patients in the UK (figure 1b). Overall, mortality was higher in the UK compared to Australia in both the primary and secondary analyses (figure 1).

Conclusion

Incident KRT patients in Australia had lower rates of waitlisting and living donor transplantation and experienced longer times to achieve these outcomes compared to their counterparts in the UK. However, higher mortality rates were observed in the UK. Policy initiatives in the UK that prioritise pre-emptive waitlisting and access to pre-emptive deceased donor transplantation may support earlier waitlisting/LDKT for Australian KRT patients.

Tubuloreticular inclusions in native kidney biopsies

Dr Jonathan Briggs[1], Dr Candice Roufosse[1], Dr Linda Moran[2], Dr Hannah Beckwith[1], Dr Michelle Willicombe[1], Dr Sarah Gleeson[1]
[1]Imperial College Healthcare NHS Trust, London, , [2]Electron Microscopy Unit, North West London Pathology, London,

Tubuloreticular inclusions (TRIs) are 20-28nm subcellular structures composed of phospholipid and glycoprotein that arise from the endoplasmic reticulum in endothelial and lymphoreticular cells. Enhanced type 1 Interferon expression can induce TRIs in endothelial cells both in vitro and in vivo. Interferons are produced in the setting of viral infection and autoimmune disease. Hence, TRIs are commonly seen in glomerular endothelial cells in patients with Systemic Lupus Erythematosus (SLE) or viral infection.

This study describes the clinicopathological findings in patients with TRIs on native kidney biopsies between 2005-2022 at a single centre. We further investigate the longitudinal persistence in the native and post-transplant setting, and association with outcomes.

593 patients had at least one native kidney biopsy showing TRIs. These patients had a total 1054 native kidney biopsies (mean 1.78; range 1-8) with 755 biopsies showing TRIs. 29 patients had previous biopsies with no TRIs. After a median follow of 7 years, 236/593 (40%) patients had at least 2 native biopsies with EM, of whom 117/236 (49.5%) had persistent TRIs.

The median age at index biopsy was 40 (3-92) years. 406 (68.5%) patients were female. 348 (58.7%) patients had SLE, the remaining diagnosis on index biopsy is shown in Table 1. 60 patients had positive virology (HIV: n=19; Hepatitis B: n=35; Hepatitis C: n=8; Hepatitis A: n=9; Hantavirus: n=1); 21 patients had both SLE and positive virology. 17.9% (n=106) progressed to ESKD, and 10.8% (n=64) died.

54 (9.1%) patients underwent a renal transplant, of whom 26/54 had a transplant biopsy with EM, 11/26 (42%) patients had transplant biopsies that showed TRIs. Diagnosis of TRI+ transplant biopsies are shown in Table 1. 6/11 patients with transplant TRIs returned to dialysis. 13/54 (24%) patients returned to dialysis, 5/13 of these went on to receive a second kidney transplant. 6/54 (11.1%) of transplant recipients died.

35% of patient in our cohort did not have SLE or positive viral serology; the aetiology and significance of TRIs in this group of patients is unknown. TRIs can be recurring or transient EM findings, and may persist in the transplant setting; the significance of this is yet to be established.

Difelikefalin for the management of severe pruritus in a hospital-based haemodialysis population: a Quality Improvement Project

Dr. Faisal Abdullah[1], Dr. Isabela De Mattos[1], Dr. E. M. Salisbury[1]
[1]Imperial College Healthcare NHS Trust, London, United Kingdom

Introduction:
Patients with chronic kidney disease undergoing hospital-based haemodialysis often experience generalised, significant itching with associated poor sleep quality, depression and reduced quality of life. Difelikefalin is a peripherally acting, selective κ-opioid receptor agonist that exerts antipruritic effects by means of activation of kappa opioid receptors on peripheral neurons and immune cells. In May 2023, NICE recommended Difelikefalin for the treatment of moderate to severe pruritus in adults with chronic kidney disease having in-centre haemodialysis, in whom other interventions such as creams and emollients, antihistamines and gabapentin had failed. With no local experience of the drug's use, we designed a Quality improvement project in our local haemodialysis centre at Hammersmith Hospital, West London Renal and Transplant Centre, to identify the number of patients suffering with moderate-severe pruritus and assess their response to difelikefalin therapy.

Methods:
93 prevalent hospital-based haemodialysis patients were screened for pruritus using the Worst Itch Numeric Rating Scale (WI-NRS), a patient-reported questionnaire that measures intensity of itching. Patients rated their worst itch on an 11-point scale, with 0 representing "no itch" and 10 representing "worst itching imaginable". They were also asked if itching affected their sleep or mood.
Patients reporting Severe Itching (more than or equal 7 on WI-NRS Scale) were offered difelikefalin therapy, to be administered via haemodialysis access at a dose of 0.5 micrograms per kilogram of dry body weight (to a maximum dose of 100 micrograms) 3 times per week for 8 weeks. They were counselled regarding possible side effects (1 in 10 patients report increased sleepiness or skin tingling; 1 in 100 patients describe headache or nausea) and advised that their response to the drug would be reassessed at 8 weeks. Those who experienced benefit (defined as an improvement of more than or equal 3 points on the WI-NRS scale) would be offered the opportunity to continue receiving the drug. In those whom no benefit was experienced by 12 weeks, it would be discontinued.

Results:
37 of the 93 (39.78%) hospital-based haemodialysis patients surveyed described severe itch (greater than or equal 7 on the WI-NRS scale) and were offered difelikefalin therapy.

A decision was made not to proceed with difelikefalin for 12 of the 37 patients (32.43%): 3 had been admitted to hospital with new, intercurrent illness; 6 had moved haemodialysis centre; 2 went on holiday, and 1 patient did not attend haemodialysis sessions 3 times per week as prescribed.
10 of those 37 patients (27.02%) no longer experienced severe itch at the time of intervention and they were also excluded from the study. 2 of those 37 patients (5.4%) declined difelikefalin therapy citing overwhelming drug burden or fear of trying a new drug. 13 out of 37 (35.13%) patients with severe itching consented to treatment and commenced difelikefalin at the BNF recommended dose of 0.5 micrograms per kilogram of dry body weight (to a maximum dose of 100 micrograms) 3 times per week for 12 weeks. 9 of the 13 (69.23%) patients commenced on difelikefalin therapy for severe itch completed 12 weeks of therapy. 1 patient died as a result of unrelated illness. 2 out of 13 (15.38%) chose to discontinue therapy: 1 complained of diarrhoea and 1 declined to provide an explanation for discontinuing treatment. 1 patient was admitted to hospital due to unrelated illness and was unable to complete treatment. 8 of the 9 patients who completed 8 weeks of difelikefalin therapy described a significant improvement in their symptoms by 8 weeks: an improvement of more than or equal to 3 points on the WI-NRS scale. 2 out of the 9 patients reported complete resolution of their symptoms. 7 patients reported an improvement in both their sleep and mood as well as their

itching. 1 patient reported improvement in sleep only. Their mood was never affected by itching and remained unchanged.1 patient reported no change in her sleep and mood as she was still itchy. However, she was poorly compliant with dialysis and had missed the last 3 doses of Difelikefalin at the time of data collection.

Discussion:
39.78% of our prevalent hospital-based haemodialysis patient population report severe itch (defined as a score of greater than or equal 7 in the WI-NRS scale) refractory to alternative therapies (creams, phosphate binders etc). These patients were eligible for difelikefalin therapy as recommended by NICE. The drug manufacturer advises trialling the drug for 12 weeks but 88.88% of our patients experienced a significant improvement in symptoms at just 8 weeks. Only 1 patient complained of side effects (diarrhoea) which the authors do not believe was related to difelikefalin administration. Difelikefalin proved beneficial and easy to use in our local population. Reported side effects were minimal. We feel confident prescribing the drug to eligible patients and would encourage our colleagues in other hospital-based haemodialysis units to do the same.

Mapping the landscape of peer support for kidney patients in the UK. Result from national survey 2024.

Dr. Tamer Mohamed[1], Dr Udaya Udayaraj, Katherine Elson , Miss Karen Stevenson, Georgina Hamill, Hillary Corwin, Eleri Wood, Dr Jyoti Baharani
[1]Oxford Kidney Unit, oxford, United Kingdom

Introduction

Peer support offers vital emotional and informational assistance to patients with advanced kidney disease, fostering understanding, confidence, and mental well-being through shared experiences. Peer support programs connect patients with others who have lived experience of kidney disease. Peer support use is considered a cost-effective and impactful intervention, but these programs remain underutilized and inconsistently implemented across the UK kidney unit despite national guidance and the Renal Services Transformation Programme (RSTP) recommendations. This study aims to map the current landscape of peer support in the UK and identify barriers and facilitators to its implementation.

Methods

A comprehensive online questionnaire was developed and distributed to healthcare providers across UK kidney units. The survey captured data on program availability, maturity, operational models, and perceived barriers and facilitators.

Results

A total of 45 centres responded (out of 68 surveyed), yielding a 66% response rate. Among these, 27 kidney centres (60%) reported having established peer support programs. Of these, 51% had been operational for 1–9 years, while 29.6% had been in existence for over 10 years (Fig 1). Peer support models varied between centres, with services being delivered either through local initiatives (provided by NHS trusts) or via national peer networks (Fig 2). Common delivery methods include phone conversations and face-to-face meetings (Fig 3). Key barriers to establishing and sustaining peer support included lack of awareness, insufficient funding, and inadequate infrastructure. The geographical distribution of peer support programs across the UK reveals significant variability, as shown in the accompanying map.

Discussion

Despite national recommendations, peer support programs remain absent in 40% of kidney centres surveyed. Centres with well-established programs (>10 years) could serve as exemplars to others. The findings highlight significant variability in program setup, resource availability, and funding models. To address these gaps, a coordinated national strategy is needed to promote peer support as a core component of kidney care. Embedding peer support within a multidisciplinary team (MDT), developing e-learning resources, and advocating for peer support champions are potential strategies to ensure sustainability. The results highlight the opportunity for centres to collaborate and leverage existing resources to develop a more equitable and robust peer support framework.

Acute Kidney injury and transitions of care between hospital and community settings: A qualitative study using complex systems thinking methodology

Dr Duncan McNab[1], Dr Kelly Howells[2], Dr Mark Jeffries[2], Professor Caroline Sanders[2], Professor Robbie Foy[3], Professor Thomas Blakeman[2]
[1]Frew Terrace Surgery, Ayrshire and Arran, United Kingdom , [2]SPCR, The University of Manchester, Manchester, United Kingdom , [3]School of Medicine, The University of Leeds, Leeds, United Kingdom
Background: Acute kidney injury (AKI) presents a significant challenge to healthcare systems, particularly at transitions of care between hospital and community settings. Healthcare is a complex system, characterised by dynamic interactions among patients, carers, and healthcare professionals, alongside the tasks they perform, their working environments, and external influences such as national policies. These interactions create unpredictability, leading to varying system conditions, such as fluctuating demand, capacity, resource availability, goal conflicts, and long versus short term goals. The management of patients following admissions complicated by AKI is particularly challenging because many of these interactions occur across the primary and secondary care interface. To address these complexities, we utilised complex systems methods to analyse interactions and explore how these influence everyday work, which is a prerequisite for driving meaningful improvements.

Methods: Qualitative data were collected through individual patient interviews and focus groups with healthcare professionals across primary and secondary care. Patients who experienced an episode of care affected by AKI were identified by clinical care teams across six NHS secondary care sites. These sites were also approached to arrange focus groups with staff based in both secondary and primary care. Interviews and focus groups explored implementation, management and experience relating to post-discharge care following an AKI. Interviews and focus groups were transcribed verbatim, anonymised, and analysed iteratively using two methods to explore and understand everyday work in complex systems. The Functional Resonance Analysis Method (FRAM) was utilised to model the system and explore interactions between different activities performed as normal everyday work. The Systems Thinking for Everyday Work (STEW) framework was then used to explore and illuminate variability of how people adapt to system conditions and how this influenced outcomes.

Results: The FRAM identified 22 functions to describe the care system from patients experiencing an AKI, including discharge, monitoring and follow-up. The system was conceptualised as three linked sub-systems: generating a discharge plan, involving patients in a post-AKI plan and enacting a post-AKI plan. The STEW analysis highlighted the stress felt by those writing discharge documents caused by demand/ capacity mismatches and making decisions with incomplete information; workarounds and trade-offs were employed to maintain safety. There was huge variability in terms of how patients understood their kidney health and their ability and capacity to be involved in post-discharge care. Staff working in primary care found it difficult to enact a discharge plan as there was often limited information and clarity of purpose.

Discussion: Post-AKI care requires clear, integrated discharge planning, effective patient involvement, and timely communication across secondary and primary care. The study highlights the importance of addressing system constraints, variability in work practices, and resource limitations to improve care. Key findings relate to better resourcing of clinical oversight and engagement with patients to develop clearer discharge plans as well as better coordination of follow-up appointments. More explicit discharge summaries, providing clarity around medicines management and the purpose of further tests is important to improve the transition of post AKI discharge support to primary care providers.

Association between impaired kidney function and all-cause mortality in rural, Northern Malawi: preliminary findings from a general population cohort

Dr Charlotte Snead[1], Dr Estelle McLean[2], Dr Wisdom Nakanga[3,4], Mr Fredrick Kalobekamo[3], Ms Shekinah Munthali-Mkandawire[3,5], Dr Dominic Taylor[6,7], Dr Thandile Nkosi-Gondwe[2,3], Professor Amelia Crampin[2,8], Mr Albert Dube[3], Asst Prof Alison Price[2]
[1]Liverpool School of Tropical Medicine, Liverpool, UK, [2]London School of Hygiene and Tropical Medicine, London, UK, [3]Malawi Epidemiology and Intervention Research Unit (MEIRU), Karonga, Malawi, [4]University of Edinburgh, Edinburgh, UK, [5]Malawi University of Business and Applied Sciences, , Malawi, [6]University of Bristol, Bristol, UK, [7]North Bristol NHS Trust, Bristol, UK, [8]University of Glasgow, Glasgow, UK

Introduction
Chronic kidney disease is an increasing public health concern in Malawi. Its burden is significantly underestimated by standard creatinine-based estimated glomerular filtration rate (eGFRcreat): the more expensive cystatin C-based estimate (eGFRcysc) performs much better when compared to gold-standard iohexol clearance. Currently, long-term health outcomes for people with kidney disease in Malawi are not understood.

Objectives
This study investigates the association between baseline kidney function and all-cause mortality in Malawian adults, comparing the two methods for estimated kidney function.

Methods
Eligible participants were aged ≥18 years, living within Karonga Health and Demographic Surveillance Site, Northern Malawi. All had consented to a non-communicable disease survey and venepuncture (2013-16) testing for serum cystatin C and/or creatinine. We used multivariable Cox regression analyses to investigate associations between 1) baseline eGFRcysc (primary analysis) and 2) eGFRcreat (secondary analysis) and all-cause mortality, adjusted for age, sex, education level, smoking status, body mass index, and comorbidities.

Results
2196 adults were included in the primary analysis; 55% female. Baseline age ranged from 18 to 91 years (median 33, IQR 24-45). 10% were hypertensive, 6% were HIV-positive, 3.6% were diabetic and 1.5% had diagnosed cardiovascular disease. 10% had a baseline eGFRcysc <60ml/min/1.73m2; however only 1.6% had eGFRcreat <60ml/min/1.73m2. Median follow-up time was 7.4 years. Compared to baseline normal eGFRcysc of ≥90ml/min/1.73m2, eGFRcysc <60ml/min/1.73m2 was strongly associated with all-cause mortality (Hazard ratio 2.67; 95% CI 1.47 – 4.86). In contrast, baseline eGFRcreat <60ml/min/1.73m2 was not associated with mortality (Hazard ratio 1.38; 95% CI 0.77 – 2.49).

Conclusions
In Malawian adults from a general population cohort, impaired kidney function is associated with increased mortality, with eGFRcysc a better predictor of mortality than eGFRcreat, highlighting the poor discrimination of creatinine as a marker. Further research should determine high-risk groups and how best to identify them, to inform public health strategies for prevention and treatment.

A retrospective observational analysis of Banff lesion scores and diagnoses in kidney transplant biopsies

Miss Lottie Bottomley[1], Dr Rute Cardoso De Aguiar[1], Dr Andrew Smith[2], Dr Naomi Simmonds[2], Dr Terry Cook[1], Dr Michelle Willicombe[1], Dr Candice Roufosse[1]
[1]Department of Immunology and Inflammation, Imperial College London, London, United Kingdom, [2]Department of Cellular Pathology, North West London Pathology, London, United Kingdom

Introduction:
Kidney transplantation remains the optimal treatment for patients with end-stage kidney disease, however transplant kidneys do not always last for a patient's lifetime, with half-life rates around 10-12 years. The Banff Classification is a complete system of diagnostic categories and individual lesion scores used for individual transplant patient management. In this study, we harness its additional potential to investigate population level causes of graft dysfunction and loss.

Methods:
The study cohort consists of adult kidney transplant diagnostic allograft biopsies between 05.01.2007 and 26.03.2024 in our centre. A total of 3529 biopsies from 1754 individuals were recorded according to Banff 2022 Classification. Graphic representations of diagnostic categories and Banff lesion scores over time post-transplant were derived.

Results:
Recipients were 64% male, 49% non-caucasian, mean age 53.7 years. Transplants were from living donors in 42%. The most common diagnoses (with several diagnoses allowed per biopsy) were acute tubular injury (ATI)/mild scarring (IFTA) only (44.4%), histology for AMR active (12.7%), borderline TCMR (10.3%), glomerulonephritis (9.2%) and focal segmental glomerulosclerosis (FSGS) (8.4%). Rejection was present in 34.37% of biopsies: TCMR-1 (6.5%); acute AMR (6.1%); histology for AMR chronic (5.7%), chronic AMR (3.6%); TCMR-2/3 (1.7%). Looking at mean time of diagnosis post-transplant, ATI, TCMR and C4d+ without other features of rejection were lowest whereas diabetic glomerulopathy, moderate/severe IFTA, arterial hyalinosis, FSGS, chronic AMR and glomerulonephritis were highest. Over time post-transplantation, Banff lesion chronicity scores (ct/ci/cv/ah/cg) increased ($r = 0.619$). Overall, activity scores remained broadly stable though AMR activity (g/ptc) showed a weak positive trend ($r = 0.566$), while TCMR activity (t/i) showed a weak negative trend ($r = -0.155$).

Discussion:
We demonstrate that systematic recording and analysis of Banff diagnoses and lesion scores can effectively describe population level disease over time post-transplant and illustrate trends in active and chronic lesions and diagnoses. These descriptive statistics can be used to compare effects of patient demographics and management on these findings.

"Lipid management in hypertensive patients: evaluating therapy gaps and opportunities for optimization"

Dr Jyoti Baharani[1], Dr Awais Hameed, Mrs Smitha Jose
[1]University Hospitals Birmingham , Birmingham, UK

Background:
Hyperlipidemia is a critical modifiable cardiovascular risk factor in hypertensive patients. Effective lipid management through statins and combination therapies is essential to achieve target lipid levels and reduce cardiovascular events. However, adherence to lipid management guidelines often falls short in clinical practice. This study evaluates total cholesterol, HDL levels, and the utilization of lipid-lowering therapies in a cohort of hypertensive patients at a single centre.
Methods:
A retrospective analysis of 235 hypertensive patients was conducted. Data included total cholesterol (mmol/L), HDL cholesterol (mmol/L), and lipid-lowering therapy prescriptions (e.g., statins, Ezetimibe, PCSK9 inhibitors). Descriptive statistics were used to analyse lipid profiles and prescription patterns.
Results:
The mean total cholesterol level was 4.81 mmol/L (range: 2.2–7.4 mmol/L), with 40.4% of patients having cholesterol levels above 5 mmol/L. Among this subgroup, 84.2% were not on any lipid-lowering medication, highlighting a significant gap in guideline adherence. HDL levels exhibited significant variability, with a mean level of 1.22 mmol/L and the most frequent level being 1.10 mmol/L, reported in 3.0% of patients.
Statin use was limited, with 69.4% of the total cohort not prescribed any statins. Among those on treatment, Atorvastatin 20 mg was the most common prescription (25.0% of treated patients), followed by Atorvastatin 40 mg (12.5%) and Atorvastatin 10 mg (8.3%). Combination lipid-lowering therapies, such as statins with Ezetimibe, were rarely utilized, and no advanced therapies (PCSK9 inhibitors or Bempedoic acid) were prescribed.
Conclusions:
A significant proportion of hypertensive patients exhibit borderline or elevated cholesterol levels, with many remaining untreated. The high prevalence of untreated hyperlipidemia among patients with total cholesterol >5 mmol/L underscores the need for improved adherence to lipid management guidelines. Expanding the use of combination and advanced lipid-lowering therapies could address this critical gap and improve cardiovascular outcomes in hypertensive populations.

Serum potassium and dialysate potassium prescription in a maintenance in-centre haemodialysis cohort

Mr Peter Jurczak[1], Mrs Mairi Gwynne[1], Miss Chandler Becker[1], Dr Khai Ng[1], Dr Lisa Crowley[1]
[1]Renal Unit, Royal Derby Hospital, University Hospitals of Derby and Burton NHS Trust, Derby, Uk

Introduction

Patients with end-stage renal failure on dialysis are at high risk of dyskalaemia, which is associated with arrythmias, cardiac arrest or sudden death. The UK Kidney Association Haemodialysis guideline (2019) recommends aiming for pre-dialysis potassium range of 4.0-6.0 mmol/L, through individualised dietary review, medications and dialysis prescription. We aimed to (1) examine the incidence of hypo- and hyperkalaemia; (2) explore the dietetic input and dialysis prescription in relation to pre-dialysis serum potassium, in an in-centre haemodialysis cohort.

Methods

This was a cross-sectional study of all in-centre haemodialysis patients in a single renal unit. The default dialysate potassium at our unit is set at 2mmol/L, with the availability of low-potassium (1mmol/L) and high-potassium (2mmol/L) dialysate on clinicians' request. Data from three consecutive monthly pre-dialysis sessions including serum potassium, dietetic input, dialysate prescription and use of an oral potassium binder (Lokelma) was collected between September and December 2024 via the renal dietitians' datasheet and our local renal electronic health record (VitalData).

Results

In total, 300 patients were included in this study. Their mean age was 64 (SD:15) years, median dialysis vintage of 28 (IQR:43) months and 62% male. The incidence of hyperkalaemia (K+≥6mmol/L) and hypokalaemia (K+<4mmol/L) was 9% (n=27) and 15% (n=44), respectively. Of those with hyperkalaemia, 30% (n=8) were on low-potassium dialysate, 74% (n=20) had dietetic review and 4% (n=1) on Lokelma. Of the 7 not reviewed by dietitian, all had only a single incidence of hyperkalaemia. Of those with hypokalaemia, 25% (n=11) were on high-potassium dialysate and 50% (n=22) had dietetic review. Overall, 14% (n=42) were prescribed and received non-default dialysate potassium, of these, this was documented on 29% (n=12) monthly MDT reviews. Among those on high-potassium dialysate (n=15), 73% (n=11) had K+<4mmol/L, none had K+≥6mmol/L, 53% (n=8) had dietetic review. Among those with low-potassium dialysate (n=27), none had a K <4mmol/L, 26% (n=7) had K+≥6mmol/L, 44% (n=12) had recent dietetic review. Among those on the default dialysate, 7% (n=19) had hyperkalaemia and 13% (n=33) had hypokalaemia.

Discussion

In our haemodialysis cohort, hypokalaemia was more prevalent than hyperkalaemia (15% vs 9%). However, patients with hyperkalaemia received more dietetic input compared to their counterparts. There was little documented evidence of regular review of non-default dialysate prescriptions on monthly MDT reviews. Among those with hypokalaemia, only a quarter were prescribed high-potassium dialysate. Of those receiving 1mmol/L and 3mmol/L dialysate, the majority had not received recent dietetic review and there remained notable incidence of hyperkalaemia and hypokalaemia respectively.

Overall, our results point to a need for more focus on hypokalaemic patients for dietetic support and judicious high-potassium dialysate prescription on the monthly multi-disciplinary team review. We

plan to undertake a quality improvement project to raise the salience of dialysate potassium prescription in our unit and to focus as much on patients with hypokalaemia.

Implications of proteinuria remission on estimated glomerular filtration rate (eGFR) trajectory in patients with IgA nephropathy in the PROTECT trial

Jonathan Barratt[1], Hiddo Jan L. Heerspink[2], Vladimir Tesar[3], Radko Komers[4], Bruce M. Hendry[4], Priscila Preciado[4], Edward Murphy[4], Brad H. Rovin[5]
[1]University of Leicester & Leicester General Hospital, Leicester, United Kingdom, [2]Department of Clinical Pharmacy and Pharmacology, University of Groningen , Groningen, Netherlands, [3]Department of Nephrology, General University Hospital, Charles University, Prague, Czechia, [4]Travere Therapeutics, Inc., San Diego, United States, [5]Division of Nephrology, Ohio State University Wexner Medical Center, Columbus, United States

Background: In PROTECT, sparsentan (SPAR) reduced proteinuria and increased the proportion of patients achieving complete proteinuria remission (CR; urine protein excretion [UPE] <0.3 g/day) (31%) vs irbesartan (IRB) (11%). Lower proteinuria and CR are associated with slower kidney function decline in Immunoglobulin A nephropathy (IgAN). To explore this relationship in PROTECT, we determined eGFR trajectories in patients whose proteinuria fell to low levels.
Methods: PROTECT is a randomised, double-blind trial of efficacy and safety of SPAR vs active-control IRB in adults with IgAN at risk of progression to kidney failure despite maximum renin–angiotensin system inhibitor (RASi). In this analysis, 404 randomised patients were pooled and grouped by achievement of CR or UPE <0.5 g/day at any time over 110 weeks. Outcomes were absolute (abs) change from baseline (BL) in eGFR at Week 110, and chronic (Week 6 to 110) and total (Day 1 to Week 110) eGFR slopes (adjusted for BL UPE).
Results: While BL age, sex, and race were similar in patients achieving low UPE vs those who did not, BL UPE was lower and eGFR higher in the low proteinuria patients (Table). The abs decline in eGFR and the loss of eGFR over time were substantially lower in patients with CR or UPE <0.5 g/day vs those who did not achieve these targets.
Conclusions: In IgAN, achievement of low proteinuria is strongly predictive of better long-term kidney function. eGFR preservation was more evident in patients who achieved low proteinuria vs those who did not; notably, in patients who achieved CR, the mean rate of kidney function decline (eGFR chronic slope) was <1.0 mL/min/1.73 m2/year. As SPAR-treated patients achieved proteinuria remission more frequently vs IRB in PROTECT, this analysis further supports the benefit of SPAR for long-term preservation of kidney function.

Fostering MDT collaboration for sustainability in Renal Care: Establishing a departmental working group

Miss Claire Mcguire[1], Mr Christopher Swan[1], Dr Khai Ng[1], Mr Andrew Muggleton[1], Mr David Willgoose[1], Mrs Catherine Johnson[1], Mrs Swonie Mahowa[1], Mrs Kirsty Swinscoe[1], Dr Joanna Mckinnell[1], Mr Christopher Stait
[1]University Hospitals of Derby and Burton, Derby, England

Introduction

In response to the significant and growing threat to health posed by climate change, a 2022 NHS England announced its aim to become a net zero carbon health service by 2045. The kidney community has long recognised the environmental impact associated with delivery of kidney care. Inspired by the UK Kidney Association 12 Steps to a Greener Nephrology unit, a local nephrologist and specialist renal nurse aimed to set up a multidisciplinary sustainability working group and commenced on relevant initiatives to improve sustainability within the department.

Method

We (CM and KPN) approached and enthused staff from various renal areas on the importance of sustainability initiatives in July 2023 to identify and invite any interested individual for our initial sustainability meeting in September 2023. We formed a multi-disciplinary team (MDT) consisting of a patient representative (CStait), renal nursing staff from acute kidney injury (AKI) (CM), in-centre haemodialysis (SM), home therapy (CSwan), transplant (CJ), technician (AM, DW), nephrologist (KPN) and clinical lead (JM). We presented our aims and potential initiatives in the departmental meeting in October 2023. We commenced on several sustainability projects through the past 12 months, conducted quarterly meetings to track our progress and involved the sustainability team in the trust.

Results

This is a renal unit of 326 in-centre haemodialysis, 75 peritoneal dialysis, 55 home haemodialysis, 342 transplant recipient and 4546 chronic kidney disease patients. In the past 12 months, we have delivered several sustainability projects: (1) changed the central dialysate concentrate from 1:34 to 1:44, which resulted in cost saving of £15,600 pa; (2) improve availability of recycle bin in staff areas; (3) reduced single-use plastic in the weekly departmental lunch meeting, sponsored by pharmaceutical company; (4) ended the use of bedlinen for in-centre haemodialysis chair; (5) reduced the use of hospital blankets in in-centre haemodialysis unit by giving blankets for all prevalence dialysis patients as Christmas gift, funded by hospital charity; (6) increased the uptake of Patient Knows Best. Other ongoing projects include (1) reduce default dialysate flow rate; (2) change of lighting to more energy-efficient options; (3) ensure availability of recycle bin in all areas by working with hospital waste management team; (4) reduce use of one-off plastic cups on haemodialysis unit; (5) pilot integrated renal care with primary care to reduce chronic kidney disease progression in the region. We also aim to better quantify our carbon emission. We have created a task list which records and monitors the progress of our initiatives in our shared renal drive.

Conclusion

This sustainability working group was successfully set up and maintained with an MDT and patient involvement. We aim to grow the group and reach out to more staff from different areas of the unit. We plan to reaudit several of our completed initiatives to ensure sustained outcomes, while continuing to work on other projects. Sustainability is now listed and reported on our month renal departmental performance meeting, demonstrating the increase visibility of our initiatives.

Estimating the health care resource utilization (HCRU) impact of early chronic kidney disease (CKD) treatment with a health economic patient simulation model

Dr. James Weatherall[1], MSc Laetitia Gerlier[2], MSc Thomas Jans[2], MSc Laetitia Gerlier[2]
[1]Boehringer-Ingelheim, Ingelheim, Germany, [2]IQVIA RWES, Zaventem, Belgium

Introduction: CKD is a global health issue, affecting millions and placing substantial strain on healthcare systems. In this study, published baseline characteristics from 'early CKD' cohorts were entered into the CKD progression model (CKD-PM), a validated patient-level microsimulation model predicting lifetime CKD evolution based on independent risk factors (including age, gender, diabetes, eGFR, uACR). The objective was to demonstrate the benefits of slowing down CKD progression at an early stage.
Methods: Through a literature search, five cohorts enrolled in the CKD-Prognosis Consortium were identified as including 'early CKD' patients (mean eGFR 60-90 ml/min/1.73m², uACR 0-30 mg/g). The observed outcomes in these cohorts were assumed representative of patients receiving 'current standard of care' (SoC) treatment. For each cohort, the reported baseline characteristics were used to populate and run the CKD-PM over a time horizon equal to the cohort's mean follow-up time. Model outcomes were first calibrated by comparing model-predicted kidney replacement therapy (KRT) rate per 1000 patient-years to the observed rate in each cohort. The eGFR threshold to consider KRT initiation, and the time horizon, were adjusted until predicted and observed KRT rates differed by <10%. After calibration, a treatment effect was applied to a hypothetical intervention arm of the model. Under SoC, annual eGFR slopes and uACR fold-changes were provided by a real-world CKD cohort (CRIC). As compared to SoC progression, the mean eGFR decline with the intervention was assumed to be reduced with 20% (scenario: 15%) across all Kidney Disease Improving Global Outcomes (KDIGO) stages. The clinical effect of the intervention versus SoC was measured by the difference in KRT incidence and KRT hazard ratio (HR). The economic effect of intervention was assessed via the healthcare resource use (HCRU; hospitalization and outpatient visits per patient-year), obtained by multiplying the years spent in each KDIGO stage in the model with HCRU level per stage from a retrospective cohort study. The number needed to treat (NNT = 1/|Incremental incidence|) to avoid one event was calculated for all outcomes.
Results: Early treatment initiation improved clinical and economic outcomes for all simulated cohorts. As compared to a progression under SoC, early-stage treatment decreased the modeled KRT per 1,000 patient-years with 0.67 (HR = 0.46; NNT 143 over 12 years) in ADVANCE to 1.46 (HR = 0.79; NNT 45 over 17 years) in Mt. Sinai BioMe (Table 1). NNT to prevent one hospitalization ranged from 33 to 96 patient-years, and from 36 to 185 patient-years to prevent one outpatient visit (Table 2). In a scenario assuming a treatment 25% less effective, the benefit in KRT and HCRU rates were slightly reduced but confirmed.
Discussion: This simulation based on the CKD-PM and five large real-world cohorts enrolling early CKD patients suggested that early initiation of an effective CKD treatment substantially reduced the KRT rates and decreased the HCRU of CKD patients as compared to SoC/no intervention. Targeting "at risk" patients without waiting for deteriorated eGFR and uACR values could reduce the burden of KRT on patients and healthcare systems.

Delivering high standards of training for renal dietetic support workers improves staff competency, retention and workforce planning.

Ms Vikki Poole[1], Mr Robert Fleming[1]
[1]East Kent Hospitals University NHS Foundation Trust, Canterbury, United Kingdom

Introduction: Meeting the current and future needs of an organisation requires ongoing recruitment and retention of an effective workforce. Renal is a specialist area which may seem intimidating to professionals with little experience and a perceived lack of effective on-the-job support and training. Improving staff retention is essential due to the challenges of attracting new recruits to the geographical area in which our service is based. A local competency framework was developed and implemented to improve training and retention of renal dietetic support workers.

Method: A local competency framework based on the BDA Dietetic Support Workforce Professional Development Framework (2023) was developed and implemented. A welcome pack was created for newly recruited staff, providing information about the Trust, renal services, renal dietetics service, role of renal dietetics support worker and expected competencies. A newly recruited renal dietetics support worker was assigned a renal dietitian as lead supervisor with training provided by the renal dietetics team, Trust and external formal courses through induction and onboarding to meet the competency framework.

Results: In October 2024, a newly recruited renal dietetics support worker with their supervisor implemented the new competency framework. The implementation of the competency framework was evaluated after initial two months. The renal dietetic support worker found the welcome pack especially useful, there was greater clarity regarding scope of practice and felt able to perform more tasks when supported to do so. Feedback from the supervising renal dietitian was positive, stating that the framework provided a simple tool to set goals and evaluate development toward meeting expected competencies.

Discussion: Delivering a high standard of training for renal dietetic support workers improves staff competency, retention and workforce planning. The implementation of a local competency framework based on the BDA Dietetic Support Workforce Professional Development Framework has provided a positive, structured method which to evaluate and highlight areas for future professional development for a renal dietetics support worker.

Investigating the CKD Sex Paradox: Biomarkers and the Biological Basis of Sex Differences in CKD Progression and Mortality

Dr Thomas McDonnell[1,2], Dr Tony Onoja[3], Professor Nophar Geifman[3], Professor Nicolas Vuilleumier[4], Proffesor Philip Kalra[1,2], Professor Maarten Taal[5]
[1]Donal O'Donoghue Renal Research Centre, Salford Royal Hospital, Northern Care Alliance NHS Foundation Trust, Salford, UK, [2]University of Manchester, Faculty of Biology Medicine and Health, Division of Cardiovascular Sciences, Manchester, United Kingdom, [3]School of Health Sciences, Faculty of Health and Medical Sciences, University of Surrey, Surrey, UK, [4]Division of Laboratory Medicine, Diagnostic Department, Geneva University Hospitals and Faculty of Medicine, Geneva , Switzerland , [5]Centre for Kidney Research and Innovation, Academic Unit for Translational Medical Sciences, School of Medicine, University of Nottingham, Nottingham , UK

Introduction

Chronic kidney disease (CKD) presents a "sex paradox": although more women have CKD, men experience worse outcomes. Suggested explanations for this disparity include worse risk profiles, greater multimorbidity, differences in treatment access and biological factors relating to sex hormones. Understanding these differences could inform tailored treatment approaches. To investigate this, we measured 25 plasma and urine biomarkers in a large UK CKD cohort to assess whether observed sex discrepancies were related to biomarker differences and whether associations between biomarkers and outcomes differed by sex.

Methods

The National Unified Renal Translational Research Enterprise (NURTuRE)-CKD is a UK, prospective multicentre cohort study of adults with non-dialysis CKD. 2,977 participants had 25 novel biomarkers measured centrally at Geneva University Hospitals in Switzerland, including serum and urinary creatinine and urinary albumin.

The primary outcomes were:

- Kidney failure (KF) defined as the first incidence of eGFR < 15ml/min/1.73m2 or the initiation of kidney replacement therapy or transplantation.
- All-cause mortality (ACM) pre-KF

Cox Proportional Hazards (CoxPH) Regression Analysis was used to assess the impact of sex on the outcomes of KF and ACM. Hierarchical modelling was employed to adjust for confounding factors: 1) Age and ethnicity; 2) uACR and eGFR; 3) Behavioural and Socioeconomic factors; 4) Comorbidities; 5) medication. Differences in biomarkers at baseline were compared between sexes and adjusted for eGFR and uACR with an analysis of covariance (ANCOVA). A multivariable CoxPH model, including these adjustments and all biomarkers, was used to investigate the association between the biomarkers, time to kidney failure, and mortality by sex. ('u' = measured in urine).

Results

Baseline characteristics and outcomes for males and females can be seen in Table 1. Males experienced KF and ACM more frequently; however, they were older, had higher uACRs, lower eGFRs, more co-morbidities, reported higher rates of smoking and alcohol use, and higher rates of antiproteinuric medication; however, deprivation indices were equivalent. In the fully adjusted CoxPH model, males maintained a significantly increased risk of KF HR 1.2 (1.0, 1.4). For ACM, while males had an increased risk in unadjusted analysis, this was no longer significant after correction for comorbidity. At baseline, 10 biomarkers were higher in men and 4 in women (Table 2). In fully adjusted CoxPH models, 4 biomarkers in males (uClusterin, sCD40, MCP-1, and uCOL1A1) and 5 in females (Plasma KIM-1, uCalbindin, uCOL1A1, sTNFR1, and IL-6) were significantly associated with an increased risk of KF. For ACM suPAR, hs-cTnT, NT-proBNP and GDF-15 were significantly associated

with all-cause mortality in both males and females. uClusterin and FGF-23 were additionally associated with all-cause mortality in males only.

Discussion

After adjusting for differences in demographic, socioeconomic, clinical, and treatments, male sex remained independently associated with an increased risk of kidney failure. The biomarker patterns that most strongly associated with kidney failure differed in males and females, further suggesting sex-related differences in the pathophysiology of CKD progression. For ACM, the difference in risk was negated by corrections for comorbidities, and biomarker profiles were similar between males and females and were predominately cardiac.

Major complications of percutaneous native and transplant kidney biopsy – a complete 10 year national prospective study

Professor Colin Geddes[1], Dr Samira Bell[2], Dr Kate Buck[10], Dr Bryan Conway[3], Dr Vishal Dey[4], Dr Robert Hunter[3], Dr Nicola Joss[5], Dr Michael Kelly[11], Mr Joe Lakey[6], Dr Wendy Metcalfe[7], Dr Shona Methven[8], Lisa Norman[7], Dr Jamie Traynor[1], Dr David Walbaum[8], Dr Wan Wong[9], Dr Emily McQuarrie[1]
[1]Glasgow Renal and Transplant Unit, Glasgow, United Kingdom, [2]Renal Unit, Ninewells Hospital, Dundee, United Kingdom, [3]University of Edinburgh, Edinburgh, United Kingdom, [4]Crosshouse Hospital, Kilmarnock, United Kingdom, [5]Raigmore Hospital, Inverness, United Kingdom, [6]Public Health Scotland, Edinburgh, United Kingdom, [7]Royal Infirmary of Edinburgh, Edinburgh, United Kingdom, [8]Aberdeen Royal Infirmary, Aberdeen, United Kingdom, [9]Monklands University Hospital, Airdrie, United Kingdom, [10]Victoria Hospital , Kirkcaldy, United Kingdom, [11]Dumfries and Galloway Royal Infirmary, Dumfries, United Kingdom

Introduction
Percutaneous kidney biopsy is the definitive pathological test for intrinsic kidney disease but carries a risk of major complications. Published data on major complications of native and transplant kidney biopsy are limited by ascertainment bias, sample size and inconsistency in defining major complications.
Our aim was to report the incidence of pre-defined major complications of native and transplant kidney biopsies in a complete national registry of all diagnostic kidney biopsies spanning 10 years.
Methods
The Scottish Renal Biopsy Registry has prospectively collected data on all adult native and transplant kidney biopsies undertaken in the 9 adult renal centres in Scotland since 2014. This includes information on demographics, operator, coded indication, coded diagnosis, coded major complications.
Results
8476 biopsies were reported over the 10 year period (6167 native, 2309 transplant). The incidence of major complications is shown in the Table, was higher for native than transplant biopsies (2.1 v 1.2%; p=.0.01) and included 9 deaths attributed to biopsy. The commonest complication was arteriography and embolisation (n=42). There were no native nephrectomies for bleeding. Sub-analysis revealed that major complications were higher in women than men for both native (2.4 v 1.7%; p=0.06) and transplant (1.6 v 1.0%; p=0.19) biopsies and there was a U-shaped relationship between age and major complications of native biopsy. Incidence of major complications was identical between biopsies performed by nephrologists and radiologists and there was no difference comparing centres that stopped or continued aspirin for elective biopsies. Incidence of major complications was highest for patients undergoing native biopsy for the indication acute kidney injury (AKI) (3.3%). We observed an association between higher serum creatinine and increased risk of major complications which disappeared when the indication AKI was excluded. Patients having transplant biopsy >10 years after the last transplant (n=175) were at highest risk of major complication (3.4%)
Discussion
This complete national cohort provides accurate, unbiased information to inform patients and clinicians about the risk of native and transplant kidney biopsy. These data help to individualise risk to enable informed decisions when recommending kidney biopsy. They provide reassurance about nephrologists performing biopsy, patients with one native kidney needing biopsy, and not needing to discontinue aspirin.

Single daily heat disinfection of Haemodialysis machines

Mrs Laxmi Poudyal[1], Lindsay Long[2], Mrs Leeanne Lockley, Stephanie Choo, Shilpa kaki
[1]Doncaster Royal Infirmary, Doncaster, United Kingdom, [2]Kidney Quality Improvement Partnership, , United Kingdom, [3]3 Leeds Teaching Hospitals NHS Trust, Leeds, United Kingdom

Introduction

Reducing carbon emissions from in-centre haemodialysis (ICHD) is one of the key priorities for the Yorkshire and Humber Kidney Network (YHKN). In partnership with Kidney Quality Improvement Partnership (KQIP), a regional project named Trying to Reduce UnNecessary Carbon in Haemodialysis (TRUNC_HD) was set up.
Heat disinfection of haemodialysis machines is a critical yet resource intense process to remove calcification and microorganisms within the system hydraulics. Conventional protocols often involve heat disinfection cycles performed multiple times a day, typically after each dialysis session. This project explores strategies to optimise this process whilst maintaining patient safety.
The aim of this project is to reduce the environmental impact of ICHD by reducing the frequency of heat disinfection from 3 times daily to once daily, supplemented by 11 minute rinse cycles between patient sessions.

QI methodology used

Project leads attended Kidney Quality Improvement Partnership (KQIP) workshops and Yorkshire & Humber TRUNC_HD sharing and learning meetings to develop their QI skills and exchange best practices.
A standard operating procedure for single heat disinfection cycle was drafted after literature review and discussions with machine manufacturers and other units with similar practise. This proposal was reviewed and approved by departmental clinical governance, infection prevention and microbiology teams. For patients with specific risks, such as those with blood-borne viruses or those returning after dialysis abroad, heat disinfection is still carried out after each session and this is flagged in patient's folder with bright green stickers to act as staff reminders. The team also measured water microbial and endotoxin levels from water samples taken from different haemodialysis machines daily for a week prior to reduction of heat disinfection cycles to ensure that this could be done safely. The environmental and financial impact of this change was calculated by trust's sustainability team and local renal sustainability fellow. Staff and patient surveys were conducted post-implementation to assess satisfaction, ensuring that the intervention met clinical and operational standards while supporting sustainability.

Result as attached below.

Positive feedback from patients especially with shorter wait for dialysis machines to be ready.
Effective time management from staff whilst providing highest possible standard of care.
Intervention saved 0.357 kgCO2e and £0.432 per action with savings projected at 4021.05 KgCO2e and £4829.76 per year.

Discussion

This project successfully demonstrated the feasibility of reducing the frequency of heat disinfection cycles in haemodialysis machines to once daily supplemented by rinse cycles between sessions. The intervention achieved the project aim of reducing environmental impact of ICHD, improve operational efficiency while maintaining patient safety and satisfaction.

Challenges encountered during the implementation of this initiative was achieving consensus among the multidisciplinary team. Additional water testing which was a critical component to ensure the revised protocol met the current safety standards was time-intensive, delaying the project timeline. These barriers underscored the importance of early and proactive engagement with stakeholders.

The next steps for our unit are to continue focusing on sustainability and operational efficiency with online carbon calculator tool and initiatives such as smart cards for data management to reduce paper usage.

Understanding the role of social networks in supporting people living with chronic kidney disease. A systematic review and narrative synthesis.

Mrs Becky Bonfield[1], Dr Kristin Veighey[2], Associate Professor Ivaylo Vassilev[1]
[1]University of Southampton, southampton, United Kingdom, [2]University Hospital Southampton NHS Foundation Trust, southampton, United Kingdom

Chronic kidney disease (CKD) is a global health burden with increasing prevalence. People living with CKD employ self-management strategies with the aim of reducing disease progression and improving quality of life. However self-management is complex, especially as people with CKD are often living with several long-term conditions. Effective self-management requires a functioning social network, but little is known about what this might look like in those living with CKD.

A comprehensive literature search was conducted across multiple databases, focusing on studies published between 2009-2024. A narrative synthesis was undertaken following the stages outlined in the Guidance on the Conduct of Narrative Synthesis in Systematic Review focussing on social network involvement in care for patients with non-end stage kidney disease. Data was collected using aspects of thematic synthesis, with a thematic framework being developed.

13 papers were included, which included a total of 538 participants- 265 people living with CKD, 218 social network members (SNM), 30 clinicians, 6 peer group mentors and 4 religious leaders. 10 of the 13 studies only included people living with CKD stage 3-5. For those people living with CKD, age ranges, gender and ethnicity were well described, but SNM, characteristics were less well described.

The synthesis found four key themes:

· Navigating uncertainty

· Challenges of managing CKD

· Isolation/invisibility

· Empathy/peer support

People living with kidney disease and their SNM are faced with many layers of uncertainty. At the point of diagnosis, they reported being unsure about what having CKD meant for them, and how the disease would progress. Participants described CKD as having an initial silent trajectory, with only a limited awareness of the chronicity of the illness in the early stages. Diagnostic and prognostic uncertainty has been found to affect people living with all stages of CKD and has a serious impact on mental health and anxiety, which are highly prevalent in these patients. SNM were key in assisting people living with CKD to being able to understand and interpret their illness, helping them to integrate it into their everyday lives.

The studies highlighted the challenges of navigating complex healthcare systems, with conflicting information given to, and available to, both people living with CKD and SNM. This led to difficulty accessing support, and engaging healthcare professionals to provide or direct it. Where healthcare

professional support was lacking, SNM support became even more important to promote self-management behaviours.

People living with CKD, and SNMs, reported feeling isolated. Some of this isolation arose from a lack of societal awareness of CKD and its implications, making this an 'invisible illness'.

This review has highlighted the importance of social network support for those with CKD, but also that there are gaps in the provision of accurate and consistent information, education, communication and integrated healthcare systems that hinder effective self-management and amplify anxiety and distress.

Understanding the role of SNMs in supporting people living with CKD and developing mechanisms to support self-management is key to be able to assist in reducing the impact of CKD.

Leveraging automation to boost patient engagement: a journey to becoming a national leader with Patients Know Best

Mrs Joana Teles[1], Ali Ahmed[1], Darren Duffield[1], Katie Thurlow[2], Felicia Opoku[1]
[1]Imperial College Healthcare NHS Trust , North West London , United Kingdom, [2]Patients Know Best , , United Kingdom

Introduction:
Improving health literacy can empower individuals to effectively manage long-term conditions and improve their engagement and involvement in health, among other benefits.
Patient registration and usage of online health portals, such as Patients Knows Best (PKB) is a recognised national metric of patient engagement. Data is submitted quarterly for individuals undertaking renal replacement therapy (RRT).
Our kidney centre manages one of the largest RRT populations in the UK. However, in 2020, it had one of the lowest registration rates for the portal. Despite local campaigns, registration rates remained below the national average for an extended period. This abstract outlines the strategic initiatives from 2022 to 2024 aimed at improving PKB registration and usage (defined by quarterly logins on PKB).
Methods
Our centre has utilised the Care Information Exchange (CIE), led by our Trust programme team and powered by PKB. Unlike most renal units, which transitioned to PKB from Patient View (PV) between 2022 and 2023, our centre was an early adopter of the platform. CIE aimed to promote patient engagement across specialties, offering the potential to fully integrate with primary care providers. To facilitate this, individual specialties created multiple teams to target specific patient cohorts and embed relevant resources.
A root cause analysis identified three main barriers to PKB engagement:
1. The registration process and team allocation were overly complex and time-consuming.
2. Clinicians were disengaged with the system.
3. Significant inequalities existed across our services, with some dialysis units lacking pathology integration with the CIE.
The complete integration of hospital providers across the eight boroughs served by our kidney centre, achieved in 2023, was a critical accomplishment, despite being outside the scope of this project.

The priority was to remove the administrative burden from healthcare professionals to register patients. Their engagement was critical for promoting CIE usage among patients. To achieve this, the number of renal teams was reduced to four broad categories based on modalities: general kidney care, haemodialysis, peritoneal dialysis, and transplant. Business and intelligent workflows were developed to automatically allocate patients to the appropriate renal team according to the clinic appointment type within our electronic patient record system, Cerner.
Tailored care plans were developed for each renal team, encouraging the use of CIE as an educational platform, in addition to access health data. Campaigns with clinical teams followed to raise awareness and promote local patient engagement.
Results
In the first quarter of 2024, 61.3% (N=2295) of RRT patients were registered to PKB and 86.2% (N=1979) of those used it in the same period. This compares to 44% (N=1599) and 81.7% (N=1306) respectively in the first quarter of 2022. For a detailed flowchart and national comparison refer to graph 1 and 2.

Discussion
Business and intelligent workflows can enhance patient engagement with CIE. Registration rates for PKB improved significantly, positioning us above the national average, without reducing PKB usage.

CIE has significant potential to improve patient engagement and increase clinical service efficiency. By integrating pre-clinic questionnaires and streamlining clinician workflows within Cerner, clinic capacity could expand to meet growing demand. Though this functionality has not been tested yet, a pilot study will evaluate its impact on a small patient cohort in January 2025.

The strengths and challenges of creating a large scale, real-world data, rare disease registry

Ms Susan Pywell[1], Dr Zoe Plummer[1], Doctor Katie Wong[1], Mr David Pitcher[1], Mr Garry King[1], Dr Dane Rogers[1], Dr Sherry Masoud[1], Ms Lauren Windsor[1], Mr Andrew Atterton[1], Mr Oliver Reeves[1], Dr Kate Bramham[1,2], Professor Daniel Gale[1,3,4]
[1]RaDaR National Registry of Rare Kidney Diseases, UK Kidney Association, Bristol, UK, [2]King's Health Partners, King's College London, London, UK, [3]Department of Renal Medicine, University College London, , UK, [4]Department of Renal Medicine, Royal Free London NHS Foundation Trust, , UK

Introduction

Despite representing less than 10% of the chronic kidney disease population, people with rare kidney diseases comprise 25% of patients with end stage kidney disease and 10% of adults/>50% of children on kidney replacement therapy. People with rare diseases are 28 times more likely to face kidney failure than those in the general population with chronic kidney disease, yet are less likely to die before needing dialysis or a kidney transplant.

Understanding of rare diseases is hampered by small patient numbers. A nephrologist might encounter a rare disease only a handful of times in their career.

Established in 2010, the RaDaR National Registry of Rare Kidney Diseases brings together data on patients with rare kidney diseases, creating an essential resource to further knowledge and understanding. RaDaR is an ambitious project with multiple aims (Figure 1), from facilitating translational and epidemiological research to empowering patients to have a voice.

Methods

Participants are individually consented. Their records are pseudonymised.

Patient data is collected retrospectively and prospectively and stored securely in a database with a web front-end. Data sources include research nurses, patients, automatic transfers from renal IT systems, batch uploads, and other organisations and registries such as the UK Renal Registry and Genomics England.

Metadata (Table 1) is publicly available however data analyses are performed in-house. Patient anonymity and protection of patient data is paramount; only aggregate data is released and small numbers are suppressed.

Operationally RaDaR comprises 10 internal staff, nearly 300 multidisciplinary clinical and/or academic contributors and 50 patient representatives across 33 Rare Disease Groups. To validate and enrich its data, RaDaR employs two statisticians, two clinicians, a data manager, a research manager and a systems manager.

Results

RaDaR is currently the largest rare kidney disease registry in the world with >35,000 patients from 109 kidney sites across the UK (Figure 2). RaDaR contains long-term, real-world data. It holds >40 million individual results and observational records from 1980-present on patients aged zero to over 90.

34 academic papers reference RaDaR directly. The Rare Disease Groups associated with RaDaR have created new hubs and networks, improved patient care and introduced novel therapies. RaDaR has

identified eligible patients for several clinical trials. RaDaR ran its first patient surveys in 2024, achieving response rates of just under 25%.

Discussion

The volume, complexity and “real-world-ness” of RaDaR’s data is both a strength and a challenge. The analyses generated from RaDaR data are potentially much more generalisable than those obtained from the controlled environment and short timescales of clinical trials.

Manual data entry is often time-consuming, expensive and prone to error. A unique feature of RaDaR is that it automatically gathers data from hospital IT systems for 75% of its participants, ensuring accurate and scalable data collection.

Looking forward, RaDaR is working with Genomics England and aims to carry out Whole Genome Sequencing of the entire registry. RaDaR is supporting the newly formed £10M LifeArc Translational Centre for Rare Kidney Disease, and is developing systems and processes to make its data clinical trial ready.

High pick-up rate of type IV collagen mutations in adults with dipstick haematuria of uncertain cause using the R194 haematuria panel

Dr Hannah Jenkins[1], Doctor Rhian Clissold[1], Dr Charles Shaw-Smith[1], Dr Coralie Bingham[1]
[1]Royal Devon University Healthcare Trust, Exeter, United Kingdom

Introduction:
Inherited kidney diseases represent approximately 10% of cases of end stage renal disease (ESRD) in Europe[1-2] Alport syndrome is the most common inherited kidney disease, the autosomal dominant form affecting 1% of the population[3]. The spectrum varies from isolated microscopic haematuria to ESRD in addition to extra-renal manifestations[4]. Affected genes in Alport syndrome include COL4A3-5. The National Genomic Test Directory R194 haematuria panel includes the genes COL4A1, COL4A3-5 and MYH9. The criteria for testing include a proband with haematuria and clinical or histological features of Alport Syndrome or basement membrane abnormalities or a first degree relative with haematuria or unexplained chronic kidney disease[5].
We aimed to review all renal patients in our unit who had undergone testing with the R194 panel.

Method:
All patients who had the R194 panel tested, between August 2022 and September 2024, were identified. Using electronic patient records a retrospective analysis was performed including demographics, baseline estimated glomerular filtration rate (eGFR), blood pressure, urinalysis, extra-renal clinical features, family history and the results of genetic testing.

Results :
30 patient records were reviewed (11 male, 19 female; mean age 48 years; 2 were excluded due to lack of results). Of the 28 remaining patients, 12 (43%) had a genetic cause for haematuria identified: 7 patients had COL4A4 pathogenic variants, 4 had COL4A3 pathogenic variants and one (male) aa COL4A5 pathogenic variant. 9 patients variants were heterozygous, 3 patients were compound heterozygotes . 7/12 patients (58%) with genetic variants identified were hypertensive on at least one anti-hypertensive agent. All patients with a genetic variant had at least 2+ blood or greater on urine dip. 2 patients (28%) with COL4A4 variants had CKD stage 5/5D; the mean eGFR was 60 ml/min/1.73m2. The mean eGFR in those with a COL4A3 variant was 52 ml/min/1.73m2 and the individual with a COL4A5 variant had an eGFR of 39 ml/min/1.73m2 at time of analysis. 9/12 (75%) patients with a genetic variant had a family history of renal disease. 1/12 (8%) had a family history of sensorineural hearing loss and 3/12 (25%) had a personal history of sensorineural hearing loss. 3 patients had undergone renal biopsy prior to genetic testing, with histological changes that were in keeping with the genetic variant identified.

Discussion:
Our findings are comparable with existing literature and show that there is a high likelihood of detecting a COL4A3-5 pathogenic variant in patients with haematuria and a family history of haematuria or kidney disease[6]. Studies suggest that 10-20% of individuals with heterozygous COL4A3 and COL4A4 variants reach ESRD by the age of 70. In our small sample, 28% of those with COL4A4 variants had ESRD. Identifying an underlying genetic cause for haematuria provides an opportunity for early initiation of medical therapies to slow progression of renal disease and avoid invasive diagnostic tests such as kidney biopsy. Our results support the use of the R194 haematuria panel in this group of patients, particularly when there is either a family history of kidney disease or the presence of extra-renal manifestations.

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Kidney Quality Improvement Partnership and North West Kidney Network collaborative partnership to develop, shape and implement local quality improvement projects

Mrs Leeanne Lockley[1], Andrew Stott[2], Hannah Summut[3], Olivia Worthington[3], Natalie Erickson[3], Angela Cooper[4], Kelly Berry[4], Lamis Taha[4], Siobhan Travis[5], Alice Bernstein[6], Rachel Rawley[6], Sarah Tipping[6], Thilli Abeygunaratne[7], Yasser Al-MulaAbed[7], Karen Baguley[7], Anu Jaynati[5], Rosie Donne[7]
[1]UK Kidney Association, Bristol, , [2]North West Kidney Network, Liverpool, , [3]Liverpool University Teaching Hospitals, Liverpool, , [4]Wirral University Teaching Hospital, Birkenhead, , [5]Manchester Royal Hospitals, Manchester, , [6]Royal Preston Hospitals, Preston, , [7]Northern Care Alliance, Salford,
NHS England funded the creation of English kidney networks in 2021. In 2022, the North-West Kidney Network (NWKN) prioritised care of improving dialysis care by creating a dialysis workstream. There was an agreement within the network that the Kidney Quality Improvement Partnership (KQIP) would provide quality improvement training and support to local priority areas relating to dialysis and improving access to home dialysis.

Methodology
The projects matured over two years and in two phases.
Phase 1 (2023): Engagement with participating kidney units
Phase 2 (2023 and 2024): Quality Improvement (QI) training and dialysis project support
The engagement phase was needed to mobilise units and clinical staff. Each unit in the region identified a priority project. During this second phase, appropriate staff attended three 3-hour QI training workshops using the KQIP QI Methodology (see image 1) providing time for staff to understand and apply commonly used QI tools and concepts. QI tools included stakeholder analysis, process mapping, root cause analysis, driver diagrams, Plan, Do, Study, Act testing tool, sustainability tool, and measurement run charts. Upon completion of the QI training modules, face-to-face project support workshops were delivered by the KQIP programme manager and the NWKN workstream manager at the renal centres, allowing staff to apply appropriate QI tools/ concepts to their project.
A patient focused dialysis KQIP education day was held in November 2023. The purpose of this event was to share project progress and create opportunities to learn from patients and kidney charities.
Year 2 (2024) involved continuation of QI support from KQIP and NWKN with local project team workshops. In June, team leaders were invited to share project progress during a virtual regional meeting allowing for learning and sharing of ideas. In November, each project team shared their progress and outcomes at a face-to-face NW KQIP celebration event attended by patients, kidney charities, and staff including the NWKN.
At the end of the virtual QI training workshops and face to face events delegates completed feedback.
Figure 1 – KQIP QI Methodology
In year 1 (2023), each virtual QI training workshop was well attended with 15-20 nurses and doctors representing all five units in the region.
Figure 2 depicts self-rated data showing perceived QI skills and confidence, before and after the workshops
Table 1: Local project aims, top change ideas implemented and results.
Table 2: Attendee experience of face-to-face events feedback results
All units achieved improvements according to their project plan. The collaboration with KQIP and the NWKN has led to a deeper understanding of QI methodology and skills required to undertake projects within busy healthcare environments. Events received excellent feedback. The collaborative partnership will continue providing regional virtual QI training alongside local face-to-face support using QI tools to unlock challenges.

Collaboration in Action: Unit Experience Re-launching Shared Haemodialysis Care

Mrs Amy Garraway[1], Mrs Hayley LLoyd[1], Miss Hannah Kenny[1]
[1]Arrowe Park Hospital, Wirral, England

Introduction:
Shared haemodialysis care (or shared care) enables patients to participate in practical aspects of their dialysis treatment and is supported by the UK Kidney Association guidelines. The goal of shared care is to improve both the mental and, potentially, physical health of patients. Implementation of a shared care programme can hit several barriers. Staff may be inexperienced, lack time, or have misconceptions of shared care. Patients may lack motivation or confidence or fear a perceived difficulty. Arrowe Park Hospital haemodialysis unit reintroduced shared care in 2024 following a less successful rollout in 2013-2014. The number of patients engaging in shared care more than tripled with staff and patient experiences being positive.

Methodology:
A questionnaire exploring current understanding and interest in shared care was disseminated to all unit staff. Using this information, four champions were selected to attend the Shared Haemodialysis course in Sheffield. The champions were then responsible for delivering a series of opportunistic teaching sessions to the rest of the unit staff about shared care with the aim to increase their understanding and bust the myths surrounding shared care.

Patients were provided with a letter and leaflet about shared care. This was given both to current dialysis unit patients and those in pre-dialysis education who were close to dialysis initiation. Each was approached to discuss their level of interest. Those patients wishing to take part were highlighted by a different colour prescription chart and moved to a dedicated bay with dialysis nurses most interested in shared care. Boards with images of and information on shared care were created around the unit.

Results:
The staff questionnaire showed a significant number of staff wanted greater unit involvement with shared care programmes – with current involvement being rated 5.5/10 and desired involvement being rated 7.3/10. Staff also reported shared care as significantly important to patient care – 8.4/10.

Patient strategies of promotional material, staff champions, and cohorting increased the number of patients engaged in shared care from 4 to 14. Feedback was entirely positive, with patients reporting an increased sense of control, confidence, and wellbeing.

Discussion:
Shared haemodialysis care has shown significant benefits for patients mental and physical health, including at Arrowe Park Hospital dialysis unit. Previous attempts or difficulties introducing a programme should not prevent further attempts to identify excellent staff who can implement such an important intervention. Identification of champions, who take a particular interest in motivating patients and other staff, is an effective way to increase the shared care dialysis population.

Association of rate of decline in residual kidney function with risk of cognitive impairment in haemodialysis: A prospective, longitudinal analysis of the BISTRO study cohort

Dr Kerry-lee Rosenberg[1], Professor Dorothea Nitsch, Prof Indranil Dasgupta, Professor Simon Davies
[1]University College London, London, United Kingdom, [2]London School of Hygeine and Tropical Medicine, , , [3]University of Warwick, , , [4]University of Keele , ,

Introduction
Prevalence of cognitive impairment (CI) is high amongst those with end-stage kidney disease (ESKD) on haemodialysis and is associated with poor outcomes, including all-cause mortality and hospitalisation. There is limited data examining the association between loss of residual kidney function (RKF) and CI in haemodialysis. In addition, few studies have explored the effect of treatment parameters on cognition and the association between clinical markers of volume overload and CI is poorly understood.

This study aimed firstly to examine the association between rate of change in RKF and both risk of CI and change in cognitive test scores at 12 and 24 months after initiation of haemodialysis. Secondly, it aimed to examine the association between markers of fluid status and dialysis treatment parameters and change in cognitive test score over time.

Methods
This is a prospective cohort study using data from the Bioimpedance to Maintain Renal Output (BISTRO) trial; a multicentre study in the United Kingdom. The study included adults within three months of commencing haemodialysis for ESKD. Participants were followed up for 24 months or until anuria, death or transplantation.

Cognition was assessed using the Montreal Cognitive Assessment (MoCA). CI was defined as a MoCA score < 24. Rate of decline in RKF was measured in ml/min/1.73m2/month. Logistic regression models were used to estimate the association of rate of decline in RKF with risk of CI at 12 and 24 months after initiation of haemodialysis. Separate generalised estimating equations were used to estimate the association of rate of decline in RKF and clinical parameters with mean change in MoCA score per year after initiation of haemodialysis. Clinical parameters included treatment type (haemodialysis versus haemodiafiltration), dialysate temperature, mean interdialytic weight gain, mean pre-dialysis blood pressures and intradialytic hypotension.

Results
The study included 435 participants with a mean age of 61.5 years. Rate of decline in RKF was not associated with risk of CI at 12 or 24 months after initiation of haemodialysis. Furthermore, neither rate of decline in RKF nor time on dialysis were associated with mean change in MoCA score over the first 24 months of dialysis treatment (Table 1). Dialysate temperature was associated with a mean increase in MoCA change-score of 1.25 per one degree Celsius (95% CI 0.31 to 2.19). Interdialytic weight gain was associated with an increase in MoCA change-score of 0.43 per kilogram gained (95% CI 0.10 to 0.77). However, this association was modified by left ventricular failure. Higher interdialytic weight gains were associated with a decrease in MoCA change-score over time amongst those with left ventricular failure (Table 2).

Discussion
Amongst this cohort of incident haemodialysis patients, there was no association between rate of decline in RKF and cognitive performance. These findings may in part reflect selection bias in this sample or the effect of relatively slow rate of decline in RKF. Higher interdialytic weight gains may be associated with worsening cognition amongst those with left ventricular failure; highlighting the clinical importance and challenges of fluid balance management in this vulnerable group.

Engineering a 3D Polycystic Kidney Disease Model: Insights into PKD1 Function and Therapeutic Potential of Apoptosis Inhibition

Dr Ebtehal Ahmed[1], Dr Maria Fragiadaki[1]
[1]Translational Medicine and Therapeutics, William Harvey Research Institute, Queen Mary University of London, London, UK, LONDON, United Kingdom

Introduction:
Autosomal Dominant Polycystic Kidney Disease (ADPKD) is a prevalent genetic cause of chronic kidney disease worldwide, characterized by kidney cysts, abnormal cell growth, and tissue fibrosis, primarily caused by mutations in the PKD1 gene, although the exact mechanisms remain unclear. This study investigates the role of PKD1 in regulating cellular processes and explores the potential of apoptosis inhibition as a therapeutic strategy for ADPKD. Also, we developed a novel 3D polycystic kidney disease model using decellularised porcine kidney extracellular matrix (ECM) hydrogel encapsulating PKD1 silenced HEK293T cells to mimic the physiological microenvironment.

Methods: We initiated PKD1 silencing and confirmed knockdown through qPCR and western blot. Cell viability was assessed using the MTT assay. Apoptosis, proliferation, and autophagy were evaluated through immunostaining, western blot, and RNA sequencing analysis. Apoptosis inhibitors were employed to rescue PKD1-silenced cells. Furthermore, we generated and characterized the decellularised porcine kidney ECM-derived hydrogel and produced spheroids for both control and PKD1-silenced cells embedded in Matrigel and ECM hydrogel to evaluate the impact of PKD1 deletion and apoptosis inhibition in three-dimensional cultures.

Results: The loss of PKD1 significantly decreased cell viability to 56.8% ($p=0.0394$), indicating its crucial role in cellular metabolism. This reduction was not attributed to changes in proliferation but rather to a notable increase in apoptosis ($p=0.0131$). PKD1 silencing also led to diminished autophagy, as evidenced by a decrease in LC3B expression to 2.781% ($p=0.0058$) compared to controls (10.77%). Both the caspase-3 inhibitor (Z-DEVD-FMK) and pan-caspase inhibitor (Z-VAD-FMK) reduced caspase-3 expression, with the latter being more effective in reducing cleaved PARP ($p=0.0257$). These findings underscore the critical role of PKD1 in regulating apoptosis and autophagy. Furthermore, we observed that PKD-silenced cells formed actively proliferating spheroids with numerous side branches when encapsulated in porcine-decellularized kidney hydrogel, in contrast to control cells, which displayed smaller spheroids ($p<0.0001$) by day 9. Additionally, by day 9, Z-VAD-FMK inhibited the growth of PKD1-silenced spheroids grown in kidney ECM hydrogel, with no significant differences observed between the control and treated spheroids. Interestingly, spheroids grown in Matrigel and kidney ECM hydrogel exhibited distinct shapes, with Matrigel spheroids being spherical and hydrogel spheroids displaying star-shaped structures with tubular side branches. The circularity of the spheroids was significantly different ($p <0.0001$) between the two. Moreover, the length of side branches in PKD1-silenced spheroids was significantly higher ($p<0.0001$) than the control and treated spheroids, which had shorter side branches.

Discussion and conclusion: This study provides valuable insights into the complex interplay between apoptosis, autophagy, and proliferation in ADPKD and highlights the importance of using physiologically relevant 3D models for disease modelling and drug screening.

Flourishing with fatigue: establishing a fatigue management programme for Advanced Kidney Care patients

Ms Elyssa Grief[1]
[1]Royal Free London NHS Foundation Trust, London, United Kingdom

INTRODUCTION

Fatigue is increasingly being recognised as a significant symptom of chronic kidney disease (CKD); approximately 70% of patients report fatigue and up to 25% report severe symptoms. It is a subjective, multifaceted and complex experience encompassing both physical and psychological symptoms, with pervasive impacts on function, activities of daily living (ADLs) and quality of life (QOL). Although fatigue cannot be cured, it can be managed; self-management therefore becomes critical in enabling people to live well with fatigue.

In response to this, an occupational therapy-led fatigue management programme was developed within the Renal Frailty Clinic, which sits in the Advanced Kidney Care (AKC) clinics across the trust since 2024 as part of a larger NHSE-funded project across London to improve kidney care. The intended benefits of the fatigue management programme are to provide people with education, peer support and self-management skills and to improve their occupational performance and QOL through good fatigue management.

METHODS

Based off current evidence and best practice for fatigue management in chronic conditions, a 6-session programme spanning six months was developed and offered to patients seen in clinic who reported fatigue as an issue. An alternative option of one-to-one sessions with the same material content was also offered, as group session times and locations were not always convenient or wanted.

The programme covers education on fatigue and fatigue management, goal setting, fatigue management strategies and techniques to achieve goals, sleep hygiene, kidney specialist physiotherapist and dietitian sessions and resources for self-management going forward.

The visual fatigue analogue scale (VFAS), EQ-5D-5L outcome measure and Modified Fatigue Impact Scale (MFIS) were completed at the first session, and all outcome measures will be taken again at the end of the programme to determine the efficacy of the programme on fatigue, function and QOL.

RESULTS AND DISCUSSION

As the programme has only been running for two months to date, the full impact cannot be determined. However, preliminary data and feedback highlight the prevalence and salience of fatigue with kidney patients, with over 60% of patients seen in the clinic reporting fatigue as a distressing and impactful symptom; the negative effects of fatigue on ADLs and QOL; and the benefits of fatigue education in helping people feel validated and empowered. Furthermore, 100% of participants felt the first two sessions were relevant, helpful and provided something different for them than what other health professionals/services offered. This suggests that occupational therapists, who aim to enable occupational performance in ADLs and maintain QOL despite physical or cognitive limitations, have a key part to play in holistic kidney care and are well-placed to support with fatigue management for people living with kidney disease.

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Referral Pathway for prolonged fistula bleed post dialysis

Ms. Mary Celene Mielona Butao[1], Mrs Liberty Berino[1], Mrs Irene Opena[1], Mrs Komal Chauhan[1], Miss Kelly White[1], Dr Joanna Mckinnell[1]
[1]University Hospitals of Derby and Burton, Derby, United Kingdom

Introduction

Vascular access haemorrhage is not a frequently occurring complication associated with haemodialysis fistulas and grafts, but when it occurs, it can be fatal to patients and devastating to patient's families and dialysis unit staff members (Lynda Ball, 2013). Death from these bleeds is rare and likely to be under-reported, with incident rates of fewer than 1 episode for every 1,000 patient-years on dialysis, there is a need for more specific data for all bleeding events, to better understand this sentinel event. Appropriate preventative measures include implementation of robust quality assurance processes and reporting around the Arterio Venous (AV) puncture site integrity, accompanied by clear clinical pathways to trigger review and intervention (Jose, M.D. et al.,2017). There are various options available to dialysis staff when managing post dialysis access bleeding. These include immediate management as well as making escalation decisions.

Methods

A questionnaire was created to assess the knowledge and experience of staff working on a single dialysis unit at dealing with post dialysis bleeding. Staff with different lengths of work experience in the unit completed the questionnaire. The results were used to guide the content of a clinical pathway for managing prolonged post dialysis access bleeding.

Results

20 Renal staff including nurses and technicians participated in the questionnaire. Of these 11 (55%) considered the average time for prolonged bleeding to be less than 30 minutes and that escalation is appropriate if bleeding time reached over 30minutes . 9 staff (45%) stated that 30 minutes to an hour is the average bleeding time and that it should only be esclataed if bleeding lasts for over an hour. Strategies to manage prolonged bleeing on our unit were non-standardised with staff reporting different approaches to the problem (Figue 1).

We developed a clinical pathway for use on the dialysis unit. This included a definition of a prolonged bleed with consideration of bleeding time and frequency. A simple traffic light system was used to ensure higher risk bleeds are managed optimally with appropriate escalation and consideration of radiological or surgical intervention (figure 2).

Conclusion

We established a lack of uniformity in the definition of a prolonged bleed as well as heterogeneity in the approach. This is worrying and suggests that a clinical pathway for prolonged fistula bleed would be beneficial. According to Larson, C.L. et al. (2023) it is well established that clinical pathways, tools to standardize care for a specific population, create a structured multidisciplinary care plan. The use of a clinical pathway improves patients' and providers' experience and satisfaction, resource utilization, and inter-professional teamwork while reducing knowledge transition gaps, healthcare team burnout, costs, and variation in care. In addition, Cheah, J. (2000) stated that clinical pathways provide an ideal sequence and timing of staff interventions to achieve those goals with optimal efficiency. We anticipate the use of our clinical pathway will standardise management of prolonged fistula bleeds and reduce the likelihood of a catastrophic event as well as optimising access longevity with earlier interventions such as fistulagrams and surgical revisions.

Self-reported immunosuppression medication adherence predicts eGFR at 12 months in kidney transplant recipients: a single centre cohort study

Miss Rosie Heape[1], Dr Lyndsay Hughes[1], Professor Antonia Cronin[1,2]
[1]King's College London, London, United Kingdom, [2]Guy's & St Thomas' NHS Trust, London, United Kingdom

Introduction: Adherence to immunosuppression medication has been shown to be an important determinant of graft outcomes in kidney transplant recipients (KTRs). Moreover, medication non-adherence is common in KTRs, with rates estimated between 36 and 55%. This study explored the association between self-reported adherence and eGFR at 12 months follow-up.

Methods: KTRs completed the Medication Adherence Report Scale (MARS-5) when attending their outpatient appointment between September 2022 and October 2023. Patients were classed as non-adherent if they scored ≤ 24. eGFR at 12 months was extracted from electronic medical records. A hierarchical multiple linear regression was conducted to determine the impact of adherence on 12-month eGFR.

Results: N=292 KTR completed the questionnaires. Mean 12-month eGFR was 46.1 mL/min (SD=23.06) in the total sample, 49.91 mL/min (SD=23.32) in the adherent group (N=122) and 43.28 mL/min (SD=22.53) in the non-adherent group (N=170). Patients classed as non-adherent at baseline had a significantly lower eGFR at 12 months, after controlling for age, ethnicity, donor type and time since transplantation (B=-6.91, SE=2.58, β =−.148, t=-2.68, p=.008).

Discussion: Adherence to immunosuppression medication significantly impacts eGFR at 12 months, independent of demographic and clinical factors. These findings the contribution of medication adherence to clinical outcomes in KTRs. Future research should aim to identify modifiable factors influencing adherence, informing the development of targeted, evidence-based interventions to support medication adherence and optimise graft outcomes.

Integrating care of CKD and other long-term conditions in low- and middle income countries: a systematic review of existing models of care

Dr Charlotte Snead[1,2], Dr Thandile Nkosi-Gondwe[3,4], Dr Emma Wessels[5], Dr Owen Nkoka[4,6], Dr Wisdom Nakanga[4,7], Dr Mohammed Al-Talib[2,8], Dr Humphry Chisambiro[9], Dr Vhinthenga Namasiku[9], Dr Felix Limbani[1,10], Asst Prof Alison Price[3], Professor Henry Mwandumba[1,10], Dr Dominic Taylor[2,11]
[1]Liverpool School of Tropical Medicine, Liverpool, UK, [2]University of Bristol, Bristol, UK, [3]London School of Hygiene and Tropical Medicine, London, UK, [4]Malawi Epidemiology and Intervention Research Unit, , Malawi, [5]University of Witwatersrand, Johannesburg, South Africa, [6]University of Glasgow, Glasgow, UK, [7]University of Edinburgh, Edinburgh, UK, [8]University of Cardiff, , UK, [9]Kamuzu University of Health Sciences, Blantyre, Malawi, [10]Malawi-Liverpool Wellcome Programme, Blantyre, Malawi, [11]North Bristol NHS Trust, Bristol, UK

Introduction
The increasing global burden of chronic kidney disease (CKD) is disproportionately impacting low- and middle-income countries (LMICs). The World Health Organization advocates integrated approaches to improve equity of access to health services and health outcomes for people with long-term conditions (LTCs). CKD often clusters with multimorbidity, so cost-effective strategies to improve its care and prevention may be best employed alongside those for other LTCs through multisectoral, system-strengthening approaches. Despite this, CKD remains neglected from many health policy agendas. This systematic review aimed to synthesise the available evidence on models for integrated care of CKD with other LTCs in LMICs.

Methods
A systematic search was conducted for articles published between 1 January 2000 and 30th October 2023, using MEDLINE, Embase, CINAHL, Global Health, Web of Science, Cochrane Library, Global Index Medicus and SciELO. Additional articles were identified through review of reference lists of included articles and citation searching. Eligible articles were those describing interventions or care models for adult patients that integrated CKD care with care of hypertension, diabetes, cardiovascular disease, HIV infection and/or TB in LMICs, at any level of the health system. Two authors independently screened retrieved records; extracted data and assessed quality of included studies, with disagreements resolved through discussion and/or involvement of a third reviewer. Study findings were analysed using narrative synthesis.

Results
Of 13,825 records that underwent title and abstract screening, 34 were included, representing 21 distinct programs or interventions conducted across 11 countries (seven in upper-middle income countries, four in lower-middle income countries, but none in low-income countries). South Africa was the only country represented from Africa. Included articles were heterogeneous and of predominantly low quality. All included articles described integration of CKD care with care of other NCDs; none investigated integration with HIV and/or TB services. The four programs conducted in lower-middle-income countries were community-based, with support from or linkage to teams at higher level health facilities, whereas the programs conducted in upper-middle-income countries spanned a wider range of healthcare settings. Aspects of CKD care that were most commonly integrated included diagnosis, treatment of albuminuria to slow progression and CKD patient education. The majority of studies focused on clinical and biochemical outcome measures. Commonly described intervention components included task shifting through healthcare worker capacity building, use of specific protocols, provision of key equipment and medications. Support and evaluation processes, use of information or mobile technology and strengthening of medical record systems appeared important but were variably described. Reported challenges included insufficient human resources and fragmented health systems.

Discussion

Integrated care for early CKD into services for other LTCs may be feasible and effective in LMICs through a range of healthcare models, adapted to specific healthcare settings. However large evidence gaps remain, in particular a paucity of evidence from low-income settings, from Africa and related to leverage of existing health services, including those for HIV/TB, for early CKD care. Future research should prioritise development and implementation of complex interventions with acquisition of health-economic and process evaluation data to better inform policy decisions.

Fighting frailty – establishing an outpatient frailty service for Advanced Kidney Care patients

Ms Elyssa Grief[1], Mrs Natasha Aruk[1]
[1]Royal Free London NHS Foundation Trust, London, United Kingdom

INTRODUCTION

Frailty is a "state of increased vulnerability to stressors as a consequence of degeneration in multiple systems" and is a strong predictor of adverse health outcomes such as falls, loss of independence with activities of daily living (ADLs), hospitalisation and mortality. Frailty within kidney disease across all stages is significantly greater than the general population (8.1%); furthermore, kidney patients have high symptom burden and health care usage with lower health-related quality of life (QOL).

As such, the Renal Frailty Clinic was developed in 2024 as part of a larger NHSE-funded project across London to improve kidney care and meet the increasingly complex needs of kidney patients. Composed of a geriatrician, physiotherapist, occupational therapist and therapy assistant, the clinic sits within the Advanced Kidney Care Clinics (AKCC) and aims to provide comprehensive and holistic care through a more multi-disciplinary approach. The intended benefits are to improve health outcomes and quality of life for at-risk or already frail kidney patients as well as reduce the demand on dialysis centres and resources within London.

METHODS

The clinic was set up in May 2024 after extensive discussions with the trust's wider kidney team and completing scoping reviews of the evidence base and current best practices. Inclusion and exclusion criteria were determined, outcome measures and key performance indicators were set, and appropriate time and resources were dedicated to improving AKCC staff understanding of frailty and the service.

Patients with a Clinical Rockwood Score (CFS) of 4 (vulnerable) or higher are eligible for therapy input; due to fewer clinic hours, patients with a CFS of 6+ are eligible for geriatrician input. Referrals come from AKCC staff and patients can be accepted for therapy only or for both therapy and geriatrician, with a 45-minute clinic slot for each; they can also be seen for a follow-up if needed. Referrals, current caseload and patient reviews are discussed in routine multi-disciplinary team (MDT) meetings.

RESULTS

All patients receive a modified comprehensive geriatric assessment (mCGA), and actioned outcomes from the clinic have included exercise prescription, fatigue management education, equipment provision, community referrals, cognitive screens, universal care plan (UCP) and kidney replacement treatment (KTT) discussions, polypharmacy reviews and requests for specialist medical appointments.

Barriers have included high appointment burden, difficulty getting to appointments, limited resources and initial lack of knowledge/understanding around new service from both patients and staff. Despite this, 100% of patient feedback shows satisfaction with the service and outcomes of appointments.

CONCLUSION

Therapy and geriatrician led clinics such as these have the potential to positively impact QOL and address unmet needs within the AKCC population. Initial feedback and data demonstrate there is a high number of frail patients within AKCC and that these patients have overwhelming positive feedback in response to addressing their wider frailty needs.

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Kidney outcomes and eGFR slope in patients with Alport Syndrome, using data from the National Registry of Rare Kidney Diseases (RaDaR)

Mr David Pitcher[1,2], Doctor Katie Wong[1,2], Dr Dane Rogers[1], Dr Sherry Masoud[1,2], Dr Sascha van Boemmel-Wegmann[3], Dr Klaus Francke[3], Dr Julie Lin[4], Dr Shiguang Liu[4], Ms Hannah Russell[5], Ms Susie Gear[5], Dr Alex Mercer[6], Professor Bruce Hendry[7], Professor A. Neil Turner[8], Professor Daniel P. Gale[1,2]
[1]National Registry of Rare Kidney Diseases, Bristol, UK, [2]Department of Renal Medicine, University College London, UK, [3]Bayer AG, Berlin, Germany, [4]Rare Disease and Rare Blood Disorders Development Sanofi, Cambridge, USA, [5]Alport UK, , , [6]JAMCO Pharma Consulting AB, Enskede, Sweden, [7]Travere Therapeutics Ltd, San Diego, USA, [8]Edinburgh Medical School, University of Edinburgh, UK

Background
Alport syndrome (AS) is the second commonest monogenic kidney disease and can lead to kidney failure (KF). Clinical course is highly variable. Previous genotype-phenotype studies have shown that males with X-linked AS and individuals with 2x or homozygous COL4A3/4 mutations reach KF at a younger age than females with X-linked AS or patients with heterozygous COL4A3/4 mutations. However little is known about trajectory of eGFR decline for AS patients, and whether this differs by mutation type. Here we examine kidney outcomes and eGFR slope for AS patients recruited to the National Registry of Rare Kidney Diseases (RaDaR).
Methods
RaDaR has data linkage with the UK Renal Registry (UKRR) for Kidney Replacement Therapy (KRT) data, local renal units for routine laboratory results and regional genetics hubs for clinical genetic reports. Patients with variants reported clinically as “Pathogenic” or “Likely Pathogenic” by American College of Medical Genetics criteria were included. Kaplan-Meier analysis and the log-rank statistic were used to compare survival curves for age at KF, stratified by genotype. eGFR was calculated using CKD-EPI Cr equation (2021) or Schwartz equation for those ≤ 16 yrs. eGFR slope was estimated for each CKD stage using multi-level linear models to account for individual patient trajectories, and included a covariate to test for differences between mutation types, Severe (Male X-linked AS, Digenic and COL4A3/4 homozygous/2x mutations) vs. Other (Female X-linked AS, COL4A3/4 heterozygous).
Results
Clinical genetic reports were available for 535/1175 (46%) patients in the RaDaR Alport cohort. 459/535 patients (86%) had Pathogenic or Likely Pathogenic variants identified, 39/535 (7%) Variants of Uncertain Significance, 37/535 (7%) Likely benign or no mutations detected. Of the 459 patients with pathogenic variants, n=198 had “Severe” genotypes (n=45 COL4A3/4 homozygous/2x mutations, n=151 Male X-linked AS, n=2 Digenic), and n=261 heterozygous genotypes (n=116 Female X-linked AS, n=145 COL4A3/4 heterozygotes). Median age at KF was earlier for patients with COL4A3/4 homozygous/2x mutations (24.3 years, [IQR 22.3-40.7] and Males with X-linked AS (33.6, [28.8-40.9]), compared to COLA3/4 heterozygous variants (72.9, [64.0- Not Estimable]) and Females with X-linked AS (25th percentile estimate 56.8 years).
Patients with “Severe” genotypes had higher annual eGFR loss during each CKD stage compared to those with heterozygous genotypes (Figure 1). This was most marked during CKD stage 4, where those with severe genotypes had an annualised eGFR slope of -9.1 ml/min/1.73m2/year (95% CI -10.9 to -7.3) compared to -3.8 (-5.5 to -2.1) in the heterozygous group. For patients with heterozygous genotypes, eGFR loss was similar throughout CKD stages 1, 2 and 3a at -0.9 ml/min/1.73m2/year, whereas those with “Severe” genotypes lost kidney function more rapidly through each CKD stage, except CKD stage 3a.
Conclusion
These analyses demonstrate differences in eGFR trajectory by genotype in Alport Syndrome: patients with “Severe” genotypes had faster kidney function loss throughout their clinical course compared to those with heterozygous genotypes. eGFR decline accelerated in both groups upon reaching eGFR 30 ml/min/1.73m2. These data may aid patient prognostication and help guide dialysis/KRT planning.

Goals for Acute Kidney Injury

Dr Lai Lai Wyut Yee[1], Dr Htet Arkar Soe Win[2], Dr Krishnappan Ramanathan[2]
[1]Dorset County Hospital , Dorchester, United Kingdom, [2]Dorset County Hospital , Dorchester, United Kingdom, [3]Dorset County Hospital , Dorchester, United Kingdom

Introduction

Acute Kidney Injury (AKI) is an emerging global healthcare issue. The interaction between long term medical conditions, medications and inter-current illness are too often complicated by AKI.

Objectives

The primary aim of the AKI quality improvement project is to reduce the risk and burden of acute kidney injury, engaging commissioning pathways and establishing local data collection and audit leading to further safety improvement. This clinical audit provides clinicians and patients with the education, information and access to and about AKI to inform individual care.

Method

Data was collected from November 2022 to February 2023, involving 44 patients gathered from medical specialities. Patients were identified using the VitaPac system, filtered based on the AKI warning scoring, and the AKI stage was determined by analysing changes in creatinine levels. To ensure comprehensive data collection, various documentation sources were utilised, including the AKI checklist, intake, output charts, and medications charts. Discussions were held with the specialist team, including members from ITU and the Renal department. Additionally, urine dip results documented in the patients' notes, and renal clinic letters and previous discharge summaries were referenced when appropriate. A re-audit of the collected data was conducted between April 2023 and June 2023.

Results

The overall use of the Acute Kidney Injury (AKI) checklist and urine dipstick performance and documentation was notably poor. Moreover, appropriate fluid balance monitoring and assessment were also inadequate. There is a need for improvement in the repeat electrolyte and urea (U&E) testing within the first 24 hours, as well as a more thorough review of nephrotoxic medications. The performance of ultrasound of the kidneys, ureters, and bladder (USS KUB) for patients with AKI stage 3 within 24 hours was found to be low. On a positive note, early senior reviews for AKI patients were satisfactory, and early escalation to the appropriate team was excellent, achieving a 100% success rate. In light of these findings, we have made several recommendations. Firstly, the AKI pathway bundle were highlighted, and printed checklists were made more accessible in the ward to facilitate adherence. Education on the performance and documentation of urine dipstick tests were integrated into the admission clerking process. Our re-audit demonstrated that both compliance with standards and thus quality of care has improved as a result of using Trust AKI checklist such was 100% compliance for hydration status, appropriate fluid balance monitoring and assessment, early senior review, medications review. Urine dipstick performance and documentation and performance of USS KUB within 24 hours for AKI stage 3 has improved.

Conclusion

This acute kidney injury (AKI) audit highlighted several critical insights into the management and outcomes of patients experiencing AKI. The findings underscore the importance of early identification and intervention, as well as adherence to established protocols for prevention and management. Key areas for improvement include enhancing staff education on risk factors and early signs of AKI, optimising fluid management, and ensuring timely referral to nephrology when indicated.

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Co-designing a patient group education session to support people living with Chronic Kidney Disease (CKD) in primary care

Dr Kristin Veighey[1], Ms Emily Garnes[3], Ms Michelle Wheeler[3], Mrs Helen Thomas[3], Mr Jamie Pratt[4], Ms Callie Harraway-Brown[3], Ms Zainab Ali[3], Mr Andrew Williams[2]
[1]University Hospital Southampton , Southampton, United Kingdom, [2]University of Southampton, Southampton, United Kingdom, [3]Southampton West Primary Care Network, Southampton, United Kingdom, [4]Dorset Healthcare NHS Foundation Trust, Poole, United Kingdom

Introduction

Chronic kidney disease (CKD) is a common condition, affecting up to 10% of adults in England. If CKD progresses to end stage-renal failure (ESRF, approximately 6,600 people in England per annum) it can have significant impacts on health-related quality of life and is costly for the healthcare economy.

Early intervention to delay or prevent progression to ESRF is vital, with the first step being to identify and then register (or code) patients as having CKD. GPs report concerns about delivering a diagnosis of CKD to patients, and the resultant potential for anxiety. A recent survey by Kidney Care UK highlighted that patients are often not made aware of a CKD diagnosis or risk by their primary care teams, with GPs feeling underconfident – yet patients wished they had known earlier.

Southampton West Primary Care Network (PCN) includes 10 GP practices, 85,529 patients, living in socio-economically deprived areas of central Southampton. CVD Prevent data highlighted an opportunity to work together to improve coding of CKD, thus identifying patients at high risk for medical and lifestyle intervention. Quality improvement work had led to informal feedback from patients that they were not being made aware of a CKD diagnosis, even where coded.

We set out to co-design a programme with patients to support education around CKD and facilitate clinician confidence around coding. Our team is led by social prescribing and health and wellbeing coaches in the PCN, and includes the PCN pharmacist, mental health team, community dietitians and GP/nephrologist.

Methods

We invited patients with CKD stage 3-5 (coded and uncoded, based on eGFR criteria) in one practice to an initial group education session. Invitations were sent by AccuRx text message, alongside an information sheet. The session was delivered face to face and attended by 4 patients, all over 65.

Results

Patients expressed a desire to understand the diagnosis, prognosis, to understand how to live well with CKD, and any medical treatments. A major focus was demystifying diet for different stages of CKD and navigating conflicting recommendations. They highly valued the peer support provided in a group setting, and local, face-to-face format.

Based on these findings, we have co-designed a Kidney Health Programme, consisting of 6x1 hour face to face sessions, as described in Figure 1. This will start in January 2025, with the programme evaluation and learning available for presentation at UKKW. We are planning to use this evaluation to plan online sessions in addition, to widen access to the programme.

Discussion

Primary care clinicians report a concern about delivering a diagnosis of CKD to patients, due to the potential anxiety this could cause. Patients report a desire to have more information about CKD. Coding is an essential part of improving evidence based care, however time pressures, and a lack of confidence around the diagnosis mean this is not always done. We set out to co-design, implement

and evaluate a holistic group education session in a central city PCN. The results of our pilot programme evaluation will be presented at UKKW.

The effect of proteinuria on kidney outcomes in Alport Syndrome: a longitudinal analysis of 1175 patients from the National Registry of Rare Kidney Diseases (RaDaR)

Dr Dane Rogers[1], Mr David Pitcher[1], Dr Katie Wong[1], Dr Sherry Masoud[1], Dr Sascha van Boemmel-Wegmann[3], Dr Klaus Francke[3], Dr Julie Lin[4], Dr Shiguang Liu[4], Ms Hannah Russell[5], Ms Susie Gear[5], Dr Alex Mercer[6], Professor Bruce Hendry[7], Prof Neil Turner[8], Professor Daniel Gale[1]
[1]National Registry of Rare Kidney Diseases (RaDaR), Bristol, United Kingdom, [2]Department of Renal Medicine, University College London, London, United Kingdom, [3]Bayer AG, Berlin, Germany, [4]Rare Disease and Rare Blood Disorders Development, Sanofi, Cambridge, United States, [5]Alport UK, , United Kingdom, [6]JAMCO Pharma Consulting AB, Enskede, Sweden, [7]Travere Therapeutics Ltd, San Diego, United States, [8]Edinburgh Medical School, University of Edinburgh, Edinburgh, United Kingdom

Background

Alport Syndrome (AS) is characterised alterations of the glomerular basement membrane due to pathogenic variants in type IV collagen genes COL4A3/4/5. Resulting haematuria and proteinuria can lead to downstream consequences including chronic inflammation and fibrosis. Whilst the implications of proteinuria in glomerular disorders such as IgA nephropathy have been well delineated, little is known about progression of proteinuria and whether it predicts kidney outcomes in AS. Here, we describe associations between proteinuria and kidney outcomes in a large UK cohort of AS patients, using data from the National Registry of Rare Kidney Diseases (RaDaR).

Methods

Patients recruited to the RaDaR Alport Syndrome cohort were analysed. RaDaR has linkage with the UK Renal Registry for data on Kidney Replacement Therapy (KRT) initiation and death and local kidney units for laboratory data.

Proteinuria progression was investigated by a) calculating median urine protein:creatinine ratio (uPCR) at each CKD stage for all patients b) modelling each patient's uPCR by age using linear mixed models, stratified by genotype.

Kidney failure (KF) was defined as eGFR≤15mL/min/1.73m2 or chronic KRT. Nephrotic syndrome was defined as concurrent albumin <35g/L and uPCR >300mmol/l. Kaplan-Meier analysis was used to estimate a) age at KF b) time from eGFR 90/60/45mL/min/1.73m2 to KF or death c) time from first developing nephrotic syndrome to KF, and compared using the log-rank statistic. Results were stratified by proteinuria level at time of eGFR 90/60/45 mL/min/1.73m2 (estimated as the mean uPCR over year prior to each eGFR threshold).

Results

The dataset comprised 1175 patients, 584 (50%) female. Median uPCR for all patients increased until CKD stage 5: Stage 1: 84.7 mg/mmol (IQR 25.0-231.4), 2: 132.5 (37.0-298.0), 3a: 132 (41.0-301.0), 3b: 187.3 (69.0-385.0), 4: 237.9 (121.9-426.5) and 5: 211.1 (118.8-336.4), however results from the linear mixed model, stratifying by genetic mutation type demonstrated that only patients with autosomal recessive ($p=0.005$) and Male X-linked ($p<0.0005$) disease experienced a significant progressive increase in proteinuria (Figure 1).

For all patients, median uPCR in the year prior to reaching eGFR 90, 60 and 45ml/min/1.73m2 was 158, 254 and 268mg/mmol respectively. Patients with above median proteinuria had significantly poorer kidney survival compared to those with below median proteinuria at each eGFR threshold:

eGFR 90 (log-rank statistic p=0.0038), eGFR 60 (p=0.0027) and eGFR 45 (p<0.0001) (Figures 2a-c). Median time to KF from eGFR 45 ml/min/1.73m2 for patients with above median proteinuria (>268mg/mmol) was <3 years (2.8 years, 95% CI 1.6-3.4). During follow-up, patients with above median uPCR had significantly higher hazard ratios (HRs) for KF compared to those with below median uPCR; HRs of 5.3 (95% CI 1.5-19.0), 3.6 (1.5-8.7) and 6.5 (3.0-13.9) from an eGFR 90, 60 and 45ml/min/1.73m2 respectively.

42/1175 (4%) patients developed nephrotic syndrome during follow-up; 24/42 (57%) were female and 15/42 (36%) had been pregnant. 14/42 (33%) subsequently reached KF at median age 23.9 (IQR 17.7-40.0). The 25th percentile time to KF from first developing nephrotic syndrome was 3.7 years (95% CI 0.55-5.3).

Conclusion

Lower proteinuria levels were strongly associated with better renal outcomes at all eGFR thresholds.

Piperacillin-tazobactam induced acute isolated thrombocytopaenia: two cases in haemodialysis patients

Dr Deepika Manoharan[1], Dr Rachel Davison[1]
[1]Nephrology Department, Sunderland Royal Hospital, Sunderland, UK

Introduction

Thrombocytopaenia, defined as a platelet count of <150x109/L or a 50% drop from baseline, can be secondary to multiple aetiologies. Drug-induced thrombocytopaenia (DITP) is well documented, particularly secondary to antimicrobials. However, it is rare for piperacillin-tazobactam (PTZ) to cause DITP with only a handful of cases reported worldwide and no previous reports in dialysis patients. We describe two haemodialysis patients who developed acute thrombocytopaenia secondary to PTZ and suggest an algorithm for diagnosing DITP.

Case Series

1. A 78-year-old male with ESRD secondary to ANCA-negative vasculitis on haemodialysis was admitted with chest sepsis and started on intravenous (IV) PTZ. On day 10, he developed an acute isolated drop in platelets to 1x109/L (figure 1a) and associated unilateral pleural haemorrhage with circulatory shock. This was managed with platelet transfusion alongside IV tranexamic and folinic acid. PTZ was discontinued given control of infection. High immature platelet fraction (18%) was seen on blood film. Two days later, his platelet count normalised. On day 17, the patient was restarted on IV PTZ for further chest sepsis with a recurrent drop in platelets (2x109/L, figure 1a). Antibiotics were altered to IV aztreonam and platelet count normalised after 3 days.

2. A 48-year-old female presented with sepsis and was started on IV flucloxacillin for leg cellulitis. There was limited clinical response and on day 2, she was switched to IV PTZ. On day 5, acute isolated thrombocytopaenia (64x109/L) was noted (figure 1b). She completed a 5-day course of PTZ the same day and Serratia marcescens bacteraemia was confirmed. Platelets spontaneously improved to 100x109/L after discontinuation. On day 8, the patient deteriorated, requiring acute haemodialysis and was restarted on PTZ due to rising infection markers. On day 13, a further drop in platelets was noted (35x109/L) at which point PTZ was stopped and she was switched to IV co-trimoxazole (figure 1b). Platelet count spontaneously normalised after 3 days.

In both cases, genuine thrombocytopaenia with no red cell fragments was confirmed on film with normal coagulation and haemolytic screens. Low-molecular-weight heparin (LMWH) was continued, ruling out heparin-induced thrombocytopaenia (HIT).

Discussion

The mechanism behind PTZ-induced thrombocytopaenia is unclear. Studies suggest that the drug binds to a platelet membrane antigen causing antibodies against the platelet-PTZ complex (drug-dependent antibodies, DDabs). Another hypothesis is non-immune mediated PTZ-induced myelosuppression. Measuring DDabs is not always feasible due to limited accessibility, cost, and poor turnaround time. We therefore suggest a stepwise algorithm to aid diagnosis of DITP (figure 2). Discontinuation of PTZ is the mainstay of treatment but other supportive therapies including platelet transfusion, corticosteroids and IV immunoglobulins (IVIG) can be considered. Although PTZ is dialysable, high-flux haemodialysis did not prevent the development of thrombocytopaenia in our patients but possibly contributed to quicker recovery of platelet count after cessation of the drug.

Conclusion

DITP is an important differential in acute thrombocytopaenia. This case series describes two haemodialysis patients who developed severe thrombocytopaenia secondary to PTZ, a rare complication of this widely used antibiotic.

Clinical assessment of fluid status in adults with acute kidney injury: a scoping review

Mrs Karen Nagalingam[1], Professor Ken Farrington[1,2], Dr Lisa Whiting[2], Professor Natalie Pattison[1,2]
[1]East and North Hertfordshire, Stevenage, United Kingdom, [2]University of Hertfordshire, Hatfield, United Kingdom

Introduction

Acute Kidney Injury [AKI] is a sudden, potentially reversible, reduction in kidney function with hypovolaemia frequently a common factor. When AKI is established, fluid can accumulate in the tissues leading to fluid overload. Fluid assessment is an important component of the deteriorating patient (Resuscitation Council UK, 2020) and an essential aspect of the care and management of a patient with AKI. Guidance exists for acutely ill adults (NICE, 2013), and for physicians looking after patients with AKI (Royal College of Physicians, 2015); however, assessing fluid status in patients with AKI remains difficult with too little or too much fluid leading to increased risk of death (Neyra et al., 2016). A scoping review was designed and undertaken to provide a comprehensive overview of the clinical assessments, signs and symptoms that are most useful when undertaking a fluid assessment in patients with AKI.

Methods

The databases of SCOPUS, CINAHL Plus and PubMed, were searched for research papers relating to fluid assessment or the signs and symptoms of fluid status in patients with AKI. The JBI methodology for scoping reviews was followed and reported using the PRISMA-ScR checklist.

Findings

Fifteen research papers were retrieved with four key areas: Fluid Balance/urine output and weight; early warning scores; clinical signs and symptoms; holistic assessment. To determine fluid status, it is crucial that urine output and fluid balance is accurately documented. Hypovolaemia may be indicated by low blood pressure, orthostatic hypotension, low mean arterial pressure, elevated heart rate, prolonged capillary refill time on the sternum (>4.5 seconds) and subjectively reported cold peripheries. Clinical symptoms include dry mouth, increased thirst and dry skin.

Discussion

Accurate assessment of fluid status in patients with AKI is important to ensure that the patient is receiving the appropriate management. This scoping review highlighted the relevance of some key clinical signs and symptoms whereas there is limited evidence for other assessments, such as jugular venous pressure and passive leg raise to assess volume responsiveness. The assessment of fluid status should be holistic, include history taking, diagnosis, blood tests as well as associated clinical signs and symptoms.

Bridging the gap between Advanced Kidney Care Clinic (AKCC) and Peritoneal Dialysis (PD) to improve the patient's journey

Sister Yasmin Leighton[2], Mrs Trish Smith[1]
[1]Baxter Healthcare Ltd , Liverpool, United Kingdom, [2]Manchester Foundation Trust, Manchester, United Kingdom

Background

In the AKCC patients selecting PD as their chosen modality, often reported lack of sufficient clear information prior to their PD catheter insertion. This led to a longer training period due to unassessed needs and a higher level of early drop-off. Highlighting the need for a streamlined approach to bridge the gap between AKCC and PD catheter insertion, ensuring patients are better prepared for their PD journey.

Method

Addressing these issues the unit introduced a nurse-led "Prep for PD clinic" to provide a comprehensive pre-PD catheter nurse assessment and education. Collaborating with clinical multidisciplinary team (MDT), AKCC and the renal matron, the need for a dedicated service was identified.
Establishing the 2-weekly nurse-led "Prep for PD Clinic" in the outpatient department, required

- Securing a room in the busy clinic area
- Administrative support to generate a clinic code and follow up letters
- Establishing protected clinical time for the PD lead nurse to run the clinic
- Agreement with MDT regarding information provided

This clinic enables patients to attend 40-minute consultation 2-4 weeks prior to their planned PD catheter insertion.
Information is provided (verbally and in writing) about CAPD/APD choice, learning styles, physical dexterity, possible need for assisted services, the training place, need for adequate bowel prep and any other issues concerning the patient. This is helping to bridge the communication and support gap between AKCC and PD pathway.
The establishment of the nurse led clinic was developed following a PD Nurse Fellowship programme (supported by Baxter Healthcare) with a focus on enhancing clinical knowledge and improving service development and better patient reported outcomes.

Results

Initial implementation assessment suggests positive trends in clinical outcomes. Early evaluation indicates improved coordination of pre-dialysis care through a structured PD referral pathway with MDT engagement.
Preliminary assessment of the service model demonstrates potential benefits in patient preparation, therapy retention and care pathway efficiency.
The comprehensive evaluation of the framework has been established to measure the long-term impact on patient outcomes and service delivery metrics.

Discussion

The "Prep for PD clinic" was developed through MDT collaboration, protected time allocation, insights from PD Fellowship training and streamlined patient education strategies. It addresses a critical gap in improving patient pathways and reducing therapy delays. Ongoing evaluation will assess its long-term impact on outcomes and adherence.

Conclusion

Development of the “Prep for PD clinic” has proven effective in ensuring the right patient, receives the right therapy for them, at the right time. By bridging the gap between AKCC and PD services we have streamlined the PD initiation and improved patient support during a critical stage of their PD journey.

Understanding risk stratification of patients with chronic kidney disease (CKD) risk in primary care: a qualitative study

Dr Kristin Veighey[1], Dr Emma Teasdale[1], Mrs Kate Henaghan-Sykes[1], Professor Hazel Everitt[1], Professor Simon Fraser[1], Dr Kinda Ibrahim[1], Dr Michelle Myall[2], Dr Tom Blakeman[3]
[1]University of Southampton, Southampton, United Kingdom, [2]NIHR Applied Research Collaboration Wessex, Southampton, United Kingdom, [3]University of Manchester, Manchester, United Kingdom

Introduction

Chronic kidney disease (CKD) is a common condition affecting up to 10% of adults in England. If CKD progresses to end stage-renal disease (ESRD) it can have significant impacts on health-related quality of life and be very costly for the healthcare economy.

Early intervention to delay or prevent progression to ESRD is important, with the first step being to screen for, identify and then register (code) patients as having CKD. Evidence-based treatments such as SGLT-2 inhibitors are available and should be initiated early in those at greatest renal and cardiovascular risk. However, this needs to be balanced against the potential for over-diagnosis, adding increased burden to both patients and primary care teams.

We aimed to explore the ideas, concerns and expectations of GPs, pharmacists and practice nurses on how risk stratification of patients with CKD is performed in primary care, and the variation in implementation processes, including geographical variation.

Methods

We conducted 26 semi-structured interviews with a purposive sample of GPs, pharmacists and practice nurses across Wessex, Leeds and South London. Practices in different socio-economic areas, with ethnic diversity, and of different sizes, and a range of practitioners (age, gender, ethnicity and years of experience) were included.

We also conducted 4 focus groups with GP practice teams, including practice managers, administration staff, care co-ordinators, pharmacists, and social prescribers, to explore the views of the wider practice team on the process of risk stratification. Interview and focus group data are currently being thematically analysed to explore barriers and enablers to risk stratification in primary care. Normalisation process theory provided the theoretical lens for the study, informing design, data collection methods and analysis.

Results

Initial analysis suggests a universal awareness of the diagnostic criteria for CKD as described by NICE, but diagnosis is typically seen as opportunistic. Coding was commonly perceived as valuable for health professionals, but less helpful for patients. A common concern was about the term CKD causing anxiety to patients, and informing patients regarding historic CKD diagnoses was viewed as challenging. Time pressures and lack of incentivisation were seen as key barriers to diagnosing and risk stratifying CKD. Improved pathways, guidelines, education, testing processes, integrated technology/automation were described as means for improved care – alongside incentivisation for the required work. Research studies and incentivisation (e.g. QoF payments for statins for CKD) were described as an impetus for system wide searches and increased coding. A community CKD clinic, akin to diabetes, was described as a mechanism to provide additional resource.

Discussion

This study describes the views of the primary care workforce of the barriers to risk stratification of CKD. Primary care teams were aware of CKD, its importance (particularly in terms of increased cardiovascular risk) and how it is diagnosed, but felt that workload, time pressures, a concern about patient anxiety, and a lack of incentivisation contributed to CKD being less prominent. Co-

development of integrated systems incorporating primary, community and secondary care, in collaboration with charities and patient groups, are an essential means of improving patient care.

Assessing measles immunity in patients pre- and post-kidney transplantation: A single-centre cross-sectional study

Dr Connor Williams[1], Prof Richard Oram[1,2], Dr George Trafford[1], Dr Lyuben Truykov[2], Dr Coralie Bingham[1]
[1]Royal Devon University Healthcare NHS Foundation Trust, Exeter, UK, [2]The University of Exeter, Exeter, UK

Introduction
Measles is a highly contagious viral infection, typically presenting with fevers and a macular rash. Since the introduction of a measles vaccine in the UK in 1968 and the subsequent introduction of the measles, mumps and rubella (MMR) vaccine in 1988, the national prevalence of measles has fallen. However, vaccination coverage has consistently declined over the past decade, resulting in several localised outbreaks. The most recent outbreak, originating from the West Midlands in late-2023, has led to more than 2700 cases being diagnosed in England during 2024. Immunosuppressed patients, including kidney transplant recipients, are at increased risk of more severe disease, complications and a prolonged infectious period, although in the UK, measles immunity is not routinely screened prior to adult kidney transplantation. This study aimed to establish the rate of measles immunity in our kidney transplant recipients, as well as a comparison cohort of our patients that are active on the kidney transplant waiting list. We went on to compare rates of serological measles immunity between transplant recipients that had previously been vaccinated or infected.

Methods
We conducted a cross-sectional single-centre study between May and December 2024. The study included patients that had previously received a kidney transplant, as well as patients that were on the transplant waiting list. We reviewed primary care records to assess for prior measles or MMR vaccination and prior measles infection. Patients with no documentation on their primary care record completed telephone questionnaires to establish self-reported prior measles or MMR vaccination and prior measles infection. We assumed people born prior to 1970, shortly after the introduction of the measles vaccine, had been previously infected with measles. Measles IgG serology testing was performed as a surrogate marker for current measles immunity.

Results
We recruited 372 patients who were post-transplant and underwent serology testing. 288/372 (77.4%) had positive measles IgG serology. We were able to ascertain vaccination or exposure status in 304/372. Of transplant recipients born from January 1970 onwards, with evidence of at least 1 dose of the measles or MMR vaccine, 98 underwent serology testing, with 64/98 (65.3%) returning positive results. 202 transplant recipients born prior to 1970 underwent serology testing, with 179/202 (88.6%) returning positive results ($p<0.0001$ compared to those with prior vaccination). Of 91 patients active on the kidney transplant waiting list, 37 patients underwent serology testing, with 31/37 (83.8%) having a positive measles IgG result. We tested serology in 18 confirmed vaccinated patients on the waiting list and 14/18 (77.8%) were positive. We tested 16 patients on the waitlist who were born before 1970 and 15/16 (93.8%) were positive.

Discussion
We identified a proportion of pre- and post-transplant patients who had negative measles serology. In the post-transplant setting, people who had been vaccinated had a lower proportion of positive serology (65.3%) compared to people previously infected with measles (88.6%). This gives further evidence to justify measles IgG serology testing as part of patients' routine pre-transplant work-up, whilst there is the opportunity to give them the MMR vaccine before they are immunosuppressed.

The impact of functional iron deficiency on survival in haemodialysis patients

Isabelle Newman[1], Dr Sharmilee Rengarajan[2], Dr Hannah O'Keeffe[1,2], Dr Ivona Baricevic-Jones[2], Rajkumar Chinnadurai[1,2], Professor Philip A. Kalra[1,2]
[1]University of Manchester, Manchester, United Kingdom, [2]Northern Care Alliance, Manchester, United Kingdom

Introduction

Anaemia is common in haemodialysis (HD) patients for multiple reasons including blood loss through frequent sampling and dialysis treatment, and erythropoietin deficiency. Additionally, functional iron deficiency (FID) is common due to chronic inflammation and associated high hepcidin levels. FID is defined as ferritin >200 µg/L with transferrin saturations (TSAT) of <20% in the dialysis population, and absolute iron deficiency (AID) as a ferritin level of <200µg/L and TSAT <20%. This study was developed to assess the association of FID with survival in a HD population.

Methods

A retrospective study was conducted of 512 HD patients receiving treatment in our centre between January 2012 and December 2014, with follow-up through December 2018. Patients were excluded if ferritin and TSAT data were unavailable for time-averaged classification. Data including patient demographics, comorbidities, haematological and biochemical laboratory parameters, iron and erythropoietin stimulating agent (ESA) use and dosing, blood pressure, cardiovascular events, and mortality were extracted from the organisation's electronic patient record. Analyses were performed using SPSS. Continuous variables are expressed as median (interquartile range) and p-value by Kruskal Walis H test. Categorical variables are expressed as numbers (%) and p-values by the Chi-Square test.

Results

Of the cohort, 12% (n=62) had FID, 7% (n=35) AID, and 81% (n=415) had iron indices considered normal for a haemodialysis population. There was no significant difference in any demographic factors, comorbidities or prescriptions between the three groups. Demographic and laboratory parameters for the different subgroups are shown in Table 1. Those with FID had a lower baseline median haemoglobin at 90g/L (80-105), compared to 94g/L (82-113) in AID, and 103g/L (92-114) in those without iron deficiency (p<0.001). Albumin was significantly lower in those with FID (p<0.001), and c-reactive protein significantly higher (p=0.002). One year time-averaged ferritin was 403µg/L (294-625) in the FID group, compared to 116 µg/L (76-151) in the AID group, and 487µg/L in the normal iron group (p<0.001). Time-averaged TSAT was 18% (15-19.4) in those with FID, 17% (14-18.5) in AID and 30.5% (25.5-37.3) in those with normal iron (p<0.001). Monthly iron dosage was significantly higher in those with FID; 157.6mg (96-217) in FID, 101mg (41.4-234) in AID, 123mg (59-209) in the normal iron group (p=0.016). Weekly ESA dose was also higher; 53mcg (52-84) in FID, 22mcg (12-40) in AID, and 34mcg (19-55) in normal iron (p=0.015). 71% of the FID group were dead by the end of follow-up, compared to 40% of the AID group, and 50.8% of those without iron deficiency (p=0.004). The survival difference between groups is shown in the Kaplan-Meir chart (Figure 1).

Discussion

A significant proportion (12%) of our haemodialysis cohort had FID. Those with FID appeared to have a higher degree of inflammation biochemically, with significantly lower albumin and higher CRP levels. FID was associated with the use of higher doses of both iron and ESAs than AID and no iron deficiency. As hypothesised, FID was found to be significantly associated with a poorer survival than that observed in either AID or those with normal iron parameters.

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A novel perspective on the role of allograft lymphatic vessels in chronic kidney transplant rejection

Dr Daniyal Jafree[1,2], Dr Barian Mohidin[1,2], Dr Benjamin Stewart[3], Dr Karen Price[1,2], Professor Stephen Marks[2,4], Professor Reza Motallebzadeh[2,5], Professor Menna Clatworthy[3], Professor David Long[1,2]
[1]UCL Great Ormond Street Institute of Child Health, London, United Kingdom, [2]UCL Centre for Kidney & Bladder Health, London, United Kingdom, [3]MRC Laboratory of Molecular Biology, Cambrige, United Kingdom, [4]Great Ormond Street Hospital, London, United Kingdom, [5]UCL Institute of Immunity and Transplantation, London, United Kingdom

Lymphatic vessels play a crucial role in clearing fluid, immune cells, and molecules from inflamed tissues, yet their involvement in solid organ transplantation remains controversial. While lymphatics facilitate the efflux of lymphocytes to limit local inflammation, their delivery to lymph nodes can propagate the alloimmune response.

To elucidate lymphatic structure and function in transplantation, we employed wholemount immunofluorescence, optical clearing, and high-resolution three-dimensional imaging on deceased donor kidneys (n = 4) and explants from patients with chronic mixed cellular and antibody-mediated transplant rejection (n = 3) from a tertiary kidney transplantation centre. Additionally, we analysed the renal lymphatic transcriptome by generating a single-cell RNA sequencing dataset encompassing 217,411 cells from both healthy and diseased human kidneys.

Our findings reveal that during chronic rejection, allograft lymphatic density increased sevenfold ($p = 0.0014$), accompanied by the loss of the hierarchical arrangement seen in healthy donor kidneys. Transcriptomic analysis showed upregulation of human leukocyte antigens in lymphatics, and their interferon-mediated inhibitory crosstalk with infiltrating T cells. Notably, in chronic rejection, lymphatic cell-cell junctions adopted a zipper-like configuration, associated with impairing T cell trafficking and the appearance of tertiary lymphoid structures along the length of the lymphatic network. Mirroring blood microvascular targeting by donor-specific antibodies, allograft lymphatics displayed complement factor C4d deposition during chronic rejection.

By leveraging advanced technologies, our study provides a novel perspective on lymphatic involvement in chronic transplant rejection. These vessels, which typically exhibiting an immune-inhibitory profile, undergo structural and molecular disruptions during chronic rejection, potentially driving the alloimmune response in transplantation.

Addressing digital exclusion from physical activity digital health interventions by providing WIFI-enabled digital devices for people with limited access or digital literacy skills: the EX-TAB Study

Mr Christy Walklin[1], Ms Juliet Briggs[1], Prof SUNIL Bhandari, Dr Kate Bramham[1], Professor James Burton, Professor Jackie Campbell, Proffesor Philip Kalra, Professor Jamie MacDonald, Prof Maarten Taal, Professor David Wheeler, Dr Hannah Young, Professor Sharlene Greenwood[1]
[1]King's College Hospital, London, United Kingdom

- Introduction

The Kidney BEAM trial demonstrated that a physical activity digital health intervention is an effective intervention to improve mental health-related quality of life in patients with chronic kidney disease. A limitation of the study was that people without digital literacy skills or access to a WIFI-enabled digital device were excluded from taking part in the study. This sub-study aimed to evaluate the feasibility of providing a WIFI-enabled Kidney Beam device plus training compared to usual care.

- Methods

This single-site randomised controlled sub-study recruited 40 participants without access to a WIFI-enabled digital device, or people with a low score on a digital health literacy screening tool, to the Kidney Beam Ex-TAB intervention or to usual care. The intervention group were provided with a WIFI-enabled iPad with the Kidney Beam application pre-downloaded. Participants were provided with training to use the iPad and how to access the 12-week Kidney Beam programme (twice-weekly exercise and education sessions). The usual care group were provided with sign-up instructions to the Kidney Beam application only. Participants were assessed at baseline and at 12 weeks. Primary feasibility outcomes included screening, recruitment, retention, adherence, safety and experience and acceptability of the intervention.
Secondary outcomes were the same as in the main study. Participants were asked to take part in a qualitative interview.

- Results

Between September 2023 and September 2024, 169 individuals were assessed for eligibility, of whom 40 participants were enrolled and randomly assigned to the Kidney Beam Ex-Tab group (n=21) or the control group (n=19). Forty participants completed baseline assessments (median 66.5 years, 50% male). 35 participants completed the trial (Ex-Tab n=18 and control n=17), and were included in the per protocol analysis.
There was a statistically significant difference in median time spent on the Kidney Beam platform between the two groups ($p<0.001$) (Ex-TAB: 135 (13.5-244.5) minutes; Usual care 0 (0,0) mins). There was a mean improvement in KDQoL-SF.13 MCS score in the Ex-Tab group at 12 weeks (49.20 [11.9] units to 51.25 [8.03] units compared with usual care (50.46 [11.24] to 50.51 [12.38] units). KDQoL-SF.13 PCS score improved in the Ex-Tab group (32.43 [10.07] to 37.99 [11.49] units compared with a reduction from 37.28 [10.75] to 33.18 [11.93] at 12 weeks in usual care). Mean STS60 repetitions in the Ex-Tab group improved from 13.67 [5.38] to 16.87 [5.38] repetitions at 12 weeks compared with a mean reduction in repetitions from 17.53 [7.78] to 13.06 [11.38] repetitions at 12 weeks for usual care. The median PHQ4 score improved in both groups (Ex-Tab group: 3.00 units [0.00-8.00] to 0.00 [0.00-3.00] units; Usual care: 3.00 [0.00-6.00] to 1.00 [0.00-7.00] units at 12 weeks).

- Discussion

This mixed-methods feasibility RCT revealed that providing WIFI-enabled devices, plus training, for people with low levels of digital literacy was feasible and acceptable to people living with kidney disease. All pre-set feasibility criteria were met. Results provide insight into future trial design and a multi-center RCT is planned. Analysis of the qualitative interviews will further determine acceptability and will be presented.

Distinct urinary proteome changes across various estimated glomerular filtration rate (eGFR) stages in a black South African cohort – results from a pilot study

Dr Siyabonga Khoza[1], Prof Jaya George[2,3,4], Dr Previn Naicker[5], Dr Stoyan Stoychev[6], Dr Rethabile Mokoena[7], Dr Ireshyn Govender[5,7], Prof June Fabian[8,9]
[1]Department of Chemical Pathology, National Health Laboratory Service, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa, , , [2]National Health Laboratory Service, South Africa, , , [3]Academic Affairs, Research & Quality Assurance, National Health Laboratory Service, Johannesburg, South Africa , , , [4]Wits Diagnostic Innovation Hub University of the Witwatersrand, Johannesburg, South Africa, Johannesburg, South Africa, , , [5]ReSyn BioSciences, Edenvale, South Africa, , , [6]Evosep Biosystems, Odense, Denmark , , , [7]Future Production Chemicals, Council for Scientific and Industrial Research, Pretoria, South Africa, , , [8]Wits Donald Gordon Medical Centre, School of Clinical Medicine, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa, , , [9]South African Medical Research Council/Wits University Rural Public Health and Health Transitions Research Unit (Agincourt), School of Public Health, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa, ,
Background: Kidney function parameters including estimated glomerular filtration rate (eGFR) and urine albumin excretion are commonly used to diagnose chronic kidney disease (CKD). However, these parameters are relatively insensitive, limiting their utility for screening and early detection of kidney disease. Studies have suggested that urinary proteomic profiles differ by eGFR stage, offering potential insights into kidney disease pathogenesis alongside opportunities to increase the sensitivity of current testing strategies. In this pilot study, we characterized and compared the urinary proteome by eGFR stage in a Black African cohort from rural Mpumalanga Province, South Africa.
Methods: We stratified 81 urine samples by eGFR stage (ml/min/1.73 m²): Stage G1 (eGFR ≥ 90; n=36), Stage G2 (eGFR 60–89; n=35), and Stages G3–G5 (eGFR <60; n=10). Creatinine-based eGFR was calculated using the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) equation (2009) without adjusting for ethnicity. Urine proteomic analysis was performed using an Evosep One LC coupled to a Sciex 5600 TripleTOF in data-independent acquisition mode. Nonparametric multivariate analysis and receiver operating characteristic (ROC) curves were used to assess the performance of differentially abundant proteins (DAPs). Pathway analysis was performed on DAPs.
Results: In this pilot study, thirty-eight urinary proteins were differentially abundant for eGFR stages G3–G5 when compared to Stages G1 (AUC = 0.95; CI: 0.86–1) and G2 (AUC = 0.84; CI: 0.64–0.98). Notably, only six urinary proteins (CST6, GGT6, SUSD2, IGFBP6, HSP90B1, and MAN1A1) were differentially abundant when comparing Stage G1 and Stage G2 with a modest AUC=0.81; CI: 0.67–0.92). Pathway analysis indicated that DAPs were associated with haemostasis and fibrin clot formation.
Conclusions: In a rural cohort from South Africa, the urinary proteome differed by eGFR stage, identifying six differentially abundant proteins, which in combination, could help to differentiate earlier eGFR stages with higher predictive accuracy than currently available tests. These preliminary findings need to be validated in larger regional multi-site studies.

Impact of iron deficiency status on outcomes in patients with non-dialysis dependent chronic kidney disease

Firas AlTheyaib[1], Dr Sharmilee Rengarajan[2], Dr Hannah O'Keeffe[1,2], Dr Ivona Baricevic-Jones[2], Rajkumar Chinnadurai[1,2], Professor Philip A. Kalra[1,2]
[1]University of Manchester, Manchester, United Kingdom, [2]Northern Care Alliance, Manchester, United Kingdom

Introduction

Iron deficiency is common in chronic kidney disease (CKD) and may result from either functional or absolute iron deficiency. We postulated that the presence of functional iron deficiency in patients with non-dialysis CKD (NDCKD) is associated with poorer outcomes including increased mortality.

Methods

CKD patients who received their first dose of an iron infusion in our organisation between January 2017 and December 2019 were included, with follow-up through to December 2023. Demographic, comorbidity, treatment, laboratory, and outcome data were extracted from the organisation's electronic patient record. Of 500 patient records reviewed, 365 had the required data on iron indices and treatments and were included in the study. Patients were categorised into three groups based on iron deficiency status generated by one year time-averaged ferritin and transferrin saturation (TSAT) 12 months before their iron infusion: functional iron deficiency (FID) with transferrin saturation (TSAT) <20% and ferritin >100µg/ml, absolute iron deficiency (AID) with TSAT <20% and ferritin ≤100µg /ml, and standard iron parameters (SIP). Analyses were performed using SPSS software.

Results

Of the 365 patients included, 128 (35.1%) had FID, 142 (38.9%) AID, and 95 (26.0%) SIP. Baseline characteristics and outcomes are compared across the groups in Table 1. Patients with FID were younger with a median age of 74 (IQR 67-84; p=0.044) years. 52.8% of patients with AID, and 50.8% of patients with FID had a prior cardiovascular event (CVE), compared to 29.5% of those with SIP (p=0.001). Median time-averaged ferritin was highest in those with FID (213µg/ml), and lowest in those with AID (42µg/ml), (p<0.001). Median time-averaged TSAT was 12.5% in those with AID, 15% in those with FID, and 23.5% in those with SIP (p<0.001). Monthly iron dosage requirement was highest in those with FID, but this was not statistically significant. Monthly erythropoietin-stimulating agent (ESA) dosage was highest in those with AID, but there was no statistically significant difference between the groups.

Those with FID (60.2%) and AID (53.5%) were significantly more likely to die during follow-up than those with SIP (41.1%), (p=0.018). Patients in the SIP cohort were more likely to reach RRT, with RRT in 36.8% of SIP versus 6.3% of AID and 21.9% of FID (p<0.001), but significantly more of the SIP cohort had CKD stage 5 at baseline (p<0.001).

Discussion

FID and AID were common in this cohort with NDCKD. Significant differences in dosage of iron and ESA between groups were not found. Although those with FID were significantly younger than the other sub-groups, they had significantly more CVE at baseline, and were more likely to die during study follow-up. Patients with AID were also more likely to die than those with SIP. Those in the SIP subgroup were more likely to reach RRT, but statistically more of these patients had CKD 5 at baseline, and this also reflects survival bias given the lower mortality in the group. Further extension of analysis to the entire cohort can throw light on the real differences in outcomes between the groups.

Accuracy of glomerular filtration rate estimation using creatinine and cystatin C for monitoring moderate chronic kidney disease in adults: a prospective, longitudinal cohort study

Ms Katie Scandrett[1], Dr Alice Sitch[1], Jonathan Barratt[2], Ms Elizabeth Brettell[1], Professor Paul Cockwell[3], Professor R Neil Dalton[4], Professor Jon Deeks[1], Ms Gillian Eaglestone[5], Ms Tracy Pellatt-Higgins[6], Professor Philip Kalra[7], Prof Kamlesh Khunti[2], Ms Fiona Loud[8], Mr Ryan Ottridge[1], Ms Aisling Potter[9], Dr Ceri Rowe[9], Dr Paul Stevens[5], Professor Claire Sharpe[10], Professor Bethany Shinkins[11], Dr Alison Smith[12], Dr Andrew Sutton[12], Professor Maarten Taal[13], Dr Edmund Lamb[9]
[1]University of Birmingham, , , [2]University of Leicester, , , [3]Queen Elizabeth Hospital Birmingham and Institute of Inflammation and Ageing, University of Birmingham, , , [4]WellChild Laboratory, Evelina London Children's Hospital, St. Thomas' Hospital, , , [5]Kent Kidney Care Centre, East Kent Hospitals University NHS Foundation Trust, , , [6]University of Kent, , , [7]Department of Renal Medicine, Salford Royal Hospital Northern Care Alliance NHS Foundation Trust, , , [8]Kidney Care UK, , , [9]Clinical Biochemistry, East Kent Hospitals University NHS Foundation Trust, , , [10]King's College London, , , [11]University of Warwick, , , [12]University of Leeds, , , [13]Department of Renal Medicine, University Hospitals of Derby and Burton NHS Foundation Trust, ,

Objectives
Equations to estimate glomerular filtration rate (GFR) in patients with chronic kidney disease (CKD) must be able to accurately detect changes in GFR to be clinically useful. Little data exists to assess the longitudinal accuracy of GFR-estimating equations including creatinine and cystatin C.

Design
A prospective, longitudinal study to assess accuracy of GFR equations to monitor CKD in people (n=875) with moderate CKD.

Setting
Primary, secondary and tertiary care across six centres in England.

Participants
Adults (≥18 years) with creatinine-estimated GFR at recruitment between 30 and 59 mL/min/1.73 m2 were followed-up for three years.

Interventions
GFR was estimated using the following equations: Chronic Kidney Disease Epidemiology Collaboration (original and 2021 revised versions), Modification of Diet in Renal Disease (MDRD) Study, Berlin Initiative Study (BIS), the Caucasian, Asian, Pediatric and Adult (CAPA), the Lund-Malmo Revised (LMR), the Full Age Spectrum (FAS) and the European Kidney Function Consortium (EKFC).

Main outcome measures
Measured GFR (iohexol clearance) was the reference used to determine the ability of equations to monitor GFR over the three years (using the limits >±3 mL/minute/1.73 m2 per year to signify a large discrepancy). We assessed which GFR-estimating equation most accurately detected change in measured GFR >|25%|over 3 years (plus a change in disease category), or a decline in measured GFR over three years (plus a decline in disease category).

Results
All equations achieved >70% concordance with measured GFR over the three-year period, dual biomarker equations performed better than their single biomarker counterparts. All GFR equations had poor sensitivity (<60%) for detecting change in measured GFR (and disease progression).

Conclusions

Equations that include both creatinine and cystatin C monitor measured GFR better than single biomarker equations and may be preferred. However, all equations showed poor sensitivity to detect changes in measured GFR.

Changes in mortality of people on dialysis in the UK over the last 20 years

Professor Andrew Davenport[1], Dr Retha Steenkamp[2], Professor Dorothea Nitsch[1,2,3]
[1]Royal Free Hospital, London, United Kingdom, [2]UK Kidney Association, Bristol, United Kingdom, [3]London School of Hygiene & Tropical Medicine, London, United Kingdom

Background:

Traditionally cardiovascular death has always been reported as the major cause of death for kidney dialysis patients. In high-income settings there has been a sustained decrease in cardiovascular death rates over the past decades. We carried out more detailed analysis of trends of mortality in people starting haemodialysis (HD) and peritoneal dialysis (PD) over the past 20 years using UK Renal Registry data and investigated whether there was evidence of inequalities by age, sex, and ethnicity.

Methods:

We used incident patients starting chronic HD and PD in the UK reported to the UK Renal Registry and obtained information on date of death and cause of death from renal centres (including withdrawal from dialysis) and the Office of National Statistics (ONS) to obtain date of death, first underlying cause of death). When a renal centre reported a patient had withdrawn from dialysis we took this as the primary cause of death, rather than the ONS reported cause of death. We computed incidence rates of all-cause mortality, death due to withdrawal from dialysis, cardiovascular mortality, and mortality from infection at 1 year and 5 years after starting dialysis. Data are in age-specific strata. Comparisons of sex, deprivation-quintile and ethnicity used age-standardisation to account for the change in age profile over time.

Results:

All-cause mortality in HD patients within 1 year of starting approximately halved from 315/1000 patient years (py) in 2001 to 152/1000py; respective numbers for PD were 102/1000py to 82/100py, with the most marked decrease in all-cause mortality in those aged >65 years starting HD. All-cause mortality was highest in those of white ethnicity on HD (Figure 1). Withdrawal treatment within one year was more commonly seen for those starting HD than for those starting PD (around 20/1000py vs 5/1000py) without any clear evidence of a trend over time. Cardiovascular mortality has mainly decreased in the HD population over time whilst with a less marked changed in PD patients (Figure 2), with no clear evidence of a female advantage. Cardiovascular mortality was lower for Black patients compared to White patients starting HD in most years. There was no evidence of a difference in trends cardiovascular mortality for people on PD by ethnicity or deprivation quintiles. Trends in death from infections within 1 year of starting dialysis showed a peak in mortality in 2020, but otherwise there was no clear evidence of a change over time in either modality, nor of inequalities by sex, deprivation or ethnicity. When looking at 5-year mortality rates from infection, there is an apparent gradual increase over time both for PD and HD (Figure 3).

Conclusion:

In line with general population data cardiovascular mortality in people starting dialysis has declined over time. The pandemic had a marked impact on infection-related mortality, but there has been a gradual increase in death from infection which preceded the pandemic. Whether changes in all-cause

mortality reflect differences in clinical and demographic characteristics in patients starting dialysis or clinical practice patterns remains to be determined.

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Patient information, education and support - the benefits of an ADPKD information & support day

Mrs Susan Muirhead[1], Ms Jane Pugh[1]
[1]PKD Charity, , United Kingdom

Introduction

Autosomal Dominant Polycystic Kidney Disease (ADPKD) is the most common inherited kidney disorder, affecting 7–10% of patients with kidney failure. To address the need for reliable information and community support, PKD Charity held an ADPKD Patient Information Day in Birmingham in September 2024. This event aimed to share accurate information, debunk common myths, discuss current treatments, and provide hope for the future for patients and their families.

Methods

The event, held at the Midlands Art Centre, was a collaboration between healthcare professionals and PKD Charity, leveraging the charity's expertise in patient education. Free registration was promoted via clinic invitations, mailings from the PKD Charity database, and social media.
The day included expert presentations, interactive workshops, and networking opportunities for patients and families at various stages of disease progression. Attendees arrived at 9:30am, with presentations starting at 10:15am. After lunch, workshops were offered, and the event concluded at 4:30pm.

Results

Out of 141 registrations, 98 attendees participated in the event. For 80% of survey respondents, this was their first-ever PKD event. A satisfaction survey completed by 51 participants revealed overwhelmingly positive feedback:
The top three rated presentations (title, rating):

PKD: The Basics 4.62 / 5
Kidney Transplant: What to expect 4.61 / 5
Tolvaptan (patient story) 4.47 / 5

An attendee described the event as both emotionally challenging and profoundly rewarding:
"I was nervous and emotional at the start of the conference…it is a difficult thing to spend a day learning about PKD when you suffer from it, given the way it progresses".
Participants praised the organisation and accessibility of the event, with 98% expressing satisfaction or high satisfaction. Topics of interest for future events included dietary guidance and managing treatment side effects.
Survey participants gave feedback on various statements:

(Image of table of results)

The event created a safe space for patients to share their journeys and gain practical advice from experts. Attendees reflected on the benefits of participating:
"Every talk was educational and well-explained."
"I now have a better understanding of PKD genetics and its impact on the body."
"It was so comforting to meet others with PKD - I finally feel less isolated."

Conclusion/Discussion

This ADPKD Patient Information Day demonstrated the value of community-driven initiatives in educating and supporting patients and their families. By fostering connections, providing actionable knowledge, and addressing unmet needs, the event delivered transformative benefits to participants. PKD Charity plans to share these insights with healthcare professionals to further enhance patient care.

Samantha, a PKD carer and mother of an affected young adult, summed up the day's impact beautifully:

" Attending this event gave us hope and a sense of belonging. I discovered that life wasn't as lonely as I had felt it was. Once I met other families and loved ones in the same situation, I realised I was with my extended family - my PKD family! Sharing our experiences and journeys together is simply priceless, as no one else can truly understand like we do. We're not in this alone anymore."

Accuracy of glomerular filtration rate estimation using creatinine and cystatin C for identifying moderate chronic kidney disease in adults: baseline analysis from the eGFR-C study

Dr Edmund Lamb[1], Jonathan Barratt[2], Ms Elizabeth Brettell[3], Professor Paul Cockwell[3], Professor R Neil Dalton[4], Professor Jon Deeks[3], Ms Gillian Eaglestone[1], Ms Tracy Pellatt-Higgins[5], Professor Philip Kalra[6], Prof Kamlesh Khunti[2], Ms Fiona Loud[7], Ms Phoebe Mead[3], Ms Aisling Potter[1], Mr Ryan Ottridge[3], Dr Ceri Rowe[1], Ms Katie Scandrett[3], Dr Alice Sitch[3], Dr Paul Stevens[1], Professor Claire Sharpe[8], Professor Bethany Shinkins[9], Dr Alison Smith[10], Dr Andrew Sutton[10], Professor Maarten Taal[11]

[1]East Kent Hospitals University NHS Foundation Trust, Canterbury, UK, [2]University of Leicester, Leicester, UK, [3]University of Birmingham, Birmingham , UK, [4]Evelina London Children's Hospital, London, UK, [5]University of Kent, Canterbury, UK, [6]Salford Royal Hospital Northern Care Alliance NHS Foundation Trust, Salford, UK, [7]Kidney Care UK, Alton, UK, [8]University of Nottingham, Nottingham, UK, [9]University of Warwick, Coventry, UK, [10]University of Leeds, Leeds, UK, [11]University Hospitals of Derby and Burton NHS Foundation Trust, Derby, UK

Introduction.

Equations used to estimate glomerular filtration rate (GFR) include those based on creatinine and cystatin C, an alternative kidney function marker. Given higher cost of cystatin C, its clinical utility in relevant populations requires validation before widespread introduction into clinical practice.

Methods.

A prospective study assessing accuracy of GFR equations in people with moderate CKD was undertaken in primary, secondary and tertiary care across six centres in England.

Adults (>18 years, n=1167) with creatinine-estimated GFR at recruitment between 30 and 59 mL/min/1.73 m2 were recruited to the study. GFR was estimated using the following equations: Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI, original and 2021 revised versions), Modification of Diet in Renal Disease (MDRD), Berlin Initiative Study (BIS), Caucasian, Asian, Pediatric and Adult (CAPA), Lund-Malmo Revised (LMR), Full Age Spectrum (FAS) and European Kidney Function Consortium (EKFC). Serum creatinine was measured using an enzymatic assay and cystatin C by immunoassay. Measured GFR (iohexol clearance) was the reference against which estimating equations were compared. Accuracy was expressed as P30 (percentage of values within 30% of reference).

Results.

Median age was 67.5 years; 58.3% male; 86.9% white; 27.8% diabetes; 57.0% albuminuric; median measured GFR was 47.0 mL/min/1.73 m2. Cystatin C measurement was critically affected by test calibration. After adjustment for this, accuracy (P30) of all equations exceeded 84.1%. Creatinine-based equations generally demonstrated positive bias at lower levels of GFR (approximately <30-40 mL/min/1.73 m2) and negative bias at higher levels of GFR (approximately >40 mL/min/1.73 m2), which increased in magnitude as level of GFR increased: this effect was largely attenuated when cystatin C was incorporated in the equations. Equations that incorporated both creatinine and cystatin C were more accurate than those using either biomarker alone. Differences in accuracy across age, gender, diabetes, albuminuria, BMI, GFR level and ethnicity varied by equation. Removal of the adjustment factor for black race in the MDRDcreatinine, CKD-EPIcreatinine and CKD-EPIcreatinine-cystatin equations resulted in decreased point estimates of P30 for these participants.

Discussion.

GFR estimating equations evidence variable bias compared to measured GFR. The original CKD-EPIcreatinine equation has acceptable accuracy in a UK population with moderate CKD. Equations that include both creatinine and cystatin C have improved accuracy and reduced bias. Provisional evidence suggests removing the black race factor from GFR equations may reduce accuracy in black individuals living in England.

Exploring reasons for non-attendance at Renal Young Adult clinics

Miss Holly Davenport[1], Dr Constantina Chrysochou[2]
[1]Salford Royal Foundation trust, Salford, United Kingdom, [2]Donal O Donoghue Research Centre, Salford, United Kingdom

Introduction: Evidence shows young people are often lost when transferring from paediatric care to adult care. The loss of continuous care for young people results in increased negative outcomes including: higher risk of morbidity, mortality and higher reliance on the emergency department for care. The Salford Royal Young Adult Clinic (YAC) is a renal clinic that began in 2013 and is open to all 16-30 year olds, it has previously demonstrated significant improvements in non-attendance rates (22% to 6%) and engagement. During lockdown all appointments were shifted to telephone appointments and have since become a hybrid of face to face and telephone. Anecdotally clinicians have observed the non-attendance rate has worsened since implementation of a hybrid model. This project aims to explore the rate and reasons of non-attendance post lockdown when the change to hybrid appointments occurred.

Methods: Quantitative and qualitative analysis of attendance data from the past two years at YAC. Data collected anonymously to clinical team by independent medical student. Reasons for non-attendance assessed via a patient questionnaire, face to face and phone call interviews.

Results: A total of 564 appointments were made between January 2023. Of these 59.6% (n=317) were attended, 16.0% (n=99) were not attended without warning, 23.0% (n=125) were cancelled before the appointment and 1.1% (n=10) were cancelled the day of. From questionnaire respondents a key issue was lack of communication regarding the type of clinic appointment (i.e. telephonic or face to face), lack of options as to which to pick or contact details of admin team, as well as difficulties commuting to appointments.

Discussion: Questionnaire results provided an insight on patients reasons for non-attendance and interventions the clinic can support going forwards. 16.3% of non-attendance without warning was higher than pre-Covid figures (6%) but not as high as pre-YAC (22%). We postulate this might be due to the pre-clinic mental health questionnaires sent out to patients which might have added an additional prompt and purpose to clinic attendance. Two interventions planned from this data are: clarity regarding means to contact the admin team when unable to attend an appointment or claiming travel support if on benefits.

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A new service supporting young adults in Renal Medicine and Renal Transplant Medicine

Miss Sharlene Taylor[1], Prof Jeremy Hughes[3], Ms Dawnn Relph[2], Dr Trijntje JW Rennie[1]
[1]Royal Infirmary of Edinburgh, Edinburgh, Scotland, [2]Edinburgh City Council, Edinburgh, Scotland, [3]University of Edinburgh, Edinburgh, Scotland

Introduction

A young adult support worker post was established in May 2023 to enhance the holistic care of young adults (16-35 years old) with Chronic Kidney Disease in our NHS trust. The service was evaluated after 18 months.

Methods

The Young Adult Support Service provides support to young people living with Chronic Kidney Disease who are under the care of the adult renal unit in two adjoining NHS trusts (approximately 600 patients of whom 180 aged 16-25 years). Individuals often feel isolated due to their chronic disease and are at high risk of non-concordance with treatments thereby placing them at risk of sub-optimal outcomes.

Bespoke 1-1 support and advice is provided on a range of health and social topics, and group activities are organised to promote the development of peer support networks.

In one year, 93 young adults were referred to the service: approximately 26 young adults are receiving 1-1 support at any one time. The main areas of support provided thus far include transition from paediatric to adult nephrology, specific advice or signposting with regards to their kidney condition, financial support (e.g. grants and benefits) and support with education, employment and volunteering. The support worker attends paediatric-adult transition clinics and meets young adult patients in other clinic settings when required, e.g. in the dialysis unit, during admissions or at home.

A peer support group is established, workshops are organised to discuss various topics including sexual health, alcohol, drugs, managing sleep and coping with anxiety. Links were established with with community organisations. Charity funding allowed UK wide young patients to be brought together for events with guest speakers (Scottish Kidney Federation and Citizens Advice). Eleven young adults signed up for a UK charity residential weekend in Derbyshire this summer.

Patients using this new service were invited to complete a survey to share and assess whether there remain unmet needs. Full survey results will be available 2025.

Results

Interim survey results (N=34) have highlighted that the young adults support service has contributed positively to the transition process from paediatric to adult nephrology services; promoting their independence to manage their condition, increase confidence and interact with the medical team. Case studies indicated 1-1 support with support worker has improved engagement and compliance, enabling the initiation of transplant workup, prevention of readmissions, improving outcomes and thus reducing healthcare costs.

Friendships were formed after meeting at the peer support group and funding has been secured to run an art project to creatively express themselves with plans to display the work in an exhibition at the local hospital.

Conclusion:

The Young Adult Support Service for patients aged 16-35 with chronic kidney disease has now been established in two adjoining NHS trusts, collaborating with external agencies and national charities. Interim survey results and informal feedback from patients and staff has been positive and funding has been secured for continuation of the service.

Setting up a Renal Supportive Care Service

Dr Jacqueline Nevols, Ms Melanie Morton, Mrs Vicky Lush, Mrs Debra Fletcher, Mrs Mary Bish
[1]Wessex Kidney Centre, Portsmouth, United Kingdom

Introduction

Renal supportive care (RSC) is designed to integrate holistic palliative care into routine nephrology care. Symptom control, advance care planning and psychosocial support are the main pillars of RSC. Until June 2021, no specific service existed in our renal unit. This paper describes activity delivered in the first 3 years, delivered by one lead consultant, one specialist nurse, two renal counsellors and one health care support worker.

Methods

From June 2021 to April 2024, demographic data were collected for each referral to the RSC service. Reasons for referral, frailty scores, concordance with end of life wishes, and counselling outcome scores were also collected. We recorded bed occupancy for dialysis patients in the last year of life.

Results

During this period, 464 RSC referrals were received, 59% male, median age 77 years, median Rockwood Frailty score of 6. A total of 721 separate appointments (including clinic appointments, telephone consultations and home visits) with the specialist nurse took place (range 1-8 per patient). A total of 201 patients have since died.

211 patients were on haemodialysis, 165 were managed conservatively. The remainder were a combination of transplant, nephrology/CKD, peritoneal dialysis and home haemodialysis patients.

41% of referrals were for help with advance care planning and end of life care, 25% required psychosocial support. Other reasons for referral were poor compliance with dialysis, symptom control, and frailty. Of the patients who died, 71 died in hospital, 74 at home, and 52 in a nursing home or hospice (4 data unknown). 48 patients documented their preferred place of death, all managed to achieve concordance with their wishes, the remainder having not yet voiced their preference, or had no preference.

144 patients were referred for counselling. These sessions focused on self care and maintenance of health. We provide health and wellbeing coaching and cognitive behavioural therapy where appropriate. The Clinical Outcomes in Routine Evaluation (CORE) scores showed a 48% improvement in patients' distress following counselling, with numerous examples of positive feedback. We also offer a monthly bereavement support group for grieving relatives. This is well attended.

We meet as a multidisciplinary team monthly to discuss complex and challenging patients, and to work on team strategies and goals.

Since the RSC service began, there has been a 53% reduction in bed days for haemodialysis patients in the last year of life. This is very encouraging data.

Discussion

During these challenging financial times, we have encountered difficulties and delays in securing funding for our service. There is much work still to be done. However, we are proud to present our first few years' worth of activity to the wider renal community.

Our specialist nurse and counsellors are working at full capacity. The demand for RSC will continue to grow as frailty, age and complexity increases. We have now employed a clinical psychologist, and aim to expand the nursing team. We also work jointly with Kidney Care UK's Patient Support and Advocacy Service.

We feel RSC is a crucial pillar of care for many of our patients.

The nurses role in renal supportive care; a review of interventions and impact.

Mrs Deborah Grove[1]
[1]Oxford University Hospitals NHS Foundation Trust, Oxford, England

Aims and Objectives
The aim of the renal supportive care (RSC) service is to identify and support patients on dialysis who are either deteriorating despite dialysis and /or may be considering withdrawal from dialysis.
A key part of the nursing role is to engage with patients and their families and offer opportunities for evaluating symptom burden, advance care planning and preparation for end-of-life care for patients, their families and loved ones.
Background
As the RSC approach has been embedded in the service (across eight dialysis units and the home therapies team), the team has received feedback from patients on the impact that the nursing team has had on their lives and on the end of their life from families and loved ones. Building on these positive reports, the nursing team were keen to establish the nature of the nursing interventions that contributed to this.
Methods
A data base was designed to capture referrals to the renal supportive care team. Specific nurse interventions were identified along with willingness to engage in advance care planning. Where possible preferred place of death and actual place of death was also captured. Data was extracted for all patients known to the service who have died in the last 12 months and the nursing interventions were analysed to identify common themes and nursing interventions.
Results/Findings
This results demonstrate the impact that the RSC team have had in engaging patients on dialysis in RSC. Preferred place of death as a quality measure enables the service to showcase its success but also identify where opportunities exist to improve participation and decision making in patients future care. Embedding RSC principles more widely throughout the patient journey from pre dialysis to dialysis and end-of-life care is a fundamental step to normalising conversations about the future. The themes identified in this review reflect the complexities and emotional demands of nursing interventions within the RSC group. The importance of emotional strength, resilience, and the ability to manage varied clinical demands are emphasised.
Conclusion
Ultimately, the findings demonstrate the integral role of the RSC service in patient care within the unit, showcasing its evolution and the ongoing need for dedicated, informed, and compassionate care for dialysis patients.

Audit of a sleep quality questionnaire in a haemodialysis population.

Mrs Emma Taylor[1]
[1]Queen Elizabeth Hospital Birmingham , Birmingham, UK

Introduction

Whilst reviewing patients on the haemodialysis unit, it is often mentioned by the patient about poor quality of sleep. This audit was undertaken to ascertain how much of an issue poor sleep is and possible causes.

Method

The Pittsburgh Sleep Quality Index (PSQI) tool was used as was a validated tool. Copies of the questionnaire were given to all patients in one haemodialysis unit (n120). These could be completed whilst at the haemodialysis unit or taken home and returned. Patients were asked to rate how often certain issues interrupted sleep (not getting to sleep within 30 minutes, waking up in the middle of the night/early morning, using the bathroom, cannot breathe comfortably, cough/snore loudly, too cold, too hot, bad dreams and pain), estimate actual sleep time and to rate their overall quality of sleep.

Results

Of the 120 questionnaires, 57 were returned (48% response rate). Age groups of respondents are as follows: 18-24 =1; 25-34 = 4; 35-44 = 6; 45-54 = 5; 55–64 = 11; 65-74 = 9; 75-84 = 13; 85-94 = 8. Estimated hours of actual sleep are as follows: 0-1hours, 1; 2-3hours, 4; 3-4hours, 4; 4 – 5hours, 9; 5-6hours, 6; 6-7hours, 12; 7-8hours, 9; 8-9hours, 5 and 9-10hours, 4. The highest frequency (three or more times a week) was recorded for “cannot get to sleep within 30minutes”, where 26 (46%) patients reported this; and “waking up in the middle of the night or early morning”, 32 patients (56%). Of the other issues, those that caused a disturbed sleep 3 or more times a week were: “Coughing/snoring”, 13 patients (23%); “Pain”, 14 patients (25%); Cannot breathe comfortably, 8 patients (14%); using the bathroom, 13 patients (23%), too cold, 13 (23%); too hot, 10 (18%). Thirty-three patients (58%) rated their sleep quality as fairly good; 11 (19%) as fairly bad; 6 (11%) as very good and 6 (11%) as very bad. Having enough enthusiasm to get things done, 15 patients reported no problem, 15 patients, only a slight problem, 13 patients, a very big problem and 12 having somewhat of a problem.

Discussion

Poor sleep is well documented in the haemodialysis population, despite this it continues to be an ongoing issue. National advice is that on average adults need between 7 – 9 hours of sleep a day. This audit showed that 36 patients (63%) were obtaining less than 7 hours. Only 15 patients (26%) reported having enough enthusiasm to get things done, showing that 74% of the patients who returned questionnaires felt that it affected their daily lives. It is noted that this questionnaire is not specifically for renal patients and other factors may play a role with sleep disturbances; for instance itching, although this was not specifically asked in the questionnaire, there was a free text box for other reasons to be documented, but most patients did not complete this. This audit would indicate the benefit of discussion regarding sleep quality to be undertaken as part of general reviews.

A Greener Approach to Outpatient Clinics: A Network Perspective

Mr Alastair Tallis, Dr Stephen John

Introduction

The NHS Long Term Plan (2019) sets out a vision for integrating digitally enabled outpatient care across the NHS. Telephone, video, and e-clinics offer significant benefits to renal clinicians, patients, and their GPs, while also reducing carbon emissions. This approach is supported by case studies, such as the Tower Hamlets CKD e-clinic (2015) and the University Hospital of Coventry and Warwickshire's telephone follow-up clinics for transplant recipients (2010). Over the past five years, accelerated by the COVID-19 pandemic and technological advancements, there has been a strong focus on remote patient access to services. However, challenges persist due to variability across centres. To address this, the network plans to evaluate practice differences, identify barriers, and examine changes since the height of the pandemic across its 11 renal units, while exploring pathways to enhance the sustainability of outpatient clinics.

Methods

A web-based survey with 9 questions has been developed, ratified and sent to all clinical and nursing leads of each unit within the region which have been summarised below:

- When considering the entire outpatient appointments your unit completes in a 12 month period; what is the percentage that occur face to face where patients visit you in clinic, what percentage occur over the telephone, what percentage occur via video link?
- What would be the reason to seeing the patient face to face in clinic over other methods, speaking to the patient over the telephone or seeing the patient via video link?
- Does the type of clinic (such as transplant follow ups or AKC reviews) and working site affect the type of outpatient appointment method? Can you explain how and why if this does affect it?
- In your opinion, how has outpatient appointment changed over the past 12 months and since the height of the Covid-19 pandemic?

Results

The survey has been sent out in November 2024 with 6 responses, so far, the results show: -

Common themes for the reasons for face to face outpatient appointments:
Patient choice, The need for a clinical assessment
,Discussing dialysis options, Giving potentially devastating news,
Assessment of new referrals, Patient already visiting the site

Common themes for changes since the height of the Covid-19 pandemic:
Patients prefer face to face appointments, Face to face appointments back to business as usual,
Telephone appointments do not save time, Patients are critical of telephone appointments

Interestingly, differences in outpatient methods are influenced by the type of clinic, while the hospital site does not appear to have an impact: -

Discussion

Further analysis will be conducted once all units have responded. Preliminary data indicates that most outpatient appointments have reverted to face-to-face consultations following the peak of the COVID-19 pandemic, with key themes highlighting the need for this shift. The next steps for the

network involve analysing all responses and establishing patient and clinician focus groups to explore how units can transition to a more sustainable, environmentally friendly approach.

The experience and outcomes of our centre's first year accepting Hepatitis C positive deceased donor kidneys for transplantation

Dr Daniel Whitbread[1], Mrs Linda Boorer[1], Mr Robert Elliot-Cooke[1], Professor Matthew Cramp, Ms Lauren Hall[1], Mrs Leanne Stannard[1]
[1]University Hospitals Plymouth - Derriford, Plymouth, United Kingdom

A recent British Transplant Society (BTS) position statement on the use of organs from deceased donors with either a history of or active Hepatitis C (HCV) stated that on average 15 donors are turned down every year, which leads to 75 suitable organs being discarded. The BTS has suggested that, with appropriate selection of recipients, these organs could be suitable for transplantation. This is further supported by the SaBTO position statement that the benefits of organ transplantation from a HCV infected donor should outweigh the risks, but that HCV infection in the donor does not amount to an absolute contraindication for the donation of organs.

Over the last year, our unit has begun accepting renal transplants from HCV-positive deceased donors. Our patients are provided with key information so that they can make an informed choice about the potential risks of accepting these kidneys. They are informed that if they do develop active HCV, each course of anti-viral treatment has a rate of cure of between 96-98%, meaning the odds of untreatable disease are less than 1 in 2500. Our protocol for testing for HCV following transplantation is also clearly explained. Currently, 7.5% of our Transplant Waiting List are consented to accept HCV positive donor kidneys.

Accepting HCV donor kidneys has meant that as a unit, we have received 22 more deceased donor offers in the last year than we otherwise would have. Of these, 10 were accepted and 5 proceeded. 2 of these were from HCV RNA positive donors and 3 from HCV antibody positive donors. Of these 5 recipients, 2 developed active viraemia, and these were both patients who received kidneys from donors with active HCV. Both of our patients who developed active viraemia were treated successfully.

Patient A developed a viraemia with genotype 3a HCV 6 days following transplantation. She completed an 8-week course of Maviret but her viral load rebounded following cessation of treatment. She then underwent a 16-week course of Epclusa to ensure a sustained virological response at 12 weeks following completion of treatment (SV12), and has successfully achieved SV12 clearance. Her most recent eGFR is 81ml/min.

Patient B developed a viraemia with genotype 3a HCV 2 days following transplantation. She completed a 16-week course of Maviret with sustained virological response and no second course of treatment required. Her most recent eGFR is 55ml/min.

We have found that the recipients of both of the sister kidneys of our recipients did also develop viraemia, and that both were treated with successful SV12 clearance.

Our experience of our first year of accepting kidneys from HCV-positive donors has led to an increased number of offers. Of those that have gone ahead, 2 of 5 patients have developed active viraemia and both of these have been successfully treated. We are encouraged by this small number of results and will continue with this programme in the hopes that more of our patients will consent to HCV-positive donor kidneys in future, with ongoing good outcomes.

Developing hybrid Kidney care models through facilitated modelling.

Mr Alastair Tallis, Mrs Marie Atkins, Professor Mark Lambie

The number of patients on in-centre dialysis has been inexorably rising in the UK for several decades. This makes the management of KRT services challenging, with an urgent need to minimise future demand for in-centre dialysis, along with the associated ill-health, environmental and healthcare expenditure. The need for optimisation of transplantation and home therapies, as well as reducing the progression of CKD to kidney failure. In addition, predicting the increased capacity needed for unavoidable in-centre dialysis can support decisions for new dialysis units to be built and staffed. Achieving this will require realistic and evidenced estimates of the impact of investment in different strategies that may be used, taking population, ethnicity and age changes into account. This will help drive an approach that integrates primary, secondary and tertiary care of patients with kidney disease within the NHS.

Methods:

We are developing a model that aims to support planning and decision making for provision of KRT services. The model combines two modelling approaches, discrete-event (DES) and system dynamics (SD). The SD model represents the demand for kidney care by modelling disease progression in patients over time, and the DES model represents the provision of care services including kidney transplantation and the different types of dialysis offered, to cater for the predicted patient demand. The model developed provides a more accurate representation of current care pathways. Furthermore, demand for kidney care is more accurately represented as it is generated by a separate model component (SD model) that tracks disease progression in the patient population. Such a model that operates at both level is currently not available.

Results:

The aim of this project is to develop a generic model that can be customised with data to be used by local renal services across the UK. The study adopts a hybrid modelling approach, combining SD and DES models, that includes kidney disease progression that triggers demand for kidney care (SD) and capacity requirements for KRT from a service level perspective (DES).
This project is the first to offer a hybrid simulation (SD and DES) model that uses both methodologies to analyse the future demand for KRT. Together these methods can simulate both individual patient pathways and systemwide dynamics, offering a comprehensive representation of the future demands for KRT services, considering the impacts of both upstream and downstream interventions.

Discussion:

The Kidney Network is currently undertaking a capacity audit for staffing and dialysis slots which will inform conversion of demand to capacity requirements. The models presented are still at a preliminary stage, plans to redevelop the models in open source are in place to enable further deployment and embedding into service planning. The hybridisation of the models will be done in an open-source python modelling tool. This will utilise the outputs of the system dynamics model for CKD, forecasts of AKI, rare and genetic kidney diseases and paediatric transition to determine the number and characteristics of patients entering the KRT model, this will enable wider sharing of the model for use by other Kidney networks across the UK.

Understanding the role of communication in the development of an equitable Renal Supportive Care service.

Mrs Emma Wiseman[1], Dr Victoria Carnall, Dr Robert Kimmitt, Ms Christine Budd, Mrs Michaela Dicks
[1]Royal Devon University Hospital Trust, Exeter, England

Background

Renal Supportive Care (RSC) involves supporting patients with kidney failure who choose not to have dialysis, who are not thriving on dialysis, or who wish to withdraw from dialysis treatment. Renal Supportive Care is delivered in an ad-hoc manner by a variety of clinicians with differing clinical backgrounds and job roles nationally. This evolving area of practice is a priority area of the Renal Transformation programme.

A new RSC service was set-up in our local unit 18 months ago. Acknowledging the challenges of developing a RSC that provides equity of provision, a review of the location of communication and the communicators necessary for promoting RSC was instigated. Examining forms of communication which obstruct service delivery helps to inform future service delivery and improvement.

Methods

The new RSC service in Exeter was set up and principally delivered by an experienced palliative care nurse with previous experience in local service referral processes and delivery and significant experience with palliative conversations.

The RSC prospectively collected data on all referrals from the point at which the service was initiated. A continuous process of reflective practice was undertaken, focusing on communication (location, subject matter, participants and impact).

Results

The RSC service received 253 referrals in the first 18 months from the acute unit (comprising in-patient ward and hospital haemodialysis unit), satellite kidney units and direct consultant referral from other settings. Communication occurred in the acute unit, satellite kidney units and patient homes as clinically indicated.

The main themes of communication involved conservative kidney management, dialysis withdrawal and symptom management, and included conversations on what dying might look like.

The communication included the following services: Hospice teams (Inpatient and Community teams), Admiral Nursing team, Community nursing, Physiotherapy, Occupational Therapy, GP, Inpatient specialist palliative care team, Chaplaincy, Age UK, Clinical Nurse Specialist teams, Kidney Patients Association, Citizens' Advice Bureau, Mental Health Support (acute and cognitive behavioural therapy), Social Services, Safeguarding, Bereavement Services, Mental Capacity teams, Community Faith teams, Dietician, Oncology, Addiction Services, Equipment Providers, Respiratory specialists, Heart Failure team, Transplant team.

Barriers to effective communication included IT infrastructure which affected sharing and reviewing of patient information. Time factors influenced communication by impacting the development of the service which occurred alongside service provision. The perception of palliative care amongst clinicians influenced communication. The focus of palliative care is on quality of life and the mitigation of symptoms, but the initial staff perception of palliative care was often preoccupied by end-of-life care. Initially the job role was introduced to colleagues as the "angel of death".

Summary

RSC is an evolving discipline through which the understanding of effective palliative communication and collaborative multi-disciplinary working positively benefits patient outcomes.

Effective communication is reliant on clinician skill and knowledge of local service provision to enable delivery of an equitable RSC service. This needs to be considered in service development.

Exploration of the impact of an RSC multi-disciplinary clinic to enhance communication and promote equity in service delivery is a priority for future work.

A Southeast London Primary Care Allied Health Professional Led Point-of-Care Kidney Clinic to pharmacologically optimise people with chronic kidney disease (PROTECT KIDNEY)

Dr Rouvick Gama[1], Dr Kathryn Griffiths[1], Mr Nathan Beencke[2], Dr Kathryn Dalrymple[1], Ms Stephanie Mitchell[3], Dr Prema Ravi[4], Dr Joseph Mayhew[5], Professor Sharlene Greenwood[3], Dr Kate Bramham[1]
[1]Faculty of Life Sciences and Medicine, King's College London, London, , [2]Health Innovation Network South London , London, , [3]King's Kidney Care, King's College Hospital, London, , [4]Chelsfield Surgery, Orpington Primary Care Network, London, , [5]Surrey Docks Health Centre, Nexus Health Group , London,

Introduction:

A new generation of treatments for chronic kidney disease (CKD) have potential to significantly improve cardiovascular and renal outcomes. However, barriers to implementation include renal function monitoring after renin-angiotensin-aldosterone-system inhibitors (RAASi) initiation or dose changes and lack of resources in primary care.

This study aims to co-develop and evaluate the feasibility and acceptability of a pilot protocolled point-of-care (POC) kidney clinic, for RAASi and sodium-glucose-cotransporter-2 inhibitors (SGLT2i) optimisation in primary care.

Methods:

This quality improvement project was conducted in three South London GP practices, co-developed with patient and public involvement and Clinical Effectiveness Southeast London.

A red-amber-green (RAG) protocol guiding rapid RAASi up-titration was developed based on local and national guidelines. POC potassium and creatinine RAG thresholds were validated against the reference laboratory.

Inclusion criteria: (1) Adults; (2) eGFR 30 – 75 mL/min/1.73m2 ; (3) urine albumin:creatinine ratio (uACR) ≥ 3 (if diabetic) or ≥ 22.6 mg/mmol (non-diabetic).

Exclusion criteria: (1) RAASi/SGLT2i contraindication (2) Baseline potassium > 5.0 mmol/L; (3)Taking insulin (4) eGFR < 30 mL/min/1.73m2; (5) Under nephrology services.

Blood pressure and blood (capillary or venous) tests were performed in each clinic visit and analysed using the POC Epoc Blood Analysis System (Siemens Healthineers). Medication adjustments were based on RAG protocol outcomes.

Primary outcome was recruitment number. Secondary outcomes were patients who were pharmacologically optimised (maximum tolerated RAASi with SGLT2i), completed the pathway and did not attend (DNA); POC test success rates, adverse events, medication dose changes and change over time in blood pressure, creatinine, eGFR and potassium. Patient acceptability was assessed using the Likert Scale for an adapted validated questionnaire (PSQ-18).

Results:

After exclusions, 25/48 (52.1%) suitably identified patients agreed to participate (Figure 1). Mean age was 64.5 ± 9.3 years and 17 were male (68%). Baseline characteristics are summarised in Table 1. There were 8 (14.8%) DNA's from 54 clinic appointments; mean duration between appointments were 25 ± 19 days; 23/25 (92%) patients completed the pathway; 20/25 (80%) were optimised.

Thirty-nine (85%) protocol outcomes were green, 7 (15%) amber and none red, resulting in 40 medication changes (RAASi = 20; SGLT2i = 20). Following RAASi uptitration, there were small changes in renal biochemistry between visits (eGFR 2.82 ± 11.16 mL/min/1.73m2 ; potassium 0.04 ± 0.29 mmol/L).

The majority of the samples were capillary (43/44; 97.7%). POC tests were successful from 44/57 (77.2%) attempts. One patient developed visible haematuria after starting SGLT2i. There were no major adverse events.

Overall, 92% (12/13) questionnaire respondents were' very satisfied' with their clinic experience and 77% (10/13) were 'very comfortable' with finger-prick testing. The majority indicated they would prefer an advanced nurse practitioner (N=10) or pharmacist (N=9) for future pathways.

Discussion:

Patient recruitment numbers were modest, suggesting larger scale (e.g. primary care network) or wider screening of unidentified CKD would be required. The POC testing was successful (77.2%) with most patients becoming optimised and reporting a positive experience.

Scale up of the clinic (across Southeast London) with a health economic evaluation is underway to assess cost effectiveness and long-term sustainability.

Improving access to living donation: A regional quality improvement project.

Mr Alastair Tallis, Mrs Marie Atkins, Mrs Catherine Stannard

Introduction
Transplantation is acknowledged as the optimal treatment for end-stage kidney disease, with increased pre-emptive listing and access to living donor (LD) transplantation as key goals for our regional network.
In May 2022 the network launched a regional QI project to address these goals with the following key aims by June 2025:
1. All Trusts to match or exceed current best practice pre-emptive listing rates (60%)
2. Less than 20% of kidney replacement therapy (KRT) starters to be "Missed" (no documented transplant decision or still in workup)
3. A 25% increase in our "access to LD" metric
The longer-term goal is for all units across the region to achieve at least 20pmp LD transplants.
Between November 2022 and June 2023, six specialist transplant nurses were recruited (4.5 WTE) to referral units across the region with the aim of improving transplant access, patient experience and sustainability.
Methods:
A web-based QI measurement tool has been used to collect standardised data across the region, including
For all Kidney Replacement Therapy (KRT) starters
- Transplant status
- Where "under work up" or "no documented decision" – a requirement for a reason
- Living Donor status (whether at least 1 potential living donor has reached stage 1 tests)

For all listed patients
- Date started dialysis
- Date transplant listed
- Where patient not listed pre-emptively – a requirement for a reason

Each unit submits data quarterly, and can view reports in real time, including comparison to other units in the region. Meetings are held to facilitate discussion between units.

In May 2022, the project recruited QI teams from each unit across the region. Using the IHI Model for Improvement each unit was asked to complete a Driver Diagram identifying barriers for achieving the aims, and plans for addressing these.
Regular workshops brought units together to address common barriers, provide feedback between referring and transplanting units, and provided QI support both virtually and face to face.
Results:
- The number of LD reaching phase 1 testing, has increased by 50.7% in West and 107% in East Midlands.
- While we have not yet achieved less than 20% missed patients at start of KRT, average percentages have fallen from 48% to 30.6% in East Midlands and from 34.5% to 21.1% in the West Midlands and are below 20% in some units.
- The average percentage of pre-emptively listed patients has remained steady across the region, however there is evidence this is due to teams listing a back-log of missed patients post-COVID, as this metric is displayed as a percentage of total listed patients. The % of pre-emptively listed patients in the latest quarter was 44% in West Midlands and 49% in the East Midlands.

Discussion:

All units have engaged with the process of quality improvement to identify areas for improvement, however full involvement has been variable, as seen in variable outcomes, and is an area of concern. We will continue regional meetings supporting dialogue between renal and transplanting units, aiming to increase overall living donor transplant rates to over 20pmp for all units in the region.

Initial experience in the clinical evaluation of an antimicrobial impregnated catheter for the prevention of peritoneal dialysis catheter-related infections

Prof Maarten Taal[1,2], Dr Zoe Pittman[2], Dr Hari Dukka[2], Mr Waheed Ashraf[3], Dr Cemile Aksoy[3], Miss Kelly White[2], Ms Karen Jones[2], Ms Carol Rhodes[2], Ms Andrea Junor[1], Dr Katie Belfield[3], Mr Roy Harris[3], Prof Roger Bayston[3]
[1]Centre for Kidney Research and Innovation, University of Nottingham, Derby, United Kingdom, [2]Department of Renal Medicine, University Hospitals of Derby and Burton NHS Foundation Trust, Derby, United Kingdom, [3]School of Medicine, University of Nottingham, Nottingham, United Kingdom

Introduction

Despite the implementation of numerous preventative strategies, catheter-related infections (CRI) remain the most important complication of peritoneal dialysis (PD) and have multiple adverse consequences including additional clinic visits, antibiotic treatment, hospital admissions, emergency catheter removal and, in severe cases, death. Building on technology successfully applied to neurosurgical catheters, we have developed a process for impregnating peritoneal dialysis catheters with three antimicrobial compounds as a novel strategy for preventing infections. Here we report our initial experience of a Phase 1 (first in human) study designed to assess the safety and participant acceptability of these catheters.

Methods

We developed peritoneal dialysis catheters impregnated with three antimicrobial compounds: rifampicin, sparfloxacin and triclosan. In keeping with the “two-drug” principle to prevent antimicrobial resistance, the three agents were chosen to provide cover by at least two drugs for the gram positive and gram negative bacteria that most commonly cause CRI. Catheter processing was performed by the research team in a “clean room” facility. Antimicrobial-impregnated catheters were packaged and sterilised (using ethylene oxide) by a commercial provider. Quality assurance checks confirmed expected antimicrobial concentrations and safe residual solvent and ethylene oxide concentrations. All patients scheduled to have elective catheter placement (percutaneous and surgical) for PD are eligible for this observational study, except for those with known allergy to the antimicrobials, pregnancy or expected pregnancy. Standard protocols for insertion, follow-up and monitoring of new PD catheters are followed. We aim to enrol 40 participants, and each will be followed for six months. The primary outcome measure is adverse events.

The study was approved by the Greater Manchester South Research Ethics Committee and is funded by the National Institute for Health Research Invention for Innovation (I4I) programme.

Results

The study opened for recruitment in September 2024 and to date 18 of 21 (86%) people invited to participate have agreed. Fifteen catheters have been placed, 13 percutaneously and two surgically. Baseline study population characteristics are as follows: median (interquartile range) age 58 (51 to 68) years, 9 (60%) female, 7 (46%) with diabetes, BMI 29.6 (25.1 to 36.9) kg/m². To date we have observed seven serious adverse events, but none have been attributable to the antimicrobials or catheter processing. No local tissue reactions have been observed. One episode of peritonitis has occurred, but this was clearly related to a surgical wound (mini-laparotomy) infection rather than CRI. Participant feedback has been universally positive. Our recruitment target is 40 participants by September 2025 and updated data will be presented at the conference.

Discussion

We have observed a high initial participation rate, suggesting that patients starting PD perceive benefit from the antimicrobial impregnated catheter. Initial experience has been positive and no adverse events attributable to the antimicrobials or impregnation process have been observed.

Hidradenitis suppurativa associated with C3 Dominant Mesangial Proliferative Glomerulonephritis: A Case Report.

Dr Michael Habeeb[1], Dr Anika Tasneem[1], Dr David Wright[1], Dr kostantinos Koutroutsos
[1]Royal Sussex County Hospital, Brighton , United Kingdom

Introduction

Hidradenitis suppurativa (HS) is a painful, relapsing inflammatory disease characterised by subcutaneous nodules, abscesses, tunnels, and deforming scars. The aetiology remains unclear. A link between HS and CKD has been demonstrated, and neglected HS has been linked to renal amyloidosis.

C3-dominant mesangial proliferative glomerulonephritis. The differential diagnosis of C3-dominant glomerulopathy includes chronic infection-associated glomerulonephritis and C3 glomerulonephritis. The distinction is difficult; however, their presentation and clinical course vary significantly.

We report the first case of C3 dominant mesangio proliferative glomerulonephritis related to Hidradenitis suppurativa.

Case Report

A 45-year-old female was admitted with severe acute kidney injury (creatinine 509 umol/L), nephrotic range proteinuria (uPCR 503mg/mmol) and visible haematuria. Her medical background included obesity and hidradenitis suppurativa (HS). On admission, she had a flare of HS and elevated inflammation markers. (CRP 194 mg/l)The immunology screen was negative; hepatitis B, C, and HIV were. Renal imaging showed normal kidneys' size and echogenicity.

Initially, the AKI was thought to be due to NSAIDs intake to control severe pain from hidradenitis suppurativa. However, the kidney biopsy showed mesangial proliferation features, and the immune staining was positive, mainly for C3. Given the clinical presentation, the diagnosis of C3 dominant mesangial proliferative glomerulonephritis secondary to chronic infection due to hidradenitis suppurativa was made.

The patient was treated with intravenous antibiotics for 6 weeks. Her renal function and proteinuria gradually improved with the remission of her skin lesions. She maintained on 50 mg of Dapsone and Adalimumab 40 mg weekly.

She had multiple flares of her skin lesions, which led to acute kidney injuries, and renal function did not recover fully. In November 2023, Secukinumab became available for patients with HS flares on Adalimumab, so the patient switched on Secukinumab and 100 mg Dapsone. Since then, she has had fewer and less severe flares of HS, and her kidney function stabilised. (current eGFR of 40 ml/min)

Conclusions

HS is a chronic inflammatory skin condition that can lead to kidney dysfunction. In this case, we report HS as a cause of glomerulonephritis with a C3-dominant mesangial proliferative pattern, in which treatment of the underlying HS leads to improvement in renal function.

Automated analysis of kidney MRI data in the UK Biobank to study the impact of kidney disease on the kidneys, liver and pancreas

Eleanor Cox[1,2], Margot Roeth[1,2], Zhendi Gong[3], Martin Craig[1,2], Ali-Reza Mohammadi-Nejad[1,2,4], Dorothee Auer[1,2,4], Stamatios Sotiropoulos[1,2,4], Xin Chen[3], Susan Francis[1,2]
[1]Sir Peter Mansfield Imaging Centre, University of Nottingham, Nottingham, UK, [2]NIHR Nottingham Biomedical Research Centre, Nottingham University Hospitals NHS Trust and the University of Nottingham, Nottingham, UK, [3]School of Computer Science, University of Nottingham, Nottingham, UK, [4]Mental Health and Clinical Neurosciences, School of Medicine, University of Nottingham, Nottingham, UK

Background: Organ fibrosis is associated with ageing and metabolic abnormalities. It is not known whether organ-specific chronic diseases, such as chronic kidney disease, accelerate the ageing of other non-primary disease organs. MRI provides a method to quantitatively assess organ fibrosis using T_1 mapping and morphology assessment.

The UK Biobank (UKBB) is a prospective population study, the MRI protocol initially included scans of the liver, pancreas, heart, brain and muscle. In February 2021, dedicated kidney MRI scans were added to inform on kidney morphology, microstructure (T_1 mapping), and oxygenation (BOLD T_2*), with ~6.5K participants collected by April 2024.

AIMS: To establish an automated pipeline for the analysis of UKBB abdominal MRI data, including machine learning automated segmentation of kidney cortex and medulla. To use the UKBB to study MRI metrics related to multi-organ fibrosis in kidney disease, and study healthy kidney ageing.

Methods: UKBB abdominal MRI data acquired using Siemens 1.5T scanners was analysed. MRI data included (i) T_1 mapping of the kidneys, liver and pancreas using heart-rate triggered shortened modified look-locker inversion recovery (shMOLLI), (ii) whole-body mDIXON scans for total kidney volume (TKV) and liver volume, and (iii) a T_1-weighted scan for pancreas volume. Liver, pancreas and whole kidney segmentation was performed using open-source software to produce organ masks and calculate organ volumes. To segment the kidney cortex and medulla masks, we developed a machine learning image segmentation method applied to kidney T_1 maps.

Masks were applied to extract T_1 data for each organ, these were heart-rate corrected using look-up tables created from MRI simulations. Quality assurance (QA) was performed to remove datasets with poor segmentation or abnormal heart rates.

Initial analysis assessed 6319 healthy controls (HC) with 124 participants with kidney disease defined from ICD-10 codes (I12-13, N08,11,14-18). Differences in T_1 and organ volume were assessed between HC and participants with kidney disease, and healthy kidney ageing was studied.

Results: After QA, the final abdominal MRI dataset comprised 4611 HCs (2451 female/2160 male) and 89 participants with kidney disease (Fig.1).

In participants with kidney disease compared to HCs, there was an increase in renal cortex T_1 and reduction in corticomedullary difference (CMD) in T_1 and TKV, as well as increase in pancreas and liver T_1 highlighting the multi-organ impact (Fig.2).

The large UKBB HCs dataset was used to assess kidney ageing. With chronological age, cortex T_1 significantly increased and CMD in T_1 significantly decreased (Fig.3), while medulla T_1 did not correlate. TKV decreased with chronological age (Fig.3).

Discussion: MRI measures show that multiorgan (kidney, liver and pancreas) changes occur in kidney disease. In HCs, T_1 measures and kidney shape alter with chronological ageing, and will in future be used to define kidney age prediction algorithms to assess biological organ age and the effect of disease on accelerated organ ageing.

Acknowledgements: UK Biobank Project ID 43822. This study was supported by the DEMISTIFI Consortium.

Evaluation of a barber-led intervention to manage high blood pressure in men of Black or minority ethnic heritage

Professor Nicola Thomas[1], Ms Alison James[1], Mr Mohammed Miah[1], Ms Shawon Gonzales[2], Ms Clare Blankson[2], Mr Andrew Brown[2]
[1]London South Bank University, London, United Kingdom, [2]Croydon BME Forum, Croydon, UK

Introduction
People of Black, Asian and minority ethnic (BAME) heritage have a higher-than-average incidence of, and mortality from hypertension, stroke and kidney disease. The reasons for this are multi-factorial but poor awareness of specific risk, and lack of trust in the NHS might be contributory factors. It is therefore important to identify new non-NHS settings for reaching people at risk of high blood pressure (BP). One location is barbershops which are open long hours and are located in all communities.

Methods
We undertook a feasibility study in 2022[1] to explore whether eight barbers in the London Borough of Croydon could support and educate men of BAME heritage to manage their BP. We worked with the Croydon BME Forum (local charitable healthcare organisation) to train the barbers and run the study. We aimed to understand how best to recruit and train the barbers, how to keep them motivated and how many BP readings might be possible.

In 2024 we worked with two of the original barbers to understand what happens to clients who have had a BP of ≥140/90 mmHg recorded. We aimed to measure BP in 200 barbershop clients and if BP was high, the clients would referred to a community health hub run by the Croydon BME Forum and/or their GP. We also aimed to interview clients with high BP to understand their experiences of having high BP and how far they sought further advice about BP management.

Results
In the 2022 feasibility study we captured 236 BP readings, of which 39 (16.53%) were ≥ 140/90mmHg and of these, 5 >180/100mmHg. We learnt it was important to incentivise the barbers to keep up motivation and to incentivise the clients to have their BP recorded (£5 reduction per haircut). The 2024 study captured 116 BP readings, with 31 (27%) recorded as ≥140/90mmHg. However there has been reluctance from the barbershop clients to agree to follow-up, with only 2/31 (6%) being assessed further by the community health advisor. There is also reluctance to be interviewed (2 clients only).

Discussion
Barbershops are feasible settings for identifying people at risk of high blood pressure (BP) who do not frequent usual health care. However some men over 40 years are reluctant to have their BP checked by the barber, possibly because of fear. Men with high BP often decline further health care advice from a community health care advisor - the challenge is to understand the reasons for this.

The next step is to sustain the project by incentivising the barbers and clients to take part, but with the community health advisor delivering health care advice directly in the barbershop (no further travel needed) for those men with high BP. We also aim to spread the project to other parts of London alongside a targeted social media campaign.

[1] Thomas N et al (2023) You Can Change the World With a Haircut: Evaluating the Feasibility of a Barber-led Intervention to Manage High Blood Pressure. J Prim Care Com Health https://journals.sagepub.com/doi/10.1177/21501319231168336

Improving QI knowledge for members of staff in a pharmaceutical organisation

Mrs Julie Slevin[1], Mrs Catherine Stannard[1]
[1]UK Kidney Association, Bristol, United Kingdom

Introduction

Kidney Quality Improvement Partnership (KQIP) is a dynamic network of kidney health professionals, patients and carers who are committed to developing, supporting and sharing improvement in kidney services, to enhance outcomes and quality of life for people with kidney disease.

KQIP were approached and invited to deliver a one day workshop to upskill members of staff in a pharmaceutical organisation on QI tools and methodologies. We worked closely with the organisation to develop a bespoke workshop to meet their requirements

The aim of the workshop was to give delegates an understanding of:

- Quality Improvement
- KQIP Methodology
- Quality Improvement tools

QI Methodology Used

Two KQIP PMs, accredited from NHS England Quality, Service Improvement and Redesign programme, delivered the workshop. Both have many years of experience in quality improvement, particularly in the kidney community.

The workshop covered a number of QI tools and techniques and their practical application. Delegates were taught how and when the tools can be used, and then had some time to use them.

Quality Improvement tools and techniques covered:

- Stakeholder analysis and engagement
- Process mapping
- Cause and effect diagram (Fishbone)
- Using tools to deep dive into a problem (5 whys)
- Creating a SMART aim
- Project scope
- Measurement for improvement
- Driver diagrams
- Developing change ideas a priority matrix
- Plan, Do, Study Act cycles
- Dealing with resistance to change

The following principles underpin KQIP's work, ensuring that leadership, engagement and patient involvement is central to our QI projects. Our years of experience has shown us that these principles are vital for sustainable QI:

- Building effective teams
- Developing leaders
- Upskilling the kidney MDT in QI
- Working collaboratively
- People with lived experience as co-partners
- Developing learning communities

Delegates received a follow-up materials and further reading including PDF versions of the tools taught.

Results

The workshop was attended by 37 multi-disciplinary delegates covering a range of roles and specialties from mental health, renal, cancer, medical to finance. All were engaged during the day and applied practical QI tools to the areas for improvement that they had identified. The organisation has now begun 6 quality improvement project plans that they can progress with internally using methodology learned.

Feedback was positive (see figures 1-3):

- Good introduction to the QI tools
- Great session, thank you.
- QI is accessible to everyone and easier to implement than I had previously thought
- Brilliant speakers who were very approachable. Thanks for a great day - lots of positive takeaways

Discussion

KQIP's goal is to improve kidney outcomes using quality improvement techniques. The principles and expertise can be applied across many different organisational settings and roles.

KQIP recommends having a two-day workshop, so delegates have more time to practice the tools and apply to their projects. Encouraging delegates to bring projects for QI to work on at the workshop meant the day was relevant to everyone and increased engagement.

A follow up programme could be added to support delegates to apply the tools and methodologies to local QI projects.

The impact and sustainability of a holiday dialysis facility

Christopher Swan[1], Ms Carol Rhodes[1]
[1]Royal Derby Hospital, Derby, England

Introduction

Everyone should be able to live well with kidney disease. The benefits of holidays and respite breaks are well recognised however the logistics are an ongoing challenge for our patients.

This unit's first dialysis caravan was in use in the 1980s based on the South Coast it had one dialysis machine. This was at a time when home HD was less popular and only represented a small patient population. This caravan allowed patients, unit or home, to go on holiday supported by staff to use this facility. This facility became unsustainable and was no longer in use in the early 1990's.

In 2008 a new caravan was designed and commissioned through fund raising and was able to accommodate 2 dialysis machines.

Design

This purpose-built caravan with two dialysis machines has all the necessary dialysis equipment, Freeview tv, as well as a toaster and tea and coffee making facilities was easily transported/towed to any site. Finding a site for the caravan proved tricky at first due to issues with lack of knowledge and concern about business impact.

We found a site in North Wales in 2008.The caravan was available at any time during the season for our now large population of home haemodialysis patients and twice a year it is staffed to enable in-centre patients to have a holiday. It proved extremely popular and in 2010 a second van was designed and positioned on a site in North Devon.

As of 2023 the original van is now being decommissioned with plans underway to design another. The van will be designed with more storage, better facilities and heating and better storage. It will have 3 dialysis spaces with one assigned for home haemodialysis patients.

The whole project is funded with charitable funds, and we are currently fundraising for this new build. We have a Just giving page and have many activities planned for 2025 to raise the £80,000 needed.

Findings

Unit patients continue to use it, and we now try and staff this for 3 weeks of the year. It has become popular again over the past few years for home Hd patients and increasingly carers using this as respite from a home therapy.

Since 2008 over 262 slots have been available for patients to utilise the dialysis facility for holidays.

Patients have fed back that the caravan has provided more freedom and flexibility for going on holiday and that dialysing in the caravan has increased their confidence. The in-centre patients "feel safe" as they have staff they know looking after them.
They say advantages include not having to worry about where to find the nearest hospital, car parking and booking months in advance somewhere near to where they may be staying on holiday.

Conclusion

This is an example of how for well over a decade a team has supported patients to live well with kidney disease. We hope our new facility will continue to support patients for the next decade and beyond!

"Optimizing Needle Length for Arteriovenous Fistula Cannulation: A Study on Skin-to-Lumen Measurements and Patient Outcomes"

Mrs Sonia Jacob[1], Mr Edsel Jay Pagunsan[2]
[1]Band 6 nurse, Birmingham, UK, [2]Band 6 Nurse, Birmingham , UK

Introduction

Arteriovenous fistulas (AVFs) are the primary lifeline for patients undergoing chronic renal failure treatment. The choice of needle length for cannulation is influenced by the site of the AVF and the patient's Body Mass Index (BMI). Appropriate needle selection should be based on the depth of the vessel from the skin's surface to ensure safety, comfort, and minimal complications for the patient as recommended by British Renal Society (BRS). The ideal site for needle insertion is a straight segment of a vein that is sufficiently long to accommodate the full length of the needle. However, not all veins are long, straight, or easily accessible. Veins may vary in size, depth, and curvature, which can make needle insertion challenging. Needle insertion is a common and stressful procedure for haemodialysis patients, and 15G (20mm) needles are typically used in our unit, although no standardized guidelines exist regarding needle length. According to National Kidney Foundation, Choosing the correct needle length is essential to prevent damage, such as needle puncture to the back wall of the vessel, and to ensure successful cannulation. The aim of this study is to determine the appropriate needle length using skin-to-centre-of-lumen measurements, with vascular ultrasound as the primary tool.

Methods

This study involved 50 randomly selected haemodialysis patients at Castle Vale Renal Unit, who had Arterio-Venous Fistulas. Skin-to-centre-of-lumen distances were measured using bme - POC Range 3D vascular ultrasound device. The AVF is palpated for thrill to confirm patency and using ultrasound to identify optimal site for needle puncture is decided. At the site of puncture two measurements are made; first the depth of the fistula is measured at 90 degrees to the skin to the centre of vessel lumen and second a lateral distance is measured at an optimal lateral angle of 25-30 degrees. Needle length used by each patient was also recorded, with short needles (20mm) and standard needles (25mm) being the two primary options.

Results

60% of the participants were male, and 62% had radial-cephalic fistulas, 18% had brachial-cephalic fistulas, and 2% had brachial-basilic fistulas.

The depth of the AVFs were as follows:

- 82% of the patients' fistulas were less than 10mm deep.
- 16% of the fistulas were less than 15mm deep.
- 4% were less than 5mm deep.
- 2% were deeper than 15mm.

The average depth of the AVF was 8.68mm, while the average lateral distance was 11.88mm. Based on these measurements, 82% of the patients had a fistula depth of less than 10mm, indicating that a 20mm (short) needle would be adequate for most of these cases. The use of short needles has led to a reduction in complications such as needle penetration into the back wall, infiltration, haematoma, bleeding, and needlestick injuries. Additionally, patients reported improved comfort and fewer nerve-related issues with short needles.

Patient Feedback and Nurse Experience

All 50 patients included in the study verbally reported feeling comfortable with the use of short needles. They experienced less nerve pain, and the needles did not puncture the back wall of the vessel. Post-dialysis observations also revealed fewer infiltrations and less bleeding. Nurses at Castle Vale Renal Unit, who predominantly use short needles based on individual patient assessment, have reported better performance with fewer complications and a positive response from patients.

Conclusion

The study highlights the effectiveness of short needles for both new and established arterio-venous fistulas (AVFs), emphasizing their role in minimizing complications such as needle penetration into the back wall of the vessel, infiltration, hematoma, venous stenosis, and aneurysm (1). The collection

of depth and lateral measurements provides valuable data to enhance the accuracy and safety of AVF punctures for dialysis patients. With most patients in this study having AVFs less than 10 mm deep, short needles are particularly suitable for these cases. They offer better patient comfort, fewer complications, and improved clinical outcomes. Informal feedback from patients and staff further supports the adoption of short needles, noting an improved cannulation experience and fewer procedural challenges. Based on these findings, we recommend the routine use of short needles as standard practice for haemodialysis patients with AVFs.

References:

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A service evaluation on having a dedicated integrated renal specialist pharmacist working on CKD prevention

Mrs Pooja Mehta Gudka[1]
[1]Royal Free Hospital London NHS Foundation Trust, London, UK

Background

With the global prevalence of chronic kidney disease (CKD) rising, early identification and diagnosis with timely management could save >10,000 lives in the UK over 10-years[1], [2]. Of the patients with CKD who do not go on to develop kidney failure, many do not receive optimised care or equitable access to secondary care (SC) until too late. Effective implementation of cardio-reno protective therapies therefore necessitates a multifaceted approach. To ensure equitable service provision and address the increasing CKD burden in a North London integrated care board (ICB), a service was created to assist primary care (PC) in early identification and management of CKD. The integrated community CKD team consists of specialist nurse or pharmacist led clinics with dietitian and occupational therapist support and nephrologists working in a triaging capacity. The team aim to upskill PC clinicians and support decision making for the management CKD. Having a renal specialist pharmacist within this service is new. An evaluation was conducted to explore the relevance and impact of the specialist's role on direct and indirect patient outcomes.

Methods

1. A literature review to explore the scope of the role nationwide and world-wide

2. A scoping survey to understand the needs of PC pharmacists across our ICB and how CKD is managed in their practices. Questions included:

a. Understanding barriers faced when reviewing patients with CKDG3-5

b. How a renal specialist pharmacist can help support primary care clinicians

3. Undertake user satisfaction survey for community CKD team

Results

While there is a world-wide recognition that pharmacists play an integral role in improving disease and patient outcomes for CKD thus decreasing mortality and healthcare costs[3],[4].; there is currently no literature highlighting collaborative CKD prevention work between pharmacists in primary and secondary care (figure 1).

The specialist therefore networked with pharmacists across the country to understand how CKD prevention work is managed in ICBS. There is a variation in service provision, and to date, we have yet to identify other renal pharmacists who are working in similar roles.

100% of pharmacists in our ICB felt that access to a specialist pharmacist necessary despite having access to a nephrologist. Support themes identified included education and training, case/ list reviews, guidance on drug initiation and medicines optimisation. Barriers identified included a lack of direct access to pharmacist expertise, reduced confidence in managing patients with CKD and reduced familiarity with guidelines.

100% of the community CKD MDT found having a dedicated CKD pharmacist useful. 85% found the addition has made a difference to their practice. Feedback included: In less than 6 months, there has

been a significant impact with the CKDP role there is clear value on a patient, service and system level.

Conclusion

While additional research may be needed to determine the best model for multidisciplinary CKD clinics[5], there is currently an unmet need for having a dedicated renal specialist pharmacist working on CKD prevention work via an integrated care model.

Can AKI patients be safely managed under virtual ward care?

Dr Grace Jamieson[1], Dr Fiona Turner-Lane[1]
[1]West Suffolk Hospital , Bury St Edmunds , England

Introduction

Virtual Ward (VW) care is considered more cost-effective than traditional inpatient (IP) care by increasing bed capacity through admission avoidance and shorter hospital stays. However, there is limited data describing which conditions can be safely managed remotely on a VW. We have performed an analysis of data collected from patients admitted under our hospital's VW AKI pathway to try to establish the safety and efficacy of VW care for patients with this common condition.

Method

A retrospective audit of electronic records for 113 patients admitted on the VW AKI pathway from 11th November 2022 to 7th May 2024.

4 outcomes were assessed:

1. Mortality linked with AKI
2. Re-admission to hospital
3. Length of stay on VW
4. Improvement in AKI stage

Quality and safety of care were also assessed against adherence to our hospital's AKI 7 order set which is designed around NICE AKI guidelines (Figure 1). Comparison was made between patients on the VW and those under traditional IP care, as measured in a recent IP AKI audit.

Results

There were no deaths in AKI patients under the VW, however there were 5 deaths within 30 days of discharge (4.4% of patients).

30 day readmission rate was 38.1%, made up of 24.8% who were readmitted directly to hospital from the VW (including patients for planned surgery or procedures e.g. renal biopsy) and 13.3% who were readmitted after discharge from the VW.

Mean length of stay on the VW was 7.7 days. Median length of stay for the AKI IP audit was 9.0 days.

48.7% of patients experienced improvement in AKI stage under VW care compared to 10.7% of patients in the AKI IP audit.

AKI 7 order set was completed for 39.8% of VW AKI patients compared with 9.8% in the AKI IP audit. However, there was no statistically significant relationship between completion of the order set and improvement in AKI under VW. VW had comparable or better performance against several identified process measures in comparison to IP care (Figure 2). 97% of patients on the VW AKI pathway received a review by a nephrologist.

Discussion

For patients with AKI, VW provides a safe standard of care which is equal to, or in some cases better than IP care. VW patients experienced greater improvement in AKI stage and established standards of care were met more frequently. VW provides timely and frequent nephrology input for AKI patients during admission and improved clinic follow up rates.

Patients on the VW were generally more stable than the AKI IP population, which may introduce selection bias. Statistical analysis of our data was limited by our relatively small sample size.

VW is able to manage AKI patients safely and effectively outside of hospital. There is also potential for expansion of VW to manage other renal conditions. The VW is currently expanding at our trust and therefore analysis on a larger cohort of patients under the AKI pathway is soon possible which will provide more conclusive data.

Results of a national survey on current use and attitudes towards electronic patient-reported outcome measures (ePROMs) in kidney care in the UK

Mrs Julie Slevin[1], Mrs Catherine Stannard[1], Dr Sabine van der Veer[2], Prof Derek Kyte[3]
[1]UK Kidney Association, Bristol, United Kingdom, [2]The University of Manchester, Manchester, United Kingdom, [3]University of Worcester, Worcester, United Kingdom

Introduction

Using electronic patient-reported outcome measures (ePROMs) could support patients and kidney teams to make shared decisions about care and treatment, improving services and outcomes for people with kidney disease. The National Kidney ePROM Working group (NKEW) aims to achieve national collection of ePROMs for people with kidney disease in the UK by implementing the recommendations in the 2023 roadmap (available on https://doi.org/10.48420/21916518).

To inform NKEW's implementation plan, we conducted an online survey on current use and attitudes towards ePROMs in kidney care, open to all kidney healthcare professional working in the UK.

QI methodology used

The survey was designed by NKEW members, and covered questions on attitudes towards and current use of PROMs in kidney care, as well as the training, support, resources or evidence required to implement PROMs.

It was distributed to all kidney centres in the UK via members of NKEW, the UK Kidney Association eNews, social media, and contacts across the NHS England kidney networks.

Results

The online survey has been completed by 46 participants across 32 kidney centres in the UK. Of the respondents, 65% were doctors (30/46), 29% nurses (9/46) and 9% surgeons (4/46). Other roles included specialist registrars, data coordinators and dietitians.

83% of the respondents (38 / 46) expressed interest in using PROMs as part of routine management for kidney patients. while only 30% of the respondents (14/46) reported to currently use PROMs routinely. Commonly used PROMs included the EQ-5D-5L quality of life questionnaire and the IPOS-Renal symptom burden questionnaire.

PROMs were used as part of different types of kidney care, including:

- Advanced Kidney Care (eGFR <20): 49% (22/46)
- In-centre dialysis: 41% (19/46)
- Home dialysis: 39% (18/46)
- Transplantation: 37% (17/46)
- Conservative care: 33% (15/46)

Respondents came from across all four countries of the UK.

Respondents cited implementation challenges including language barriers, data collection and reporting issues, and the lack of training and resources.

Suggestions for support required to implement PROMs included IT and software, staff time and training on how to use PROMs effectively, as well as evidence of the benefits of PROMs and examples of successful implementation.

Respondents also emphasized the need for integration into existing clinical pathways and increased awareness and promotion of PROMs.

Discussion

These survey results indicated that while not currently widely used, there is an interest across UK kidney centres in expanding the use of PROMs and integrating them into routine practice, with a focus on improving patient care and self-management.

Themes around evidence, implementation, equity and inclusion and communication arose as key to successfully embedding PROMs in practice. NKEW is developing a 12-month plan to address these key themes in order to support the kidney community towards the collection of ePROMs.

Figures 2-4 show the survey results

Renal function assessment with point of care creatinine and potassium in diverse populations (RAPID study): An interim analysis

Dr Rouvick Gama[1], Ms Abigail Clark[1], Mrs Nirmaladevi Santhosh[3], Mrs Pearl Dulawan[3], Mr Danilo Nebres[3], Dr Kathryn Dalrymple[4], Dr Kate Bramham[5]
[1]Department of Inflammation Biology, Faculty of Life Sciences and Medicine, King's College London, London, United Kingdom, [2]King's Kidney Care, King's College Hospital, London, United Kingdom, [3]Renal Research Team, King's College Hospital, London, United Kingdom, [4]Department of Nutritional Sciences, Faculty of Life Sciences and Medicine, King's College London, London, United Kingdom, [5]School of Life Course and Population Sciences, Faculty of Life Sciences and Medicine, King's College London,, London, United Kingdom

Introduction

Point-of-care (POC) testing enhances care through rapid turnaround times, instant-decision making and improving patient engagement. With rising incidence of chronic kidney disease (CKD), early diagnosis and timely management with POC testing may be essential to reduce adverse cardiovascular and renal outcomes.

This study aims to investigate the agreement of two POC devices compared to laboratory reference methods for creatinine and potassium concentrations in a large diverse cohort (RAPID study; IRAS 263206).

Methods

A prospective cross-sectional cohort study, for adults with and without CKD, including people from ethnic minority backgrounds. Capillary and venous samples using NovaMax (NovaBiomedical) POC-creatinine (POC-Cr) and the Epoc-Blood-Analysis-System (Siemens Healthineers) POC-Cr and POC-potassium (POC-K) were compared to laboratory measured serum creatinine and potassium concentrations.

Agreement was assessed using bias and concordance correlation co-efficient (CCC) with 95% confidence intervals (CI) for potassium and eGFR CKD-EPI 2009. Sensitivity and specificity for CKD identification (eGFR < 60 mL/min/1.73m2) and in-range potassium (3.50-5.49 mmol/L) were calculated for POC capillary and venous samples.

Results

279 participants were recruited; 172 (61.6)% male, mean age 57.6 ± 14.5 years. Over half of participants were of non-white self-reported ethnicities. Demographics and renal characteristics are summarised in Table 1.

Compared to lab-eGFR, capillary POC-eGFR Novamax (N=93) had a median bias of -3.46 (95% CI: -9.46 – 1.44) mL/min/1.73m² and CCC of 0.89 (95% CI: 0.83 – 0.92). Capillary Epoc (N=68) showed a median bias of 2.6 (95% CI: 0.26 – 8.26) mL/min/1.73m², and CCC of 0.92 (95% CI: 0.88 – 0.95).

Venous POC-eGFR for NovaMax (N=133) had a median bias of -4.9 (95% CI: -10.29 – -0.12) mL/min/1.73m², and CCC of 0.90 (95% CI: 0.86 – 0.93). Venous Epoc (N=248) had a median bias of 1.86 (95% CI: 0 – 4.63) mL/min/1.73m and CCC of 0.96 (95% CI: 0.96 – 0.97).

There was no significant difference in creatinine bias between Black, White and South Asian ethnicity groups (p = 0.148).

Novamax capillary and venous samples had the highest sensitivity for detecting CKD (eGFR ≥60; 95.1% and 94.9%) but lower specificity (75.0% and 81.3%). Epoc capillary and venous samples had lower sensitivity (78.6% and 89.7%) with high specificity (100% and 97.1%).

Capillary and venous potassium samples for Epoc device showed a mean bias of 0.22 ± 0.48 mmol/L (CCC 0.67; 95% CI 0.54 – 0.76) and -0.18 ± 0.25 mmol/L (CCC 0.84; 95% CI 0.81 – 0.88) respectively.

Capillary samples sensitivity and specificity for potassium (3.50-5.49 mmol/L) were 86.1% and 100%; venous were 97.8% and 47.4% respectively.

Conclusion

Both devices demonstrated a strong positive correlation with eGFR and have potential to be utilised in clinical settings, with comparable performance of capillary and venous blood sampling. POC-Cr implementation for diagnosis and management of CKD requires consideration of requirements of test performance weighed against user-friendliness and cost. Capillary Epoc POC-K had high specificity which has reassuring clinical safety implications for monitoring patients with CKD.

Hypertension in young adults: A single-centre observational study of over 6 years

Miss Lauren Hall[1], Mr Henry Wu[2], Dr Sharmilee Rengarajan[1], Mr David New[1], Prof Dimitrios Poulikakos[1], Rajkumar Chinnadurai[1]
[1]Department of Renal Medicine, Salford Care Organisation, Northern Care Alliance NHS Foundation Trust, Salford, UK, [2]Department of Renal Medicine & Renal Research Laboratory, Kolling Institute of Medical Research, Royal North Shore Hospital & The University of Sydney,, Sydney, Australia

Introduction:
Hypertension (HTN) is one of the most prevalent conditions globally and a leading cause of premature death. It is a well-recognized cardiovascular, cerebrovascular, and kidney disease risk factor. Whilst HTN is considered a condition predominantly affecting older populations, HTN occurs in 12.5% of people aged 20-40, but diagnosis is often delayed or overlooked. We conducted a retrospective observational study investigating the demographic and clinical characteristics, management and outcomes of young adults with HTN.

Method:
This retrospective observational study was conducted on patients followed up in the adult renal HTN clinic at our centre between April 2017 and December 2023. Data was collated from electronic patient records for 199 patients who attended clinic consultations during this time period. Each patient was followed up for a maximum of 3 years from the date they were first seen in the HTN clinic (baseline date) until defined study endpoints - including HTN clinic discharge, transfer to another hospital's HTN clinic, death, or December 31 2023. At baseline, data collected include patient demographic information, initial investigation results (biochemistry tests, imaging tests and blood pressure (BP) measurement), and medications prescribed. Details on annual BP measurements, medications and clinical outcomes (clinic discharge status, cardiovascular events, kidney function deterioration as determined by estimated glomerular filtration rate (eGFR) and death) were recorded throughout each study patient's follow-up period. For comparative analysis, study patients were divided into two groups (age 18-40 years and age>40 years). Data analysis was completed using SPSS (version 29).

Results:
The overall cohort of 199 patients included a higher proportion of males (120 patients, 60.3%) and individuals from a white ethnic background (146 patients, 73.4%). A high median body mass index (32 kg/m2) was observed, and median BP was 148/95mmHg. There were 98 patients (49.2%) aged 18-40 years. HTN medication non-compliance and white coat HTN were reported in 7.5% and 5% of the cohort, respectively. Comparing between the age 18-40 years and age>40 years groups, study patients aged >40 years were more likely to have secondary hypertension (40.6 vs 24.5%, p=0.015). A significantly lower proportion of younger patients were on more than three antihypertensive agents at follow-up (4.1 vs 29.7%, p<0.001). Study patients aged 18-40 years were also less likely to suffer from cardiovascular events (3.1 vs 6.5%, p=0.051) throughout 3 years of follow-up and recorded higher mean eGFR at the end of their follow-up (80.3 vs 69.0ml/min/1.73m2, p<0.001) compared to the age>40 years group; there were 4 cases of mortality overall, which all occurred in the age>40 years group (Table 1).

Discussion:
Our findings indicate that HTN in young adults is more likely to be primary (essential) HTN and primarily associated with individuals from a non-white ethnic background. Fewer antihypertensive agents are required to achieve improved BP control in younger compared to older adults. More concerted efforts are needed to establish strategies to improve early diagnosis and optimal

management of HTN for young adults. Further studies are anticipated to assess clinical outcomes in young adults with HTN over longer-term follow-up.

Outcomes of the KQIP Transplant First Quality Improvement programme: what has been achieved so far?

Mrs Julie Slevin[1], Dr Richard Powell[2]
[1]UK Kidney Association, Bristol, United Kingdom, [2]University Hospitals Plymouth NHS Trust, Plymouth, United Kingdom

Introduction

A kidney transplant is the treatment of choice for patients who are medically suitable (Chaudry et al, 2021). Pre-emptive kidney transplantation (i.e. before starting dialysis) leads to the best outcomes for patients. However, there is huge variability in access to the transplant waiting list across the UK and pre-emptive transplant listing rates have been in steady decline since 2017 (NHSBT).
The KQIP Transplant First programme aims to improve access to pre-emptive kidney transplantation and uses QI tools and methodologies to support teams to achieve this.

QI methodology used

The Transplant First programme supports regions in England to implement the Transplant First project, by delivering quality improvement training and support.
Resources developed by the project team include:

1. Transplant First data collection tool
2. A How to Guide for people embarking on Transplant First or a similar project
3. Collaborative Working QI case studies
4. Summary of barriers and improvement opportunities along the transplant pathway

A series of national Transplant First webinars have been held in 2023 and 2024. These included presentations to share the results of regional QI projects, as well as expert speakers and interactive discussions focusing on specific areas of improvement.

Results

The workshops have been well attended and feedback from delegates has been very positive, 99% delegates gave a score of “excellent” or “very good”.

Projects implemented by organisations have shown the following results:

- Achieved 21 pre-emptive transplants and 23 live donations in 2023
- Successful changes to reduce delays and barriers in potential LKD workup
- Implementation of standardised electronic referral form
- Increase from 37 to 53 LKD transplants, 39% of which were pre-emptive (target >35%)
- Pre-emptive listing increased from 46% to 51%
- Reduction in proportion of patients with no documented transplant decision from over 20% in 2019-20 to under 10% in 2023
- For patients with a failing previous transplant, pre-emptive listing rates increased from under 30% in 2021 to over 45% in 2023
- 107% increase in the average Living Donor metric

Discussion

The KQIP Transplant First programme has supported many regional renal networks across England to try to address the significant inequity in access to pre-emptive listing and transplantation. Many successful QI projects have already been completed at a local and regional level to address the barriers that have been identified; there has been fantastic enthusiasm from across the kidney community, including multidisciplinary professionals and patient representatives, to continue to drive this improvement. Further work is required to share learning and data, optimise patient pathways and reduce unwarranted variation between units.

Recommendations

1. Continue to share learning from regional QI projects
2. Education of kidney healthcare professionals and colleagues
3. Improve regional and national data collection and feed back to clinicians in real-time
4. Embed a 'Transplant First' culture in Renal Units and Advanced Kidney Care Clinics
5. Standardise transplant workup pathways
6. Optimise cardiac screening investigation protocols
7. Improve access to weight management services for kidney patients living with obesity
8. Work alongside commissioners and policymakers to prioritise transplant workup pathways
9. Promote patient engagement & involvement in Transplant First programmes

Retrospective analysis of outcomes for patients presenting with anti-GBM disease, managed with intravenous Cyclophosphamide, plasma exchange and steroid therapy

Dr Jacob Chappell[1], Dr David Makanjuola[1], Dr Bhrigu Sood[1]
[1]St Helier Hospital, Carshalton,,

Introduction: Anti-glomerular basement membrane (anti-GBM) disease is a rare autoimmune vasculitis characterised by fulminant production of antibodies against antigens in the glomerular and alveolar basement membranes; a clinical syndrome consisting of pulmonary haemorrhage and rapidly progressive renal failure. Without early and aggressive immunosuppressive treatment, patient and kidney survival is poor. A regimen including Cyclophosphamide (CYP), plasma exchange (PLEX) and steroid therapy is used. Previous studies have suggested futility of treatment for patients presenting with AKI and dialysis requirement. A previous study evaluating outcomes for patients who received oral CYP found that, of patients with an initial requirement for dialysis, renal recovery was 8% at 1 year. There is a paucity of data on the use of intravenous CYP.

Methods: A retrospective cohort study of patients presenting with anti-GBM disease (single positive), or anti-GBM + ANCA antibodies (dual positive) to one centre between 2003 and 2018.

Results: Thirty patients were included, all receiving intravenous CYP. Baseline demographics, summary of treatment received, disease characteristics at presentation and outcomes in terms of patient and kidney survival are summarised in the tables below.

Discussion: In patients with anti-GBM disease who had need for dialysis at presentation, outcomes for kidney survival were worse, but with similar overall survival, compared to patients not requiring dialysis.
The use of intravenous CYP in our cohort, rather than oral, compared favourably with published retrospective studies. Overall, the cumulative dose received was lower than for oral regimens.
This data underlines the importance for prompt consideration of immunosuppression even in patients presenting with severe AKI.

Renal transplantation medication counselling – Optimising patient medicines education. Assessing the addition of a tacrolimus video in conjunction with patient medication lists and one-on-one education.

Ms Rachna Bedi[1], Ms Laura Palmer
[1]Imperial College Healthcare NHS Trust, London, United Kingdom

Introduction:

An important factor associated to long-term transplant graft survival is the life-long adherence to immunosuppressive medication; non-adherence can be a significant contributor to acute rejection leading to renal graft failure. Hence, it is imperative patients are appropriately educated on their new immunosuppression to ensure therapeutic drug levels and to reduce the risk of rejection. Imperial College NHS Trust (ICHT) Renal and Transplant Centre use tacrolimus as maintenance immunosuppression following renal and/or pancreas transplantation. This requires detailed medication education process to ensure adherence at the point of discharge. This can be extremely time consuming. ICHT serves patients from north-west London and beyond, with over 100 languages being spoken there is significant variation in health and digital health literacy. Baseline data showed that on average, the renal pharmacy team spent 120 minutes per patient, to complete medication counselling.

QI Methodology:

The QI project set out to reduce the average time taken to counsel new renal transplant patients by 20%. Over a two month period, two Plan Do Study Act (PDSA) cycles were undertaken.

PDSA cycle 1 implemented the use of a tacrolimus counselling video. Baseline data showed that on average the team spent 83.5 minutes per patient on face-to-face counselling. The QI team brainstormed ways to reduce this time, and the first PDSA cycle implemented a tacrolimus counselling video.

PDSA cycle 2 reviewed and updated our medication aid template. Baseline data showed that on average the team spent 36.5 minutes per patient to complete mediboards. The template was changed to an excel format with the aim to reduce the amount of time taken to complete mediboards. This was tested out by key stakeholders for one week. Following feedback the template was finalised and used as the medication information aid for all new renal transplant patients.

Results:

The impact from PDSA cycle one showed an improvement in the time taken to undertake face-to-face counselling but had little impact on the time taken to complete mediboards. PDSA cycle 2 there is a downtrend in the average time taken to complete mediboards per patient after implementation of PDSA cycle two. Completion of both interventions showed an overall downtrend in the mean amount of time spent on renal transplant medication counselling. Prior to the initiation of this quality improvement project, baseline data showed that on average we spent 120 minutes counselling post-transplantation per patient. The overall time reduced by 26% to 89 minutes.

Discussion

The SMART objective was met; limitations and additional areas for improvement identified.
A patient and staff satisfaction questionnaire was also completed pre and post-interventions as a way of balancing measures; this showed that the QI project has positively affected both patients and staff. The tacrolimus video is available in two languages English and Hindi. Both interventions are sustained and have been embedded into practice within the team. Overall, there is a perceived efficiency and ease to the process therefore adoption and sustainability has occurred.
Further PDSA cycles have been identified in order to develop the project further.

Patient baseline characteristics in the ongoing phase 3 VISIONARY Trial: A randomized, placebo-controlled study of sibeprenlimab for immunoglobulin A nephropathy

Dr Vlado Perkovic[1], Professor Jonathan Barratt[2], Dr Kevin Carroll[3], Dr Cecile Fajardo[4], Dr Jeffrey Hafkin[4], Dr Richard Lafayette[5], Dr Adrian Liew[6], Dr Lokesh Shah[4], Dr Yusuke Suzuki[7], Dr Vladimir Tesar[8], Dr Herman Trimarchi[9], Dr Muh Geot Wong[10], Dr Jing Xia[4], Dr Hong Zhang[11], Dr Dana V Rizk[12]
[1]University of New South Wales, Sydney, Australia, [2]University of Leicester, Leicester, United Kingdom, [3]KJC Statistics, Cheadle, United Kingdom, [4]Otsuka Pharmaceuticals Inc, Princeton, United States, [5]Stanford University Medical Centre, Stanford, United States, [6]Mount Elizabeth Novena Hospital, Singapore, Singapore, [7]Juntendo University Faculty of Medicine, Tokyo, Japan, [8]Charles University, Prague, Czechia, [9]Hospital Britanico, Buenos Aires, Argentina, [10]Concord Repatriation General Hospital, Concord, Australia, [11]Peking University First Hospital, Beijing, China, [12]University of Alabama, Birmingham, United States

Introduction

In a Phase 2 study, sibeprenlimab (anti-APRIL humanized IgG2 monoclonal antibody) significantly reduced proteinuria and stabilized eGFR in patients (pts) with immunoglobulin A nephropathy (IgAN)[1]. Here we report baseline characteristics of pts with IgAN enrolled in the Phase 3 VISIONARY trial of sibeprenlimab (NCT05248646), the largest IgAN trial to date.

Methods

VISIONARY is an ongoing, multicenter, double-blind, placebo-controlled trial in pts with IgAN randomized 1:1 to receive sibeprenlimab 400 mg or placebo subcutaneous (SC) once every 4 weeks for 26 doses. Primary endpoint is relative change from baseline in uPCR in 24-hr urine at Month 9. Demographic/baseline characteristics including kidney biopsy data were summarized using descriptive statistics.

Results

Demographic, baseline characteristics, and kidney biopsy data from 510 randomized pts are reported in the Table.

Conclusion

VISIONARY enrolled a large, diverse population of IgAN pts at high risk for disease progression to evaluate efficacy and safety of sibeprenlimab SC. Clinical results will be reported at a future date.

Reference:

1. Mathur M, Barratt J, Chacko B, et al. A Phase 2 Trial of Sibeprenlimab in Patients with IgA Nephropathy. N Engl J Med. 2024;390(1):20–31.

Expressing Gratitude: Writing a Thank You Letter to your Donor's Family for the Gift of Transplant

Icel Suarez, Mrs Catherine Johnson, Dr Lisa Crowley

Introductions
NHS Blood and Transplant reports that 90% of donor families state they would like to hear from the person who received their loved one's donation. However, Midlands data from 2023-24 indicates a low number of kidney transplant recipients (KTR) from this centre writing to express their gratitude. In our centre, in the last two years, only 1 letter was written from recipient to her donor family. We undertook a quality improvement project aiming to increase the number of donor families receiving a thank you message from KTR at our centre. Anecdotal experience in our centre suggested that many KTR's struggled to start the process of writing a letter and this represented a barrier to contacting donor families.

Methods
We designed custom made thank you postcards funded by our Trust's charitable funds. New KTRs from October 2023 to October 2024 were encouraged to write thank you messages starting with an initial approach via text followed by a face to face discussion. The cards were optional and KTR's could choose to write a letter or to send the card with a personalised message.
Additionally, we promoted the message "It's never too late" to encourage previous transplant recipients to send a thank you through the transplant notice board and at their routine clinic appointments.
For new transplant recipients a structured approach was introduced, including guidance to send a thank you message approximately 3 months post-transplant as part of the newly developed transplant work up passport.

Results
Of the 24 KTRs approached between October 2023 and December 2024, 23 had received transplants from deceased donors. Of those approached, 9 have now written to donor families with 6 using our custom made cards. Prior to this, only 1 patient who had received a transplant in this time period had written to their donor family.

Discussion
Donor families consistently express a strong desire to hear from recipients however, recipients often struggle to find the right words. The Thank You postcards designed as part of this project provided a sensitive and supportive way to acknowledge donors and their families, and assisted transplant recipients who were struggling to know how to begin the process of writing to their donor's family. This initiative highlights the importance of fostering gratitude and suggests that structured interventions can significantly improve communication between recipients and donor families. The next stage of our project will be to extend to all transplant recipients at our centre regardless of time from transplant.

Immunologic changes over time in repeat kidney biopsies from the AURORA studies of voclosporin in lupus nephritis

Dr Samir V Parikh[1], Dr Ivana Grbesa[2], Professor Brad Rovin[1], Dr Vincenzo L'Imperio[3], Dr Arnon Arazi[4], Dr Lucy Hodge[5], Dr Ernie Yap[5]
[1]Ohio State University Wexner Medical Centre, Columbus, United States, [2]Qiagen Digital Insights, Sibenik, Croatia, [3]Universita degli Studi di Milano-Bicocca, Milan, Italy, [4]The Broad Institute, Cambridge, United States, [5]Aurinia Pharmaceuticals Inc, Edmonton, Canada

Background:
The AURORA 1 and 2 studies investigated the use of voclosporin (VCS) plus standard-of-care (SOC) for the treatment of lupus nephritis (LN). All patients underwent a kidney biopsy for enrollment (Bx1), and a subset of patients elected to undergo a second biopsy (Bx2) to assess how histology of the kidney changes in response to treatment. Here we have used multiplex immunofluorescence (mIF) to investigate changes in the immunologic landscape of the kidney in response to immunosuppression using these paired biopsies.

Methods:
Formalin-fixed paraffin-embedded tissue sections were stained with MILAN technology with a 10-marker panel. Sequential acquisitions for each biopsy were registered, and autofluorescence subtracted. Dedicated ImageJ-based pipelines were used to measure total biopsy areas and immunopositive markers and/or to count cells and related positivity for markers of interest.

Results:
A total of 27 paired samples were available for mIF (17 and 10 from VCS- and SOC-treated patients, respectively). CD34 and Ki67 were significantly overexpressed in Bx2 compared to Bx1 (Table 1). Within each treatment group, there was a trend toward upregulation of CD34; the differences were not statistically significant (adjusted p-values of 0.07 [VCS] and 0.12 [SOC], respectively).

Conclusion:
CD34 and Ki67, which have been implicated in tissue regeneration and healing in glomerulonephritides, showed significantly higher expression in repeat biopsies of patients with LN treated with immunosuppression during the AURORA trials. The lack of difference within each treatment group may indicate a lack of concordance between clinical response and immunological landscape but may also be reflective of the small sample size. The potential utility of CD34 and Ki67 as biomarkers of response requires further investigation

Management of adults with diabetes receiving hospital haemodialysis compared to the Joint British Diabetes Society 2023 guidelines

Mr Bruno Mafrici[1], Mrs Vigil Moyo[1], Mr Oscar Walton[1], Miss Graca Pang[1], Miss Meghan Borg[1], Mrs Sarah Sidani[1], Mr Alex Tolson[1], Mrs Victoria Armstrong Brown[1], Dr Linda Bisset[2], Dr Ravikanth Gouni[3]
[1]Dietetic and Nutrition, Nottingham University Hospitals NHS Trust, Nottingham, United Kingdom, [2]Renal and Transplant Unit, Nottingham University Hospitals NHS Trust , Nottingham, United Kingdom, [3]Diabetes Department, Nottingham University Hospitals NHS trust, Nottingham, United Kingdom

Introduction: The Joint British Diabetes Societies (JBDS) updated their guidelines in 2023 collaboration with the UK Kidney Association. These guidelines aim to improve the standard of care for people with diabetes mellitus (DM) receiving dialysis.

Aim: To review the management diabetes care across 1 in-centre and 4 satellite haemodialysis units and compare current practice to the JBDS guidelines.

Methods: Retrospective data collection via hospital databases included demographics such as age, gender, ethnicity, diabetes status and treatment (including dietary intervention). Prospectively, patient interviews guided via questionnaire were used to identify patient's knowledge of their diabetes management; HbA1c, self-monitoring of blood glucose levels, episodes of hypoglycaemia and hyperglycaemia, appropriate treatment, and knowledge of whom to approach for support with their diabetes management.

Results: 381 patients were on haemodialysis in April 2024, 164 (43%) had diabetes.58.5% (n=96) participated in this audit, 62 males, mean age 63 ± 15. 87% (n=83) had a HbA1c checked within previous6 months. 62% and 94% attended their annual diabetes and foot review, respectively. 52% reported they had a diabetes link nurse on the dialysis unit. 91% (n=81) were assessed by a dietitian within the recommended 6 months period. Of the 66 patients on insulin, 25% (n=24) reported hypoglycaemia episodes within the last month (BM<4mmol/L) and 3 patients experienced 5-9 episodes per month. 27% (n=26) of patients adjusted their insulin on dialysis days to avoid hypoglycaemia. These patients met the criteria for flash glucose monitoring or continuous glucose monitoring (CGM). 45% (n=43) patients did not adjust diabetes treatment. Some of the JDBS guidelines standards were met: >70% had HbA1C checked 6-monthly (20 % had a HbA1c>80mmol/L indicating poor glycaemic control) and regular foot clinic attendance.

Discussion: HbA1c a unreliable measure of glycaemic control in haemodialysis patients due to anaemia and erythropoietin treatment. However, there is insufficient evidence to recommend alternatives such as glycated albumin or fructosamine. This cohort did not meet the recommendations of having an annual review and a named diabetes link nurse. Thirty eight percent did not attend their annual GP review. Potential contributing factors may be: inpatient episodes, burden of dialysis and volume of appointments. To address this the JDBS advises that appointments should be coordinated with haemodialysis schedules and relevant healthcare staff should be aware of appointments to support attendance. Our cohort did not meet the recommendation that >70% of people with hypoglycaemia or glycaemic variability should have flash or CGM –reasons for this are unclear. 91% of this cohort were assessed by a renal dietitian within the advised 6-month period, but only 49% had renal and diabetes dietary aspects addressed while 42% reported only one dietary aspect was discussed.

As a result of this audit we need:

1. A better understanding of the barriers to attending diabetes reviews, barriers to review attendance, via the crucial role of the link diabetes nurses 2. improve access to and assessing suitability for CGM and 3. Improve dietician assessments to encompass both renal and diabetic aspects of their diet.

Enlight-LN Registry: baseline demographics and clinical characteristics of an initial cohort of patients treated with voclosporin for lupus nephritis in the United States

Dr Niloofar Nobakht[1], Dr Laura B Geraldino-Pardilla[2], Dr Leanna M Wise[3], Dr Mohammed Kamgar[1], Dr Lily Cipolla[4], Dr Lucy Hodge[4], Dr Keely Dahl[4]
[1]University of California Los Angeles David Geffen School of Medicine, Los Angeles, United States, [2]Columbia University Irving Medical Centre, New York, United States, [3]University of Southern California Keck School of Medicine, Los Angeles, United States, [4]Aurinia Pharmaceuticals Inc, Edmonton, Canada

Background:
Voclosporin is approved for adults with active lupus nephritis (LN). In the AURORA 1 and AURORA 2 studies, adding voclosporin to mycophenolate mofetil (MMF) and low-dose glucocorticoids led to significantly earlier and greater reductions in proteinuria while maintaining stable estimated glomerular filtration rate (eGFR) for up to 3 years. The Enlight-LN registry is designed to characterize the real-world effectiveness and usage patterns of voclosporin in the United States (US). We describe baseline demographics and clinical characteristics of patients currently enrolled in this ongoing, prospective, observational registry.

Methods:
The registry is enrolling patients ≥18 years with biopsy-confirmed LN who are initiating or have already initiated treatment with commercial voclosporin within 12 months prior to study consent. Patients receive standard of care according to usual clinical practice. Data are extracted from patient records ~every 3 months up to 36 months and include demographics, disease characteristics, response to therapy and treatment patterns.

Results:
Data are available on 123 patients enrolled prior to or on December 31, 2023. Patients ranged in age from 18 to 72 years (median, 33 years); 82.9% were female. Most patients self-identified as White (43.1%) or Black/African American (35.8%); 7.3% were Asian. A total of 35.8% were Hispanic/Latino. Median (range) time since first LN diagnosis was 1.1 (0-26.2) years. The majority of patients (62.6%) had Class III or IV +/- V disease; 32.5% had Class V disease. Median (range) eGFR and SCr were 90 (20-143) mL/min/1.73 m and 0.9 (0-66) mg/dL, respectively. Median (range) UPCR was 2.0 (0-16.8) g/g. A total of 107 patients were on concomitant immunosuppression at voclosporin initiation (most commonly, antimalarials, 72.4%; MMF/mycophenolate sodium, 70.7%; belimumab, 13%). In addition, 58.5% of patients were on steroids and 40.7% on renin angiotensin aldosterone system (RAAS) agents. Three patients were on sodium glucose co-transporter 2 (SGLT-2) inhibitors.

Conclusion:
Baseline data on this initial cohort of patients are reflective of the larger LN population in the US, including high percentages of Black and Hispanic and/or Latino patients. Enrollment of additional patients and ongoing data collection will provide valuable insight into the real-world utilization of voclosporin.

Trying to reduce unnecessary carbon by reducing food waste and stopping the use of paper plates/plastic cups on a dialysis unit in Leeds

Mr Tim Shrimpton[1], Miss Natasha Rozycki
[1]Venkata Gullapudi, Leeds, UK, [2]Mark Wright, Leeds, UK, [3]Stephanie Choo, Leeds, UK, [4]Leeanne Lockley, UK Kidney association, UK

Reducing carbon emissions from in-centre haemodialysis is a priority for the Yorkshire and Humber Kidney Network (YHKN). To address this, a regional initiative, Trying to Reduce Unnecessary Carbon from Haemodialysis (TRUNC-HD), was developed in partnership with the UK Kidney Association (UKKA) Kidney Quality Improvement Partnership (KQIP). The issue of significant food waste in a satellite dialysis unit was raised, prompting this Quality improvement (QI) project. The aim was to identify the causes of food waste and implement measures to reduce it by September 2024.
Project team participated in four local KQIP workshops and two TRUNC-HD regional meetings, following a structured quality improvement (QI) methodology. Key steps included stakeholder analysis and engagement, process mapping to identify key areas for improvement, and prioritisation of change ideas. Meetings were held with the domestic supervisor to explore the causes of food waste and the materials management officer to discuss reusable tableware, given the unit has a dishwasher. Simple interventions were introduced, such as discontinuing paper plates and plastic cups in favour of reusable alternatives, supported by procurement of additional reusable items for the unit. The environmental savings were calculated using emission factors from the Department for Energy Security and Net Zero's 2024 greenhouse gas reporting conversion factors and Greener NHS spend-based multipliers for supply chain hotspot analysis.
The team discovered that a significant contributor to food waste was ordering sandwiches for patients who were not dialysing on certain days, either due to being on a twice-weekly schedule and thus not having a midweek session or due to other reasons like hospital admissions. Regular communication with the domestic supervisor was set up so as to tailor the sandwich orders to actual demand rather than a fixed daily standing order. This simple intervention significantly reduced food waste and associated carbon emissions. Wasted sandwiches decreased from 20 per week to 3 per week, reducing food waste by an estimated total of 43.4 kg between 1st July and 30th October 2024. This corresponds to a reduction of 227 kg carbon dioxide equivalent (CO_2e) in carbon emissions and £303.45 in cost savings. Extrapolated annually, the savings could amount to 695 kgCO_2e and £928.20. Additionally, the unit was ordering 8000 paper plates and 20000 plastic cups annually, which were manufactured in Asia and United Arab Emirates, respectively. By discontinuing single-use tableware, the unit is projected to save 286 kgCO_2e and £267.20 annually. During the progress of the project, it was noticed that staff attempted to order single-use tableware again, emphasising the need for ongoing vigilance and reinforcement of the new practices.
Improved communication fostered team cohesion and inspired both staff and patients to consider carbon reduction efforts in their daily and working lives. Future initiatives, such as empowering patients to bring their own blankets for dialysis, aim to further reduce carbon emissions of in-centre haemodialysis. These findings demonstrate how simple, practical measures can lead to meaningful environmental and financial benefits in healthcare settings. Also highlights the importance of maintaining staff engagement to sustain changes and avoid reverting to previous practices.

Disease targeting properties of voclosporin in renal transplant and lupus nephritis patients

Dr Simon Zhou[1], Dr Linda M Rehaume[1], Dr Ernie Yap[1], Dr Henry Leher[1], Dr Lucy Hodge[1], Dr Robert B Huizinga[2]
[1]Aurinia Pharmaceuticals inc, Edmonton, Canada, [2]Reformation Services Inc, North Saanich, Canada

Background:
Voclosporin (VCS), a second generation calcineurin inhibitor, is approved in the United States and Europe for the treatment lupus nephritis (LN) in combination with background immunosuppressive therapy. VCS does not require therapeutic drug monitoring, and is associated with improved glucose, lipid and electrolyte profiles compared to tacrolimus and cyclosporine. VCS demonstrates non-linear selective tissue disposition in animal models, and in renal transplant and LN clinical trials. Pharmacometric modeling was conducted to assess the selective tissue drug disposition relative to systemic drug exposure in patients with renal transplant or LN, comparing with healthy volunteers.

Methods:
Individual VCS blood concentration-time measurements were pooled from single and multiple dose ascending studies in healthy volunteers, the Phase IIb PROMISE study in renal transplant patients, and the Phase II AURA-LV and Phase III AURORA 1 studies in LN patients. The VCS blood exposure data were pharmacometrically modelled using a two-compartment model.

Results:
In healthy subjects, VCS has comparable central and peripheral volume of distribution (Vc/Vp of 242/272 L/L) and higher elimination than distribution clearance (CL/Q of 43/16 [L/hr]/[L/h]). In transplant patients, VCS has larger peripheral than central volume of distribution (Vc/Vp of 62/2140 L/L), comparable elimination versus distribution clearance (CL/Q of 58/54 [L/hr]/[L/h]) In LN patients, VCS also has larger peripheral than central volume of distribution (Vc/Vp of 34/2120 L/L), slower distribution than elimination clearance (CL/Q of 41/6 [L/hr]/[L/h]).

Conclusions:
The larger peripheral volume of distribution indicates selective peripheral tissue uptake of VCS in patients with renal transplant and LN. This is consistent with immunosuppressive activity of VCS in targeted organs relative to blood circulation. The low blood levels of VCS are consistent with the safety profile of VCS compared to other calcineurin inhibitors. Overall, the higher concentration of VCS in affected tissues may account for the efficacy and safety profiles reported in renal transplant and LN patients.

Human blood vessel organoids reveal patterns of vascular damage during diabetic kidney disease

Dr. Gideon Pomeranz[1], Dr William Mason[1], Dr. Karen Price[1], Prof. Luigi Gnudi[2], Professor David Long[1]
[1]UCL Centre for Kidney and Bladder Health, London, United Kingdom, [2]Kings College Faculty of Life Sciences & Medicine , London, United Kingdom

Introduction:
Diabetes mellitus (DM) is a metabolic disorder which leads to vascular complications including retinopathy, nephropathy, and neuropathy through exposure to continued hyperglycaemia. To understand how these complications occur and develop new treatments, reliable experimental models are required to study the effects of diabetes on blood vessels. I hypothesised that 3-dimensional blood vessel organoids (BVOs) could be an appropriate model to understand diabetic vascular complications.

Methods:
Three-dimensional (3D) BVOs were generated according to a published protocol. To model diabetes organoids were treated for seven days with either physiological (11mmol/L) or supraphysiological (500 mmol/L) doses of glucose, with mannitol or L-glucose used as controls. Alternatively, organoids were exposed to 7.5% of human serum from diabetic patients, with or without kidney disease. Whole-mount immunohistochemistry for vascular markers was performed with vessel quantification extracting out parameters including radius, length and the number of branch and end points.

Results:
3D blood vessel organoids contained CD31+ endothelium, NG2+ pericytes and a collagen IV basement membrane. Supraphysiological doses of glucose decreased vessel radius comparison to control organoids, with no changes detected in mannitol treated organoids. In contrast, physiological levels of glucose, resulted in no changes in vessel parameters. Exposure of BVOs to serum from diabetic patients showed that the radii of organoids treated with serum from individuals with diabetic kidney disease was elevated compared to patients without diabetic nephropathy.

Summary & Conclusion:
Using a novel image analysis pipeline quantitative differences in vessel architecture were detected in diabetic scenarios. Excessive glucose causes a decrease in the vessel radius while physiological glucose has no such effect suggesting that this strategy may not be ideal to model diabetes. However, treating with diabetic serum from patients with kidney disease resulted in an increase in the mean vessel radius of treated organoids.

Validity, reliability and responsiveness of Lupus Impact Tracker and LupusPRO: AURORA Trial

Dr Meenakshi Jolly[1], Dr Matt Truman[2], Dr Ronaldo Flato[2], Dr Kathryn Dao[2]
[1]Rush University, Chicago, United States, [2]Aurinia Pharmaceuticals Inc, Edmonton, Canada

Voclosporin used in addition to mycophenolate mofetil and low dose oral steroids in patients with active lupus nephritis (LN) was found to be superior to placebo in Phase 3, global, double blind, randomized control trial (AURORA 1). Herein we report the post-hoc analysis results of patient reported outcome (PRO) measures Lupus Impact Tracker (LIT), LupusPRO (V1.7) used in this clinical trial. LIT is short 10 item unidimensional, while LupusPRO is multidimensional with 43 items.

Methods:
357 patients with biopsy proven active LN were randomized to receive voclosporin 23.7 mg BID or a placebo, in addition to background standard of care. Primary outcome of interest was complete renal response (CRR) at week 52. PRO measurements were obtained at baseline, 12-, 24- and 52-weeks using (LIT), LupusPRO and SF36. We evaluated Internal consistency reliability (ICR), convergent validity (CV) using Cronbach alfa and correlation coefficient. We compared magnitude and direction of changes in LIT and LupusPRO domains at varied time points using SF36 Question 1 of self-reported change in health, where we defined 'worse' as a drop of at least 1 category from baseline and 'improved' being an increase of at least 1 category from baseline. T test was used to make comparisons with a p value ≤0.05 considered significant.

Results:
At baseline, ICR of LIT (0.89) and LupusPRO domains (Table 1) were fair. There was good convergent validity of LIT and LupusPRO domains with SF-36 physical and mental component summary (PCS & MCS). The three item lupus symptom domain had the highest correlation with disease activity (SLEDAI -0.29, p <0.001).
Improvements could be seen as early as 12 weeks. Both LIT and LupusPRO (HRQOL) domains showed responsiveness to change in the appropriate direction at weeks 12, 24 and 52 (Table 2 & 3). LupusPRO HRQOL cognition and procreation domains were less responsive to changes in health; while of the non HRQOL LupusPRO domains, only desires-goals domain, showed some responsiveness to change in health at week 24.

Conclusions:
both LIT and LupusPRO show good psychometric properties in this clinical trial, including responsiveness. LIT is short, while LupusPRO is comprehensive. For clinical trials, LIT or LupusPRO HRQOL domains inclusion may be more apt to capture proximal effects of the disease and the proposed intervention. LupusPRO non HRQOL domains may not change quickly and are more appropriate to evaluate in a routine patient care setting to assess distal impacts of the disease/treatment, available internal and external resources, and their satisfaction with the care.

SGLT2I: Adoption of SGLT2I Prescription In Patients With CKD And Proteinuria: A Single Centre Experience.

Dr Muhammad Fahad[1], Dr Farid Ghalli[2]
[1]Sussex Kidney Unit, Brighton, UK, Brighton, United Kingdom, [2]Sussex Kidney Unit, Brighton, UK, Brighton, United Kingdom

SGLT2I: Adoption of SGLT2I Prescription In Patients With CKD And Proteinuria: A Single Centre Experience.

Introduction

Chronic kidney disease (CKD) is a progressive condition related to significant mortality and morbidity, especially in proteinuria and diabetes patients. Using sodium-glucose co-transporter-2 inhibitors (SGLT2Is) in CKD care has proven reno-protective benefits and decreased progression to end-stage renal disease. Our Quality Improvement (QI) project is meant to gauge CKD care practices against the 2021 UK Renal Association guidelines, aiming at the use of SGLT2Is as an adjunct to ACE inhibitors (ACEi) or angiotensin receptor blockers (ARBs). The study measured the use SGLT2I through three cycles, emphasizing chances for improved clinical practices in our renal unit .

Methodology

Data collected for patients diagnosed with CKD with Proteinuria between 2021-2024 at Sussex Kidney Unit. Patient's data & lab results were collected from CV5 (CV5 is the electronic record system of our renal department).

Inclusion criteria: Patients included aged more than 18 years, with a urinary protein-to-creatinine ratio (uPCR) greater than 40 mg/mmol and an estimated glomerular filtration rate (eGFR) of more than 15 mL/min/1.73 m^2.

Exclusion criteria were the patients with type 1 diabetes mellitus, polycystic kidney disease, and immunosuppression.

A retrospective analysis was conducted over three cycles: Parameters such as eGFR, diabetic status, and the use of SGLT2Is, ACEi, or ARBs were documented and analysed over time.

1. First Cycle (March 2021–February 2022): Data from 653 patients were reviewed.

2. Second Cycle (March 2022–September 2022): Data from 629 patients were evaluated.

3. Third Cycle (September 2022–November 2024): Data from 1,016 patients were analysed.

After 1st Cycle, we did departmental education regarding use of SGLT2I in CKD care in our weekly Journal Club held at Sussex Kidney Unit. We also placed information leaflet in most of our OPD's room to remind our colleagues about the recent UK Kidney Association guidelines on SGLT2I published in October 2021.

Results

The findings revealed a progressive increase in SGLT2I adoption in our kidney unit:

First Cycle: Total: 7.04% (46/653 patients)

7.2% (31/427 patients with eGFR >25 mL/min/1.73 m^2).

6.6% (15/226 patients with eGFR 15-25 mL/min/1.73 m^2).

Second Cycle: Total 10.3% (65/629 patients).

15/214(7%) patients with eGFR 15-25 mL/min/1.73 m^2)

50/415(12.4%) eGFR >25 mL/min/1.73 m^2).

Third Cycle: Total 31.7% (322/1,016 patients).

110/379(12.4%) patients with eGFR 15-25 mL/min/1.73 m^2)

212/637(16.6%) eGFR >25 mL/min/1.73 m^2).

Among CKD patients with type 2 diabetes, 44.41% (171/385 patients) received SGLT2Is by the third cycle, while 24% (151/631 patients) of non-diabetic patients were initiated on SGLT2Is. Additionally, 26.18% of patients (266/1016 patients) were on combined SGLT2I and ACEi/ARB therapy. Adoption was slower in non-diabetic patients and those with advanced CKD (eGFR <25 mL/min/1.73 m^2).

Conclusion

The SGLT2I QI project showed the slowly growing adoption of evidence-based practices in CKD management. The significant increase in SGLT2I usage reflects improved alignment with clinical guidelines, particularly in diabetic patients. However, the underutilization in non-diabetic CKD patients and those with advanced disease highlights gaps in care. Future efforts should focus on clinician education, patient counselling on SGLT2Is' benefits and potential side effects, and systemic changes to facilitate the widespread adoption of this therapy. These measures are critical to improving CKD outcomes and reducing healthcare burdens.

Rates of sustained complete renal-response with long-term use of voclosporin in AURORA 2

Dr Ernie Yap[1], Dr Matt Truman[1], Dr Cynthia Auguste[1], Director Vanessa Birardi[1], Dr Greg Keenan[1]
[1]Aurinia Pharmaceuticals Inc, Edmonton, United States

Background/Purpose:
Unlike in many other disease states, there is no accepted definition for clinical response in lupus nephritis (LN). The Phase 3 AURORA 1 study of voclosporin (VCS) used complete renal response at 52 weeks (CRR; Urine protein creatine ration (UPCR) ≤0.5 g/g, stable estimated glomerular filtration rate (eGFR), low-dose steroids, and no rescue medications) as the primary efficacy endpoint. Significantly more patients treated with VCS in combination with MMF and low-dose glucocorticoids (GCs) achieved CRR compared to patients in the control arm treated with mycophenolate mofetil (MMF) and low-dose GCs (41% vs 23%, odds ratio [OR] 2.65, 95% confidence interval [CI] 1.64-4.27, p<0.0001). Patients who completed AURORA 1 and elected to continue treatment in the AURORA 2 continuation study demonstrated maintained efficacy and stable renal function up to 36 months. In 2024, following the completion of AURORA 2, the US FDA compared the efficacy benefit of VCS to control using a new longitudinal endpoint, sustained complete renal response (SCRR), defined as achieving CRR at Month 12 of AURORA 1 and maintaining the response at each subsequent study visit through the end of AURORA 2 (Month 36). This new endpoint was incorporated into the recently updated labeling for VCS in the United States, and results of the analysis are presented here.

Methods:
Patients completing AURORA 1 were eligible to enter AURORA 2 on the same blinded therapy (VCS or placebo) combined with MMF (target of 2 g/d) and GCs (20-25 mg/day tapered to 2.5 mg/d by Week 16) for an additional two years. Only patients who continued in AURORA 2 (N=216) were analyzed for SCRR, although all patients who initiated treatment in AURORA 1 (N=357) were included in the denominator of the efficacy analysis. Patients with missing data at AURORA 2 study visits were considered non-responders.

Results:
Of the 179 VCS- and 178 control-treated patients enrolled in AURORA 1, 116 (64.8%) and 100 (56.2%) patients respectively, continued treatment in AURORA 2. Of these patients, 39 (21.8%) and 41 (23.0%), respectively, had missing data and were considered non-responders. At Month 36, 36 (20.1%) of 179 VCS-treated patients and 21 (11.8%) of 178 control-treated patients achieved SCRR (OR 1.99, 95% CI 1.10, 3.62; p=0.0239), with a probability difference between the two groups of 0.087 (95% CI 0.084, 0.09). Additionally, 10.1% of VCS and 9.0% of control-treated patients achieved CRR at all but one study visit (Table 1).

Conclusion:
SCRR is a novel endpoint that can be leveraged to illustrate disease trajectory of LN and treatment efficacy. Consistent with using CRR as an efficacy endpoint in AURORA 1, more VCS- than control-treated patients achieved SCRR, despite nearly 40% of the analyzed study population being ineligible due to the voluntary nature of AURORA 2 participation. The stringency and potential utility of this new endpoint require further exploration.

The development and validation of a patient education tool for minority ethic groups diagnosed with chronic kidney disease (CKD)

Mrs Lauren Kivlin-henry[1]
[1]University of Hertfordshire, Hertfordshire, United Kingdom

Introduction
Chronic kidney disease (CKD) is an example of a significant health inequality in minority ethnic people (KRUK, Time to Act, 2024). Inequalities have been evidenced across the kidney care pathway from faster progression to kidney replacement therapies, to reduced likelihood of transplantation. Patient education and relatedly, health literacy is an important aspect of prevention and intervention, yet little is known about effective, culturally tailored approaches. We report on the findings of a systematic review examining the experiences of minority ethnic people in relation to patient education and information about CKD, inclusive of impact on health literacy, shared decision making and the self-management.

Methods
Five electronic databases were searched for relevant studies: PubMed, CINAHL, Scopus, Cochrane, and Medrxiv. Studies were eligible for inclusion if the population include adults (18+) with a diagnosis of CKD of minority ethic heritage. The review was mixed methods, including qualitative and quantitative studies, with findings presented as a narrative overview.

Results
Searches identified 13243 potential articles after removing duplicates. Primary outcomes of the review included (a) assessment of patient needs in relation to education and information (b) current education/information available to minority ethnic CKD patients (c) whether culturally adapted support impacted knowledge and self-management of CKD (d) descriptions of the components of CKD education/information interventions. From across the included studies, there was limited evidence to guide effective, health equity-oriented education for minority ethnic patients specifically, with available evidence coming from small scale, usually qualitative, pilot studies.

Discussion
There is a paucity of culturally and linguistically adapted patient education interventions. Insite of need being evidenced, limited knowledge guides development of inclusive approaches that have been tested for impact on patient level behaviour and decision making. As the health landscape pivots to prevention and slowing down the course of CKD, there is an urgent need to progress scalable patient education and health literacy support.

The effect of childhood chronic kidney disease on the endothelium.

Mr Andrew White[1], Professor Rukshana Shroff[2], Professor David Long[1], Dr Karen Price[1]
[1]UCL Centre for Kidney and Bladder Health, University College London, London, United Kingdom,
[2]Great Ormand Street Hospital, London, United Kingdom

Introduction

Cardiovascular disease (CVD) is the leading cause of death among paediatric chronic kidney disease (CKD) patients, accounting for 32% of deaths in those on dialysis and 22% post-transplantation. Endothelial dysfunction is an early hallmark of CVD, with several studies showing that uremic toxins can induce pathological changes in the endothelium. However, studies examining the effect of paediatric uremic serum are limited. Furthermore, there has been no studies examining how endothelial cells from different vascular beds react to paediatric uremic serum. We aimed to address these questions in this study.

Methods

Serum (5%) obtained from paediatric dialysis patients (n=8) and healthy donors (n=8) was added to endothelial cells obtained from umbilical veins [HUVEC], aorta [HAoEC], and coronary artery [HCAEC]). Proliferation was assessed using a Cell Mask assay, whilst migration was measured using a scratch assay performed on confluent cell layers, with images taken in real-time every 30 minutes for 16 hours to assess the rate of wound closure.

Results

Coronary artery endothelial cells showed significantly increased proliferation with dialysis serum-spiked media compared with healthy serum after 24 (1.2-fold change, $p = 0.03$), 48 (1.4-fold change, $p = 0.03$), and 72 (1.5-fold change, $p = 0.01$) hours. This increase in proliferation was not observed in either human umbilical vein or aortic endothelial cells exposed to dialysis serum at any time-point. Additionally, cell migration was significantly reduced ($p = 0.03$) in coronary artery endothelial cells following incubation with dialysis serum spiked media when compared with healthy patient serum. This reduction in cell migration following exposure to media containing dialysis serum was replicated in both umbilical vein ($p = 0.02$) and aortic cells ($p = 0.002$).

Discussion

Dialysis serum induced changes in endothelial cells as highlighted by the dysregulation of cell migration and cell proliferation, findings which may result in endothelial dysfunction. Heterogeneity in the response of the endothelium was seen between the three cell lines, with an increase in proliferation being seen in the HCAEC cells that was absent in the HUVECs and HAOECs. This implies possible variation in how CKD may impact different areas of the vasculature and contribute to CVD.

Exploring patterns of vascular access options following kidney transplant failure: A single centre experience

Mr Aniebiot Udofia[1], Dr. Yusuf Jinadu[1], Dr Yahya Makkeyah[1], Dr. Hannah Ha[1], Dr. Rajadurai Aravien[1]
[1]University Hospital of Leicester NHS Trust , leicester, United Kingdom

Background:
Kidney transplantation is the preferred treatment for end-stage renal disease (ESRD), but approximately 40% of transplants fail within 10 years. Management after failure is influenced by factors such as patient frailty, eligibility for re-transplantation, vascular access options, and patient preferences. Ensuring equitable access to optimal care is a growing priority within the NHS, and post-transplant failure care should be no exception. British Transplantation Society (BTS) guidelines recommend early multidisciplinary review to determine the most suitable dialysis access option. However, current patterns of vascular access use and the extent to which equitable care is achieved remain poorly understood.

Aim:
This study explores patterns of vascular access use following kidney transplant failure and evaluates whether equitable care is provided.

Methodology:
A retrospective analysis of adult kidney transplant recipients who experienced graft failure between 1 January 2014 and 31 December 2024 was conducted using the Leicester Network Local Database. Patients who subsequently initiated another modality of renal replacement therapy (RRT) within the Leicester area were included. Patient demographics, transplant characteristics, and post-graft failure vascular access modalities were extracted from the registry. The date of RRT initiation served as the index date. The primary outcome was the type of initial dialysis access. Secondary outcomes included time to definitive vascular access and assessment of potential inequities in vascular access creation. Descriptive statistics were used to analyse patterns of vascular access.

Result:
Of the 51 patients identified, the majority were White (58.8%), followed by Asian (27.5%) and Black/Other (13.7%). The cohort comprised 52.9% males, and 33.3% had received living donor transplants. Most transplants functioned for more than one year (88.2%), with 39% lasting over 10 years. Following graft failure, 84.3% of patients transitioned to haemodialysis, while only 9.8% utilised peritoneal dialysis (PD). No patients underwent immediate re-transplantation.
Initial vascular access was an arteriovenous fistula (AVF) or arteriovenous graft (AVG) in 45.1% of patients, more commonly amongst males (48.1%) than females (41.7%). AVF/AVG use was highest in the Asian group (57.1%), compared to the Black (42.9%) and White (40%) groups. Vascular access catheters (temporary or tunnelled) were the initial access for 41.2% of patients, and PD catheters were used by 11.8%.

Conclusion:
This small study highlights potential inequalities in how kidney transplant patients are treated after their transplant fails, especially when planning for dialysis access. Larger studies are needed to understand why these inequalities exist so we can ensure fair and equal access to the best treatment options for all patients.

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Introducing an MDT to improve outcomes for complex patients with amyloidosis and MGRS: NHS University Hospitals Liverpool Group's experience.

Dr Shahed Ahmed[1], Dr Gillian Brearton[2], Dr Stephen Hawkins[2]
[1]Liverpool University Hospitals Foundation trust, Liverpool , UK, [2]The Clatterbridge Cancer Centre NHS Foundation trust , Liverpool , UK

Background

The plasma cell disorders team is primarily concerned with multiple myeloma. However, there are rarer, associated plasma cell conditions including AL amyloidosis and a group collectively termed 'MGRS'- monoclonal gammopathies of renal significance. In these disorders, chemotherapy may be used to stabilise or reverse kidney damage.

We describe our experiences of establishing a specialist multi-disciplinary team (MDT) and clinic and discuss considerations for future development of a regional service.

Method - Current Clinical Model:

The Liverpool MDT group comprises consultant haematologists, cardiologists, and nephrologists, with allied health professionals, who attend in person or videoconferencing. Patients with proven or suspected renal or cardiac amyloidosis, MGRS or unexplained renal deterioration in patients with a paraprotein are discussed, including patients from other trusts across Cheshire and Merseyside referred for an opinion. Imaging and results are accessible via regional networked IT systems. Patients for whom it will likely be beneficial are reviewed in the joint haematology-renal clinic after MDT review.

We present a snapshot of MDT activities recorded between 2023-2024 and compare them to referral demographics from the 2021-2022 cohort.

Outcomes:

A total of 152 cases were discussed in 2023-2024. Among them, 33 cases were predominantly renal. Of those 16 had native renal biopsies (16/33, 48 %) and 11 cases were reported to show features of amyloidosis / MGRS (11/16). Whilst this number is small- it is in the context of rare disorders. AL amyloidosis affects 10 per million people per year in the UK and, whilst MGRS was only described a decade ago it may affect 4% of patients with MGUS. We have compared data with those referred in 2021-2022 (fig 1). More cardiac amyloid cases are now referred to the MDT -likely due to the emergence of TTR amyloid treatment. Renal referral has reduced possibly due to increased awareness of MGRS with many cases now diagnosed and referred directly from the renal clinic to the myeloma team.

Discussion: What does this model achieve?

The format and specialty membership of the MDT has enabled us to discuss the diagnostic pathway, interpretation of tests, treatment response and to support management of patients with amyloidosis and renal failure. Being able to do this across specialties in real-time, without patients needing to attend separate departments significantly benefits the patient journey and reduces treatment delays. The joint renal clinic is also important in appropriately managing renal complications of MGRS, amyloid and myeloma as well as facilitating access to timely renal biopsy.

Conclusion:

This collective model has developed inter-professional learning and strengthened local clinical expertise. We aspire to further develop this MDT as a regional service (cardiology, renal and haematology) with appropriate investment and support from National Amyloid Network. Developing IT solutions to capture MDT decisions and tracking patient outcomes with AL amyloid and MGRS would be a vital component of expansion.

Reducing unnecessary carbon in haemodialysis by reducing consumable waste

Mr Shiraz Bismillah, Liza Bajet, Ayesha Orlanda, Dr John Stoves, Mr Don Mackenzie, Mrs Leeanne Lockley, Stephanie Choo
[1]Bradford Renal Unit Sustainability Group, , , [2]Bradford Renal Unit Sustainability Group, , , [3]Bradford Renal Unit Sustainability Group, , , [4]Bradford Renal Unit Sustainability Group, , , [5]Leeds Teaching Hospital , , , [6]Kidney Quality Improvement Partnership, , , [7]Leeds Teaching hospital , ,
As part of its ongoing efforts to promote environmental sustainability, the Bradford Renal Sustainability Group partnered with the Trying to reduce unnecessary Carbon in Haemodialysis (TRUNC-HD) project in Yorkshire and Humber to reduce the carbon footprint of our haemodialysis units. We focused on reducing consumable plastic waste, in particular single-use items within dialysis line packs and fistula packs. We also introduced reusable staff visors.

The project utilised Kidney Quality Improvement Partnership (KQIP) QI methodology through four KQIP workshops and two regional TRUNC-HD meetings, including stakeholder analysis, process mapping and a prioritisation matrix to identify feasible, high-impact changes. Carbon savings were calculated using a bottom-up approach with UK Government Greenhouse Gas (GHG) Conversion Factors (2024) and published life cycle analyses of healthcare equipment. Financial savings were based on purchase order data.

Process mapping helped to quantify unused items in packs, such as syringes, galipots and plastic callipers, a result of updated trust-wide practices including the use of pre-filled syringes. The sterile gloves in fistula packs were also deemed unnecessary following the adoption of aseptic non-touch technique for fistula cannulation. Replacing the traditional fistula pack (0.325kgCO2e, £0.66 per session) with individual drapes, gauze and non-sterile gloves reduced unnecessary plastic waste and hence reduced GHG emissions and costs to 0.104kgCO2e and £0.38 per session. Similarly, the line packs, previously producing 0.679kgCO2e and costing £0.86 per session, were streamlined, lowering emissions to 0.492kgCO2e per session with costs marginally reduced to £0.84. The unit previously disposed of 11,232 single-use visors annually, contributing 2,594kgCO2e. Replacing these with 50 reusable visors, each equipped with 12 disposable face shields, significantly reduced carbon emissions to 74.4kgCO2e. Although cleaning reusable visors adds some environmental impact, it is negligible compared to the reduction in plastic waste.

The primary challenge was to source customised, streamlined packs at an acceptable cost. By engaging key stakeholders including procurement teams, trust executives and the NHS supply chain, the project secured endorsements as part of a Cost Improvement Programme.

This quality improvement project will produce an annual saving of 12,347kgCO2e and £19,931 (Table 1), demonstrating the potential for healthcare providers to make simple, sustainable changes in practice to deliver significant environmental and financial benefits. The team plans to review the disposal of dialysate acid concentrate canisters, which are currently sent to landfill, to identify opportunities for recycling.

Magnetic resonance imaging assessment of kidney morphometry in chronic kidney disease: baseline data from the AFiRM study

Susan Francis[2], Dr Charlotte Buchanan[2], Martin Craig[2], Professor Mark Gilthorpe[3], Professor Phillip Kalra[4], Dr Iosif Mendichovszky[5], Professor Steven Sourbron[6], Professor Maarten Taal[1,2], Professor Nicholas Selby[1,2]
[1]Royal Derby Hospital, Derby, UK, [2]University of Nottingham, Nottingham, UK, [3]Leeds Beckett University, Leeds, UK, [4]Salford Royal Hospital, Manchester, UK, [5]Cambridge University Hospitals, Cambridge, UK, [6]University of Sheffield, Sheffield, UK

Introduction

Standard ultrasound is the only imaging performed in most patients undergoing work-up for chronic kidney disease (CKD). Often, this adds little useful information on kidney volumes or appearance. Magnetic Resonance Imaging (MRI) provides detailed anatomical images that allow measurement of total kidney volume (TKV) and can be further analysed for quantitative radiomics features such as kidney shape, texture and heterogeneity. The relationship of these MRI features to CKD aetiology and kidney function is not well described.

Methods

We analysed baseline data from the AFiRM study, a UK multi-centre prospective study of renal MRI in people with CKD, to describe TKV and shape radiomic features across a range of eGFR and CKD aetiologies. All participants underwent a comprehensive renal multiparametric MRI protocol, which included a T_2-weighted anatomical image (Figure 1a). Each kidney was segmented using a machine learning U-Net, followed by visual assessment and manual correction if required. Normalised kidney volumes and radiomics shape descriptors were computed (14 3D features for each kidney and kidney asymmetry (left-right)) along with summed volume, surface area and surface area/volume, resulting in 45 shape features.
Clinical and biochemical data were collected at time of MRI, and primary renal diagnoses were categorised into: diabetic kidney disease (DKD), non-DKD glomerular disease, tubular disease, ischaemic nephropathy, CKD of unknown cause, and other. Those with ADPKD or with single kidneys were not eligible for this study. Descriptive statistics were used to compare radiomics features between diagnostic categories. The relationship of eGFR with MRI metrics were explored using linear and quadratic terms, with the quadratic term retained where the model fit significantly improved at the 10% level.

Results

From a cohort of 420 participants, 411 participants had complete data and were included in this analysis. Mean age was 55.1 years (standard deviation (sd) = 12.8 years) with 63.7% male. Mean eGFR was 42.7 (sd = 18.7)ml/min/1.73m² and most (86.2%) were in CKD stages G3-4. The most common diagnostic category was glomerular disease (42.0%), followed by CKD of unknown cause (19.2%), DKD (13.6%), tubular disease (12.2%), ischaemic nephropathy (4.9%) and other (8.0%). A total of 218 (53.0%) had primary renal diagnosis based on kidney biopsy.
A number of MRI shape and volume features differed across diagnostic categories, with differences in the number and strength of associations between MRI variables and eGFR, as shown in Table 1. For instance, DKD had highest kidney volumes and other radiomics features relating to kidney size, including surface area, long and short axis, equivalent diameter, moment of inertia (Figure 1b, Figure 2).

Conclusions

We show that there are strong predictive associations between quantitative MRI measures of kidney volume and shape with eGFR, as well as differences between CKD aetiology categories. This demonstrates substantial potential for these MRI measures to be used in prediction modelling to further explore the interplay among these measures to determine potential mechanistic (i.e., causal)

understanding relevant to CKD progression. These analyses will be augmented with the addition of T_2-weighted radiomics measures of texture and heterogeneity and quantitative T_1 and T_2 metrics.

Haemoglobin interference in dried blood spot proteomics for Chronic Kidney Disease

Miss Hannah Ging[1], Prof Alan Salama[3], Professor Claire Eyers[1], Dr Louise Oni[2,3], Dr Andrew Chetwynd[1]
[1]Centre for Proteome Research, Institute of Systems, Molecular and Integrative Biology, University of Liverpool, Liverpool, United Kingdom, [2]Department of Women's and Children's Health, Institute of Life Course and Medical Sciences, Liverpool, United Kingdom, [3]Department of Renal Medicine, University College London, London, United Kingdom

Introduction: The use of microsampling using dried blood spots (DBS) that can be posted from home presents a wide range of possibilities for longitudinal biosampling. This has the potential to increase equitable participation to biobanking with reduced costs associated with attending medical facilities, and reduced blood volume, whilst providing high quality samples for biomarker discovery. In proteomics, the presence of high abundance proteins, such as haemoglobin, can mask low abundance proteins making biomarker discovery challenging.
Aim: The aim of this project was to establish methods to eliminate haemoglobin from reconstituted DBS, to allow identification of other key proteins, using a bottom-up proteomics methodology. This was method was then applied using samples from a cohort of patients with CKD stage 5 as proof of principle.
Methods: Different reconstitution method for DBS were tested and a comparison was undertaken between the three primary DBS devices: Capitainer qDBS, Neoteryx VAMS Mitra, and Whatman903. Once this was optimised the samples underwent haemoglobin depletion using Biotech Support Group's: NuGel HemogloBind, HemogloBind, and HemoVoid depletion kits, and ThermoFisher's High-Select. A novel cell-free DBS device (Capitainer's SEP10) was also tested, to assess whether the removal of the haemoglobin-containing cells proved a more optimal method than depletion. The samples were digested using a Trypsin/LysC SP3 protocol and peptides analysed by EvoSep LC (30 sample per day)-QExHF Orbitrap MS/MS on a top 14 DDA acquisition. All biosamples used for method optimisation were obtained from healthy adult controls (n=5), and the proof of principle cohort from participants of GlomOmics study (REC 23/PR/0490) who had CKD stage 5 (n=10).
Results: There was minimal difference ($p>0.05$) in the proteins identified using different devices (Whatman= 507±6, VAMS= 480±4, Capitainer= 497±6), although at a patient engagement event the Capitainer qDBS devices were preferred due to reduced plastic waste. Reconstitution with 200 µL ammonium bicarbonate recovered the greatest number of proteins, with the most consistency. The best haemoglobin depletion agent was HemoVoid, which depleted 94% of the haemoglobin and increased the number of proteins identified to 545±5. The SEP10 device yielded a proteome more comparable to traditional plasma samples than DBS, with 323±15 proteins identified compared 312±3 in traditional plasma samples. The reduction in overall number of protein identifications compared to DBS was found to be a result of the removal of cellular proteins. The SEP10 identified significantly higher concentrations of clinically relevant proteins, such as complement proteins, however, when the HemoVoid method was applied to the proof of principle cohort similar proteins were still identified.
Conclusion: Micro-sampling offers great opportunity for the future of equitable biobanking. The quantity of haemoglobin removed from the sample directly correlated with the number of proteins identified, with HemoVoid removing the most haemoglobin from the sample, leading to the highest number of protein identifications. Use of SEP10 increased the concentrations of clinically relevant proteins but decreased the total number of proteins identified. Therefore, both methods may have a role in enhancing the high-throughput discovery of novel protein biomarkers, allowing samples to be collected longitudinally from the home setting.

Optimisation of Urine Proteomics for paediatric IgA Vasculitis Nephritis

Miss Hannah Ging[1], Professor Claire Eyers[1], Dr Louise Oni[2,3], Dr Andrew Chetwynd[1]
[1]Centre for Proteome Research, Institute of Systems, Molecular and Integrative Biology, University of Liverpool, Liverpool, United Kingdom, [2]Department of Women's and Children's Health, Institute of Life Course and Medical Sciences, Liverpool, United Kingdom, [3]Department of Renal Medicine, University College London, London, United Kingdom

Introduction: The use of urine samples for investigation of CKD, and other kidney diseases, presents clear advantages due to the close proximity of urine to the kidneys. The well-established impact that sub-optimal kidney function can have on urine, and its constituent components, makes it a clear target for diagnostics and monitoring of kidney function. Urine samples are non-invasive, making it preferable for paediatric cohorts compared to venepuncture-based blood sampling. However, current biomarkers, such as proteinuria, are non-specific and may reflect established kidney damage. This means that there is a requirement for the identification and development of new urinary biomarkers for kidney disease, which may provide a greater insight into pathophysiology and detail regarding the patients' disease state. Optimising laboratory techniques is best performed in healthy individuals first prior to exploring disease states. Optimising proteomics (precise method of analysing proteins) in healthy urine is challenging due to the extremely reliable efficiency of the kidney in retaining protein during health.

Aim: The aim of this project was to establish the optimal method to allow high-throughput mass spectrometry based proteomic techniques in healthy participants which was then applied to a proof of principle cohort of children with immunoglobulin A vasculitis nephritis (IgAV-N).

Methods: Initially, the best enrichment method for bulk urine samples was tested, using 500 µL of pooled healthy adult control urine samples. For this, 8 development methods were tested: Acetone-based protein precipitation; PreOmics Enrish-IST, with and without acetone precipitation; StrataClean; Biotech Support Group's UPCK and NRicher Mx kits; and MagReSyn's HILIC and SAX kits. After identification of the optimal enrichment methodology, this was then scaled down to fit the smallest possible volume of urine which could be used, whilst still providing sufficient protein identifications. The samples were digested using a Trypsin/LysC SP3 protocol and peptides analysed by EvoSep LC (30 sample per day)-Bruker timsTOF MS/MS on a top 14 DDA acquisition. For the proof of principal study, the cohort was made up of participants of IgA Vasculitis study (REC 17/NE/0390), with the samples grouped into IgAV (n=14), IgAVN 9n=15) and Healthy Control (n=11) categories.

Results: The optimal enrichment protocol was identified as an acetone-based protein precipitation, which identified an average of 844±4 proteins (RSD= 0.5%). This identified between 131-441 more proteins than the other methods tested and displayed the lowest level of variability. Additional considerations included affordability, processing speed and ease of protocol which permitted its approval as the optimal method for small-volume total urine proteomics.

Conclusion: Proteomic analysis of urine samples provides a key resource for exploration of kidney disease, however optimisation using healthy control participants requires complex methods due to the low observed protein concentration in health. Performing an acetone-based precipitation prior to protein digestion allows identification and analysis of significantly larger numbers of protein, without the need for more expensive enrichment techniques. This optimised workflow for robust urinary proteomics may enhance the discovery of novel protein biomarkers.

Application of contrast enhanced ultrasound assessments of renal perfusion in younger and older age groups, and in those with and without CKD.

Dr Kerry Horne[1,2], Dr Jonathan Bowley[1], Dr Praise Tokode[2], Dr Shatha Al Mushayt[1], Dr Eleanor Cox[3], Susan Francis[3], Professor Bethan Phillips[4], Professor Maarten Taal[1,2], Professor Nicholas Selby[1,2]
[1]Centre for Kidney Research and Innovation, University of Nottingham, Nottingham, UK, [2]University Hospitals of Derby and Burton NHS Foundation Trust, Derby, UK, [3]Sir Peter Mansfield Imaging Centre, University of Nottingham, Nottingham, UK, [4]MRC-Versus Arthritis Centre for Musculoskeletal Ageing Research (CMAR), University of Nottingham, Nottingham, UK

Introduction
Renal perfusion, the delivery of oxygenated blood to kidney tissues, is important in the pathophysiology of acute and chronic kidney diseases. Despite this, methods do not exist in clinical practice to measure renal perfusion or monitor the response to interventions in real time. Contrast-enhanced ultrasound (CEUS) is an emerging technique which uses a microbubble contrast agent which allows for continuous imaging of the vasculature and blood flow. The expected perfusion parameters of CEUS in healthy individuals and chronic kidney disease are not currently known.

Methods
We conducted a prospective, observational study that recruited three groups of participants. Group 1 was comprised of healthy volunteers ≤ 40 years old, group 2 were healthy volunteers aged ≥ 70 years and group 3 were people with CKD (eGFR 15-45 ml/min/1.73m²). Contrast enhanced ultrasound was performed using a Philips EPIQ ELITE ultrasound machine and an intravenous infusion of SonoVue® (Bracco) contrast. After achieving steady state, five destruction-reperfusion sequences were recorded for each participant, and videoclips were analysed using VueBox software. A time-intensity curve was generated from which mean transit time (mTT), the time taken to reach 50% maximal intensity, was derived. The median mTT across destruction-reperfusion sequences was used to generate a single mTT value per participant that were compared between the three groups using one-way ANOVA.

Results
For this analysis, 37 participants (20 healthy volunteers and 7 patients with CKD) were included. Mean age was 30.5±4.8 years in younger healthy volunteers, 75.7±3.0 years in older healthy volunteers and 70.7±4.2 years in the CKD group. Median eGFR was 110.0 [IQR 85.5-118.8]ml/min/1.73m² in the younger healthy volunteers, 85.5 [IQR 75.5-89.3] ml/min/1.73m² in the older healthy volunteers and 31.0 [IQR 26.0-38.0] ml/min/1.73m² in the CKD cohort. Cause of CKD was diabetic nephropathy in 3 participants, IgA nephropathy in 3 participants and tubulointerstitial nephritis in 1 participant.
Mean mTT was significantly slower in individuals with CKD (3.6 ±1.4 seconds) compared to both older (2.3 ±0.6 seconds, p=0.01) and younger (1.8±0.3 seconds, p<0.001) healthy volunteers (Figure 1). The difference between older and younger healthy volunteers was not significant (p=0.4). The CKD group also displayed much greater dispersion of the mTT values (range 2.1 – 4.7 seconds), compared with older (range 2.0-2.5) and younger (range 1.6-2.0) healthy volunteers.

Conclusion
Contrast enhanced ultrasound is able to detect a difference in kidney cortical perfusion between healthy kidneys and those with chronic kidney disease. These changes are distinct from age related changes in perfusion. The higher degree of variability in the CKD cohort suggests greater heterogeneity between patients in the degree to which reductions in perfusion are associated with lower kidney function.

Figure 1

Box plot showing the mean transit time in 1. healthy volunteers ≤ 40 years, 2. Healthy volunteers ≥ 70 years and 3. Patients with CKD (eGFR 15-45 ml/min/1.73m^2).

Reducing unnecessary carbon in haemodialysis by reducing pharmaceutical waste in a dialysis unit

Liza Bajet[1], Ayesha Orlanda, Shiraz Bismillah, Kamila Ibrahim, Stephanie Choo, Leeanne Lockley, John Stoves
[1]Bradford Renal Unit Sustainability Group, , , [2]Bradford Renal Unit Sustainability Group, , , [3]Bradford Renal Unit Sustainability Group, , , [4]Bradford Renal Unit Sustainability Group, , , [5]Leeds Teaching Hospitals NHS Trust , , , [6]Kidney Quality Improvement Partnership, , , [7]Bradford Renal Unit Sustainability Group, ,

Introduction:
As part of its ongoing efforts to promote environmental sustainability, the Bradford Renal Sustainability Group has partnered with the Trying to Reduce Unnecessary Carbon in Haemodialysis (TRUNC-HD) project in Yorkshire and Humber to further reduce the carbon footprint of its renal care practices. One of our unit's projects is focused on pharmaceutical waste as a key area for improvement, guided by insights from the in-centre haemodialysis (ICHD) online carbon calculator and by observing pharmaceutical waste in the unit.

Methodology:
The trust sustainability manager used the online ICHD Carbon Calculator to estimate the carbon footprint of the unit. Upon reviewing the findings, the group initiated targeted interventions, particularly in pharmaceutical waste management. Nurses observed frequent disposal of expired medications and redundancies in the pharmacy stock list. A review of expired medications and the stock list was conducted in collaboration with the renal pharmacist, identifying and removing medications that were no longer required. Previously, a pharmacy technician managed medication top-ups using a predefined list. This was revised, and unit sisters were tasked with reviewing pharmacy orders weekly, a process taking approximately 20 minutes. Medications nearing expiry are now highlighted to ensure they are used first, minimising wastage. A top-down approach was applied to estimate the carbon footprint of discarded medications. The calculation used the 2021 UK Government standard industrial classification conversion factor of 0.581 $kgCO_2e$ per pound (£), as robust carbon footprinting life cycle analyses for individual medications were not available.

Results:
In April 2024, the nursing staff reviewed all medications that were discarded due to being over their expiry date. This included ten glucose 50% solution for infusion 50ml vials, 20 boxes containing ten vials each of Tinzaparin 7500 IU/0.3mls ampoules, four hydrocortisone 100mg powder for solution for injection vials, a box of carbocisteine 375mg capsules (120 capsules), ten ferric carboxymaltose 100mg/2ml solution for injection vials, a bottle of Gaviscon liquid and a box containing 10 ampoules of ondansetron 4mg/2ml solution for injection (Figure 1).

The total financial impact of these discarded medications alone was measured at approximately £1,260 and 732 kgCO2e (Table 1). Quantitative data comparing pharmacy ordering trends from January–April 2024 (pre-intervention) with May–August 2024 (post-intervention) are being collected to assess the longer-term impact of these changes.

The additional benefit of the project is that haemodialysis staff now have greater autonomy over stock control, allowing adjustments based on usage trends. Subjectively, the nursing staff also felt that there was a reduced risk of medication errors as removal of redundant medications from stock decreases the risk of errors.

Discussion:

Maintaining the revised system will be crucial to sustaining these improvements. Regular reviews of the stock list and the necessity of medications will ensure the system remains effective. By implementing these changes, the unit is taking meaningful steps toward reducing waste and improving efficiency, contributing to a more sustainable healthcare system.

Reducing unnecessary carbon in in-centre haemodialysis by reducing the number of machine heat disinfection.

Ayesha Orlanda, Liza Bajet, Julia McCarthy, Stephanie Choo, Mrs Leeanne Lockley, Dr John Stoves
[1]Bradford Teaching Hospitals NHS Foundation Trust, , , [2]Bradford Teaching Hospitals NHS Foundation Trust, , , [3]Bradford Teaching Hospitals NHS Foundation Trust, , , [4]Leeds Teaching Hospital, , , [5]Kidney Quality Improvement Partnership, , , [6]Bradford Teaching Hospitals NHS Foundation Trust, ,
As part of its ongoing efforts to promote environmental sustainability, the Bradford Renal Sustainability Group has partnered with the Trying to Reduce UnNecessary Carbon in Haemodialysis (TRUNC-HD) project in Yorkshire and Humber to further reduce the carbon footprint of our haemodialysis units. One of the major interventions is reducing the frequency of machine heat disinfections. Previously, single daily heat disinfection was practised in our unit without any reported hepatitis B seroconversions. Based on manufacturer guidelines, this practice was reverted to heat disinfection after every dialysis session. The aim of this project was to safely reintroduce single daily machine heat disinfections in our unit and evaluate the impact on patients, staff, and the environment.

Key activities included extensive stakeholder engagement, involving meetings with nurse educators, technicians, and senior leadership. The team collaborated with a unit that had continued to practise single heat disinfections to share experiences and safety data. There were multiple team discussions at renal quality and safety (Q and S) and infection and prevention control (IPC) meetings to ensure the safety of the intervention. A standard operating procedure (SOP) for machine disinfection was developed, requiring staff acknowledgement through signatures to ensure compliance with training.

Daily dialysis machine disinfection was reintroduced in a satellite unit without hepatitis B patients and subsequently in the main dialysis unit. The machines used for patients with blood borne virus infection or unknown viral serology continued to be heat disinfected after each use. Specific measures to ensure safety compliance included a dedicated dialysis space and clearly identifiable dedicated machines for patients with blood borne virus infections. Progress was tracked through surveys, staff feedback, machine turnaround times and patient outcomes.

The reintroduction of single daily heat disinfection resulted in significant benefits. The preparation of machines was reduced from 42 minutes to 9 minutes, enabling patients to receive their full dialysis time and dialysis staff to keep to working schedules. Patient transport services became more streamlined through avoidance of cumulative delays. There have been no reported adverse events. Constructive debate and open discussions regarding the process reinforced the culture of team inclusivity and learning. Switching one heat disinfection cycle to a rinse cycle is estimated to save 0.311kgCO2e and £0.48 due to the reduction in water, electricity and disinfectant usage (Table 1). The annual environmental and financial saving is estimated to be at 11.57 tonnes kgCO2e and £15,425 respectively (Table 2).

The project demonstrates that single heat disinfection safely reduces carbon emissions while enhancing operational efficiency, and highlights the importance of open communication, regional collaboration, and senior leadership support. Regular reviews of the protocol and inclusion of patient and staff feedback have helped to ensure the future sustainability of single daily heat disinfection.

Enhancing the Vascular Access Service in Wales: All Wales Digital Audit Tool

Dr Aled Williams[1], Dr Panagiotis Bakoulas[1], Dr Rhodri Pyart[2], Dr Gareth Roberts[2], Ms Jennifer Holmes[3], Dr Stuart Robertson[4], Dr James Chess[1]
[1]Swansea Bay University Health Board, Morriston Hospital, Wales, [2]University Hospital of Wales, Cardiff, Wales, [3]Health Education and Improvement Wales, Cardiff, Wales, [4]Betsi Cadwaladr University Health Board, Wrexham Maelor Hospital, Wales

Introduction

Recent UK Kidney Association (UKKA) guidelines on Vascular Access for Haemodialysis have recommended the use of 9 standardised audit measures to measure success of local vascular access programs across the UK. Furthermore, all Renal Units in UK are required to submit data about kidney replacement therapy annually to the UK Renal Registry. However, the data reported back via the annual UK Renal Registry (UKRR) report is retrospective and usually represents data 2 years old (the current 26th Annual report has reported on all Kidney Replacement Therapy (KRT) patients up to the end of 2022) or more in bacteraemia reporting (last reported data up to the end of 2019). This makes it difficult to inform local practice and also to evidence the impact of any interventions designed to improve the delivery of a vascular access service. The Welsh Kidney Network (WKN) have therefore developed an online all Wales vascular access dashboard to allow real time sessional data across health boards in Wales about dialysis access and bacteraemia rates to be displayed and analysed.

Methods/Results

The dashboard includes data for all Wales on audit measures 2,3 and 4 recommended by the UKKA on page 10 of the clinical practice guidelines: Vascular access for Haemodialysis (Figure 1). The dashboard also includes aggregate data of all bacteraemia cases in Haemodialysis (HD) patients for all Wales. The bacteraemia data can sub analysed according to the counts and rates of staphylococcus aureus bacteraemia and can be filtered by region, access type at time of infection and most recent access type recorded for HD treatments taking place within 30 days of bacteraemia. The data presented in the dashboard has been collected from VitalData, with further patient identifiable information (PII) available to clinicians to deliver safe and timely bacteraemia care and interventions. The data presented in the dashboard can also be displayed in charts of quarterly bacteraemia rates, with Staph aureus (both Methicillin Sensitive and Resistant strains) plotted against the UKKA targets separately (Figure 2).

Discussion

Implementation of the dashboard has allowed real time analysis of vascular access and bacteraemia activity across Wales, bridging the gap between the retrospective annual UKRR reports. Furthermore, it allows regular audit according to national standards, which will help inform local practice and service provision across health boards.

Cognitive impairment and health outcomes in chronic kidney disease: a systematic review.

Dr Keegan Lee[1], Dr Anooj Ghadge[1], Dr Bhargav Raut[1], Dr Kristin Veighey[1], Professor Maarten Taal[2], Prof Phil Kalra[3], Professor Simon Fraser[1]
[1]University of Southampton, Southampton, United Kingdom, [2]University of Nottingham, Nottingham, United Kingdom, [3]University of Manchester, Manchester, United Kingdom

Introduction
Prevalence of cognitive impairment is high in people with chronic kidney disease (CKD) but its impact on key health outcomes is not clear. Cognitive impairment also affects self-management, but this is under-investigated in the context of CKD. This systematic review aimed to determine the relationship between cognitive impairment and health outcomes and explore its impact on self-management ability among people with CKD not on renal replacement therapy.

Methods
Searches were performed in May 2024 on Embase, MEDLINE, CINAHL, PsycINFO, Web of Science, PubMed and grey literature databases for longitudinal or cross-sectional studies examining associations between cognitive impairment and key health outcomes, including ability to self-manage in adults with CKD not on renal replacement therapy. Cognitive impairment was defined as a diagnosis of dementia or mild cognitive impairment on health records, or evidence of impairment using a validated cognitive assessment tool. Health outcomes included mortality, kidney disease progression, hospitalisation and healthcare utilisation, cardiovascular and cerebrovascular events, and health-related quality of life (HRQoL). Risk of bias was assessed using the ROBINS-E tool. Screening and risk of bias assessment was performed by two independent reviewers and any disagreement discussed with a third reviewer. Meta-analysis was performed using RStudio on outcomes with a sufficient number of studies. For outcomes where a meta-analysis was not possible, a narrative synthesis was conducted.

Results
14 studies met inclusion criteria with a total of 934,221 participants and median sample size 1747.5 (IQR=4396). Meta-analysis (n=8) showed that cognitive impairment was associated with increased all-cause mortality (HR 1.73, 95% CI 1.39-2.16). There were insufficient studies for meta-analysis of other outcomes, but included studies showed an association between cognitive impairment and increased cardiovascular mortality (n=1), higher risk of cardiac arrhythmia (n=1), stroke and transient ischaemic attack (n=1), lower HRQoL (n=2), and higher hospitalisation and healthcare utilisation (n=2). Self-perceived cognitive impairment was associated with higher likelihood of choosing a non-self-care dialysis modality (n=1). There was variable association between cognitive impairment and CKD progression (n=4) and no association between cognitive impairment and risk of ischaemic heart disease was observed (n=1). No studies with self-management as an outcome were identified. Risk of bias assessment identified some concerns in 11 studies, high risk of bias in 2 studies and very high risk of bias in 1 study.

Discussion
Cognitive impairment appears to have a negative impact on health outcomes including increased mortality in people with CKD, though studies were limited for some outcomes. There was significant heterogeneity and presence of bias amongst studies included in this review. Further research is required to explore the impact of cognitive impairment on self-management among people with CKD.

Implementation of a Task driven ‘AKI care bundle’ in improving outcomes of hospitalised patients with Acute Kidney Injury (NHS University Hospitals Liverpool Group, UHLG)

Dr Shahed Ahmed[1], Marie Mccarthy[1], Natalie Erickson[1], Katie Algate Rimmer[1], Kimberley Dixon[1], Sumy Jacob[1], Megan Harkness[1], Emma Mcmahon[1], Dr Asheesh Sharma[1], Dr Jay Hiremath[1]
[1]Liverpool University Hospitals Foundation Trust, Liverpool , UK

Introduction: Acute Kidney injury (AKI) remains a challenge a decade on since the NCEPOD AKI report was published[1]. AKI continues to be associated with high mortality and cost. Numerous AKI care bundles have been introduced but without meaningful impact on patient outcomes. At our tertiary renal referral unit, we have introduced a task based ‘AKI care bundle’ in line with the updated NICE AKI quality standard of reviewing stage 2 & 3 AKI within 6 hours. We present a retrospective analysis of this intervention.

Method: The Nurse led Renal Acute Care Team (ReACT) review all stage 2 & 3 AKI alerts at our hospital (RLH). We have designed and implemented an AKI care bundle - AKI, think ‘FLUIDS24’ (table 1). The bundle is task based, with elements to be completed within 6 hours of an alert by the ReACT team (as opposed to suggesting execution of the bundle for the parent team to complete the tasks). The ReACT team provides ‘whole pathway’ AKI care including post discharge ambulatory follow up. We have analysed the impact of this complex intervention between April-June 2024.

Results: 266 cases of AKI stage 2-3 were observed and 97% were reviewed and our AKI care bundle was initiated by the ReACT team. 80% of alerts reviewed within 6 hours as stated by NICE guidance/ quality standards, and 47% were within 2 hours.

92% of alerts had essential AKI medication reviews completed (51% by ReACT team and 41% by the parent clinical team). We also analysed and compared AKI data with a neighbouring acute hospital of UHLG (between January to October 2024), AKI unadjusted mortality was lower than national average[2] and length of stay was shorter (table 2).

Discussion: The task based ‘AKI care bundle’ implementation demonstrates significant improvement of AKI outcomes in terms of LOS (9 days with stage 3 AKI; 10 days stage 2 AKI at RLH compared to overall 12 days in GIRFT AKI report) and reducing in-hospital mortality. The LOS was higher at neighbouring UHLG acute site where this innovation has not yet been fully implemented. This approach underpins the value of bed side clinical review, reassessing fluid balance and the care bundle measures over 24 hours. The AKI mortality data is unadjusted for dialysis patients who can generate AKI alerts and may have contributed to lower stage 3 AKI mortality in one of the acute sites with large dialysis population (RLH). However, we are undertaking further analysis excluding such cohort.

Conclusion: These data suggest that a skilled team reviewing patients with AKI, and taking responsibility for the delivery of key interventions will favourably affect inpatient mortality and length of stay. Wider evaluation to validate these findings would be interesting.

Ref: 1. NCEPOD: Acute Kidney Injury: adding insult to injury (2009). 2.Renal Medicine: GIRFT Programme National Specialty Report 2021 (Mortality in hospital or within 30 days of discharge was 26.3%, 39.8% and 43.0% for AKI1, AKI2 and AKI3 respectively. Median LOS 12 days overall).

Tracking and Reducing Bacteraemia Rates in patients undergoing haemodialysis in South West Wales

Dr Panos Bakoulas[1], Dr Aled Williams[1]
[1]Morriston Hospital, Swansea, Wales

Bacteraemia associated with central venous catheterisation is one of the most serious complications in patients undergoing haemodialysis with central venous catheters (CVC). Each bacteraemia episode leads to an average length of stay in hospital of 14 days per episode, costing around £4844 per admission alone with additional costs incurred in investigation and treatment. UK Renal Association guidelines currently monitor the rates of the four infections associated with vascular access – methicillin-resistant Staphylococcus aureus (MRSA), methicillin-sensitive Staphylococcus aureus (MSSA), Escherichia coli and Clostridium difficile.

In an effort to quantify this issue and the impact of our interventions in the South-West Wales area, we retrospectively looked into the patients undergoing haemodialysis that had a positive blood culture for MRSA, MSSA and E. coli. We extracted data from the renal database in our area and we noted the incidence of MRSA, MSSA and E. coli bacteraemia in all patients undergoing haemodialysis. We then categorised these patients to likely or unlikely related to their haemodialysis access, while also noting the type of access.

During the first cycle of our audit, two years ago, we found that the risk of developing bacteraemia post a tunnelled central venous catheter insertion was 1 in 47 insertions, and, more specifically, the risk of developing MRSA or MSSA bacteraemia was 1 in 118 insertions. The overall bacteraemia rate in patients undergoing haemodialysis was 23.1 - 24.4 per 100 adult HD patient years whereas MRSA bacteraemia rate was 0.0 - 0.9 and MSSA bacteraemia rate was 3.2 - 4.9 per 100 adult HD patient years.

We then introduced several interventions in an effort to reduce the incidence of bacteraemia. The most important ones were line locks containing antimicrobials and MSSA/MRSA screening and decolonisation pre line insertion. We are now measuring the impact of these interventions during 2023 and 2024. We have found that the overall bacteraemia rate is 17.4 - 22.6, the MRSA bacteraemia rate is 0.4 - 0.7 and the MSSA bacteraemia rate is 3.0 - 3.5 per 100 adult HD patient years. However, none of the MRSA bacteraemias in 2024 seem to be related to a line insertion. 9 out of 10 patients that developed bacteraemia likely related to their vascular access needed hospitalisation, but all of them were alive 3 months later.

In conclusion, the review of our data shows that, following our interventions, the rate of bacteraemia has improved. This is an ongoing process and some of our interventions were not fully implemented until late 2023 which is why we believe that these numbers will further improve in the future with careful vascular access planning, full implementation of line locks and MRSA/MSSA screening and decolonisation and better staff training on line insertions and vascular access handling.

Cost saving in renal dietetics

Mr Jack Chilton[1], Ms Jaspreet Moser[1]
[1]Guy's and St Thomas' NHS Foundation trust , London , UK

Introduction

Malnutrition is highly prevalent among renal patients. Impaired nutritional status is associated with poorer clinical outcomes. Historically, the availability of oral nutritional supplements (ONS) suitable for renal patients has been limited. ONS needs to be low in volume, low in electrolytes, and provide either moderate or high protein content. As a result, renal dietitians have often relied on high-cost ONS to meet these requirements.

Our prescribing support team has encouraged dietitians to consider more cost-effective ONS and reduce the cost of ONS prescriptions. This project aimed to evaluate the impact of switching patients from high-cost to low-cost ONS. The primary objectives were to assess annual cost savings and compare the nutritional profiles of the ONS. A secondary objective was to explore patients' experiences following the switch.

Methods

Over 6 months, renal dietitians reviewed pre-dialysis, dialysis and post-transplant patients that were on ONS. Patients were switched to a low-cost ONS where appropriate, a prescription change was then completed by writing to GPs.

Data collection was completed during follow up appointments and the information was collected: demographics, duration on ONS, aim and type of ONS, reason for not swapping (if applicable). Following the swap: patient experience data, ONS nutritional information and cost.

Information was inputted onto an anonymised spreadsheet with each patient being given a numerical code. Quantitative data was then analysed used Microsoft Excel and qualitative data was summarised.

Results

51 patients were involved in the collection, 2 patients were removed before reviewing the results as the ONS were not a direct swap.

The sample was composed of 51% males. Figure 1 shows the cohort's ethnic distribution. Of the participants, 88% were on haemodialysis. 30% were under 70 years old, 35% were between 71 and 80 years old, and 35% were over 81 years old. 67% had a BMI of 18.6–25 kg/m².
Figure 2 outlines the reasons for patients being prescribed ONS.

The total annual cost saving achieved was £14,410.

Figure 3 shows the total averages of the nutritional components of the ONS before and after the swaps. Protein, volume and potassium have no differences. Calories were on average 4kcals less after the swap.

Of the patients who switched ONS, 83% transitioned from Fortisip Compact Protein to Fresubin Pro Compact.
Out of the 49 patients, 18 did not switch ONS. Among these, 61% declined the change, with the primary reason being the lack of flavour variety in the new ONS.

Discussion

The results show that switching patients to a low-cost ONS achieved cost savings without compromising the nutritional content.

The limited flavour options in the low-cost ONS were the primary barrier to patient acceptance. We anticipate that cost savings could be further improved as additional flavours become available.

Notably, 40% of the cohort had been on ONS for over 12 months. This finding highlights a significant opportunity for cost savings in long-term ONS use. However, we recommend that the clinical indication for patients on ONS beyond 12 months be carefully reviewed to ensure continued necessity.

Accelerated Advanced Kidney Care Pathway for unheralded dialysis starts.

CNS Nilika Tamang[1], Dr Lina Nikolopoulou[1], Dr Adrian Mcgrath[1], Mr Anand Muthusamy[1], Mrs Joana Teles[1]
[1]Imperial College Healthcare NHS Trust , London, United Kingdom

Introduction

Patients presenting with end-stage kidney disease (ESKD) are less likely to receive education regarding dialysis access and modalities plus experience delays in access to transplantation. A previous internal audit showed that 31.5% of unplanned dialysis starters were not known to our renal services. Outcomes at 3 months were poor: none of these patients transitioned to a home therapy, none had definitive dialysis access created and none were activated on the transplant list. To address this we designed and implemented a novel Accelerated Pathway (ArP) for late presenters focusing on education, transition to home therapies, definitive access for dialysis and access to transplantation supported by NHS ENGLAND 3P project funding.

Methods

Inclusion criteria: (1) patients not previously known to renal services and (2) with estimated GFR <15mL/min. The duration of the pathway was 90 days with pre-specified targets: 40% creation of definitive access, 10% of patients transitioning to home therapies, 100% initiation of transplant workup (unless transplantation contraindicated), 60% activation on the transplant list. Patients were seen by a band 7 clinical nurse specialist (CNS) as in- or out-patients to provide prompt RRT education within 7 days of presentation. Consultant nephrologist and transplant / vascular access surgeon clinic review was scheduled within 21 days of first CNS review, focusing on RRT modality planning, assessment for vascular access and transplantation and initiating transplant workup. After 90 days on the pathway patients were discharged to their dialysis unit or local nephrology team.

Results

43 patients were initiated on the pathway between April and October 2024. 28/43 (65%) patients needed acute haemodialysis (HD) at the time of presentation. 21 patients chose HD as a maintenance therapy; 21 chose peritoneal dialysis (PD), and 1 did not engage.
Across the entire cohort, 18/21 (85%) of patients choosing HD had a fistula created and 2 have a future date. PD was the preferred modality choice for 21 patients: 4/21 (19%) were established on PD and 1 awaiting catheter insertion , 2 moved to supportive care, 4 recovered/ stabilised function and 1 died. PD was not possible in 6/21 (28%) patients due to housing issues and 3/21 patients subsequently chose HD. 26/43 (60%) patients were suitable for transplantation and 9/26 (35%) have been since activated, 10/26 (39%) awaiting cardiological investigations ,7/26 (27%) cannot currently proceed (active infection, acute illness) . 17/43 (40%) patients were not suitable for transplantation (frailty , age, function recovered) .

19 patients have so far completed the 90 day pathway, of which 14 opted for HD and 12 (63%) had a fistula created; 3 (16%) transitioned to PD resulting in 15 (79%) with definitive access, 2(10%) deceased. Transplant workup was initiated in 100% of patients deemed suitable for transplantation (n=16). 7/16 (44%) of these were activated on the transplant waiting list, with an average time of 50 days from starting on the pathway.

Conclusion

This dedicated accelerated pathway significantly improved access to home therapies, definitive dialysis access and transplantation. Cost analysis and sustainability modelling is under way to ensure continuity.

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An outreach program for early detection of chronic kidney disease and prevention of progression in collaboration with primary care & community services.

Ms Kathleen Lynch[1], Mrs Joana Teles, Dr Andrew Frankel, Ms Thushara Dassanayake, Dr Kuldhir Johal, Doctor Parviinder Garcha, Dr Mohammad Haidar
[1]Imperial College NHS Trust, London, United Kingdom, [2]North West London ICB, London, United Kingdom, [3] Family Practice, London, United Kingdom

Northwest London (NWL) has some of the highest incidence and prevalence rates of kidney failure in the UK. Research commissioned by Kidney Research UK in 2001, highlighted the greater burden of risk for kidney disease in Black, Asian and minority ethnic populations (1) with kidney failure three to five times more common in people from minority ethnic groups. It is thought this is attributable to the high rates of diabetes and hypertension within this population.
This project aims to improve awareness of chronic kidney disease with a strategy to reduce accessibility of care barriers, within communities from black and Asian ethnicity. Building on the Hidden CKD work developed in South East London the team have transferred the initiative locally and also adapted the model of care to ensure full integration with primary care systems.

Method
The plan is to attend already organised community events in community halls or places of faith and deliver a kidney health information session. The session includes kidney specific health education with a focus on screening people at risk of CKD, promoting healthy lifestyle with a culturally tailored dietary education. The health information session will be delivered by a team of Nurses, GPs and dietitians and translated into the community's main non-English language when appropriate. Attendees will have the opportunity to have a partial kidney health check consisting of an instant semi quantitative urine ACR and blood pressure check. All activity will be recorded and documented on the hospital system (Cerner) and communicated to the general practice via written letter, with results and recommended actions. Image 1 describes the proposed activity flow for the sessions.
Community group selection is key to increase efficiency of available resources and reduce duplication of screening work developed by primary care. The team collaborated with community engagement leaders at borough and (integrated care system) ICS level to identify potential community groups. Core20PLUS5 and prevalence of cardiovascular disease data has been used as prioritisation.
To ensure clinical safety and determine how results will be acted on, the secondary care kidney centre and primary care integrated care system developed a clinical and governance standard operating procedure to support the semi-quantitative urine ACR and blood pressure testing aligned with outreach protocols already in place. This is strategically important to enable easy implementation in different areas across the eight boroughs. (Image 2)

Results
Implementation will start in January 2025, and we aim to present results in summer. Operational and clinical outcome measures will be evaluated and reported on, from this collaborative work.
Operational Metrics:
Number of people attending each session; Demographics; Engagement – willing to have BP/Urine
Clinical Metrics:
% abnormal urine ACR/BP; % of abnormal ACR not previously known to the service;
% of adults with a recommendation for f/up with GP (differentiate with BP & urine results)
Discussion
We believe the distinguishing aspect of this work is the integration between primary and secondary care, in addition the engagement with community groups focusing on the CORE 20plus5 population. We will measure the number of urine ACRs identified and previously unknown to the service, to identify how strategy bridges the gap of access to care and duplication of work. The sustainability

vision of this work, should it be successful includes training other ICB outreach teams to incorporate kidney health checks as part of their work.

Incidence of fibromuscular dysplasia amongst live kidney donors

Mr Saul McCabe[1], Dr Constantina Chrysochou, Paul Robinson
[1]Salford Royal NHS Foundation Trust, Manchester, United Kingdom

This project aims to review the incidence of fibromuscular dysplasia (FMD) incidentally detected amongst a cohort of patients attending for live kidney donor work up from the last 10 years. FMD is a non-inflammatory, non-atherosclerotic vascular disease characterised by abnormal cellular growth within arterial walls, leading to arterial stenosis, aneurysm, or dissection. This project will provide a 'real-time' incidence of FMD amongst the general population of which the exact incidence is unknown or varied by pre-selection. We aimed to review the rate of disease progression based on clinical and radiological parameters on follow up to see whether this might be a more benign phenotype of FMD.

A retrospective cohort of 3362 live kidney donors evaluated between 2014 and 2024 was reviewed. We compared baseline characteristics of those found with FMD compared to a control group, whether FMD is unifocal or multi-focal, unilateral or bilateral, isolated renal or multi-vessel FMD and any other incidental findings on CT or MR angiogram. Additionally, progression of FMD clinically (e.g. blood pressure worsening, renal decline) or radiologically (e.g. worsening stenosis on follow up scans) and risks for such progression were measured using electronic patient records.

This study found a total of 5 cases of FMD from the cohort of 3362 patients (incidence 1.49 per 1000 people). There were 2 cases of atypical FMD (incidence 0.595 per 1000 people). Atypical FMD is defined as the presence of an arterial dissection or >2 aneurysms, but no stenosis, in a patient under the age of 60 years of age. A total of 4 cases had unilateral FMD whilst 1 case was bilateral. Radiological progression was noted in 1 out the 7 cases whilst 2 of 7 cases had clinical progression (mean duration 3.96 years). From those who progressed, one was a current smoker and the other had a BMI of 32.4. Woman were found to have a higher incidence (4 out of 5 cases of typical FMD), whereas men were found to be more affected by atypical FMD (2 out of 2 cases). Both cases of atypical FMD saw clinical progression and extra-renal radiological progression. In terms of risk factors, 3 out of 5 patients with FMD smoked or were ex-smokers and 1 patient was classed as obese and 2 patients were overweight according to BMI. No patients with FMD went on to donate a kidney.

This is one of the largest unselected real time data cohort studies looking at the incidence of FMD. This study found FMD remains a rare condition with an incidence of 1.49 per 1000 people in an unselected, general population. Unlike initially postulated, there were some cases of clinical and radiological progression supporting the need for long term follow up and referral to an FMD service. This study provides a unique perspective on monitoring patients in whom a diagnosis of FMD would not have otherwise occurred and follow the natural progression of the disease. While short-term risks associated with FMD appear minimal, long-term monitoring remains essential to manage potential vascular complications.

Implementation of a quality improvement drive to improve the dialysis environment and patient experience.

Mrs Suzanne Glover[1], Mrs Melissa Charteris[1], Rebecca Warren[1], Dr Neluka Weerasooriya[2]
[1]University Hospitals of Leicester NHS Trust, Leicester, England, [2]DaVIta, London,

Patients attending for dialysis treatment can be out of the house for long periods of time. In addition to their treatment time they are often on the unit for some time due to reliance on non-emergency patient transport. Following feedback from patients in face to face discussions andfrom the Patient Recorded Experience Measure (PREM) survey the dialysis units in a large Trust were asked to consider how to improve the patient experience and impact of waiting time. The dialysis units are a mix of fully managed, partially managed and units on NHS sites.

Method: Patient engagement and patient experience was discussed regularly in unit huddles, matron meetings and also in operational meetings with the private provider for 4 units. Any initiatives to improve patient experience were celebrated and shared to enable replication in other units. Implementation varied across the units but included online and in person patient forums and engagement cafes, both to give feedback to the service and to enable patients to share their experiences with each other. These groups enabled patients to be involved in suggestions for improvement. Some units nominated staff as activities co-ordinators whilst in others shared decision making groups have led on identifying changes.

Results: Regular quizzes and bingo are now in place across the dialysis units, karaoke sessions were trialled but were less popular.The private provider units have embraced the improvement drive and have led some of the improvements encouraging their staff to share ideas and solutions which have been taken on across the network including changing design of waiting rooms from rows of chairs to having groupings of chairs and small tables to encourage interaction. Across the units many waiting rooms now have bookcases with books available to take away and read. Activities packs are available in some units whilst others have quizzes, suduko or crosswords available. Many have mindfulness colouring sheets available. Some units with enough room for tables in the waiting room also have board games available.

Some units have engaged in community initiatives such as collecting for children's wards or local animal rescue. One unit encouraged patients and staff to exhibit their craft work in the waiting area and then auction this for Kidney Care UK.

Discussion: Many non emergency patient transport contracts now have waiting times within their contract longer than 30 minutes. As a result patients can be waiting for longer periods within the dialysis units. These initiatives have been reported as helping make the waiting time pass more quickly and also encourage interaction between patients, many of whom can feel isolated.

Advancing integrated care for CKD: an update on a virtual service in an Integrated Care System in England

Mr Dipesh Patel[1], Professor James Burton[1,2], Dr Nilesh Sanganee[3], Ms Amy Page[1], Dr Rupert Major[1,2]
[1]University Hospitals of Leicester NHS Trust, Leicester, UK, [2]University of Leicester, Leicester, UK, [3]Leicester, Leicestershire & Rutland Integrated Care Board, Leicester, United Kingdom

Introduction

Early diagnosis, risk stratification, and the use of evidence-based medications are critical for improving chronic kidney disease (CKD) management. Increasing rates of urine proteinuria measurement, using the NICE-recommended Kidney Failure Risk Equation (KFRE), and conducting systematic medication reviews can help address gaps in CKD care. The introduction of Integrated Care Systems (ICS) in England offers an opportunity to transform CKD and other chronic disease management through a more collaborative and innovative approach.

Methods

A virtual CKD service was implemented within an ICS serving a population of 1.1 million, including areas with significant deprivation, ethnic diversity, and a mix of urban and rural populations. An independent external evaluation of the programme was conducted.

Results

The programme began in 2021 with a public kidney health education campaign that included the development and dissemination of educational videos. Virtual multi-disciplinary team (vMDT) meetings were piloted in four Primary Care Networks (PCNs) in April 2022, and the initiative expanded in May 2023 to make vMDTs available across all 26 PCNs.

As of December 2024, 16 PCNs, covering approximately 750,000 people, were actively participating in the programme. A total of 2,240 vMDT discussions were held, reviewing 1,651 patients with CKD. Of these, 1,094 (48.8%) involved medicines optimisation. These interventions reduced the number of “Advice and Guidance” (A&G) queries and led to similar numbers of referrals being expedited or avoided (Figure 1).

Patients reviewed in the virtual clinics frequently had comorbid conditions, including hypertension, diabetes, and heart failure (Figure 2).

An external economic evaluation of the programme demonstrated a cost-saving benefit of £1,200 per clinic, driven by reduced secondary care consultations and more efficient management of care. Longer-term financial benefits, including reductions in hospitalisation and the need for kidney replacement therapy, were predicted through economic modelling. The estimated annualised net benefit to the ICS was predicted to be £455,000 over five years, corresponding to a benefit-cost ratio of 2.76. Based on these findings, the area’s Integrated Care Board has now commissioned the service.

Discussion

The implementation of an integrated care model for CKD has demonstrated high levels of engagement between primary and secondary care teams. The external economic evaluation estimated that every £1 invested in the programme yields a return of £2.76.

“Exploring the dual roles of Wnt signalling in tubular cell injury and repair following acute kidney injury“

Mr Lewis Cook[1], Dr Shrinivas Dighe[1], Ms Josephine Tidmore[1], Dr Tanya Smith[1], Professor Mark Gumbleton[2], Professor Timothy Bowen[1], Professor Donald Fraser[1], Dr Catia Neto[2]
[1]Wales Kidney Research Unit, College of Biomedical and Life Sciences, School of Medicine, Cardiff University, Cardiff, United Kingdom, [2]Welsh School of Pharmacy and Pharmaceutical Sciences, Cardiff University, Cardiff, United Kingdom

Background:
Wnt signalling is a core mediator of kidney embryogenesis, where it drives nephron elongation and mesenchymal to epithelial transition. Wnt is also key to acute kidney injury (AKI) responses. While expressed at a low level in the uninjured adult kidney, following AKI, there is upregulation of canonical Wnt signalling localised to the proximal tubular cells (PTC). In this context, transient PTC stimulation promotes tubular regeneration and inhibits failed repair, whereas sustained activation of Wnt target genes induces PTC senescence. This study explores the mechanisms that underpin the dual nature of Wnt signalling in kidney injury and repair by investigating the temporal and spatial regulation of Wnt pathway activation. We seek to elucidate how differential Wnt signalling modulates tubular cell fate decisions, including proliferation, differentiation, and senescence.

Methods:
Proximal tubular cells were differentiated from induced pluripotent stem cells (iPSC-PTCs). iPSC-PTCs were then exposed to differing levels of hypoxia to simulate AKI, in conjunction with the Wnt agonist CHIR99021 and Wnt antagonist IWR-1. Experiments were cross-validated with the clonal PTC line HK-2. Key Wnt target genes in PTC injury (including kras and snai1) and repair (including ccnd1 and c-myc) were analysed using qPCR and Immunocytochemistry, in addition to staining for nuclear localisation of beta-catenin. Adjoining this study was a mechanical injury model simulating patchy denudation of renal tubular cells often seen in acute tubular necrosis, using a scratch wound model in the presence of IWR-1 or CHIR99021.

Results:
iPSC-PTC demonstrated expression of key PTC genes including slc4a4 and slc5a2, and iPSC-PTC and HK-2 cells demonstrated injury-associated gene expression changes following hypoxia that were modulated by Wnt. Dose-dependent effects on scratch wound closure rates of chemical Wnt agonist/antagonist were related to alterations in Wnt gene recruitment, with a 47% decrease in wound closure observed following IWR-1 treatment.

Discussion:
It is becoming increasingly clear that the Wnt pathway plays essential roles in cellular responses to injury following AKI. Inhibition of this pathway demonstrated a clear reduction in PTC recovery following mechanical injury, with stimulation of this pathway expected to have the opposite effect. Therefore, we can initially conclude that transient Wnt signalling post-AKI is likely a key driver in renal tubular proliferation and recovery.

Limitations of Rituximab for treating membranous nephropathy: a single centre experience

Dr David Ritter[1], Dr David Makanjuola[1], Dr Nicholas Cole[1]
[1]Epsom and St Helier University Hospitals NHS Trust, London, United Kingdom

Introduction

Membranous nephropathy (MN) is a common cause of nephrotic syndrome in adults. Rituximab is established as a treatment option and considered by many to be first line. Our aim was to assess outcomes associated with Rituximab in our Renal Unit to see if they support switching to Rituximab as our initial MN treatment.

Methods

We performed a retrospective analysis of outcomes associated with Rituximab treatment for MN. Only the first exposure for each individual was included, those who received their first dose less than 6 months earlier were excluded. Patients were followed up until: their most recent clinic visit, they switched immunosuppressive treatment, or they left the locality. Primary outcomes were: partial remission (PR) - >50% drop in proteinuria from baseline AND urine PCR (uPCR) of 30-350 g/mol; complete remission (CR) - uPCR <30 g/mol; relapse - recurrence of uPCR >350 g/mol. All were confirmed on at least 2 consecutive samples. A secondary outcome was ‘adverse renal outcome’, defined as dialysis dependence or >50% decline in GFR from baseline.

Results

20 patients were included in the analysis. All received 2 doses of 1000mg Rituximab 2 weeks apart and none received subsequent ‘top-up' doses. 80% were male, 70% were of white ethnicity and the median age was 66 (IQR 56-72) years. The median eGFR was 38 mL/min (IQR 28-50), the median serum albumin was 22 g/L (IQR 20-26) and the median uPCR 957 mg/mmol (IQR 658-1398). 70% were serum PLA2R antibody positive.

The mean follow-up period was 411 days (range 81-2511 days). 7/20 (35%) responded to treatment and 1/7 (14%) experienced a relapse. One patient was going into spontaneous remission and therefore excluded from further analysis regarding remission. Accounting for this, 6/19 (32%) achieved remission of which 2/19 (11%) achieved CR and 1/6 (17%) relapsed. The mean response time was 295 days (range 99-495). Table 1 shows a comparison between those individuals who responded and those who did not.

4/19 patients were treatment naïve: their remission rates were higher at 75% (3/4). 15/19 patients received previous immunosuppressive therapy: their remission rates were lower at 20% (3/15).

6/20 (30%) had an adverse renal outcome. None of them achieved any degree of remission. The mean rate of eGFR change in those who achieved remission was 8.44 mL/min/year and -31.28 mL/min/year in those who did not ($P < 0.01$).

Discussion

We observed a lower response rate to Rituximab compared to other published studies, which generally report remission rates of 60-70%. The reason for this is unclear but the small numbers of high-risk individuals included in this analysis may mean this was not a representative sample. Furthermore, the length of follow-up may have been insufficient (<1 year in almost half the patients). Alternatively, the low response rate may be due to the fact Rituximab has, until more recently, been used as a second or third-line treatment in our Renal Unit. Further investigation is needed to establish the role of Rituximab in treatment resistant cases and whether this represents the optimal treatment strategy in this cohort.

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A “real world” analysis of the effects of Tolvaptan on Total Kidney volume and eGFR decline during and after treatment

Dr Joshua Griffiths[1], Dr Matthew Gittus[1], Ms Janet McCormick[1], Dr Roslyn Simms[1], Professor Albert Ong[1]
[1]Sheffield Teaching Hospitals, Sheffield, United Kingdom

- Introduction

Tolvaptan is currently the only licensed therapy to slow disease progression in ADPKD. There is limited data on changes in kidney function and Total Kidney Volume (TKV) during and after treatment in clinical practice; in particular, whether initial improvements in both measures are preserved after treatment cessation.

- Methods

A retrospective analysis of all patients treated with Tolvaptan for ADPKD in an expert centre from 2017-2024. Patients were deemed eligible for Tolvaptan with evidence of (eGFR decline > 2.5ml/min/1.73 m2/year over 5yrs) or risk of rapid progression (Mayo 1C-E) with a baseline eGFR of 30-89 ml/min/1.73 m2. Patients were included with at least 6 months on Tolvaptan and 1 year of eGFR data before initiation. Annualised estimated Glomerular Filtration rate (eGFR) slopes (ml/min/1.73 m2/year) were calculated for individuals before, during and after cessation of treatment. TKV values were obtained from yearly MRI imaging and annualised TKV % increases calculated from baseline and year 1 (n=30). Baseline Mayo Class (1A-E) was calculated based on height-adjusted MRI-TKV. Statistical significance determined via Students t-test or One-Way ANOVA.

- Results

A total of 41 patients (24F:17M) were included with 25 in the post-treatment group. Mean duration of treatment was 35 months (8-84) and the mean age at initiation was 43 years (±1.39). Tolvaptan doses were up titrated to the maximum tolerated: 60mg (29%), 90mg (22%) and 120mg (49%). Mean baseline eGFR was 55ml/min/1.73 m2/year (±2.9) divided into CKD stages G2(n=22), G3a(n=6), G3b(n=13). Patients were classified into Mayo 1A-B(N=10), 1C(n=14), 1D(n=10) and 1E(n=6). 25 patients carried truncating PKD1 variants, 9 non-truncating PKD1 variants, 4 PKD2 variants and 2 were not tested.
A significant reduction in annualised eGFR decline during Tolvaptan therapy was observed from 5.4 before to 3.3 during treatment (p=0.013). After tolvaptan cessation, the eGFR decline increased from 3.3 to 5.8 (p=0.0051). There was no difference between genders, Mayo Class, age or genotype. However, annual eGFR slope after cessation of treatment was unchanged compared to that during treatment in the CKDG3b subgroup (4.2 v 4.5) compared to CKDG2 (3.0 v 6.6) and CKDG3a (4.0 v 7.0) subgroups.
Across the cohort, TKV increased by 2%/yr (±1.45) in the first year on Tolvaptan but by 5.3%/yr (±1.27) in subsequent years (Years 2-5; p=0.06), a trend seen for up to 5 years after initiation. The 1-year TKV response to tolvaptan was highest in Mayo 1D-E (0.4%/yr) compared to Mayo 1C (2.5%/yr) and 1A-B (3.3%/yr).

- Discussion

This is the first report of eGFR slopes after tolvaptan cessation outside of a post-hoc trial analysis. A rebound in eGFR decline to pre-treatment values occurred after cessation of Tolvaptan in all groups apart from stabilisation in the CKD3b subgroup. In all Mayo Classes, TKV increase was reduced after 12 months of treatment but then increased in later years while on treatment. The decoupling of

changes in eGFR from TKV after the first year of treatment indicates clear divergence in the long-term effects of tolvaptan on eGFR and TKV in ADPKD.

An 18 month outcome survey of the utilisation, accessibility and value of the Eastern Network for Kidney Inflammatory Disease (ENKID) virtual multidisciplinary team meeting (MDT).

Miss Olivia Kanka[1], Dr Lucy Francis[1], Dr Rachel B Jones, Dr Kevin Louden[1], Dr Rona Smith[1], Dr Lisa Willcocks[1], Professor David Thomas[1], Dr Barbara Thompson[2], Dr Praveen Jeevaratnam[2], Mrs Clare Morlidge[2], Dr Ondrej Suchanek[1]
[1]Cambridge University Hospitals NHS Foundation Trust , Cambridge, United Kingdom, [2]East and North Hertfordshire NHS Foundation Trust , Stevenage, United Kingdom

Introduction

Patients with autoimmune kidney disease are complex; poor disease control leads to ESKD. Recent approvals for immune targeted therapies has increased the need for specialist management, to prevent ESKD and allow equitable access and appropriate use of high cost drugs (HCDs). RAIRDA (Rare Autoimmune Rheumatic Disease Alliance) has led a national debate, and UK parliament has endorsed the need for clinical networks for complex autoimmune rheumatic diseases (December 2024). There is an unmet need for improved services and networks for complex autoimmune renal diseases, which are not defined in NHSE renal network structure and have not been subject to specialised commissioning. In 2023 the Eastern Network for Kidney Inflammatory Disease (ENKID) was convened to address this unmet need. We report survey feedback findings from 18 months of ENKID fortnightly MDT meetings.

Methods

ENKID is hosted by the specialist renal autoimmune disease centre in Cambridge, and part funded by NHSE East of England renal network. Over an 18-month period, 33 ENKID meetings have been held, attended by 75 healthcare professionals with 164 patients discussed. An online survey was designed and disseminated throughout the ENKID network, to evaluate accessibility, utilisation and value in terms of specialist advice and access to HCDs. Categorical and qualitative summary data are/will be reported.

Results

40 survey responses were received from more than ten East of England (EoE) Renal Units (Figure 1). Responders included consultants (n=29), registrars (n=6), consultant pharmacist (n=1), pharmacists (n=3), other (n=1). 21% of 39 responders attended all ENKID MDTs, 31% attended monthly, 41% only attended with a patient to discuss, 8% had not attended due to clinical workload. 34 responders reported receiving HCD approval for avacopan (74%), rituximab (56%), targeted-release budesonide (38%), belimumab (29%) and voclosporin (26%) (Figure 2). Reported benefits of ENKID were expert clinical advice for complex patients (90%), education on autoimmune diseases (74%), support for HCD access and Blueteq completion (72%), sharing approaches to HCD implementation/guidelines (67%) and clinical trial access (54%) (Figure 3). 49% of responders had access to local MDTs for non-complex patients/treatment decisions, of which 80% considered local MDTs sufficient for rituximab decisions in ANCA-vasculitis, SLE and membranous nephropathy.

Discussion

The continued high case-load and attendance over 18 months defines the ongoing need for ENKID; ensuring optimal utilisation, accessibility and value is now important. This survey was completed by 50% of ENKID attendees with representation from the majority of EoE renal units. MDT utilisation and value was high with 51% respondents attending meetings frequently irrespective of a requirement to discuss a case, and the majority reporting benefit across multiple domains including; clinical advice, education, HCD access and implementation. Overall 15 centres with 75 health care professional attendees suggests high accessibility; however, ongoing work will describe geographical access to ENKID and HCD use across the East of England, to ensure that discrepancies in access are identified and resolved. With further HCDs on the horizon for autoimmune kidney diseases, robust services and networks such as ENKID are essential to ensure specialist advice and equity of access to HCDs.

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Nurse led Renal Ambulatory Clinic: Liverpool experience.

Miss Marie McCarthy[1], Mrs Natalie Erickson[1], Mrs Katie Algate Rimmer[1], Mrs Kimberley Dixon[1], Mrs Sumy Sam Jacob[1], Dr Shahed Ahmed[1], Miss Olivia Worthington[1], Mr Anirudh Rao[1]
[1]Royal Liverpool University Hospital Foundation Trust , Liverpool , Merseyside

Introduction:

The merger of two nephrology units into a single inpatient renal bed base that covered a large geographical area provided the opportunity to create a streamlined, nurse-led ambulatory renal clinic to facilitate early discharge and admission prevention. Recognising that many patients do not fit into a dichotomous inpatient/outpatient model, the clinic provides a hybrid approach for close monitoring, follow-up of investigations, and improving patient flow to avoid unnecessary admissions. The aim is to present the results of the first-year experience.

Methods:

The renal ambulatory clinic operates four days a week. Referrals are made electronically via the ICE Order Comms and vetted daily by the Renal Acute Care Team (ReACT) for timely allocation. Referrals must include a management and discharge destination, with the inclusion criteria of AKI/CKD, electrolyte disturbances, medication adjustments, fluid balance monitoring, and optimisation of patients for outpatient procedures like renal biopsies. Exclusion criteria would include decisions on dialysis, renal biopsy results, and immunosuppression adjustments.

Results:

Between November 2022 and January 2024, 820 patients were referred to the clinic, with a detailed focus on 143 patients referred between November 2023 and January 2024. The source of the referral is demonstrated in Figure 1. The primary reasons for referral were AKI (18%), AKI on CKD (15%), fluid assessment (14.6%), and electrolyte imbalances (12%). Of the referrals, 90% were seen within the requested time. Additionally, 83% of patients were seen within two appointments and discharged, while 17% required three or more appointments. The hospital admission rate following clinic review was low at 5.5% (8 patients).

Conclusion

The ReACT team nurse-led clinic is a hybrid method of outpatient care that facilitates admission avoidance, enables safe early discharges from the renal bed base, and maintains efficient inpatient flow.

Parental high fat diet accelerates polycystic kidney disease in offspring

Dr Lauren Russell[1,2], Dr Maria Kolatsi-Joannou[1,2], Dr William Mason[1,2], Professor Adrian Woolf[3], Professor David Long[1,2]
[1]Developmental Biology and Cancer Research and Teaching Department, University College London Great Ormond Street Institute of Child Health, London, UK, [2]UCL Centre for Kidney and Bladder Health, London, UK, [3]Faculty of Biology, Medicine and Health, University of Manchester, Manchester, UK

Introduction

Diets high in fat are increasingly prevalent in modern societies, contributing to a range of health concerns including obesity, cardiovascular disease, and metabolic disorders. Previous studies have also shown that high-fat diets can accelerate polycystic kidney disease progression in affected individuals. We hypothesised that altered parental nutrition before conception and during pregnancy would modulate the severity of polycystic kidney disease in offspring.

Methods

We utilised the Pkd1nl model of autosomal dominant polycystic kidney disease (ADPKD). Male and female Pkd1nl heterozygous mice were fed on a normal fat diet (NFD, 10% Kcal from fat) or high fat diet (HFD, 45% Kcal from fat) from weaning for two months, at which time these mice were timed mated. Pregnant mice were maintained on NFD or HFD throughout gestation and embryos were collected at embryonic day 18.5. Kidney weight and body weight were measured, and cystic index was quantified.

Results

Offspring from parents fed on HFD throughout their lifetime had significantly lower kidney/body weight and kidney weight regardless of cystic phenotype, compared with offspring of parents fed on NFD. Cystic index was significantly increased in Pkd1nl/nl offspring whose parents were on HFD compared to Pkd1nl/nl offspring whose parents were on NFD, indicating that parental HFD exacerbates the cystic phenotype in offspring (Figure 1). Additionally, cystic burden and the average size of cystic tubules was significantly increased in Pkd1nl/nl offspring from parents on HFD, compared with NFD.

Discussion

These data indicate that parental HFD causes renal hypoplasia in offspring kidney demonstrated by reduced kidney size. Further, parental HFD accelerates the progression of ADPKD in Pkd1nl/nl offspring demonstrating an interaction between genes and their environment in determining disease severity in PKD.

Improving diabetes care in people on dialysis; an integrated care board initiative

Mrs Jo Reed[1], Ms Aisha McKenzie[1], Ms Ruth Kander[1], Dr Andrew Frankel[1], Dr Neill Duncan[1], Dr Eleanor Sandhu[1], Dr Parizad Avari[2]
[1]Department of Renal Medicine, Imperial College Healthcare NHS Trust, London, United Kingdom, [2]Department of Diabetes Imperial College Healthcare NHS Trust, London, United Kingdom

Background
The prevalence of people with diabetes and end-stage kidney failure (ESKF) on dialysis is increasing annually, and is acknowledged as a Public Health Emergency in the UK. Northwest London (NWL) has one of the highest rates of ESKF in the country. Diabetes care for individuals on dialysis often falls short of standards defined by national guidelines.

Aim:
The aim of this project is to improve diabetes care among people on dialysis in NWL, expanding access to transplantation; reduce diabetic complications and hence time spent suspended from the transplant waitlist; enhance outcomes of subsequent transplantation and reduce treatment related harm.

Methods:
An audit and clinical assessment of people with diabetes on dialysis is being conducted by two specialist diabetes renal practitioners, via a systematic rollout across multiple dialysis units in NWL. Patients are linked into established local diabetes pathways. Complex cases are identified and reviewed by a multidisciplinary team, including a diabetes and renal consultant and an experienced diabetes-renal nurse. Tailored care pathways are being developed to support individuals at highest risk.

Results:
An estimated 1500 people on dialysis will be assessed across nine dialysis sites. Baseline data, including glycaemia, are collected and analysed to identify areas of risk. Educational packages are designed for people with diabetes on dialysis and healthcare staff. The rollout process remains ongoing, with further improvements to care pathways being implemented. To date, two out of nine dialysis sites have been assessed.

Conclusion:
Our pilot study demonstrates potential for enhancing diabetes care and improving outcomes in people on dialysis through a collaborative, multidisciplinary approach. Ongoing rollout and refinement of the programme are important, particularly to facilitate kidney transplantation, and can be implemented across the UK.

Standardising Competency Frameworks in Paediatric Renal Nursing: A National Initiative

Mr Daniel Speakman[1,3], Mrs Diane Blyton[1,5], Mrs Anna Forbes[1,4], Dr Hillary Corwin[1,2], Mr Roy Connell[1,5]
[1]Paediatric Nephrology Nurses Group, Bristol, United Kingdom, [2]UK Kidney Association, Bristol, United Kingdom, [3]Bristol Royal Hospital for Children, Bristol, United Kingdom, [4]Great Ormond Street Hospital for Children, London, United Kingdom, [5]Nottingham Children's Hospital, Nottingham, United Kingdom

Background

Variation in nurse education and training across paediatric renal units in the UK and Ireland has contributed to inconsistencies in skills and care delivery. These disparities harm career progression, staff retention, morale, and patient outcomes. Without a unified framework, units had to independently develop and update local competencies, straining smaller units with fewer resources.

To address these problems, a national initiative was launched to create standardised national competencies shared across all 14 paediatric renal units. The initiative aimed to improve professional development, career progression, staff retention, efficiency, and care delivery.

Method

A focus group of paediatric renal nurses was consulted prior to initiating the project to identify the most pressing needs in education and training. The group identified several key issues, including inconsistencies in knowledge and skills and barriers to career progression. In response, the National Paediatric Renal Nursing Competencies project was proposed.

With £45,000 funding from NHS England, a project team was formed by the Paediatric Nephrology Nurses Group in late 2023, comprising three nurse educators from different units and a UK Kidney Association project manager.

The team analysed all available competency documents from paediatric renal units and reviewed all extant national specialist competency frameworks. Using Benner's "Novice to Expert" model, a modernised five-tier competency framework was developed, defining progress levels from Emerging to Advanced Expert. The framework applies to all bands of unregistered and registered healthcare practitioners, offering a clear roadmap for career progression in paediatric kidney care. The toolkit includes a theory workbook that standardises foundational knowledge and practical competency documents that track progression while promoting essential skills and best practices. This standardised approach has the added benefit of facilitating nurse transfers between units.

Multiple rounds of stakeholder feedback shaped the materials. To ensure quality and applicability, the resources were distributed to over 80 reviewers, including nurse educators from all 14 units, renal pharmacists, and paediatric nephrologists.

Results

The framework was launched as a 6-month pilot programme with monthly support sessions. Early feedback highlights its potential to streamline education and standardise training across paediatric renal units.

An NHS England digitisation project is now underway to convert the framework into a national digital passport, with the aims of improving ease of access, enabling real-time tracking, and enhancing the portability of competencies across units.

Conclusion

This initiative represents a significant advancement in paediatric renal nursing education. By standardising competencies, it aims to ensure consistent care delivery, support career development, improve staff retention, and foster collaboration between renal units, ultimately improving outcomes for patients and staff.

Investigating the patient characteristics and outcomes of peritoneal dialysis preparation clinic- a single centre observational study

Mr Amir Chauhan, Joanne Collier, Joanne Martin, Dr David Lewis, Rajkumar Chinnadurai
[1]Department of Renal Medicine, Salford Care Organisation, Northern Care Alliance NHS Foundation Trust,, Salford, England

Introduction: The success of the peritoneal dialysis (PD) programme and catheter insertion is measured by the immediate technical success of the procedure, low complication rates, long-term catheter function, and improved patient quality of life. Optimal outcomes are achieved through careful patient selection, appropriate insertion technique choice, and comprehensive post-procedural care. This single-centre observational study aimed to evaluate the utility and outcomes of patients reviewed in the PD preparation clinic.

Methods: A list of all patients (n=183) seen in the PD preparation clinic from January 2020 to December 2023 was compiled. Data, including demographics, clinical characteristics and outcomes following review in the clinic, were collected from the electronic patient record. The cohort was compared based on the type of catheter insertion (medical or surgical) they received following their review in the clinic and their outcomes on follow-up. Comparative analysis between groups was then carried out using the Chi-Squared test for categorical variables and Mann Whitney-U for continuous variables.

Results: Of the 183 patients, six were judged unsuitable for PD catheter insertion, mainly due to anatomical reasons. The median age at the time of the dialysis preparation clinic was 59 years. 83% of the insertions were medical under local anaesthetics. Patients who had a higher body mass index (27.4 vs 34.2, $p<0.001$) and who had previous abdominal surgery (4 vs 10, $p=0.002$) were predominantly referred to surgical insertion. The median time between dial prep and catheter insertion was significantly higher in surgical insertion patients (10 vs 4 weeks, $p=0.002$). On follow-up, 53 patients did not have their insertions (27 still followed as CKD, six ended on haemodialysis, 6 of each outcome; transplant, died, failed insertion). No significant difference in drop-off rate at 3 months, 6 months, and 1 year between medical and surgical insertions. Early drop off (3 months) was noted due to a catheter dysfunction (malposition), PD leak and PD peritonitis. The catheter removal rate was comparable to the national study.

Conclusions: The study highlighted the importance of multidisciplinary dialysis preparation clinic assessment for successful PD catheter insertion and retention. Regular monitoring and patient education play pivotal roles in maintaining catheter function and preventing complications, thereby enhancing the overall effectiveness of peritoneal dialysis.

Waiting for a kidney transplant: evaluation of a patient and carer information evening promoting live kidney donor transplantation.

Dr Anna Winterbottom[1], Dr Ahmed Ahmed[1], Dr Ailsa Doak[1], Mrs Heather Roberts[1]
[1]Leeds Teaching Hospitals Trust, Leeds, UK

Background: The Transplantation Service held an information evening for people with chronic kidney disease (CKD) who are waiting for a deceased donor kidney transplantation (November, 2024). Family members/carers of people with CKD were also invited to attend. The information evening included presentations from the multi-disciplinary team, including renal clinicians, clinical psychologists, a social worker and a patient. The evening aimed to a) provide continued support for those people waiting for a kidney transplant, b) promote live donor kidney transplantation as a treatment option.

Method: Survey of people with CKD awaiting kidney transplantation and their family members/carers. Participants completed a questionnaire before listening to the presentations (T1) and immediately afterwards (T2). Survey measures included: usefulness of talks, views, expectations and perceived barriers to live donation, stage of decision-making, decisional conflict.

Results: 29 people with CKD and 22 family members/carers completed the survey at T1. 20 people with CKD (67%) and 17 carers (77%) also completed a survey at T2. People with CKD who attended the information evening were typically female, white, aged between 61-70 years, married, educated to degree level, and retired. Carers were mostly male, white, aged between 51-60 years, married, educated to degree level, and working in full time employment.

Both groups found the talks about 'why we promote living donation' and 'why people are waiting longer for a transplant and what is being done' to be most useful. Attendees felt that they learnt new information about CKD, living well with a live kidney donation, and the psychological aspects of live donation. After the presentations people with CKD were more likely to believe that they would live longer with a live donor kidney [X^2 (1,n=44)=7.23, p=0.01] and carers believed that the person they cared for would have fewer medical complications [X^2 (1,39) =3.40, p=0.07] and have a quicker recovery time after their operation [X^2 (1, n=39) =5.77, p=0.02]. A number of barriers to live donation were highlighted, including not knowing how to approach others to ask about donation, feelings of guilt and worry, not understanding about the procedure and not knowing anyone to ask. Stage of decision-making remained largely unchanged for both groups, carers certainty about the decision improved at T2.

Discussion: Patients and carers found the information evening to be a valuable experience, gaining new knowledge, improving beliefs about the benefits of live donor transplantation, and impacting variably on their decision-making. Some of the barriers to live donation are modifiable and suggest interventions should focus on improving confidence and skills around asking others to donate, knowledge around the procedure and long term impact on the donor. It is encouraging that carers at T2 felt more certain and experienced less conflict about the live donation decision, specifically that they understood the risks and benefits and had enough support to make a decision. Following the event, four new potential live donors came forward, and two people who previously shown interest, indicated their intention to contact the team to move forward with their assessment.

Case Report: Use of high dose IV methotrexate for CNS lymphoma in a haemodialysis patient.

Ms Rachna Bedi[1], Mr Ishpal Rehal
[1]Imperial College Healthcare NHS Trust, London, United Kingdom

Background

Patients with kidney disease often face poor outcomes partly due to limited access to chemotherapy. Methotrexate (MXT) is typically contraindicated in those with severe kidney impairment due to the risk of toxicity, including bone marrow suppression and multi-organ toxicity, as MXT is excreted renally.

Case Summary

A 62-year-old patient presented with dysphasia, confusion, limb weakness, and weight loss. He was diagnosed radiologically with primary central nervous system (CNS) lymphoma. His co-morbidities included end-stage kidney disease due to Type 2 diabetes mellitus, treated with haemodialysis, with residual kidney function of <500ml/day.

Conventional treatment for primary CNS lymphoma involves high-dose methotrexate (MXT), cytarabine, thiotepa, and rituximab, with high-dose MXT being central due to its CNS penetrance.

A bespoke multi-disciplinary team (MDT) was convened, including haematology, nephrology, Specialist pharmacy teams, dialysis nursing teams, as well as the patient's wife.

The decision was made to trial high-dose MXT with palliative intent, aiming to restore cognition and improve quality of life.

Treatment Approach

- Preparation: The proton pump inhibitor was switched to an H2 antagonist, and aspirin, folate-containing products, and co-trimoxazole were held until MXT levels were below 0.1µmol/L.

Non steroidal anti-inflammatory drugs (NSAIDS) and penicillins were avoided to prevent reduced renal clearance of MXT.

The patient's fluid balance and weight were carefully assessed to ensure euvolemia to maximize residual renal function and avoid fluid overload with MXT administration.

- Day 1: A loading dose of 250mg/m² MXT IV was administered, followed by 1.5g/m², both at 50% of the normal treatment regimen. Post-MXT hydration was not required to avoid pulmonary oedema.

- Day 2: High-flux dialysis was undertaken 12 hours after MXT administration for 6 hours at a blood flow rate of ~400ml/min using the largest dialyser available. MXT levels were measured daily post-dialysis, and folinic acid 15mg/m² was administered every 3 hours for 24 hours after MXT commencement and post-dialysis.

- Days 3 onwards: High-dose daily high-flux haemodialysis for 6 hours continued at ~400ml/min blood flow rate, followed by folinic acid every 3 hours post-dialysis until MXT levels dropped below 0.1µmol/L.

MXT levels normalized to 0.09µmol/L within 144 hours.

The patient tolerated the high-dose MXT well but struggled with the length and intensity of the dialysis regime, requiring anxiolytic agents.

Overall, he received two cycles of high-dose MXT and regained cognitive function, allowing him to spend quality time with his family. He enjoyed two months of alleviated symptoms before developing a new occipital lesion and died six months after the initial treatment.

Discussion:

This case is the first reported instance of intentional high-dose MXT use in a dialysis patient. It highlights the importance of strong multi-disciplinary teamwork, including specialist pharmacists, to develop bespoke protocols that push the boundaries for patients with kidney disease and cancer.

CARLYSLE: a Phase I trial in progress evaluating the safety and efficacy of obecabtagene autoleucel in severe, refractory systemic lupus erythematosus (SLE)

Dr Ruth Pepper[1], Dr Claire Roddie[2], Professor Ben Parker[3], Dr Eleni Tholouli[3], Dr Josefina Cortés-Hernández[4], Dr Pere Barba[4], Professor David Jayne[5], Dr Ben Uttenthal[5], Professor José Andrés Román Ivorra[6], Dr Yiyun Zhang[7], Dr Yanqing Hu[7], Dr Wolfram Brugger[8], Dr Silvia Basilico[9], Dr Pierre Lao-Sirieix[10], Dr Meera Raymond[10], Dr Neema Dhungana[7], Dr Maria Leandro[2,11]
[1]Royal Free Hospital NHS Trust, London, UK, [2]University College London Hospital, London, UK, [3]Manchester Royal Infirmary, Manchester, UK, [4]Vall d'Hebron University Hospital, Barcelona, Spain, [5]Cambridge University Hospitals NHS Foundation Trust, Cambridge, UK, [6]Hospital Universitari i Politècnic La Fe, Valencia, Spain, [7]Autolus Therapeutics, Rockville, USA, [8]Autolus Therapeutics, Munich, Germany, [9]Autolus Therapeutics, Basel, Switzerland, [10]Autolus Therapeutics, London, UK, [11]University College London, London, UK

Introduction

SLE is an autoimmune disease characterised by breakdown of immune tolerance and constant B-cell hyperactivity, causing formation of autoantibodies, immune complex-mediated inflammation and organ damage. Renal involvement occurs in a significant proportion of patients, with ~30% of patients unresponsive to treatment and up to ~20% progressing to end-stage kidney disease within 10 years. Therefore, there is a substantial need for more effective, less toxic treatments. It is hypothesised that treatment with a single infusion of CD19-directed chimeric antigen receptor (CAR) T-cells may lead to a deeper depletion of the B-cell compartment, which is associated with clinical response in SLE. Obecabtagene autoleucel (obe-cel) is an autologous 41BB-ζ CD19-directed CAR T-cell therapy with a fast off-rate target antigen binding domain to improve persistence and reduce toxicity. Obe-cel was recently approved by the US Food and Drug Administration for the treatment of relapsed/refractory adult B-cell acute lymphoblastic leukaemia (R/R B-ALL). In adult R/R B-ALL, obe-cel treatment was associated with a high incidence of durable remission and low immune-related toxicity. Here, we present details from CARLYSLE, a Phase I trial in progress (NCT06333483), designed to evaluate the tolerability, safety, preliminary efficacy and pharmacokinetics of obe-cel in patients with severe, refractory SLE.

Methods

In this single-arm, open-label Phase I trial, patients (≥18 years old) with a diagnosis of SLE (fulfilling the 2019 European Alliance of Associations for Rheumatology/American College of Rheumatology criteria), positivity of ≥1 autoantibody and an ≥8 point SLE Disease Activity Index 2000 (SLEDAI-2K) score at screening with ≥1 major SLE-related organ involvement, are scheduled to be enrolled. Patients must be refractory to previous standard of care medications, including hydroxychloroquine in combination with corticosteroids and to ≥2 treatment groups of immunosuppressive drugs, B-cell targeting agents or cytokine inhibitors. Eligible patients may receive bridging therapy before lymphodepletion with fludarabine (3×25 mg/m²) and cyclophosphamide (1,000 mg/m²) prior to obe-cel infusion. In this dose finding trial, a maximum of 12 patients will be treated with up to three dose levels of obe-cel. The first six patients are expected to receive a single target flat dose of 50×10^6 (±20%) CD19 CAR positive T-cells, under the guidance of the Bayesian Optimal Interval (BOIN) design for overdose control. Primary endpoints are frequency of dose limiting toxicities (DLTs) within 28 days of obe-cel infusion (DLT period) and severity, frequency of adverse events and their relationship with obe-cel and lymphodepletion. Secondary endpoints include SLEDAI-2K change over time, definition of remission in SLE and lupus low disease activity state achievement up to Month 12.

Results

The trial is underway across three centres in the UK (University College London Hospital, Manchester Royal Infirmary and Addenbrookes Hospital, Cambridge) and two centres in Spain (Hospital Universitari Vall d'Hebron, Barcelona and Hospital Universitari i Politècnic La Fe, Valencia). As of

December 10, 2024, five patients have been enrolled and four have been infused with obe-cel. All four infused patients have significant biopsy-proven renal disease.

Discussion

CARLYSLE is an ongoing trial currently enrolling patients with severe, refractory SLE in centres in UK and Spain.

Kidney specific probe design for Xenium spatial transcripomics analysis of cellular heterogeneity during kidney growth and response to injury

Dr Tanya Smith[1,2,3], Dr Irina Grigorieva[1,3], Dr Sumukh Deshpande[1,3], Dr Shrinivas Dighe[1], Mr Usman Khalid[1,3], Dr Soma Meran[1,3], Professor Timothy Bowen[1,3], Professor Donald Fraser[1,3]
[1]Division of Infection and Immunity, School of Medicine, Cardiff University, United Kingdom, [2]Department of Anaesthetics, University Hospital Wales, Cardiff and Vale Health Board, Cardiff University, United Kingdom, [3]Wales Kidney Research Unit, Cardiff University, United Kingdom

Background: The kidney is a highly complex organ consisting of different cell types intricately arranged to form approximately 1-2 million filtering units. Using single-cell sequencing, we have recently uncovered novel gene expression profiles of tubular and stromal kidney cells during kidney growth, health and disease. These profiles tell us about how cells behave and respond to injury. However, not all cells of the same type behave in the same way. In kidney disease, this process occurs in a spatially heterogenous manner across tubular and stromal cell populations. Here, we describe preparation of a bespoke probe set for spatially resolved transcriptomics of mouse kidney, to enable analysis of the cellular interactions between neighbouring tubular and stromal cells that may reciprocally influence cell responses, culminating in adaptive or maladaptive responses to injury.

Methods: A set comprising 480 bespoke probes was designed for the Xenium Platform, with the support of 10x Genomics Technologies. Cellular phenotyping and anchor gene identification of tubular and stromal subclusters was performed on existing single nuclear RNA sequencing datasets from this laboratory using the R package, Seurat version 4.3.2.

Results: For probe development, two single nuclear RNA sequencing (snRNAseq) and two multiomic (snRNAseq and snATACseq) datasets recently generated by our laboratory were used to generate bespoke kidney probes. In aggregate, data from more than 200,000 cells was included. We have uncovered substantial tubular and stromal heterogeneity that is dynamic in relation to age and injury. These datasets were interrogated for canonical markers (3-5 per phenotype) in normal male and female mice from early postnatal to aged (one year) time points, and in adult male and female mice following ischemic kidney injury. Candidate genes were ranked according to percentage expression and average gene expression profiles per cluster, and in multiomic datasets, gene activity profiles.

Conclusion: Here we describe the design of a set of bespoke kidney probes based on single cell and multiomic datasets that will be used to evaluate tubular-stromal cellular interactions across kidney microenvironments.

Addressing Health Inequalities in Renal Nutrition: Culturally Tailored Patient Education for Bengali Populations

Miss Naheen Shah[1], Tadala Kolawole, Ms Katie Durman, Andrea Cove-Smith, Fazlun Nahar, Gladys Laurente
[1]NA, ,

Introduction

The Advanced Kidney Care Clinic (AKCC) at the Royal London Hospital (RLH) offers dietary advice to all new patients, aligning with NICE guidelines (NICE NG203). Patients are triaged and offered group dietary education sessions, either face-to-face (F2F) or online (via MS Teams). Patients with limited English proficiency are supported by advocates or family members in individual consultations. A significant proportion of renal patients at RLH are from the Bengali community, representing 30% of the total patient population. Many individual consultations were conducted in Bangla, leading to repeated delivery of the same dietary advice and highlighting the need for a more scalable approach. Additionally, high DNA (Did Not Attend) rates among Bengali patients in standard English-language group sessions highlighted barriers to engagement. To enhance engagement and address health disparities, a culturally adapted Bangla group education program was developed by a Bengali-speaking Renal Dietitian. This approach aimed to improve efficiency and foster better outcomes by incorporating culturally relevant content and personalized communication.

Methods

Patients identified as Bangladeshi through the electronic patient record system were invited to participate in Bangla group sessions, offered both online and F2F. Sessions incorporated culturally relevant foods and terminology, with all materials, including invitations, quizzes, and feedback forms, provided in Bangla text. Personalised phone calls in Bangla were used not only to stress the importance of attendance but also to build rapport and address potential concerns. Family members were often involved to encourage participation. Learning outcomes were measured using pre and post session quizzes, and anonymous feedback was collected through surveys.

Results

Three pilot sessions were conducted:

Initial F2F session: 4 invited, all attended (100%).
First online session: 8 invited, all attended (100%).
Second F2F session: 10 invited, 1 attended (10%), where recruitment was managed by administrative staff rather than the Bengali-speaking dietitian.

Attendance rates for Bangla sessions (60%) were double those of English language sessions (30%), underscoring the effectiveness of cultural tailoring. Post-session quiz scores showed an eightfold improvement (mean pre-score: 10%, mean post-score: 80%), highlighting enhanced knowledge retention. Feedback emphasised the relevance and accessibility of the culturally tailored content, with 100% of attendees rating the sessions as “very good” or “excellent.”

Discussion

Culturally tailored Bangla group sessions demonstrated significant improvements in attendance and engagement, effectively addressing health inequalities among Bengali patients in Tower Hamlets population. By incorporating culturally relevant foods, language, and communication methods, the sessions resonated well with the participants, enhancing their confidence in managing dietary advice.

Feedback indicated that the group setting also allowed for shared experiences and peer learning, further strengthening engagement.

To ensure long-term impact, sustainability plans include the integration of trained health advocates who can co-facilitate these sessions. Additionally, regular monitoring and evaluation of attendance and learning outcomes will help refine the program and maintain its effectiveness. By addressing language and cultural barriers, this approach aligns with the NHS broader health equity initiatives and sets a precedent for similar programs targeting underserved populations. Through these efforts, the AKCC aims to achieve lasting improvements in patient outcomes and satisfaction.

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Examining variations in adherence to guideline-recommended post-acute kidney injury care in UK primary care

Dr Pearl LH Mok[1], Prof Nick Selby[2], Dr Simon Sawhney[3], Professor Simon Fraser[4], Prof Paul Roderick[4], Dr Matthew J Carr[1], Prof Rachel A Elliott[5], Prof Evan Kontopantelis[6], Dr Andrew Lewington[7], Dr Alireza Mahboub-Ahari[5], Professor Robbie Foy[8], Dr Tom Blakeman[5], Prof Darren M Ashcroft[1]
[1]Division of Pharmacy & Optometry, University of Manchester, Manchester, United Kingdom, [2]Centre for Kidney Research and Innovation, University of Nottingham, Nottingham, United Kingdom, [3]School of Medicine, Medical Sciences and Nutrition, University of Aberdeen, Aberdeen, UK, [4]University of Southampton, Southampton, UK, [5]Division of Population Health, Health Services Research & Primary Care, University of Manchester, Manchester, UK, [6]Division of Informatics, Imaging & Data Sciences, University of Manchester, Manchester, UK, [7]Leeds Teaching Hospitals NHS Trust, Leeds, UK, [8]School of Medicine, University of Leeds, Leeds, UK

Introduction

Despite a decade of initiatives in the UK to raise awareness of acute kidney injury (AKI) and isolated reports of progress through improvement work in some regions, concerns remain that people who have had AKI do not receive adequate follow-up and care after transitioning from hospital back into the community. People discharged from hospital after AKI often have complex health needs and multiple long-term conditions, are at high risk of multiple poor outcomes and have high rates of unplanned readmissions. There is therefore a need to examine factors that are associated with variations in post-discharge AKI care.

Methods

As part of the AsterAKI study, a mixed methods study aiming to develop interventions to improve post-discharge AKI care in primary care, we performed a cohort study to describe variations in the implementation of recommended post-discharge AKI care. Using admission data in England from Hospital Episode Statistics, we delineated a cohort of adult patients (>=18 years) with a hospital diagnostic code of AKI discharged between 1 January 2017 and 31 March 2021. Using linked primary care data from the Clinical Practice Research Datalink Aurum, we measured adherence to indicators of good care covering domains of (1) recording of AKI in primary care, (2) timeliness of post-discharge clinical reviews, (3) recommendations to monitoring of recovery at 90 days, and (4) guideline indicated prescribing. We evaluated care quality both overall, and within subgroups based on demographic, socioeconomic, and clinical characteristics.

Results

A total of 209,222 patients (48.0% females; mean age 74.1 years, SD 15.6) were included in the study cohort, representing 279,187 AKI hospital inpatient episodes. While some form of clinical contact (either in person or remotely) was made within 30 days of discharge for 72.5% of episodes, only 19.5% had a diagnosis of AKI hospitalisation recorded in the primary care notes. These percentages rose to 88.1% and 22.0% respectively at 90 days. Variations by demographic and socioeconomic factors were observed.

At around 90 days post-discharge, measurement of serum creatinine for kidney recovery occurred in 34.2% of episodes, blood pressure was recorded in 34.6%, and urine albuminuria testing in only 3.8%. Of people with a guideline indication for a renin-angiotensin system inhibitor (RAASi) based on diabetes/hypertension and proteinuria levels, only 42.1% received a prescription.

Conclusions

Across all subgroups of people with a hospital diagnostic code of AKI in this analysis, AKI was rarely documented in the patient's primary care records, and only a minority received the recommended post-AKI monitoring of blood and urine testing or blood pressure measurement, despite relatively high levels of contact with health care professionals. Rates of measuring albuminuria were particularly low, despite its strong association with subsequent kidney and cardiovascular events. Further, rates of prescribing of RAASi were low in patients who could benefit from these medications. Recommendations to improve this include provision of clear, case-specific guidance on post-discharge management to primary care professionals, and development of concerted implementation strategies between secondary and primary care.

Digital poverty in the uptake of an electronic personal health records in adult patients receiving kidney replacement therapy - understanding the demographic distribution of users to support patient activation and education

Susan Pywell, Miss Aisha Bello[1], Lucy Plumb, Professor Dorothea Nitsch, James Medcalf, Tom Gray, Darryl Nicholas, Dr Retha Steenkamp
[1]UK Renal Registry, Bristol, UK, [2]University of Bristol, , UK, [3]London School of Hygiene and Tropical Medicine, , UK, [4]University of Leicester, , UK, [5]UK Renal Registry, , UK, [6]Patients Know Best, , UK, [7]UK Renal Registry, Bristol, , UK

Introduction
Electronic personal health records (e-PHRs) give individuals access to their personal health information, promoting self-management and improving care outcomes. The use of e-PHRs has been associated with improved health outcomes for adults with chronic disease. Our aim is to examine the uptake of a new e-PHR in adults receiving kidney replacement therapy (KRT) and to determine whether inequalities in access exist by key demographic and clinical variables.

Method
The study was a retrospective cohort study including all patients ≥18 years of age receiving KRT in the UK on 31 December 2022. UK Renal Registry (UKRR) data was linked to Patients Knows Best (PKB). PKB is the current software provider supporting kidney patients in receiving healthcare data such as test results, measurements, diagnoses, medications and correspondence from their relevant kidney centre. Pre-existing data from the previous Patient View system were migrated to PKB in 2022 and 2023. New patients have been added by their local kidney centre since then, with patients registering for PKB using the NHS login or via email. As of December 2024, there were over 40,000 kidney patients registered with PKB.
PKB registration was examined by age, sex, ethnicity , index of multiple deprivation quintile (IMD), primary renal disease (PRD) and KRT modality.

Result
Of the 60,103 patients included, only 18,298 (30.4%) were registered on PKB. The proportion of unregistered patients increased with increasing age. Those of Black ethnicity had the highest proportion not registered on PKB, while those of White ethnicity had the lowest proportion. 71% and 67% of male and female patients were not registered on PKB respectively. There was a decreasing proportion of non-registration as levels of deprivation increased. Of patients not registered on PKB, 84% were on HD, 73% on PD, and 59% were transplanted. Most patients who were not registered for PKB had a primary renal diagnosis (PRD) of diabetes while patients with polycystic kidney disease had the smallest proportion of unregistered patients.

Discussion
This was the first study to investigate inequality in the uptake of an e-PHR by key patient characteristics. We showed that the proportion of KRT patients not registering on the e-PHR was considerably higher than patients that registered, with significant differences in uptake by patient characteristics. Older patients had the highest unregistered status perhaps due to the challenge of using the electronic interface. PKB non-registration was significantly higher for patients on HD probably due to higher number of older patients receiving HD. Those in most deprived areas had the highest unregistered PKB status. This could likely stem from some renal centres in most deprived areas not fully migrating to PKB due to patient email verification and NHS login problems. Further work will focus on investigating the difference in PKB usage and outcomes by patient characteristics.

Developing sex-specific models of acute kidney injury using iPSC-derived renal epithelial cells

Josie Tidmore[1], Dr Tanya Smith[1,3], Mr Lewis Cook[1], Dr Shrinivas Dighe[1], Professor Mark Gumbleton[2], Professor Timothy Bowen[1], Professor Donald Fraser[1], Dr Catia Neto[2]
[1]Wales Kidney Research Unit, Division of Infection and Immunity, School of Medicine, Cardiff, UK, [2]School of Pharmacy and Pharmaceutical Sciences, College of Biomedical and Life Sciences, Cardiff, UK, [3]Department of Anaesthetics, University Hospital Wales, Cardiff and Vale Health Board, Cardiff, UK

Introduction: Acute kidney injury (AKI) remains a global problem, associated with high mortality and morbidity. Ischaemia-reperfusion injury (IRI) is the most common cause of AKI and is characterised by damage to the tubular epithelial cells. The mechanisms dictating repair versus injury and, consequently, health versus disease are poorly understood. However, epidemiological studies have highlighted sex differences in AKI outcomes, where females appear to be protected from more severe disease. Furthermore, single-cell RNA sequencing has identified sex-specific phenotypes associated with adaptive and maladaptive responses to disease. While research using animal models has improved our understanding of AKI, these efforts have not translated to the development of new therapeutics. To better understand kidney disease, we are developing human iPSC-derived 3D organoid models of proximal tubule function from both male and female donors. This work aims to contribute a more physiologically relevant model of IRI-AKI in humans, which may aid in the development of novel and personalised therapies.

Methods: iPSC lines from healthy, age-matched male and female donors (obtained from the Human Induced Pluripotent Stem Cell Initiative available through the European Collection of Authenticated Cell Cultures) were used in this study (n=4). Proximal tubule-enhanced differentiation of iPSC lines and organoid culture was modified from a published protocol. Briefly, iPSC-PTCs were grown as a monolayer for 13 days, then aggregated to 3D spheroids in 96-well round-bottom plates and cultured until organoid harvesting at day 27. PTC-like phenotype and injury profiles were confirmed via RT-qPCR quantification. IRI-AKI was modelled via hypoxia-induced injury simulated in a hypoxia-controlled environment.

Results: We have developed a model of PTC function using a human iPSC-based platform. The iPSC-derived PTCs (iPSC-PTCs) exhibited a PTC-like phenotype following 13 days of monolayer culture and retained this phenotype after 3D organoid culture, as demonstrated by RT-qPCR detection of the PTC-specific markers Slc4a4 and Slc5a2. We also demonstrated the usefulness of a spheroid-based method of iPSC-PTC organoid generation, which yields >40 organoids (~600 µm diameter) from a single confluent well of 12-well plate. To determine the effects of hypoxia, organoids were exposed to 0.1% O_2 for 2 h, 1% O_2 for 18 and 24 h, or normoxia (control). Our results revealed upregulation of kidney injury molecule (KIM)-1 in response to 0.1% O_2 for 2 h and, to a lesser extent, 1% O_2 for 24 h compared to controls. Interestingly, 18 h and 24 h of exposure to 1% O_2 was sufficient to induce downregulation of the PTC marker Slc4a4, suggesting an altered phenotype with hypoxic injury. Further work will investigate the response to hypoxic injury after recovery in normoxia as well as characterise sex-specific phenotypes in injury responses.

Conclusions: We have demonstrated that PTC-enhanced organoids can be generated from iPSC lines and are a useful model for investigating sex-specific responses to AKI.

Evaluation of dietary knowledge and adherence to dietary advice post-kidney transplant

Ms Helena Jackson[1], Ms Emily Huynh[2], Ms Clare Atkinson[1], Dr Erin Stella Sullivan[2]
[1]St George's Hospital, London, UK, [2]King's College London University, London, United Kingdom

Aims & Objectives

Local post-kidney transplant (PKT) dietary guidelines emphasise a Mediterranean-style diet and exercise, adapted from UK national guidelines to create specific local audit standards (LAS) for kidney transplant recipients (KTRs). These LAS address dietary education (5 standards), dietetic follow-up support (3 standards), and patient satisfaction and adherence (2 standards). The WELL diet questionnaire (WDQ), validated against the Alternative Healthy Eating Index (HEI), was adapted to assess dietary adherence among KTRs, as it had not been previously used in this population. This audit aimed to assess LAS adherence, capture patient perceptions of PKT dietary support, and evaluate WDQ's effectiveness for dietary adherence assessment.

Methodology

A cross-sectional audit was conducted, targeting 24 KTRs (aged 18–80) with functioning kidney transplants (eGFR ≥ 20ml/min/1.73m²) receiving PKT care between September 2023 and February 2024. Demographic and clinical data were gathered from hospital records, and participants completed telephone interviews with consent. The WDQ, adapted for UK English, evaluated dietary adherence. Data analysis included descriptive statistics, χ^2-tests, t-tests, logistic regression, and ANOVA in SPSS v.29.0.2.0.

Results

The audit achieved a 100% response rate (n=24), with an average age of 54 ± 11 years and a male predominance (75%). The largest ethnic groupings were white British (25%), Black (21%) and 'other' (25%). Of participants, 88% understood the dietary guidelines, though 21% reported difficulty with provided materials despite preferring English-language resources. Sixty-seven percent recalled PKT dietary guidance, while 54% recalled receiving dietary resources. Patient satisfaction with dietetic support averaged 4.3 ± 0.79 out of 5. One LAS standard was unmet due to a missed referral.

The WDQ diet quality score averaged 77/120, suggesting room for improvement, though compared to other populations, scored higher than Taiwanese KTRs (62) and UK non-chronic kidney disease populations (49). Serum potassium levels were significantly higher in the <6-month post-transplant group (4.5 mmol/L ± 0.4) compared to the <12-month group (3.9 mmol/L ± 0.1, $p < 0.05$). High-potassium food groups, like beans, pulses, nuts, and seeds, had the lowest intake scores. Most KTRs (75%) found the WDQ length "just right," while 17.5% found it "too long" or "too short." Patients also sought more help with transitioning from low-potassium diets and more frequent follow-up with a dietitian.

Discussion

UK guidelines for KTRs support a "healthy lifestyle" but lack dietetic specificity, limiting LAS efficacy. Barriers, including financial constraints, resource limitations, and need for interdisciplinary collaboration, hinder full LAS implementation and regular dietetic reviews. Additionally, 21% of KTRs reported difficulties understanding materials, indicating a need for more culturally and linguistically inclusive resources. Anxiety around reintroducing potassium-rich foods persists despite potassium normalisation.

Future improvements should prioritize more frequent and culturally tailored dietetic reviews, using qualitative interviews to identify patient needs. A collaborative, patient-centred approach may better support adherence, address LAS gaps, and improve dietary outcomes among KTRs.

Assessing safety of sodium glucose cotransporter 2 inhibitors in renal transplant recipients

Renal Consultant Physician Daniela Farrugia[1], Dr Manzur Rahman[1], Dr Muralli Namballa[1], Ms Mutiat Badmus[1], Ms Camille Santos[1]
[1]University Hospitals of North Midlands NHS Trust, Stoke-on-trent, United Kingdom

Introduction

Numerous trials have shown the benefit of sodium glucose co-transporter 2 inhibitors (SGLUTi) in reducing major cardiovascular events, benefit in the treatment of heart failure as well as more recently improved outcomes in chronic kidney disease progression. Unfortunately most of these large trials have excluded renal transplant recipients and so far the UKKA guidelines suggest there is insufficient evidence of using these agents in renal transplant recipients. Cardiovascular death remains the leading cause of death amongst renal transplant recipients so there is an unmet need to use these drugs in renal transplant patients. The biggest concern of using SGLUTi in renal transplant recipients is the possible risk of increased urinary sepsis. Our case series attempts to assess the safety of these medications in a select cohort.

Methods

In our unit a number of patients have been started on SGLUTi for one or more of the following reasons: heart failure, significant proteinuria and diabetic control. Before being started on these agents patients are discussed with the appropriate specialist and then in the renal transplant multidisciplinary team meeting. Data was collected for each patient looking at the SGLUTi being used, whether this medication needed to be stopped and whether it was possible to start it again. We also looked at whether patients developed urinary tract infections and/or pyelonephritis which needed antibiotics or hospital admission, episodes of acute kidney injury, gangrene or amputation, and episodes of ketoacidosis.

Results

Our case series analysed 18 patients(1) .The majority of the patient had been on SGLUTi for around 2 years although 1 patient had been on theses agents for about 8 years. To date all patients started on SGUTi are alive, with no episodes of gangrene, amputation or ketoacidosis.
2 patients who had their SGLUTi stopped were able to be restarted back on it without problems. 1 patient had an episode of acute kidney injury which was secondary to non-steroidal anti-inflammatory use because of leg pain.
There were 2 episode of thrush reported (1 confirmed, 1 suspected) which resolved with appropriate treatment
5 of the patients started on SGLUTi had a prior history of urinary tract infection prior to starting treatment with SGLUTi (2 of these patients were taking prophylactic antibiotics). Of these patients, only 1 developed a urinary tract infection.
Of the other patients who had no urinary tract infection prior to being started on an SGLUTi, none developed a urinary tract infection. During our follow-up period no episodes of transplant pyelonephritis were reported.

Conclusion

Our case series has shown that SGLUTi in renal transplant patients is safe and well tolerated by the patients. Patients had needed to stop the SGLUTi were able to be restarted back on it without issues.

It is difficult in our series to extrapolate whether the same protective effects on proteinuria and renal function present in the general CKD population can be applied to a renal transplant population due to small numbers and short follow-up.
(1) The number of patients analysed may increase by the time of UKKW

Improving residents' training in home dialysis

Dr Michelle Allan[1], Professor Edwina Brown[1], Dr Gaetano Lucisano[1], Dr Neill Duncan[1], Dr Steven Law[1], Ms Sally Punzalan[1], Dr Philip Webster[1], Dr Lina Nikolopoulou[1], Dr Richard Corbett[1]
[1]Imperial College Renal and Transplant Centre, Imperial College Healthcare NHS Trust, Hammersmith Hospital, London, United Kingdom

Introduction

Improving access to home dialysis is a key focus of the GIRFT (Getting It Right First Time) initiative and the renal networks in England. One of the barriers to this goal is ensuring doctors in training receive appropriate exposure and training in both peritoneal dialysis (PD) and home haemodialysis (HHD). The updated curriculum for Renal Medicine Training in the United Kingdom specifies that trainees must be able to manage a PD programme as an essential element of their speciality capabilities in practice.

Methods

As part of an educational quality improvement process, a home therapies week was developed to increase registrars' exposure to both PD and HHD. A briefing document was drawn up to maximise engagement across the week. The week includes opportunities to participate in: percutaneous PD catheter insertion, PD and HHD clinics, multidisciplinary team meetings, accompanying nurses on home visits, along with troubleshooting other problems arising in patients treated with home dialysis. As part of the evaluation of the QIP, registrars were surveyed with an online questionnaire both prior to the start of their week and on completion.

Results

After an initial evaluation, five trainees completed both the pre- and post-week questionnaires (45.5% response rate); eleven trainees completed the pre-week questionnaire alone (100% response rate). Respondents ranged in year of training from ST4--post-CCT fellow. Prior to completing the week, 72% of trainees reported at least monthly exposure to PD and HHD patients. 54% had previously attended a PD course or conference. Despite frequent exposure to patients on PD, no respondent was confident in managing their concerns (63.6% reported they were "somewhat confident").

During the week, respondents were most likely to participate in PD clinics and multidisciplinary team meetings.

Following the initial week of training, all respondents reported a significant increase in confidence in managing problems associated with home dialysis. All respondents felt they achieved their learning objectives. They felt better equipped to manage fluid overload and peritonitis in PD patients. Comments reflected a positive learning experience for all trainees.

Discussion

Providing dedicated training time and exposure to home dialysis helps ensure that trainees develop the competencies to manage a home dialysis program. This quality improvement initiative has demonstrated increased confidence in supporting people treated with home dialysis and managing problems associated with both HHD and PD. As part of supporting the growth in home dialysis, all units need to consider how the broader workforce are able to develop the knowledge and skills associated with care of people on both PD and HHD.

Dietetic-prescribed intra-dialytic parenteral nutrition (IDPN) - The experience from one patient and nutritional outcomes over one year

Mrs Rosalind Campbell[1]
[1]Manchester Foundation Trust, Manchester, United Kingdom

Introduction

Intra-dialytic parenteral nutrition (IDPN) is intravenous nutrition infused by unit nurses for the haemodialysis session, through the machine's venous circuit into patient's dialysis access. IDPN can support nutritional intake, where oral/enteral nutrition is present but insufficient to maintain nutritional state (Fouque D. et al 2007, Cano N. et al 2009). Our Trust reserves IDPN for where a degree of intestinal failure limits enteral absorption, AND parenteral nutrition via separate line is not possible/preferable. This leaves a highly vulnerable minority where IDPN is appropriate.

Dietetic prescribing is supplementary non-medical prescribing by a dietitian with prescribing masters-level qualification. This renal dietitian prescriber was highly experienced in complex parenteral nutrition management, so lead the nutritional care and IDPN prescribing under a clinical management plan.

This 35yo anuric male, on haemodialysis since childhood, was failing home haemodialysis due to cycling hospital admissions with dehydration, electrolyte imbalance and severe malnutrition. The aims of IDPN treatment were to prevent repeated hospital admissions and nutritional crisis, gain weight (fat/muscle) and correct micronutrient deficiencies.

Methods

Retrospective analysis of clinical notes from hospital electronic records.

Results

Reasons for nutritional failure on oral/indications for IDPN:

•Gastroparesis secondary to type 1 diabetes, causing chronic vomiting and diarrhoea with gastric pacemaker failure.

•Re-occurring oesophageal stricture from persistent vomiting causing regurgitation of food and tablets despite dilations.

•Pancreatic insufficiency malabsorptive diarrhoea from long-term diabetes with inability to swallow pancreatin capsules due to oesophageal stricture and non-compliance with pancreatin granules due to them altering food's taste.

•Stenosed upper body vascular system preventing line placement for separate parenteral nutrition.

•Absolute refusal of enteral tube placement and psychology/counselling.

•Persistent hospital admissions with dehydration, electrolyte imbalance, severe malnutrition.

Assessment of intake v. requirements was not useful due to the amount of GI losses.

Bespoke IDPN allowed higher amino acid to glucose formulation, considered the most important component of IDPN (Carrero J. et al 2023), minimal potassium/phosphate and increased selenium, zinc and copper provision, with rate at patient's maximum glucose oxidation rate due to unstable diabetes (table 1). Volume increased with patient's weight. No. sessions was 3/wk 6/12/23-9/1/24 (inpatient) and 22/2/24-4/4/24, 4/wk 5/4/24-5/9/24, 3/wk 6/9/24-5/11/24, 2/wk 7/11/24 onwards with 1 haemodialysis/wk at home retraining.

Micronutrients prior to IDPN were low but improved after 2-months on outpatient IDPN with additional dosing to the maximum for stability (table 2).

Anthropometrics started improving after 2-months of outpatient IDPN, continuing over subsequent months (table 3).

The most important achievement from patient's perspective was preventing hospital admission (table 4). Pre-outpatient IDPN he had 126 hospital days over 7-months. On outpatient IDPN he has had 5 hospital days over 8-months.

Discussion:

Dietetic prescribing of IDPN in selected individuals can increase nutritional status in the face of ongoing gastrointestinal insufficiency and inability to provide other enteral or parenteral routes. IDPN is costly compared to oral or enteral feeds, however stopped this patient's cyclic hospital

admissions and inpatient resources/costs. This was the patient's most important goal for improving his quality of life. Clinicians should consider its appropriateness and effectiveness for such individuals, monitoring clinical response.

Digital poverty in the uptake of an electronic personal health records in children and young patients receiving kidney replacement therapy - understanding the demographic distribution of users to support patient activation and education

Miss Aisha Bello[1], Lucy Plumb, Dr Retha Steenkamp, Professor Dorothea Nitsch, James Medcalf, Tom Gray, Darryl Nicholas
[1]UK Renal Registry, Bristol, UK, [2]University of Bristol, , UK, [3]UK Renal Registry, Bristol, UK, [4]London School of Hygiene and Tropical Medicine, , UK, [5]University of Leicester, , UK, [6]UK Renal Registry, Bristol, UK, [7]Patients Know Best, , UK

Introduction
Electronic personal health records (e-PHR) provide individuals with access to their personal health information, with the aim of informing them about their health, promoting self-management and improving care outcomes. Although use of e-PHR has been associated with improved health outcomes for adult patients with chronic disease, knowledge of their uptake among families caring for children and young people with a chronic disease and their impact on health outcomes is limited. Our aim in conducting this study was to examine the uptake of a new e-PHR for children and young people with kidney failure receiving kidney replacement therapy (KRT) and determine whether inequalities in access exist by key demographic and disease variables.

Method
We undertook a retrospective cohort study that included all patients <18 years of age receiving KRT in the UK on 31 December 2022. UK Renal Registry (UKRR) data was linked to a national e-PHR, Patients Know Best (PKB). PKB is the current software provider supporting kidney patients in receiving healthcare data such as test results, measurements, diagnoses, medications and correspondence from their relevant kidney centre. Pre-existing data from the previous Patient View system were migrated to PKB in 2022 and 2023. New patients have been added by their local kidney centre since then, with patients registering for PKB using the NHS login or via email. Where a child is too young to register for PKB, parents or guardians can be invited to access the child's record if deemed appropriate by the clinical team. Renal units not using PKB, and patients with missing identification numbers were excluded from the analysis. The outcome was the proportion of PKB registrations. PKB registration for prevalent KRT patients was examined by age, sex, ethnicity, index of multiple deprivation quintile (IMD), primary renal disease (PRD) and treatment modality (haemodialysis (HD), peritoneal dialysis (PD) and transplant).

Result
Overall, 621 paediatric patients were included. Of these patients, only 73 (12%) patients were registered on PKB. The proportion of unregistered patients was higher with increasing age. No patients of Black ethnicity were registered on PKB; children of White ethnicity accounted for the highest proportion of registered patients by ethnicity. PKB non-registration was comparable among males and females, treatment modality and area-level IMD. 97% of patients with systemic disease affecting the kidney were not registered on PKB while 89% of patients with Tubulointerstitial disease were unregistered on PKB.

Discussion
Our study was the first to investigate the difference in e-PHR uptake by key patient characteristics. We found that the majority of children on KRT were not registered for e-PHR use and that uptake differed by age, ethnicity, a result also found in adult patients on KRT. It is unclear whether this low uptake stems from patient/family or clinical/administrative factors. In the next step, we would examine kidney care by registration status and explore how digital e-PHR uptake can be promoted to

support families living with kidney failure, including increasing awareness amongst teenage patients to support self-management as they transition into adulthood.

North West Regional Ambulance & NHS 111 Commissioning and North West Kidney Network: Universal Self-Travel Reimbursement Offer - My Dialysis Treatment Travels Project

Miss Elizabeth Critchley[1], Mr Andrew Black[2], Dr Asheesh Sharma[1,3], Mr Graham Witter[2], Mrs Christy Millar[1], Mrs Vicky Ashworth[1], Mr Robert Finnigan[1]
[1]North West Kidney Network, NHS England, North West, United Kingdom, [2]NW Regional Ambulance & NHS 111 Commissioning, North West, United Kingdom, [3]Liverpool University Hospitals NHS Foundation Trust, Liverpool, United Kingdom

Introduction

In August 2021, NHS England published a review of non-emergency patient transport services (NEPTS), introducing a new national framework to ensure services are responsive, fair, and sustainable. One recommendation was to implement a universal self-travel reimbursement offer for haemodialysis (HD) patients. The North West (NW) Regional Ambulance & NHS 111 Commissioning team partnered with the North West Kidney Network (NWKN) and successfully applied to become a pathfinder group, receiving funding for the project.

The project aimed to introduce a reimbursement scheme across the North West for journeys to and from in-centre haemodialysis (ICHD). This scheme would allow patients to drive themselves, have family or friends take them, or use public transport. In August 2024, NHS England published the national incentre reimbursement framework, endorsed by the NHSE Medical Director.

Methods

The project team included two members from the NW Regional Ambulance & NHS 111 Commissioning Team and three members from the NWKN, including two people living with kidney problems. Baseline data was collected on the number of NEPTS trips to each HD centre in the NW in 2023. HD units were then identified as pilot sites. A NWKN patient survey was launched, and the results were analysed and disseminated.

Stakeholders from across all four ICBs were formed. Pilot site teams were enlisted and engaged with the project team, which formed part of the National Reimbursement Offer team. The team explored functioning reimbursement models and repayment mechanisms in other ICB areas in England. Financial modelling for the national incentre reimbursement framework was completed and presented to the project's ICB transport reimbursement leads. PDSA cycles were completed at each stage of the project.

Pilot sites commenced three months of the ICHD self-travel reimbursement model and payment mechanism. Feedback from pilot site teams indicated that the setup of the reimbursement mechanism was simple and familiar.

Results

The patient survey received responses from 282 NW ICHD patients (13%) across 11 NW dialysis units. Knowledge of the reimbursement offer was low at 8%, while 62% of patients were interested in accessing reimbursement. Four percent were unsure, and 34% declined access.

Survey Comments Submitted	Number
Negative	142
Positive	123
Neutral	69
No comment	24
Grand Total	358

Prolonged waiting times featured in 49% of negative comments. The pilot site setup has been completed, with patients enrolled onto the reimbursement scheme. The overall results will be fully realised by June 2025, with a comparison from baseline to post-project data. Patient satisfaction will be measured through pre- and post-scheme questionnaires.

Discussion

The project aims have been achieved, with 68 patients testing the reimbursement model. A resource and patient information pack was produced to enable the universal rollout of reimbursement for any ICB. NHS England has expressed interest in sharing the reimbursement model and resource pack nationally. The project concludes in 31st March 2025, and more results will be available then. A project closure report will be completed in March 2025, evaluate the impact of the project and its potential for replication in other areas nationally.

A retrospective multi-centre audit on efficacy and safety outcomes of difelikefalin use

Ms Linda Ross[1], Mr Isaac Tseng, Mr Matthew Holloway, Ms Cathy Pogson, Clare Morlidge, Ms Yasmin Kafaei Shirmanesh, Mr Gareth Bryant, Ms Charlotte Traversi, Ms Aisha Riaz, Ms Jude Allen, Miss Janeme Lam, Ms Denise Cunningham, Miss Kathrine Parker
[1]Guy's and St Thomas' NHS Foundation Trust, London, London, United Kingdom

Introduction:
Chronic kidney disease associated pruritus (CKD-aP) that is moderately or extremely bothersome is seen in approximately 40% of patients on haemodialysis. Opioid receptors are known to modulate itch signals and inflammation, with kappa opioid receptor activation reducing itch and producing immunomodulatory effects. In CKD, the mu receptors become overactive, while there is a reduction in kappa receptors. This imbalance is thought to contribute to CKD-aP. Difelikefalin is a peripherally restricted and selective kappa opioid receptor agonist, licensed for treatment of moderate-to-serve pruritus associated CKD-aP in adults on haemodialysis. It has low central nervous system penetration and has not been known to have an addictive properties. NICE recommended difelikefalin for treating moderate to severe pruritus, defined using the Worsening Itch numerical rate scale (WI-NRS), in adults with chronic kidney disease (CKD) having in-centre haemodialysis.

The aim was to look at real-world data from haemodialysis patients prescribed difelikefalin from the participating UK renal centres. This was to understand its current use, itch assessment as well as efficacy and safety outcomes which are an area of interest to both clinicians and patients.

Methods:
The UK Renal Pharmacy Group (RPG) research group collaboratively developed a data collection tool which included demographic and clinical indices. These include age, ethnicity, sex, difelikefalin dosing, serum phosphate level, urea reduction ratio (URR), itch assessment at baseline and follow-up, concurrent treatments for CKD-aP, treatment interruptions and adverse events.
Each renal centre undertook a local audit of current practice and anonymised data were pooled for analysis. All incident difelikefalin initiations were captured and included in the analysis.

Results:
Seventy-six patients from eleven UK renal centres were included with a median follow-up of 3 months (interquartile range [IQR] 2 - 5). WI-NRS itch scores was the most common assessment tool used (51%), while some units used the 5Ditch score (9%). 3 units had not assessed baseline itch intensity using a score before starting treatment. Difelikefalin was effective as shown by 3 or more-point improvement in baseline WI-NRS score in 19 patients out of 44 patients with an initial baseline itch score (43%) at 3 months follow up. Baseline phosphate levels were not raised and supports the hypothesis that phosphate does not correlate with itch. Forty patients (53%) reported that the CKD-aP affected their sleep and quality of life. Few concurrent medicines for CKD-aP were stopped following the difelikefalin initiation, with the exception of antihistamines. Overall adverse effect rates were similar or lower than those published in the manufacturers licensing datasheet. See Table 1 for full results.

Conclusion:
In our real-world data, there is a considerable proportion of patients who did not receive a baseline WI-NRS assessment, rendering the sample size too small to analyse and to provide adequate statistical power. Larger sample sizes, with more fully documented WI-NRS assessments are needed for future observational studies. Our audit reflects the need for more data on efficiency, quality of life outcomes, impact on sleep and other related issues associated with CKD-aP which could be captured by the development of a registry.

NHS and Gift of Living Donation (GOLD) community partnership offers culturally tailored peer support and effectively promotes living donor conversations in a reproducible multi-site model

Sumoyee Basu[1], Dela Idowu[2], Dr Kathryn Griffiths[1], Gold Phone Buddies[2], Wendy Brown[3], Paul Martin[4], A Adwaney[4], Hannah Maple[1], Frank Dor[4]
[1]Guy's and St Thomas', King's College Hospital, Kings Health Partners, London, United Kingdom, [2]Gift of Living Donation Charity, London, United Kingdom, [3]London Kidney Network, London, United Kingdom, [4]Imperial College Healthcare NHS Trust, London, United Kingdom

Introduction: Despite pre-emptive living donation (LD) offering the best survival and quality of life for end stage kidney disease (ESKD) patients, there is a huge disparity between rates in Black patients compared to other ethnicities. Over the last 5 years there has been a 29% increase in Black patients waiting on the UK transplant list but a 10% fall in Black living donors. One strategy to redress this is to offer culturally tailored peer led community support. The Gift of Living Donation (GOLD) charity offers tailored phone support from people with lived experience to Black patients and potential donors.

Methods: We developed a reproducible NHS and community partnership model as a 1 year pilot at three London hospital trusts consisting of embedded clinical staff, a data team and GOLD (~50 trained and certified phone buddies) aimed at increasing awareness of living donation and transplantation. This quality improvement project has been iteratively adapted to address barriers; e.g. defining the referral eligible population, embedding advanced kidney care referrals and adopting multimodal signposting methods to promote equity of access and self-sign up such as written materials, community events and bespoke patient approved SMS via the Accurx platform.

Results: Evaluation focused on implementation metrics (Figure 1) and patient experience (Figure 2). 635 out of total of 2002 Black and mixed Black patients across the three sites were potentially eligible for transplantation and so for referral to GOLD. 575 (91%) of eligible patients were offered referral. From Feb 23-24 there have been 149 referrals and >180 hours of conversations about living kidney donation. 17 potential LD have been identified and 11/17 have contacted their local team with one successful transplant to date. A mixed methods service evaluation questionnaire had a response rate of 28.1% (36/128). 35/36 patients would recommend GOLD to others, 29/36 (80.6%) felt their views on transplantation and their health had changed and 25/36 (69.4%) were now able to discuss this with their loved ones. Recurrent themes centred around increased trust in healthcare, feeling more informed, gaining confidence, support and shared community. Clinicians felt more confident citing an improved patient rapport and understanding of cultural nuances.

Discussion: Whilst many factors influence whether LD transplantation goes ahead, our long-term aim is to increase these rates in the Black community, acknowledging shifts in behaviour and culture take time. Nevertheless this is an effective working model of NHS-community partnership that patients hugely value and can be easily implemented within other communities. Ongoing work is focused on embedding this community partnership into the NHS transplant patient pathway and garnering further feedback from patients about better supporting them to overcome barriers and consider transplant first.

Activities and impact of Kidney Quality Improvement Partnership in 2024

Mrs Leeanne Lockley[1], Catherine Stannard[1], Julie Slevin[1], Sarah Law[1], Georgina Hamill[1], Kay Elson[1], Ranjit Klare[1]
[1]UK Kidney Association, ,

Introduction

The Kidney Quality Improvement Partnership (KQIP) is a national quality improvement initiative for the kidney community. Since its development in 2016, KQIP has gone through many iterations on how quality improvement is delivered. However, our principles of; partnership with people with lived experience, working collaboratively, building effective teams and leaders, developing QI capability and learning communities remain constant. 2024 saw the development of the national programme Transform Advanced Kidney Care (AKC) and the continuation of three national projects - Kidney PREM, DAYLife and Transplant First. Three NHS England regional kidney networks continue to incorporate KQIP as a member of their improvement system.

Methods

KQIP's core team consists of two clinical co-leads, five Quality Service Improvement and Redesign (QSIR) trained Quality Improvement Programme Managers and two support officers.

Over 8 years, we have developed a bespoke quality improvement toolkit specific for the kidney community, based on the IHI Model for Improvement and our collective practical experiences, incorporating tools and techniques proven to increase the success and sustainability of improvement. KQIP uses this toolkit to initiate, spread and sustain a wide range of improvement initiatives across the UK Kidney community.

In 2024 we delivered national, regional face to face events and virtual webinars. Our annual activity is summarised in table 1. At the end of each face-to-face event and virtual webinars, we ask delegates for feedback. This year also saw the development of the KQIP podcast. The programme managers interviewed healthcare professional and patients about their experience of working with KQIP. Each podcast was uploaded onto Spotify.

Table 1 – Summary of KQIP activities

Results

Table 2 - End of programme evaluation and end of event feedback

Table 3 – Podcast engagement

Conclusion

KQIP is an embedded QI initiative within the kidney community. Although a small team, KQIP's agile delivery of QI which has changed to meet the needs of the kidney community has a wide reach. Continually gathering feedback and evaluating our activity has enabled us to identify successes as well as ongoing need for the structure and framework of support our methodology brings to kidney improvement projects. Our principles of partnership with people with lived experience, working collaboratively, building effective teams and leaders, and developing QI capability and learning communities are central to service improvement.

Clinical Characteristics and Outcomes of Membranoproliferative Glomerulonephritis Cohort in a Single Renal Centre

Dr Eoghan Redmond[1]
[1]University Hospitals of Derby and Burton NHS Trust, , United Kingdom, [2]City Hospital, , United Kingdom

Background:
Membranoproliferative glomerulonephritis (MPGN) pattern of injury is driven by deposition of immune complexes or dysregulation of complement pathway. There has been a paradigm shift from reliance on electron-dense deposits location to the new pathobiology-based approach relying on immunofluorescence examination. This retrospective review aimed to describe the clinical characteristics, histological classifications, treatments and outcomes of patients of a MPGN cohort in a single renal unit.
Methods:
Patients' demographics, clinical presentations, laboratory findings, renal histology, treatments, renal outcomes and mortality were collected via the local electronic health records (VitalData, Lorenzo) in November 2024. MPGN pattern of injury due to lupus nephritis were excluded. Each biopsy reports were reviewed for MPGN classifications as per current KDIGO guidelines with support from the renal pathologist (AW).
Results
A total of 27 patients were initially coded with having MPGN. Following review of histology, 4 were recorded to other non-MPGN diagnoses leaving 23 for analysis. 9 were re-coded from Mesangial Proliferative GN to their specific subtyping; 3 were changed from type 1 to type 3. Mean age at presentation was 42 +/- 24 years, 43% (n=10) male and 95% (n=22) White British. Type 1, Type 2 and Type 3 MPGN accounted for 74% (n=15), 9% (n=1) and 17% (n=4) respectively.
Of the 23 patients, 16 had a renal biopsy at our unit, whilst 7 were transferred in. Of those biopsied in our unit, mean eGFR was 53 +/- 21ml/min, median uPCR was 420 (IQR 215-521)mg/mmol; 63% (n=10) had nephrotic-range proteinuria. 63% (n=10) had immune complex-mediated GN, 38% (n=6) had C3-dominant staining with 2 diagnosed as dense-deposit disease. 53% (n=9) had low C3, 8% (n=1) had low C4; 40% (n=6) had raised serum free light chain ratio (>1.65), 25% (n=4) had detectable serum paraprotein. 2 received haematological treatments. Cryoglobulin was tested in 50% (n=8) with 6% (n=1) positive. Virology screen identified 1 positive hepatitis C (6%). Raised ASO titre was seen in 1 patient which was felt to be a post-infective GN. Overall, 56% (n=9) had no identifiable cause for MPGN. For management of idiopathic, 38% (n=6) received prednisolone, 19% (n=3) received mycophenolate and 2 received rituximab. 89% received ACEi/ARB. Of the 16 patients, at one-year and three-year post-biopsy, mean eGFR was 49 +/- 29 ml/min/1.73m2 and 47 +/- 2 ml/min/1.73m2, median uPCR was 102mg/mmol (IQR 19-382) and 91 (IQR 17-276)mg/mmol, respectively; 3 were dialysis-dependent (2 underwent transplantation) and 4 died. Those who die are older at presentation (p=0.004), with higher prevalence of haematological causes, 3 having a haematological cause for MPGN. 3 experienced significant reduction in uPCR at 1 and 3 years. Those who became dialysis dependant had no detectable difference in age (p=0.233).

Discussion
This study highlights the clinical heterogeneity of MPGN in clinical presentation, pathophysiology and outcomes. In accordance with new guidelines 9 were recorded in subtype. Over half (56%) of patients were idiopathic highlighting the need for further work in this area. Older age is associated with mortality but not ESRD. Low eGFR at presentation is not predictive of progression to dialysis.

Patient satisfaction with the community nurse and pharmacist led CKD outpatient clinics across an Integrated Care Board (ICB) in North London.

Miss Janette Lezada[1], Ms Sarah Milne, Mr Juan Carlos Moncaleano Suarez
[1]London, Royal Free Hospital , Pond Street, Hampstead, United Kingdom

Patient satisfaction with the community nurse and pharmacist led CKD outpatient clinics across an Integrated Care Board (ICB) in North London.

Patient satisfaction feedback is an essential source of information, to help identify gaps and develop effective plans to improve the service and provide quality healthcare service and better patient outcomes. Innovative community chronic kidney disease (CKD) clinics are delivered by a team of secondary care clinicians including a kidney nurse consultant, senior clinical nurse specialists and a senior specialist CKD pharmacist across three kidney care centres and two primary care locations in an ICB in North London. There is a cohort of roughly 1000 patients monitored in the service.

Methods:
To understand the needs and experience of people attending the community CKD clinics an online survey was developed consisting of 14 questions. All patients are sent a text message with a link to the survey after attending a clinic appointment. Patients are also encouraged to scan a QR code after their consultation with a link to the survey. The survey consists of multiple choice, rating scales and free text options. Demographic information is included.

Results
162 responses were received from participants since the survey launched in July 2023. Majority of respondent were male, 61% (n=100), 37% (n=61) were female. 69% of respondents were 75 years or older, 63% were of White ethnicity, 22% Asian /Asian British, 9% Black, Black British, African or Caribbean and 6% selected any other ethnic group. 51% reported mobility problems. Patients from one borough made up 51% of the total responses. 95% attended a face-to-face appointment and 5% a telephone consultation. 97% of patients rated their overall experience of the service as very good (88%) or good (9%). 98% reported that they were spoken to in a way they could understand. 93% indicated that they are given enough time to ask any questions they have with 94% selecting ‘yes definitely’ when asked if they get answers that they understand. 91% responded ‘yes definitely’ when asked if the staff member they saw in clinic knew enough about their condition or treatment. When asked ‘what matters to you’ when you attend an appointment the main themes were time and attention, punctuality, understanding and individualised care.

Discussion
The patient’s healthcare experience and understanding their views is essential for services to be improved. The health care providers caring behaviour is pivotal in the patient’s feedback on healthcare quality. Survey feedback demonstrates high satisfaction with the community CKD clinics. The allocated appointment time, clinicians' knowledge and an individualised approach are important to patients attending CKD clinics. Insight from the survey feedback has been used to inform service development including the time slots allocated for clinic appointments and the workforce best placed to meet patient's needs. This has included the introduction of a CKD dietitian a specialist occupational therapist who has started a clinic in the borough with a greater proportion of patients over 85 and where most patients reported mobility problems as part of their survey response.

OuTSMARTing donor specific antibodies (DSA): De novo DSA are preceded by a lack of specific regulation of CD4+ interferon gamma producing cells to DSA antigens but not to other donor control transplant mismatches

Sumoyee Basu[1], Dominic Stringer[1], El Li Tham[1], Chloe Martin[2], Giovanna Lombardi[1], Olivia Shaw[2], Anthony Dorling[1]
[1]Kings College London, London, United Kingdom, [2]Clinical Transplantation Laboratory, London, United Kingdom

Introduction: While de novo donor specific antibodies (DSA) were associated with graft loss in the OuTSMART trial, optimised immunosuppression post-DSA failed to improve transplant survival. Furthermore it is poorly understood why some but not other patients even develop de novo DSA. This study therefore offered a unique opportunity to study the biology prior to DSA development given serial blood sampling of DSA negative (DSA-) patients who then went on to develop de novo DSA during the study period. We evaluated concomitant changes in regulatory cells and interferon gamma (IFNγ) and interleukin 17-A (IL17-A) production, which knowingly associate with adverse transplant outcomes, germinal centre alloresponses and may pre-empt DSA formation.

Methods: Peripheral blood mononuclear cells were available from multiple time points (Figure 1) prior to time of DSA development (t0) from 52/82 patients who were initially DSA- but developed DSA during the trial (Figure 1).
HLA Pure Proteins (PP) representing DSA or control donor mismatches were used to stimulate CD8 depleted peripheral blood mononuclear cells to evaluate indirect allo-responses. Using FluoroSpot, antigen specific IFNγ and IL17 CD4+ production (ASR) was then compared, including conditions with additional depletion of CD19+ B cells and CD25high T regulatory cells.

Results: Antigen specific T cell responses (ASR) were detectable to either control or DSA PP in 67.9% (95/140) of the total experiments for IFNγ and 35.7% (50/140) for IL17. Notably ASR were even measurable up to 32 months at all time points prior to time zero (t0) in more than 50% of samples. Figure 2a) demonstrates that overall ASR to control mismatched tended to be more regulated (50%, 33/66) than to DSA protein (36.5%, 27/74) but this was not statistically significant. However, Figure 2b) indicates that the proportion of regulated IFNγ responses to both control and DSA PP were similar until 8 months prior to t0. However from -4 months, there was then a predominance of unregulated IFNγ responses to DSA, which was not evident with the control protein where regulated responses were maintained. No similar patterns were discernible in responses to IL-17.

Discussion: This is the first systematic study of clinical samples prior to de novo DSA development. This shows detectable T cell sensitisation even 32 months prior to DSA formation in more than 50% samples. Furthermore there was differential loss of regulation of IFNγ production to DSA antigens just prior to DSA first detection. Comparatively control ASR had a predominance of more regulated responses at all time points. Ongoing deep phenotyping flow cytometry analyses will reveal the regulatory cells responsible and predict those who develop DSA. This work highlights a potential and a crucial window of detectable T cell sensitisation prior to de novo DSA which may be targeted with specific Treg cell therapy.

Getting to the heart of it! Cardiovascular prevention in CKD – A single center practice pattern.

Dr Usama Butt[1], Dr Esha Mallik[1]
[1]Lister Hospital, East and North Hertfordshire NHS trust, Stevenage, United Kingdom

Introduction:

Cardiovascular disease (CVD) is the most common complication and a leading cause of mortality in Chronic Kidney Disease (CKD). Addressing CVD, therefore, is a single most effective intervention to improve outcomes in CKD. Various treatment targets have been identified in this context and a plethora of pharmacological interventions have emerged to work on these treatment targets. Amongst these interventions, lipid lowering treatment remains a cheap and one of the most effective treatments. National Institute of health and Care Excellence (NICE) guidelines suggest offering lipid lowering treatment for prevention of CVD in CKD (NG238). Kidney Disease: Improving Global Outcomes (KDIGO) CKD management guidelines 2024 emphasize the use of lipid lowering treatment (statin / ezetimibe / combination) in CKD with strongest level of recommendation (1A recommendation).

We set out to assess the practice of prescribing lipid lowering treatment in CKD in our center.

Methods:

We searched our local renal database with following inclusion criteria:

- Age ≥50 years
- eGFR < 60 ml/min/1.73m2BSA (excluding dialysis and kidney transplant patients)

This search criteria were chosen based on threshold of prescribing lipid lowering treatment recommended by NICE and KDIGO guidelines.

We identified 4689 patients fulfilling the search criteria. We, then, randomly selected 611 patients from this cohort for the purpose of this audit. We reviewed the prescribed medications lists for all the selected patients for the prescription of any lipid lowering treatment (Statins / Ezetimibe /Fibrates).

Results:

Mean age of the selected patients was 74 years, mean eGFR was 33 ml/min/1.73m2BSA. With regards to lipid lowering treatment 58.6% were on at least one of the lipids lowering treatments and 41.4% of the patients were not prescribed any lipid lowering treatment.

We further stratified the data with following eGFR cut offs (ml/min/1.73m2BSA): < 15, 15 – 30, 30 – 45, 45 – 60, to assess the practice of lipid lowering prescription according to various levels of eGFR. 37.2% patients were on lipid lowering treatment at eGFR 45 – 60, 59.8% at eGFR 30 -45, 67% at eGFR 15 – 30, and 72.4% at eGFR of <15.

Similar stratification was developed for age. 62.4% of the patients aged >70 were on lipid lowering treatment and 51.6% of those aged 50-70.

Conclusion:

This data highlights the significant gaps CVD prevention, which is one of the fundamental aspects of CKD management. Our data suggests that 41.4% of our CKD patients who are eligible for lipid lowering treatment are not receiving that. Another interesting finding of this data is that during their journey through CKD, more patients end up receiving lipid lowering treatment as reflected by rising number of patients on lipid lowering treatment as eGFR falls, or as their age rises. This in stark contrast to the existing literature for lipid lowering treatment benefits, which suggests the most benefit is seen in relatively younger patients and those with less severe degree of CKD. As their CKD progress, the benefit of the lipid lowering treatment reduces. Our practice clearly is not aligned with this and needs significant improvement.

Renal abscess in polyarteritis nodosa (PAN)

Dr Dalal Mohamed[1], Dr Lisa Willcocks[1]
[1]Addenbrooke's Hospital, Cambridge, United Kingdom

Case History

An 80-year-old man presented with abdominal pain and a bleeding renal artery aneurysm requiring embolization in December 2023. CT scan also revealed aneurysms in the superior mesenteric artery and hepatic artery with a high probability of Polyarteritis Nodosa (PAN). He was treated with pulsed iv then oral steroids and commenced a course of iv cyclophosphamide with a good clinical response.

Prior to his 4th pulse of iv cyclophosphamide, he felt non-specifically unwell, with an abrupt rise in CRP to 179mg/dl and serum creatinine to 178 from 142µmol/l. He was given antibiotics, but a week later, his CRP was still 171mg/dl. Repeat CT scan showed a large fluid collection centered on the right kidney consistent with an abscess. Radiological drainage was performed, with cultures growing klebsiella pneumonia. Cyclophosphamide was stopped and he received a prolonged course of intravenous antibiotics. Prednisolone was also tapered and stopped. He responded well - he has not had further immunosuppression in the last 6 months but is in remission with a serum creatinine of 128µmol/l and CRP of 14mg/dl.

Conclusions

This patient was given standard immunosuppression for his PAN, but developed an infected haematoma resulting in an abscess. The case highlights the importance of considering infections in patients on immunosuppression who present with nonspecific symptoms. It also demonstrates the need to review immunosuppression in rare forms of vasculitis like PAN - this patient did not complete a full induction course of cyclophosphamide and has not had maintenance therapy but remains in remission 6 months later.

Single Centre Deceased Donor Kidney Transplant Waiting List Status to BMI

Dr Eint Shwe Zin Thein[1], Dr Nasir Jewel, Mr Avishek Majumder, Miss Hannah Maple
[1]Department of Renal Transplantation and Nephrology, Guys and St. Thomas' NHS Trust, London, United Kingdom

Introduction:

While body mass index (BMI) should not exclude people from being considered for kidney transplantation, it serves as a guideline for determining suitability for transplant listing. There is substantial evidence that higher BMI categories, particularly Class I/II/III obesity, are associated with issues such as primary non-functioning grafts, delayed graft function, and a myriad of post-op wound complications.

The prevalence of obesity has become a global public health concern. According to the NHS England Health Survey 2022, one in four adults living with obesity and one in five adults who were overweight, aged 35 and over had chronic kidney disease (stage 1 to 5). Kidney transplantation is the treatment of choice for most patients with ESRD in terms of patient survival, quality of life and cost-effectiveness. Haemodialysis costs around £34,000 per year, while renal transplantation costs about £18,500, plus approximately £6,000 for a year of immunosuppression therapy. Whereas Mounjaro costs only £122 per patient per month, exceedingly cost-effective than the cost of Obesity per NICE.

We conducted an audit of the BMI distribution and transplant activation status among our dialysis patient cohort to identify individuals who may be eligible for referral to weight management services. We aim to facilitate more renal transplantations and reduce obesity-related post-operative complications specifically in the Class I, II, III obesity BMI groups.

Methods:

A retrospective analysis of electronic healthcare records (eHR) was conducted on our dialysis patient cohort, which includes seven satellite haemodialysis centres, home haemodialysis patients and those undergoing peritoneal dialysis. Patients' BMIs were categorised according to the WHO classifications: <18.5 kg/m² (underweight), 18.5–24.9 kg/m² (normal weight), 25–29.9 kg/m² (overweight), 30–34.9 kg/m² (Class I obese), and ≥35 kg/m² (Class II/III obese).

The eHR was interrogated to identify patients who were not listed for transplantation due to their weight.

Results:

Out of 743 dialysis patients, 102 (13.7%) were active on the deceased donor list, 73 were suspended (9.8%), 178 were undergoing workup (24.0%), 317 were unsuitable due to comorbidities (42.7%) and 73 had declined transplantation (9.8%).

Among the activated patients, the BMI distributions were: Underweight- 4 (3.92%), Normal- 34 (33.33%), Overweight- 39 (38.23%), Class I obese- 16 (15.67%), and Class II/III obese- 9 (8.82%). Notably, a significant 62% of our activated deceased donor list were living with obesity. Additionally,20 patients were not listed at all due to very high BMI (BMI >40).

Discussion:

Patients with ESRD and obesity present significant challenges to transplant clinicians due to surgical complexity and higher graft complication rates. While conventional weight loss interventions remain available, challenges remain for Bariatric surgery as our ESRD patients are often considered high-risk candidates. Therefore, pharmacological weight reduction therapies are likely to confer benefits. We are currently designing a formal pathway with obesity specialists at our transplant centre to help facilitate pharmacological interventions for our obesity transplant candidates. In addition, we are also planning to do a cost-benefit analysis with our project.

Acute Kidney Injury nurse review reduces 30-day mortality in patients with Acute Kidney Injury

Dr Gowrie Balasubramaniam[1], Mr Matthew Jones[1], Mrs Tolulope Seyi-Adelaja[1], Mrs Sharmila Parimi[1], Mrs Fiona Bullock[1], Mrs Linda Lio[1]
[1]Mid and South Essex NHS Foundation Trust, , United Kingdom

Introduction

Acute Kidney Injury (AKI) is common in people in hospital. This can be after admission from the community or during the hospital admission. Mid and South Essex NHS FT has established an acute kidney injury (AKI) nurse role at the three sites across the organisation. A standard "STOP AKI" bundle is trust policy to be implemented in all people with AKI and the AKI nurses offer additional support by also reviewing people with AKI stages 2 and 3 where possible.

Method

We undertook a review of this service. Data was obtained from our trust wide renal data management system that obtain results directly from the hospital laboratory system which went live on 01/01/22. We obtained data from 01/01/22 to 01/06/24.

Results

A total of 25278 episodes were recorded, information was available on 17826 episodes with regard to the type of admission. 8844 episodes were community acquired then hospitalised - CAH (< 2 days after admission to hospital) and 8982 were hospital acquired - HA (>2 days after admission). Overall, 30-day mortality was 24.3%. 30-day mortality of CAH stage 1, 2 and 3 was 17.8%, 28.4% and 29.4% respectively. 30-day mortality for HA stage 1,2 and 3 was 24.6%, 38% and 43.6%.

30-day mortality for AKI stage 2 and 3 were compared for people that were reviewed by an AKI nurse versus that did not receive a review by an AKI nurse. CAH AKI 30-day mortality for stage 2 was 27.2% versus 31.5%, and for stage 3 was 28.6% versus 30.6%. HA AKI for stage 2 was 37% versus 40.7%, and for stage 3 was 41.3 versus 51.4%.

Discussion

A review by an AKI nurse reduced 30-day mortality in people with AKI in hospital. The biggest impact in on the severe end of the spectrum, those that are stage 3 and acquired in hospital. Measures to reduce hospital acquired AKI are important but the AKI nurse role has an important contribution to reduce the mortality, especially in patient with severe AKI.

The introduction of a post operative leaflet for PD Catheter insertion and assessing the quality of the information provided

Mrs Amy Murphy[1], Dr Catriona Goodlad
[1]Royal Free NHS Foundation Trust , London, United Kingdom

Introduction:
Through my clinical experience and direct interactions with patients, I identified a significant gap in the quality and consistency of post-operative information provided to patients following peritoneal dialysis (PD) catheter insertion. Prior to this initiative, there was no dedicated post-operative leaflet for PD patients. To address this, I sought the support of the Quality Improvement (QI) team to develop and implement a patient information leaflet specifically focused on post-operative care for PD catheters. The aim of this QI project was to ensure that all PD patients receive clear, comprehensive post-operative care instructions.
Problem Identification:
Pre-implementation data, gathered through patient feedback, indicated that only a small proportion of patients received clear and consistent post-operative information before attending follow-up appointments at our clinics. The advice provided was often subjective and varied depending on the healthcare provider. Patients expressed confusion regarding post-operative care, particularly regarding where to seek help for complications such as post-operative bleeding, and often reported a delay in receiving detailed guidance until they met with the PD nurse.
Needs Assessment:
To understand the underlying issues, I conducted a thorough review of current practice, examining the PD catheter insertion pathways and analysing data from the renal database. I also engaged with staff from the day wards and the interventional radiology department to gather their perspectives on post-operative care for PD patients. In addition, I actively sought feedback from patients and their caregivers, ensuring that their input was central to the development of the new leaflet. Collaboration with the communications team at the Royal Free Hospital was essential to ensure the leaflet met both clinical and patient-centred needs before finalising its content.
Intervention:
In March 2024, the newly developed post-operative information leaflet was introduced. Key to its success was ensuring that the leaflet was readily available in relevant clinical areas and distributed at an appropriate stage in the patient's care journey.
Outcomes and Evaluation:
Following the introduction of the leaflet, I measured the percentage of PD patients who received the information as intended. Over the course of the next seven months, data demonstrated a significant increase in the number of patients receiving high-quality post-operative care information. Additionally, a positive correlation was observed between the introduction of the leaflet and a reduction in the incidence of PD exit site infections, suggesting that the improved post-operative guidance had a direct impact on patient outcomes.
Conclusion:
The implementation of a standardised post-operative leaflet for PD patients has successfully addressed the previously identified gaps in patient education, leading to improved patient satisfaction and clinical outcomes. Ongoing monitoring and further refinement of the intervention will ensure that it continues to meet the evolving needs of our patient population. This document can be modified and shared with other renal units in an effort to further share knowledge.

Usability and experience testing of a digital health intervention to support CKD self-management

Dr Courtney Lightfoot[1,2], Dr Thomas Wilkinson[1,2], Professor Alice Smith[1,2], Dr Matthew Graham-Brown[1,2]
[1]University of Leicester, Leicester, United Kingdom, [2]NIHR Leicester BRC, Leicester, United Kingdom

Introduction

My Kidneys & Me is a digital health intervention (DHI) designed to support better self-management in people with non-dialysis CKD; it comprises theory-based education and 'how to' action sessions, and trackers for goals, symptoms, physical activity and clinical measures. The DHI was evaluated in a mixed-method multicentre randomised control trial (SMILE-K). Here we report the findings from the qualitative sub-study exploring intervention trial participants' perspectives on usability, usage, and engagement with MK&M.

Methods

Interviews were conducted with people who had access to MK&M as part of the SMILE-K trial. Think-aloud interviews (a technique where participants verbalise their thoughts while using an intervention, providing insights into their actions, reactions and expectations during the process) were conducted during participants' first interaction with MK&M, via Zoom and were audio-visually recorded. Semi-structured interviews were conducted following 20 weeks of access to MK&M, via telephone and were audio-recorded. Interviews were transcribed verbatim, and data were analysed using thematic analysis.

Findings

Six think-aloud (50% male, mean age: 68 years) and eleven semi-structured (73% male, mean age: 64 years) interviews were conducted. Six themes were identified across the data and are reported.

Personal attachment. A self-management programme specifically designed for people with CKD made participants feel personally involved and empowered to manage their condition, encouraging them to engage with the programme.

Logical navigation. It was perceived that MK&M had a logical flow, and navigation around the programme was considered straightforward and coherent. Educational sessions were believed to have a natural order and transition from one topic to the next, making it easy to use and engage with.

Ability to 'dip in and out'. Participants discussed how the bite-sized information helped break up the sessions into manageable chunks. Having different sections within the programme and being able to access MK&M periodically enabled individuals to engage with the programme at their own pace and leisure.

More time to engage. The information presented in MK&M was considered comprehensive and interesting, but participants felt that they needed more time than the study timeframe to review and process the content provided. The knowledge that the programme was available beyond the study, enabling people to continue using and engaging with MK&M, was reassuring for participants.

Useful in future. There were some features of the programme that participants reported not using, such as the symptom tracker, as they felt that they did not currently need them; however, they believed that they would be interesting and useful to engage with in the future.

Desire for continued learning. The need to learn more and improve their knowledge of how best to self-manage their CKD was a motivating factor in continuing to engage with MK&M. Participants

were hopeful that new information would continue to be released, with alerts and reminders to let them know when this was available.

Conclusion

My Kidneys & Me was considered to be comprehensive but the presentation of information made it easy for users to access and engage with. Findings will be used to revise the programme to improve user experience.

Allergic Reactions on Dialysis – Experience of a Dialysis Network in the Midlands, UK.

Dr Kateryna Macconaill[1], Mrs Suzanne Glover, Professor James Medcalf
[1]John Walls' Renal Unit, Leicester General Hospital, Leicester, UK

Haemodialysis is a life-saving treatment for over one million patients with kidney disease worldwide. Dialysis patients are exposed to a number of potential allergens during the treatment which often cause hypersensitivity reactions. The incidence of such reactions vary greatly in literature from 0.17 to 4.2 to per 1000 sessions depending on the membrane used. These reaction can range from very mild to severe, such as anaphylactic shock and cardiac arrest. This review summarises an experience of the allergic reactions on dialysis in a haemodialysis network in the Midlands, UK.

Our haemodialysis network is one of the largest in the UK with 1104 unit based haemodialysis patients. We have reviewed our trust experience from 2017 to 2023 and identified 92 cases of hypersensitivity during haemodialysis treatment reported. The cases were identified retrospectively using DATIX system. The clinical and laboratory data was extracted using proton clinical system.

14 cases have clinically improved following a change to modified cellulose membrane. We have also reviewed eosinophilia levels in this cohort – 22 patients had severe eosinophilia (ranging from 5.59 to 30.26). 57 out of 58 patients had permanent dialysis catheter for dialysis access. Two patients were tested for ethylene oxide antibodies and they were elevated.

We have separately extracted the data on eosinophil levels in correlation to dialysis access used (table 1). This data shows that significant proportion of dialysis patients have elevated eosinophil levels , with eosinophilia strongly correlating with tunnelled dialysis line as haemodialysis access (31/280 of patients with permacath had eosinophil levels above 1 vs. 11/571 of patients with arteriovenous fistula)

Dialyser reactions are thought to be the commonest cause of the hypersensitivity reactions. The most commonly used membranes at present are synthetic membranes which replaced previously used cellulose membranes due to their alleged better biocompatibility. We continue to use synthetic dialysers as a standard membrane in the network; however in patients with hypersensitivity synthetic membranes are changed to a modified cellulose dialyser (high flux Solacea) as a first step in replacement of potential allergens. Currently around 5.3 % of our dialysis population is using this membrane.

In many of the cases within the Trust there seemed a strong association with use of central venous catheters with a number of units reporting cases of patients who did not seem to tolerate dialysis showing remarkable improvement once using an AVF. There is also a strong association between eosinophilia and tunnelled dialysis lines. We have used a silicon lines in the past as an alternative however they are difficult to insert, less durable and not easily available on the market.

Ethylene oxide as a cause of hypersensitivity reactions remains controversial as its use for sterilisation of dialysis consumables was ceased in 1990 however it is still being used for sterilisation of other medical consumables.

In conclusion, there are multiple allergens which might be implicated in hypersensitivity reactions on dialysis. Dialysis filters and tunnelled dialysis lines are the most common culprits identified in our dialysis cohort with significant improvement in symptoms when changed to alternatives.

Evaluating Health Literacy in an Advanced Kidney Care Clinic Population

Ms Meagan Stoby-Fields, Tadala Kolawole, Dr Sajeda Youssouf, Dr Luxme Nadarajah
[1]Barts Health NHS Trust, , United Kingdom

Introduction

Our unit is one of the largest renal services in the country and serves a wide catchment area, with 1250 haemodialysis patients, 250 peritoneal dialysis patients, and 1500 transplant patients. In 2023, over 300 patients started renal replacement therapy within our service, the majority commencing on unit-based haemodialysis. Our catchment has a diverse population with high social deprivation. English is not the first language to many and is a known barrier to accessing healthcare leading to inequity in healthcare provision.

Health literacy is defined as the ability to obtain, read, understand, and use healthcare information in order to make appropriate health decisions and follow instructions for treatment. Good health literacy is key to accessing healthcare and reducing health inequity and enabling informed decision-making in advanced CKD. It is also associated with increased likelihood of pre-emptive transplant listing and use of home therapies.

Methods

Our advanced kidney care clinic (AKCC) is a multi-disciplinary networked clinic that prepares people for RRT across three sites.

We conducted a pilot study evaluating health literacy in 32 patients in the AKCC. We used the validated brief health literacy screen (BHLS) which is a self-reported subjective measure of literacy that asks four questions about reading, comprehension, need for assistance, and confidence to assess health literacy. We also developed an unvalidated AKCC-specific health literacy questionnaire to evaluate knowledge in patients who had had renal replacement therapy counselling and education in the clinic.

Results

30/32 patients completed the BHLS whilst 32/32 completed the unvalidated AKCC-specific questionnaire. Of these 20/30 (67%) had limited or marginal health literacy (11/30 had limited health literacy and 9/30 had marginal health literacy) and only 10/30 patients had adequate health literacy. In particular 20/30 patients required assistance to read hospital materials "always, often or sometimes". Of AKCC specific questions, understanding of their health condition ranged from 0-11/11, with a mean score of 6.4/11, demonstrating a gap between education delivered and attained.

Discussion

Our pilot study is a useful starting point illustrating the importance of adequate health literacy in chronic disease management in order to empower patients to make informed choices about their care. Low levels of health literacy will potentially impact on achieving optimum outcomes for our AKCC population. Addressing this in a diverse multi-ethnic population with high social deprivation and disability requires a multifaceted and holistic approach to design and delivery of RRT education. The next phase of this project is to expand the survey with a view to redesigning patient education pathways to meet the needs of our patients.

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Untargeted Metabolic Profiling of Urinary Extracellular Vesicles to Identify Kidney Disease Biomarkers: A Method Development

MD Cahyani Gita Ambarsari[1], Professor Maarten W. Taal[2], MRCPCH MD(res) Jon Jin Kim[3], Dr Dong-Hyun Kim[4], Dr Anna M. Piccinini[5]
[1]Faculty of Medicine, University of Nottingham, Nottingham, United Kingdom, [2]Centre for Kidney Research and Innovation, School of Medicine, University of Nottingham, Nottingham, United Kingdom, [3]Department of Paediatric Nephrology, Nottingham Children's Hospital, , United Kingdom, [4]Centre for Analytical Bioscience, Advanced Materials and Healthcare Technologies Division, School of Pharmacy, University of Nottingham, Nottingham, United Kingdom, [5]School of Pharmacy, University of Nottingham, Nottingham, United Kingdom

Introduction

Urinary extracellular vesicles (uEVs) hold potential clinical value as biomarkers, especially for patients with kidney and urinary tract diseases. We adopted established methods to collect, store, and preserve uEVs. We compared three different EV isolation and metabolite extraction methods to choose the most suitable approach for the subsequent metabolomics purposes.

Methods

Fresh urine samples were collected from five healthy volunteers, two females and three males, 200 mL each. Complete Mini Protease Inhibitor Cocktail tablets were added to each urine sample. Pre-processing to remove cells and cell debris was done within 4 hours from sample collection by centrifugation at 800xg at 4°C for 10 minutes with a swing-bucket rotor. Samples were divided into aliquots of 15 mL each for uEV isolation and 20 mL for uEV metabolite extraction. All were prepared in triplicate for each protocol and stored at -80°C (Figure 1a). We isolated uEVs using three different commercial kits, which use precipitation- (Total Exosome Isolation (from urine) Reagent (TEIR; Invitrogen)), pH and precipitation (Urine Exosome Purification Kit (UEPK; Norgen)), and size-exclusion chromatography (SEC)-based methods (IZON), respectively (Figure 1b). Cell-free urine samples were defrosted overnight at 4°C on ice for uEV isolation and quantification. uEV isolation was conducted following manufacturers' instructions. uEV characterization, including quantification and size distribution assessment, was done using nanoparticle tracking analysis (NTA) with Zetaview PMX-120 and cryo-electron microscopy (cryo-EM) with JEOL 2100+. Metabolite extraction was done using three protocols: Liu et al., 2023, Hinzman et al., 2022, and a new protocol that we developed and refer to as "Nottingham" (Figure 1c). Untargeted metabolomics was performed on a hybrid quadrupole Orbitrap Q-Exactive mass spectrometer coupled to a Dionex Ultimate 3000 ultra high-performance liquid chromatography (Thermo Fisher Scientific).

Results

uEVs were visualized and analysed by cryo EM (Figure 2a), and size distribution was comparable between the three isolation methods (Figure 2b). UEPK (Norgen) as a uEV isolation method resulted in the highest number of mass ions for metabolomics, followed by SEC (IZON) and Invitrogen (TEIR) (Table 1). Liu et al. (2023) as uEV metabolite extraction method resulted in the highest number of mass ions for metabolomics, followed by Hinzman et al. (2022) and the new Nottingham method (Table 2).

Summary/Conclusion

The combination of uEV isolation by pH and precipitation with the metabolite extraction method by Liu et al. (2023) could be the most suitable protocols for subsequent metabolomics analysis for EVs from urine samples.

Haemodynamic instability in haemodialysis patients with hypereosinophilia – more than just the circuit?

Dr Omaisa Mushtag, Dr Okpela Iseko, Dr Aishwarya Mohan, Dr David Makanjuola
[1]St helier Hospital, Carshalton,London, United Kingdom

Haemodynamic instability in haemodialysis patients with hypereosinophilia – more than just the circuit?

Introduction:

Hypereosinophilia is defined as a persistently raised eosinophil count of > 1.5 x 109/l on at least 2 occasions 1 month apart. The prevalence of hypereosinophilia in the haemodialysis HD population has been reported to be as high as 5% in some studies. The cause is unclear, but reactions to the dialyser, dialysis fluids and type of dialysis access are potential factors. Some of the patients with hypereosinophilia manifest with episodes of haemodynamic instability on dialysis. We looked at the patients in our Renal program who had experienced this, to see what their characteristics were, and their outcomes.

Methods:

This was a retrospective study of our patients between 2010 to December 2024. Data were obtained from patients' records on our hospital database, and CV5, our dedicated Renal database. Patients were included if they had eosinophil counts > 1.5 x 109/l on 3 separate occasions, and if this persisted for over 4 weeks. Data were analysed with Microsoft Excel.

Results:

The total number of patients who met the criteria was 189. Of these, 13 (6.8%) had documented episodes of hemodynamic instability on dialysis. 12 (92%) of them were male. The age range at diagnosis was 30-85 years. 6 (46%) were diabetic. 11/13 (85%) were dialysing through a tunnelled line at the time of diagnosis.

Eosinophils at diagnosis ranged from 1.5-4.8, peak eosinophil count ranged from 1.9 to 36.1 x 109/l.

9 (70%) of the patients required treatment with Hydrocortisone and Chlorphenamine. Haemodynamic stability was restored in 11(85%) patients and the average time to resolution was 5.58 months (range 3-19).

Resolution of the hypereosinophilia was seen in 6 (46%) patients, and the average time to resolution of hypereosinophilia was 13.4 months (range 3-46).

6 out of the 11 patients in whom haemodynamic stability was restored did not have resolution of their hypereosinophilia.

Changing the type of dialyser was associated with recovery of haemodynamic stability in 6 patients, but 4 out of 5 patients who stayed on the same dialyser also had recovery of haemodynamic stability.

The average time from diagnosis of hypereosinophilia to development of symptoms was 4.15 months (range 3-19).

6 out of the 13 (46%) of the patients died during the study period. The time from diagnosis of hypereosinophilia to death ranged from 18 to 37 months.

Tables 1 and 2 show further details of the clinical and haematological/immunological parameters.

Conclusion:

In this cohort of patients with hypereosinophilia and haemodynamic instability, the predominant dialysis access was a tunnelled line. Recovery of haemodynamic stability was not dependent on resolution of the hypereosinophilia, and was seen in patients whether or not the dialyser was changed to a different type. The reasons for the haemodynamic instability are likely to be multi-factorial and a search for the cause should not stop at looking only at the components of the dialysis circuit.

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Rebuilding Hepatitis B Immunization : Primary to Secondary Care Transition for Dialysis Patients Post-COVID - a Quality Improvement Project at a District General Hospital

Dr Dipraj Limbu[1], Trust Grade Ajith Abraham Kurien[1], Dr Bahareh Arsalanizadeh[1], Ms Angulo Carmen[1]
[1]Northwest Anglia NHS Foundation Trust, Peterborough, United Kingdon

Background

The UK Renal Association recommends all patients who require maintenance haemodialysis should be assessed for current or past infection with Hepatitis B and offered vaccination against HBV if indicated. As of July 2019, commissioning responsibility and associated funding for Hepatitis B vaccination for CKD patients was transferred from Primary Care to Secondary Care. Hence vaccination duties rested with the Renal units. However, the COVID pandemic impacted this transition. There was a lack of up-to-date information regarding patient immunity and vaccination status. This contrasted with the recommendation given by UKRA.

Methodology

We used Plan- Do – Study – Act (PDSA) method for quality improvement. Data was collected retrospectively for a period of 1 month from October-November 2023 to assess the baseline status. Sources used include patient's electronic hospital records and Renal database (Proton). Baseline data revealed poor immunization rates and lack of information on vaccination status. Hence, we set the goal of ensuring up-to-date immunity checks and adequate vaccination of all those in the outpatient dialysis units.

As an intervention, all the patients were given patient education leaflets to educate them regarding the importance of immunity against Hepatitis B. The HD nurses were given a teaching session on hepatitis B immunization and its relevance. All patients had up-to-date blood tests to check the immunity status and those who were not immune, were offered vaccination accordingly. A senior member of the dialysis nurses was assigned to be in charge to maintain a formal record and to ensure follow up. The dialysis nurses also ensured latest results were available in print on the individual dialysis folders.

After a period of 12 months, a reaudit was done over a period of 1 month (November -December 2024) to check the effect of implementation of the steps taken previously and to assess the current status.

Results

Our findings revealed that there was a significant improvement in the practice of immunity assessment and vaccination. Out of 142 patients in 2023, only 54 (38.02%) had up-to-date Hepatitis B Surface Antigen (HBsAg) and anti-HBs antibody checked. In 2024, 100% compliance was seen with all 156 patients currently on outpatient MHD on this parameter. In our 2023 cohort (n=142), only 42.8% were found to be vaccinated appropriately. This has improved to 83.97% in the 2024 cohort (n= 156). Out of 156, 25 did not receive vaccination. Amongst the 25, 8 refused and 1 patient was seropositive. The remainder 16 were new to the unit and would be vaccinated in due course.

Conclusion

Transition of care is challenging for both care providers and patients. It requires timely coordinated efforts at multiple levels to maintain continuity of care. This quality improvement project helped to highlight the dismal immunity and vaccination rates amongst dialysis patients during a period of transition that was disrupted by the COVID pandemic. As a step forward, surveillance would be conducted into the immunity and vaccination of dialysis patients by a dedicated staff at regular intervals to ensure continued improvement and sustainability of the positive changes achieved.

Caught in a Double Bind: Fungal Infection and Drug-Induced Hepatotoxicity in a Renal Transplant Recipient

Mr Shane Moran[1], Mrs Dawn Goodall[1], Ms Rachna Bedi[1], Professor Mark Gilchrist[1], Ms Navjeet Nagi[1], Dr Richard Corbett[1]
[1]Imperial College NHS Trust, London, United Kingdom

A >70 male with end-stage renal failure on thrice weekly haemodialysis underwent uncomplicated living-related renal transplant from his son (1-1-1 mismatch, CRF 0%). Induction immunosuppression therapy included alemtuzumab and maintenance with tacrolimus monotherapy. Post-operatively his graft began functioning promptly and his creatinine decreased from 488 µmol/L to 103 µmol/L.

The patient was readmitted one month post-transplant with elevated inflammatory markers (CRP 83 mg/L, WCC 6.2x10^9/L) and acute graft dysfunction (creatinine 144 µmol/L). Cultures were negative, but β-D-glucan (12.1 pg/mL) was positive. Empiric antibiotic (piperacillin-tazobactam) and antifungal (anidulafungin) therapy was initiated. Imaging revealed a proximal renal artery pseudoaneurysm with a potentially mycotic origin. He underwent interventional radiology stenting of the pseudoaneurysm under anti-fungal cover (initially anidulafungin then liposomal amphotericin B).

Despite escalating antifungal therapy to liposomal amphotericin B given ongoing evidence of progression the difficult decision was made to proceed to nephrectomy. Cultures confirmed Aspergillus fumigatus from the stent, and pseudoaneurysm. Renal histopathology showed extensive parenchymal and probable intravascular fungal involvement. Dual antifungal therapy with liposomal amphotericin B and voriconazole commenced. However, voriconazole levels were elevated (5.8-6.4 mg/L) and signs of voriconazole toxicity including confusion and visual disturbance led to its discontinuation.

A week after commencing the dual antifungal therapy, a cholestatic drug-induced liver injury (DILI) was observed with ALP rising from 112 to 761 U/L and bilirubin from <5 to 196 µmol/L. A medication review to assess for temporal relationship noted 18 new drugs initiated within the last two months. Hepatology advised liposomal amphotericin B was the likely cause due to the marked rise in bilirubin. Liposomal amphotericin B was switched to posaconazole monotherapy but liver function tests (LFTs) worsened (ALP 1233 U/L, bilirubin 247 µmol/L). Posaconasole was subsequently discontinued and ambisome was reintroduced which ultimately led to an improvement in LFTs.

Four months after the initial admission and extensive rehabilitation discharge became possible, with oral isavuconazole trialled as a potential oral switch to facilitate discharge. Due to previous LFT abnormalities with azole antifungals, the loading dose was omitted to minimise potential over-exposure. The switch was tolerated well with therapeutic levels (mean 2.03 mg/L) and liver function tests continued to improve. The patient completed 43 weeks of antifungal therapy and remains stable on satellite haemodialysis.

This case underscores the complexity of managing fungal infections post-renal transplant, particularly in the setting of immunosuppression and DILI. The case highlights the lack of specific diagnostic tests for invasive fungal infections or concrete methods for attributing causality in DILI. Isavuconazole proved to be a well-tolerated alternative, highlighting its utility in similar scenarios. The emergence of pharmacogenomic testing, such as for voriconazole metabolism, may allow for tailored treatment in the future.

Patient Experience after establishment of a Renal Psychologist in Mid and South Essex

Dr Gowrie Balasubramaniam[1], Mrs Samantha MacDonald[1], Mrs Tracey Joy[1], Mrs Gina Doyle[1], Mrs Paula Glenister[1]
[1]Mid and South Essex NHS Foundation Trust, , United Kingdom

Background

People with disease undergo many challenges with both medical and non-medical aspects of their life. Psychological support is a key tenant of supporting people with people with long term conditions and forms part of the NHS Outcomes Framework Domains and Indicators. Commissioning stipulates renal services provide a personal service, sensitive to psychological and emotional needs of people with kidney disease and their carers.

Mid and South Essex obtained funding from Kidney Care UK to provide renal psychological support in the region. We recorded the activity that has been undertaken and obtained some user feedback.

Methods

The renal psychologist was appointed in September 2023. We reviewed the activity over the last 12 months. Psychological support activity was obtained from renal administration. Patient feedback was obtained from people who were undergoing counselling sessions or who had finished a course of sessions.

Results

The number of ad-hoc sessions were 1,178 (unit and ward), Formal appointments included telephone appointments 168 and counselling sessions were 163.

The number of DNA's were 35 and the number of sessions cancelled by patients were 24.

21 people returned patient survey with regards to their experience, including one staff member. All 21 were aware of the referral and felt that they had been seen quickly. They were all felt comfortable with the therapist. 19 out of 21 felt the session were "very helpful" and 2 found them "helpful", out of a scale of 5 (very helpful, helpful, neither, unhelpful, very unhelpful). 18 out of 21 scored a 10 out of 10 for recommending it to others, the remaining three scored 9 out of 10.

Some of the user quotes were:

"It's the best thing to happen to renal in all the years I have worked there" - staff

"I was like a time bomb waiting to explode .....she kind of neutralised the bombs and I can see things from a different perspective"

"each session is more progressive, I feel better and more empowered"

"very helpful for my mental health and well being"

"it is wonderful to have someone to support me through the journey who has/is there consistently throughout."

"made a lot of difference in my medical issues"

"life saver"

"helped a lot with my anxiety"

Conclusion

Renal psychological support is a key tenant of caring for people living with kidney disease and dialysis. Feedback from patients is excellent, with strong satisfaction and user recommendation. All renal services should provide for the emotional and psychological needs of these patients as part of their service.

Cracking the code: an exploration of genetic testing in paediatric chronic kidney disease

Eleanor Halls
[1]University of Leeds, Leeds,, UK, [2]Leeds Children's Hospital, Leeds,, United Kingdom

Background

Chronic kidney disease (CKD) is rare in children and has a genetic cause in around 30% of patients. However, the benefits of genetic testing services are unclear. Now that more testing is available with the improvement of whole exome sequencing (WES) and microarrays, it is key to find the patients who will receive the most benefit when undergoing that testing. Having a specific genetic result may allow for more personalised treatment plans e.g. future transplant planning, more accurate prognostics and improved patient understanding of their own condition. However, risks are involved as with any procedure, and it should not be undertaken lightly.

Methods

Using data from CKD patients at a local children's hospital, information was gathered on the causes of CKD in 46 patients, including whether they had had genetic testing and those results, and factors potentially indicating genetic aetiology such as facial dysmorphology, growth delay and family history of renal disease. Patient benefits and drawbacks were also recorded as available from clinical notes and letters. This data was then qualitatively considered due to the range of data types and small cohort size.

Results

30% of patients had a genetic cause in the cohort. Those with multiple causes of CKD or kidney tubule dysfunction were most likely to have a genetic basis, whereas it was rarer in those with congenital abnormalities of the kidneys and urinary tract (CAKUT). Delays in growth were not linked to genetic aetiology and were more likely related to preservation of kidney function and appropriate nutrition. One other key finding was that all patients with genetic-linked glomerular CKD had family history of renal disease.

Conclusions

Overall, each patient needs to be holistically considered – what benefits will genetic results bring them? Without direct impact to management or other psychosocial benefit, testing may just be confirming that which is already known.

This is a preliminary research project with few patients and would benefit from being expanded e.g. nationally to allow further conclusions to be drawn. It may be used as a tool by clinicians when considering genetic testing referrals, particularly for patients with tubulopathies and glomerulopathies.

This project was supervised by Dr Pallavi Yadav and Dr Samantha Williamson, and carried out in partnership with Saarangan Jeyaratnam, although no writing belongs to any of these three.

Mapping the Blood Vasculature in an Intact Human Kidney using Hierarchical Phase-Contrast Tomography

Miss Sonal Nandanwar[1], Professor David Long[2], Dr Claire Walsh[1], Dr Daniyal Jafree[2]
[1]Department of Mechanical Engineering, UCL , London, UK, [2]Great Ormond Street Institute of Child Health, UCL , London, UK

The patterning of the renal vasculature is crucial for kidney filtration and reabsorption. Structural changes in the vasculature are commonly observed in renal pathologies such as hypertension and diabetes, which can impair kidney function. This highlights the need for advanced techniques that allow for detailed, three-dimensional imaging and quantification of blood vessels within intact organs, particularly for studying pathological conditions. It has not previously been possible to capture the entire vascular network of the intact adult human kidney. We hypothesised that Hierarchical Phase-Contrast Tomography (HiP-CT), a synchrotron X-ray imaging technique that offers exceptional resolution, could address this need and be capable of imaging the vasculature of an entire human organ.

Combining label-free HiP-CT imaging of an intact kidney with topology network analysis, we quantitated vascular architecture in the human kidney from the renal artery to interlobular arteries. We compared our human data with published data from rodents which are commonly used as reference parameters in models of kidney function and found that although human and rat kidney vascular topologies are comparable, vascular radius decreases at a significantly faster rate in humans from hilum to cortex. Additionally, in humans, the radius change with branching differs from rats, suggesting distinct vascular branching patterns between the two species. Furthermore, in our human data we found a deviation from Murray's Law, which governs the relationship between vessel diameter and branching. While Murray's law is generally followed in many species, this is not the case in human kidneys, particularly as vessels branch toward the cortex and their radius decreases. We also conducted regional-based analyses of the kidney's vasculature, focusing on specific hilum, cortex, medulla, and intermedullary regions. These analyses revealed how structural differences in the vasculature correspond to the unique functional roles of each kidney region with the inter-vessel distance found to be greatest in the hypoxic medulla suggesting that this area of the kidney does not directly receive oxygenated blood from the arteries ascending from the hilum.

Collectively, our findings demonstrate that HiP-CT is a powerful imaging tool that bridges anatomical scales, offering valuable insights into the unique vasculature of the human kidney, which differs from rodent species. This technique has broad implications for renal physiology, biophysical modeling, and tissue engineering, with the potential to improve our understanding and treatment of renal diseases.

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A single-centre experience of Roxadustat for pre-dialysis patients

Dr Anandna Bhatia[1], Dr Timothy Shipley[1], Ms Charlotte Farrell[1]
[1]The James Cook University Hospital, Middlesbrough, United Kingdom

Introduction:
Anaemia in patients with chronic kidney disease (CKD) is common, and often multifactorial. Contributing factors include chronic inflammation, iron deficiency, impaired oxygen-sensing mechanisms, and insufficient production of erythropoietin (EPO). The severity of anaemia worsens with progressive kidney failure, leading to increased morbidity and mortality, poorer patient outcomes and increased requirements for additional therapy, such as intravenous iron infusions. Roxadustat, a HIF-PH enzyme inhibitor, was approved for the treatment of anaemia in CKD in the United Kingdom in 2021. Roxadustat is commonly commenced at a dose of 70mg, taken orally three times weekly, with subsequent dose adjustments based on clinical response.
Roxadustat has been used at our centre since January 2023. A local protocol was established to guide initiation, dosing, and monitoring of Roxadustat in pre-dialysis patients (CKD stages 3, 4 and 5) with haemoglobin levels below 105g/L and adequate iron stores.

Methods:
We collected and analysed data for patients who were prescribed Roxadustat from January 2023 to December 2024. Data collected retrospectively included patients' initial haemoglobin and ferritin levels, starting doses of Roxadustat, subsequent dose changes, intravenous iron use, adverse event, and reasons for discontinuation.

Results:
51 patients were prescribed Roxadustat between January 2023 and December 2024. All patients had CKD stage 4 or 5 and were pre-dialysis. The most common starting dose was 70mg three times weekly, but a significant minority of patients were started on 50mg three times weekly (full results to follow). The majority of patients remained on the starting dose of Roxadustat for the duration of treatment. The most common reason for discontinuation of Roxadustat was commencement of dialysis (further data to follow). No patients continued treatment once they commenced renal replacement therapy. There was one reported case of intracerebral haemorrhage in a patient taking Roxadustat, but this did not seem to relate to a greater than expected rate in rise of haemoglobin or blood pressure.
This project offers insight into the practical application, efficacy, and safety of Roxadustat in routine clinical practice.

Suspend to Mend: Withhold Nephrotoxins to Improve AKI

Dr Alisha Toner, Dr Iona Chisholm, Dr Katherine McKenzie, Dr Heather McDonald, Dr Joshua Thorburn, Dr Peter van Rhijn

Introduction:
Acute Kidney Injury (AKI) is a prevalent condition, attributable to 1 in 5 hospital admissions, and is frequently encountered in medical receiving units. It is associated with significant morbidity and mortality, making early and effective management crucial. AKI management during the initial 'clerk-in' was identified as an area for local improvement. Our quality improvement project (QIP) aimed to improve AKI management in medical receiving units, aligning with UK Kidney Association (UKKA) guidelines. The goal was to ensure that 80% of patients had nephrotoxic medications suspended during the initial assessment.

Methods:
This project was a retrospective, three-cycle QIP conducted between May and September 2024, focused on improving AKI management within an acute medical department. A driver diagram was used to outline the project, highlighting several potential change ideas.

The first PDSA cycle gathered 5 weeks of baseline data on AKI management across various areas, including fluid assessment, fluid balance charts, urinalysis, consideration of sepsis, exclusion of obstruction, daily U+Es monitoring, and the suspension of nephrotoxic medications. This review identified nephrotoxic medication suspension as a key area for improvement. After consulting with the acute medical and renal teams, we introduced an educational program in the second PDSA cycle, delivering training sessions to both medical and nursing staff, while gathering 5 more weeks of data. In the third cycle, AKI guidelines were developed and added to the local "handbook" which was made accessible via a mobile app, with 3 more weeks of data collected. The guidelines were reviewed by the renal team and approved in a local guideline governance meeting.

Balancing measures included monitoring the number of speciality allocations to the renal department and the number of referrals. Data collection spanned 13 weeks, with weekly averages calculated to enhance reliability, and results were analyzed using a run chart.

Results:
Pre-intervention data revealed that only 71.0% of AKI patients had nephrotoxic medications suspended during their initial assessment. After the teaching intervention, there was no significant improvement, with 63.4% of patients having medications suspended. However, following the implementation of guidelines, the suspension rate increased significantly to an average of 86.0%, exceeding the project goal of 80%.

The educational programme and guidelines had no impact on the number of speciality allocations to renal unit or in the number of email referrals.

Conclusion:
This QIP identified and addressed gaps in AKI management, focusing on suspending nephrotoxic medications. While teaching interventions showed no improvement, integrating AKI guidelines into the local "handbook" significantly increased medication suspension rates to 86%, surpassing the 80% target. This highlights the effectiveness of guideline-driven approaches in improving patient care.

Building on the success of this project, we plan to develop an AKI e-alert linked to the newly created AKI guidelines and conduct a further round of data collection. The hope is that this will produce a

more sustainable change to long-term practices and should be effective despite the regular rotation of the workforce.

Renal graft dysfunction in pregnancy requiring dialysis: a case report

Dr Esme Gardiner[1], Dr Ellen Knox[2], Dr Graham Lipkin[1], Dr Nadia Sarween[1]
[1]Renal Unit, Queen Elizabeth Hospital, University Hospitals Birmingham, Birmingham, , [2]Birmingham Women's Hospital, Birmingham Women's and Children's NHS Foundation Trust, Birmimgham,
Introduction: With advances in transplant medicine, increasing numbers of pregnant women with kidney transplants are being reported. Despite an increased risk of adverse pregnancy outcomes in these women, the rates of acute rejection do not appear to be increased.

Case details: This case follows a primiparous women who had a live donor kidney transplant for end stage renal failure secondary to Alport Syndrome. Her immunosuppression regime was tacrolimus, prednisolone and azathioprine. At booking, blood tests revealed an acute kidney injury in conjunction with low tacrolimus levels. An ultrasound of the transplant showed good perfusion however moderate hydronephrosis caused by a fibroid pressing onto her transplant ureter. A nephrostomy was inserted via fluoroscopy. Despite radiological improvement of the hydronephrosis, her kidney function did not improve. Her nephrostomy was removed after becoming dislodged causing severe abdominal pain. A biopsy, at 16 weeks gestation, demonstrated acute T-cell mediated rejection (TCMR) requiring treatment with high dose methylprednisolone. Her transplant function continued to decline with a repeat biopsy showing severe TCMR requiring another course of methylprednisolone and further up-titration of tacrolimus. Her renal function continued to worsen with a biopsy at 17 weeks gestation showing no evidence of rejection. Her imaging demonstrated persistent hydronephrosis. A second nephrostomy was inserted and unfortunately, despite this, her renal function worsened further with her antenatal scan showing fetal growth restriction. She was started on haemodialysis via a tunnelled line at 22 weeks gestation.

At 27 weeks, she presented with a premature rupture of membranes, resulting in an emergency caesarean section. She received her final haemodialysis one-week post-partum with subsequent ongoing spontaneous improvement of graft function.

Discussion:
Managing pregnancy in women with transplants
Evaluating causes of renal graft dysfunction during pregnancy
Indications for dialysis in pregnancy
Importance of exploring psychological health in complex pregnancies
Managing immunosuppression in pregnancy

Incidence of Infection and its relationship with Ig G level and B cell subset post rituximab infusion in Sussex Kidney Unit in Royal Sussex and County Hospital in Brighton.

Dr Chin Lin Ng[1], Dr Farid Ghalli[1,2]
[1]Sussex Kidney Unit, University Hospitals Sussex NHS Trust, Brighton, UK, [2]2Brighton and Sussex Medical School, Brighton, UK

Background

Rituximab, a monoclonal antibody targeting CD20 antigen on B lymphocytes leading to B cell depletion. It showed good therapeutic outcome in remission induction and maintenance of glomerular diseases. Despite its beneficial therapeutic effect, its immunosuppressive effect raised a significant concern about the increased susceptibility to infection. Rituximab cause depletion of B cell subset and disruption of immunoglobulins production. Hence understanding the relation between B cell depletion, hypogammaglobulinemia and incidence of infection is important to patient care.

Aim

To evaluate the incidence of infection in patients who received Rituximab according to current protocol adopted by Sussex Kidney Unit (SKU) and compared it with the recommendation with EULAR guidelines. At the same time to understand the relation between B cell subset, Ig G level and infection.

Method

It is a retrospective study, included patients who received rituximab from 1 January 2020 to 31 December 2023 at SKU for the management of vasculitis and glomerular diseases. Data gathered from electronic renal patient database – CV5, and electronic patient system – Panda and GP records.

Result

Total number was 99 patients, 55 male (56%) and 44 female (44%). Majority of the patient were from age group > 50 years old. Total dose of rituximab delivered was 273 doses which equals 273g. The mean dose of rituximab delivered were 2.75g. The mean of Ig G level pre 1st dose of rituximab was 7.6 g/l. The mean of B cell subset pre 1st dose of rituximab was 12.75%. Among the 273 doses rituximab given 29 doses were associated with infection (10.6%). The commonest infection was Covid -19 infection. There were 5 infections required hospital admission, other infection episodes were treated as outpatient, and no death related to those infection. The mean of Ig G level pre infection was 7.3 g/l. The mean of B cell subset pre infection was 1.17%. There were 22 patients who received rituximab infusion with pre 1st dose Ig G level < 5 g/l, 3 only of them had infection.

Discussion

Rituximab is getting popular in the treatment of various glomerular diseases. The local guidelines in SKU for rituximab infusion, had lower threshold of giving rituximab according to Ig G level (> 3 g/l) compared to EULAR recommendation for rituximab use in rheumatoid arthritis, which is not recommending giving rituximab if Ig G < 5 g/l, due to infection risk. From our results, we found that only 3 patients among 22 patient who had pre rituximab Ig G < 5 g/l were associated with infection. Those infections were covid-19 infection and gastroenteritis. The mean Ig G level before infection for all other infection cases was 7.3 g/l. The mean B cell subset before infection for all infection related cases was 1.17%.

From our results the infection risk seemed most likely related to B cell subset level, rather than pre-infusion Ig G level. It was safe to give rituximab for patient who had pre - dose Ig G level >3g/l. Further larger study is needed to confirm the findings.

Exploring the adoption of thrice-weekly extended-hours in-centre nocturnal haemodialysis in routine clinical practice through the NightLife study: a qualitative content analysis

Dr Katherine L Hull[1,2], Dr Victoria Cluley[3], Dr Matthew PM Graham-Brown[1,2,4], Professor James O Burton[1,2,4]
[1]Department of Cardiovascular Sciences, University of Leicester, Leicester, UK, [2]John Walls Renal Unit, University Hospitals of Leicester NHS Trust, Leicester, UK, [3]School of Sociology and Social Policy, University of Nottingham, Nottingham, UK, [4]School of Sport, Exercise and Health Sciences, Loughborough University, Loughborough, UK

Introduction

In-centre nocturnal haemodialysis (INHD) is a complex intervention and little is known about the factors influencing implementation. NightLife (ISRCTN87042063) is a randomised controlled trial comparing the clinical and cost-effectiveness of INHD to usual care. This study aims to understand the facilitators and barriers to INHD adoption within the NightLife trial with a focus on the infrastructure, research environment and healthcare professional perspective.

Methods
This study was completed as a qualitative content analysis with an inductive approach. Content was derived from NightLife study site set-up electronic mail (e-mail) communications, meetings, reports, and semi-structured interviews. The analysis was completed using Braun and Clarke's Reflexive Thematic Analysis.

Results
Content was derived over a three-year period from three business cases, 80 e-mail discussions (each discussion containing one to 10 e-mails), one internal pilot report, 60 meeting minutes, and seven semi-structured interviews with members of the multidisciplinary team.

There were four key themes identified (summarised in Figure 1):
1. Inequity: differential access to healthcare resources specific to dialysis treatment.
2. Role of knowledge and evidence: the impact of known benefits of INHD and the need for more research.
3. Staff perception and experience: motivation to start and continue with INHD site set-up.
4. Resources, support and complexity: multiple logistical challenges to negotiate and the impact of support from clinical and research teams.

These four themes contributed to both the adoption and non-adoption of INHD as part of the NightLife study.

Conclusion
Site set-up and INHD service delivery have been the greatest challenges to NightLife study progression. Although each site appears to have unique challenges, this qualitative content analysis demonstrates commonality in the facilitators and barriers to dialysis service innovation. Utilising these findings will support site set-up of INHD within the NightLife study and would inform the development and evaluation of future complex interventions for the dialysis community.

Navigating the Complexities of Peritoneal Dialysis-Related Peritonitis (including non-tuberculosis mycobacterium) in Myasthenia Gravis

Mr Ishpal Rehal[1], Ms Rachna Bedi[1], Ms Rachel Dorsey[1], Mr Mark Gilchrist[1], Dr Alexander Aiken[1]
[1]Imperial College Healthcare NHS Trust, London, United Kingdom

Background: Myasthenia gravis (MG) can be exacerbated by a range of medication. This case report highlights successful implementation and treatment with several agents to treat non-tuberculosis mycobacterium (NTM) peritoneal dialysis (PD) related peritonitis.

Case: A 65-year-old male, with clinical deterioration of MG with marked dysphasia was admitted with pyrexia following an unwitnessed fall. His c-reactive protein (CRP) was 319mg/L with a white cell count (WCC) of $14.2x10^9$ and pyrexia (38°C). His PD fluid was observed to be cloudy and treated empirically with IV gentamicin and vancomycin. It was noted that gentamicin is contraindicated in MG and therapy switched to intraperitoneal vancomycin and ceftazidime.

The PD fluid was sent for analysis, which was initially reported as a culture negative peritonitis containing WCC of $2240x10^9$ with 80% polymorphonuclear leukocytes. The patient was initially managed as an outpatient, but presented with diarrhoea and worsening clinical features of peritonitis. The PD culture at this point grew Gram-positive beaded bacilli, further identified as Mycobacterium abscessus after a modified Ziehl-Neelsen stain.

At this point the PD catheter was removed under general anaesthesia and a haemodialysis (HD) line inserted. Post-operatively he went into respiratory depression.

He was subsequently transferred to intensive care due to concerns regarding a myasthenic crisis, characterised by a decreased forced vital capacity of 0.5L, likely precipitated by a combination of anaesthesia, infection and exposure to agents that lower the threshold for a myasthenic crisis.

The crisis improved after treatment with intravenous immunoglobulin and up titration of pyridostigmine. Multidisciplinary team discussions between infection, neurology and renal resulted in a plan to optimise NTM treatment with a triple therapy drug combination.

Optimised treatment for NTM would involve a macrolide as a core part of the treatment regimen. The patient had been established on meropenem 2g thrice weekly post HD, clofazimine 100mg twice daily, and intravenous tigecycline 50mg twice daily. As he became fit for discharge, and total treatment duration required was up to one year, an alternative was sought. Azithromycin was selected as the macrolide of choice for Mycobacterium abscessus. Moreover, azithromycin may have a slightly more favourable side effect profile, while less likely to exacerbate muscle weakness.

The patient was safely established on triple therapy with azithromycin, clofazimine and meropenem. He remains stable with reducing inflammatory markers on thrice weekly HD and has completed 9 weeks of treatment, with no worsening MG features or NTM infection.

Conclusion: This case highlights that though cautious prescribing of anti-infectives in MG patients is required, a multidisciplinary approach is essential for the exploration of treatment options and risk assessment specific to those options and the relevant patient factors.

Assessment of body composition in people with chronic kidney disease

Dr Ashveer Randhay[1,2], Professor Nicholas Selby[1,2], Professor Maarten Taal[1,2], Dr Mohamed Tarek Eldehni[1,2]
[1]Centre for Kidney Research and Innovation, Academic Unit for Translation Medical Sciences, University of Nottingham, Derby, United Kingdom, [2]Department of Renal Medicine, University Hospitals of Derby and Burton NHS Foundation Trust, Derby, United Kingdom

Introduction

Bioelectrical impedance analysis (BIA) is a non-invasive method of measuring body composition via weak electric current, that can calculate impedance (resistance and reactance) in the human body. Whole body phase angle (PhA) is an indicator of cellular health, with lower values observed in people with chronic kidney disease (CKD) previously. PhA is a marker of cell membrane integrity and permeability. The Multimorbidity and Sarcopenia Study in CKD (MaSS-CKD) aims to evaluate the relationship of BIA measurements (including PhA) with frailty and multimorbidity.

Methods

People with CKD stage 3,4 and 5 were recruited with age and gender matched control group (no history of kidney disease, with eGFR >60 ml/min) from a single centre. People who were pregnant, had neuromuscular conditions, or had cardiac implantable electronic devices were excluded. The InBody 770 Analyser to measure skeletal muscle mass, body fat, PhA and other body composition parameters using BIA. Frailty was assessed with Clinical Frailty Score (CFS) and Karnosfky Performance Scale. Multimorbidity was quantified with Cambridge Comorbidity Index. Kidney function was assessed at baseline with creatinine and cystatin C. T tests and ANOVA tests were used to assess the difference in means between different groups.

Results

83 participants were recruited to MaSS-CKD. The mean age of the cohort was 67.6 years, with 21 participants with eGFR >60 ml/min, 20 with CKD 3, 25 with CKD 4 and 17 with CKD 5. There were 42 male and 41 female participants.

Between the groups with different kidney function, there was no significant difference in body composition measures. However there was a correlation between eGFR (creatinine) and PhA ($r = 0.228$, $p=0.038$).

When comparing the groups with lower frailty scores (CFS 1-3) with higher CFS (CFS 4-6), the higher CFS group had higher BMI ($p=0.003$), higher body fat mass ($p=0.014$), and lower PhA ($p<0.001$). Similar results were noted when Karnosky Performance Scale was used as a tool to measure functional status (high score: 80-100 vs lower score: 50-70), notably for PhA ($p=0.002$).

Participants with polypharmacy (5 or more medications) and hyperpolypharmacy (10 or more medications) had lower mean PhA but ANOVA testing found this difference to not be significant ($p=0.17$). This was the same with multimorbidity scores – participants with Cambridge Comorbidity Index of less than 5 had higher mean PhA (4.66º) than with those with score of 5 or higher (4.34 º), but this was not statistically significant ($p=0.129$).

Discussion

BIA is a convenient and quick method to assess body composition measures. Our data suggest that PhA is associated with frailty and lower functional status, and this in turn may be useful to identify people at risk of sarcopenia, morbidity and mortality earlier in the CKD outpatient setting.

Exploring vascular access survival in the prevalent thrice-weekly extended-hours in-centre nocturnal haemodialysis population

Dr Katherine L Hull[1,2], Dr Ann Bugeja[3,4], Dr Matthew PM Graham-Brown[1,2,5], Ms Lindsay Reid[4], Mr Aiden J Smith[6], Dr Brigit C van Jaarsveld[7]
[1]Department of Cardiovascular Sciences, University of Leicester, Leicester, UK, [2]John Walls Renal Unit, University Hospitals of Leicester NHS Trust, Leicester, UK, [3]Ottawa Hospital, Ottawa, Canada, [4]University of Ottawa, Ottawa, Canada, [5]School of Sport, Exercise and Health Sciences, Loughborough University, Loughborough, UK, [6]Department of Population Health Sciences, University of Leicester, Leicester, UK, [7]Amsterdam Universitair Medische Centra, Amsterdam, Netherlands

Introduction
This study aims to explores vascular access complications in patients established on in-centre nocturnal haemodialysis (INHD) compared to those on conventional haemodialysis.

Methods
Retrospective cohort study with participants acting as their own control. Data were collected from: a UK renal unit, registered project number 12494, and a Canadian renal unit, registered project number 20230336-01H. Adults established on INHD (intervention period) preceded by a period of usual daytime in-centre haemodialysis (control period) and with an established vascular access were eligible. Data were collected between 01/01/2009 to 31/12/2021.

The primary outcome measure was a composite index of outcomes due to vascular access complication: hospitalisation, intervention, change in vascular access modality, change in dialysis modality and death. The primary composite outcome was evaluated by time-to-event rate in days using Kaplan-Meier plots. Statistical significance was accepted at a $P<0.05$.

Results
123 individuals were included (UK, n=66; Canada, n=57). The mean age was 51.2 years (±17.0), 69.1% (n=85) were male, 56.1% (n=69) were white. The primary outcome occurred in 26.8% (n=33) patients during the intervention period and 25.2% (n=31) patients during the control period. There was no significant difference in the proportion of patients experiencing the primary outcome (P=0.868). The 12-month vascular access survival probability was 69.8% (95%CI 61.0–78.6%) for the intervention period and 70.5% (95%CI 61.5-79.5%) for the control period (Figure 1).

During the intervention period, arteriovenous grafts were associated with lower vascular access survival ($P<0.001$), and during the control period, regular vitamin K antagonist use was associated with lower vascular access survival (P=0.002).

Conclusion
In line with the current literature, vascular access type and use of regular anticoagulation were associated with a reduced vascular access survival probability. There does not appear to be an increased risk to vascular access survival and safety for INHD compared to conventional haemodialysis.

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Retrospective analysis of six month survival in new haemodialysis starters in a single unit over eleven years

Dr Emma Morganti[1], Dr David Evans
[1]St Helier's Hospital, London, UK

Kidney Research UK estimate the prevalence of CKD3-5 in over 75-year-olds at 34%. Given the aging population, the number of older adults with CKD5 will increase. It is well-established that the survival benefit associated with haemodialysis initiation diminishes with increasing age, comorbidity, and frailty.

Only 10% of our centres CKD5 cohort are coded as choosing conservative management, compared to a London average of 18%. We therefore examined the characteristics of patients initiating haemodialysis and their 6-month survival.

Methods:

We retrospectively analysed data from patients initiating haemodialysis at a single centre over 11 years. For patients with multiple modality switches, the most recent start was considered. Survival at 180 days post-initiation was assessed, stratified by age and, when available, frailty score. A Chi-squared test for trends was performed in R to evaluate changes over time in the proportion of patients starting haemodialysis aged 80 or older.

Results:

A cohort of 4148 patients starting haemodialysis between 01/01/2013 and 31/12/2023 was analysed. Of these, 2351 were aged 65 or older, with 11 having a documented Clinical Frailty Score (CFS) within 90 days prior to, or after their first dialysis. CFS ranged from 2 (well) to 8 (very severely frail).

Patient age at initiation ranged from 18 to 101, with a mean of 65. At 180 days, 17% had died, including 32% of those aged 80 or older, and 49% of those aged 90 or older. Of the 11 patients with a CFS, 2 had died by 180 days, both with a score of 3 (managing well).

Over the 11-year period, there was a significant decrease in the proportion of patients starting dialysis aged 80 or older ($X^2(1)=53.29$, $p=2.88\times10^{-13}$). However, the proportion of patients over 80 surviving for 6 months from dialysis initiation did not change.

Conclusions:

A third of patients over 80 and half of those over 90 who start haemodialysis do not survive to 6 months. No correlation was found between frailty and survival.

This dataset is limited by inaccuracies in recording, as well as the low number of documented frailty scores and lack of co-morbidity data; both factors as important as age when discussing renal replacement therapy choice. We have not examined patients who chose peritoneal dialysis or conservative management.

A new renal frailty clinic has been established in our service, and should improve CFS completion and comprehensive geriatric assessment for appropriate patients. We plan to assess whether this leads to changes in the proportion of older patients starting haemodialysis or if frailty interventions improve 6-month survival.

The decrease in patients over 80 starting haemodialysis from 2013 to 2023, despite an aging population, suggests we may not be recording people choosing conservative management accurately. Until this cohort are accurately recorded and described, it will be impossible to ensure appropriate services for them are provided and funded.

Notably, 25% of incident haemodialysis patients in this cohort are over 80, emphasizing the need for better integration of geriatrics and nephrology in caring for our older patients.

Curious case of unexplained renal dysfunction in a young male: clinicopathological correlation

Dr Olena Mitrofanova[1]
[1]Dr Anna Paterson - histopathology consultant, Cambridge, United Kingdom, [2]Dr Sivaramakrishnan Ramanarayanan - nephrology consultant, Stevenage, United Kingdom, [3]Dr Shahid Chandna - consultant nephrologist, Stevenage, United Kingdom

A 42 year old gentleman was referred to the renal service by his general practitioner with declining renal function and an estimated GFR of 36 ml/min (Table 1 summarising creatinine and eGFR trends) .

5 years before that he presented to the different hospital and prior to presentation he had taken a prolonged course of Naproxen for acute onset traumatic back pain which eventually self-resolved. His previous medical issues included anxiety, migraines and recurrent lower back pain. Further anamnesis vitae discovered that he was under surveillance for kidney disease in childhood but never had a kidney biopsy or urological interventions and neither he had a formal diagnosis.
During this presentation it was decided that he is likely to be having NSAIDs related nephropathy and schistosome infection. He was later lost for follow up and referred to the renal service again in 2024. He had not received steroids or immunosuppression. At referral he was taking paracetamol as required and oral iron supplements. He denied taking herbal remedies. There was no family history of kidney disease as long as he is aware.

Clinically, at the current presentation, he was euvolemic and normotensive and systemic examination was unremarkable. A urine dip stick revealed trace blood and 1+ protein. His urine PCR was 29.4 and urine microscopy was bland. US kidneys showed no significant abnormality. A renal screen including autoimmune panel, vasculitis screen, serum protein electrophoresis, urine Bence Jones Protein were unremarkable and viral screen for Hepatitis B, Hepatitis C and HIV -1&2 were also negative. Serum uric acid was within range.

The differential diagnosis at this stage included drug induced interstitial nephritis (NSAID related), de novo presentation of autosomal dominant tubulointerstitial kidney disease, undiagnosed chronic reflux disease and/or pyelonephritis.

A kidney biopsy showed features consistent with a karyomegalic interstitial nephritis (figure 1). Immunohistochemistry for viral proteins was negative.

Discussion:

Karyomegalic interstitial nephritis (KIN) is clinically characterized by slowly progressive, chronic, tubulointerstitial nephritis, leading to end-stage renal disease before the age of 50 years, manifesting with mild proteinuria. Due to this benign presentation patients are often not biopsied and the prevalence may be underestimated. Karyomegaly has also been described in other organs including the liver, brain, lung, skin and GI tissues but with subtle clinical manifestations. Secondary causes include viral infections, alkylating agents, heavy metals and mycotoxins especially Ochratoxin A but there was no evidence of these in our patient. Genetic KIN is known to be associated with FAN 1 gene mutations, a genetic screen has therefore been undertaken and the result is pending.

Conclusion

Our case illustrates the importance of a kidney biopsy in patients with unexplained renal dysfunction even if the patient has confounding history such as NSAID intake to guide further focused investigations or appropriate prognostication.

Mapping National Variation in Haemodialysis Central Venous Catheter Management: A UK-Wide Survey

Dr Yimeng Zhang[1], Mrs Tamasin Stevenson[1], Saeed Ahmed[2], Dr Jyoti Baharani[1]
[1]University Hospitals Birmingham NHS Foundation Trust, , , [2]South Tyneside and Sunderland NHS Foundation Trust, ,

Introduction:
Both the UK Kidney Association (UKKA) and Kidney Disease Outcomes Quality Initiative (KDOQI) have limited guidance on the insertion and removal of HD central venous catheter (CVC) lines. Anecdotally the practice across the UK is not consistent with variations in clinical practice. While some Trusts maintain local guidelines, standardised national protocols are lacking. We aimed to evaluate current practices related to HD CVC insertion and removal within UK renal units to identify variations and highlight potential best practices.

Method:
An online questionnaire on the local protocol and practice surrounding temporary and tunnelled HD line insertions and removals was used. Information surveyed included individual renal centre's procedural protocols such as operator, assistant, location, personal protective equipment (PPE) and infection prevention practices. The online survey was finalised in December 2023 and disseminated nationally. A list of the 72 main renal units were obtained from the UK Kidney Association (UKKA). The number of responses per centre was not limited.

Results:
120 responses were obtained over the nine-month data collection period. 4 responses were excluded as they were from centres not considered as a 'main renal unit' by UKKA. Two units have since merged, and hence data from 71 renal units were utilised. Duplicated responses from the same renal centre were removed and responses from senior nephrologists prioritised.
42 (59%) of the centres analysed stated to have an interventional nephrology service. In 70 (99%) and 55 (77%) of centres, renal registrar and consultants insert temporary dialysis lines respectively. Temporary dialysis lines are most often removed by the ward nurses (69%) and the dialysis nurse (42%). Renal staff commonly insert both inpatient and outpatient right internal jugular and femoral tunnelled dialysis lines. The remainder of the lines are most frequently done by the interventional radiology team.
Among the centres, the median number of days which temporary femoral dialysis lines should remain in place is 7, and14 days for temporary internal jugular dialysis lines.
The majority of centres do not use heparin during the first dialysis following a temporary (59%) or tunnelled line (61%) insertion.
Most centres use a BiopatchTM or similar dressing over the exit sites of temporary (62%) and tunnelled lines (72%). 21 (30%) and 10 (14%) units do not routinely use any MSSA/ MRSA decolonisation following temporary and tunnelled line insertions respectively. In units which use decolonisation treatment, the most common treatments are mupirocin nasal ointment, octensian skin lotion and chlorhexidine wash.

Discussion:
Our results indicate substantial variability in the practices of inserting and removing of both temporary and tunnelled haemodialysis lines nationally. These findings underscore the need for nationally standardised, evidence-based guidelines to improve patient safety, reduce complications, and enhance overall care quality. Sharing these results within the renal community may inform future consensus building and policy development.

Does type of vascular access matters in 21st century when it comes to anaemia management ?

Dr. Dinesha Himali Sudusinghe[1], Dr. Aisha Farooque Shaikh[1], Ms. Jessa Banez[1], Dr. Khoanh Iien Nhuien[1], Mr. Chamika Sudusinghe[2], Prof Magdi Yaqoob[1]
[1]Department of Renal Medicine , Royal London Hospital, London, United Kingdom, [2]Siebel School of Computing and Data Science, University of Illinois Urbana-Champaign, Illinois, United States of America

Introduction

Anemia is a common complication in hemodialysis patients, with multifactorial etiology, including impaired erythropoietin production, iron deficiency, chronic inflammation and blood loss. While arteriovenous fistula (AVF) remains the preferred vascular access for hemodialysis patients, an increasing number of patients rely on tunneled hemodialysis catheters (THL) for various reasons. Given the potential role of chronic inflammation associated with THL which could be associated with erythropoietin resistance, we aim to evaluates the impact of vascular access types on haemoglobin(Hb) among chronic hemodialysis patients.

Methods

A retrospective study was conducted on 482 hemodialysis patients at a tertiary care center in the UK. Patients were categorized into three groups based on their vascular access type; THL, AVF, and polytetrafluoroethylene (PTFE) graft. Data on demographics (age, sex, ethnicity), clinical characteristics (diabetes, hypertension, ischemic heart disease), and laboratory parameters [Hb, C-reactive protein (CRP), ferritin, transferrin saturation (TSAT), red cell distribution width (RDW), parathyroid hormone (PTH), alkaline phosphatase (ALP), folate, vitamin B12] were analyzed. Additionally, dialysis vintage, urea reduction ratio (URR), equilibrated Kt/V (ekt/v), and erythropoietin-stimulating agent (ESA) dose were evaluated. Standard statistical methods were used to determine associations.

Results

Out of 482 patients, 226 (46.88%) had THL, 237 (49.17%) had AVF, and 19 (3.94%) had PTFE grafts. The average age of patients was 64.19 years (THL), 59.77 years (AVF), and 65.05 years (PTFE graft). Table 1 outlines demographic data and clinical parameters. Dialysis vintage was significantly longer in PTFE graft patients (9.59 years) compared to those with THL (5.88 years) and AVF (5.41 years). The mean Hb levels were 106.01 g/L (THL), 106.24 g/L (AVF), and 105.42 g/L (PTFE graft), with no statistically significant difference observed ($p=0.854$). Ferritin levels were highest in patients with PTFE grafts (958 µg/L) compared to THL (772.15 µg/L) and AVF (756 µg/L). Similarly, CRP was elevated in patients with PTFE grafts (11.79 mg/L) and AVF (11.27 mg/L) compared to THL (9.92 mg/L). Patients with PTFE grafts required the highest ESA doses (3 µg/kg/month) compared to those with THL (2.75 µg/kg/month) and AVF (2.58 µg/kg/month), despite having the lowest mean Hb levels. Multivariable regression analysis showed no significant association between vascular access type and hemoglobin levels after adjusting for age, sex, comorbidities, and biochemical parameters ($p>0.05$). However, CRP ($p <0.001$) and ferritin ($p=0.005$) were significant predictors of Hb levels.

Discussion

There was no significant difference in Hb in different vascular access types (THL, AVF, PTFE graft). We found CRP and ferritin were significantly associated with Hb level highlighting the importance of addressing chronic inflammation irrespective of vascular access type to optimize anemia management in hemodialysis patients.

Response to meningococcal vaccination and duration of protection in aHUS patients on Eculizumab

Ms Claire Turnbull[1], Ms Sarah Cunningham[1], Dr Patrick Walsh[1], Professor David Kavanagh[1], Ms Christine Maville[1]
[1]National Renal Complement Therapeutics Centre , Newcastle upon Tyne, United Kingdom

Introduction

Eculizumab and Ravulizumab have revolutionised the treatment of complement mediated aHUS. 5-year estimate of ESKD-free survival improved from 39.5% in the pre-Eculizumab era to 85.5% in eculizumab-treated patients. The primary concern with terminal complement blockade, however, is increased susceptibility to infection with encapsulated organisms, particularly Neisseria infections. For this reason, meningococcal vaccination is considered mandatory; however, serologic response is variable, and the efficacy of vaccination in the context of complement blockade is uncertain. Long-term antibiotic prophylaxis is therefore recommended for the duration of treatment and up to 4 months after withdrawal. In this study we set out to analyse the serological response to vaccination against meningococcal A, C , W, Y and B

Methods

All patients referred and diagnosed with complement mediated aHUS and treated with Eculizumab in the United Kingdom were vaccinated. The initial response to vaccination (A,C,W,Y) was assessed by serology at the UK Health Security Agency in Manchester. In the subgroup demonstrating suboptimal response, revaccination was undertaken and serology to measure response was undertaken. Annual surveillance monitoring of vaccination titre is undertaken and revaccination undertaken when response falls below threshold.

Results

407 patients were treated with Eculizumab and / or Ravulizumab for complement mediated aHUS. We describe the initial response to vaccine by serotype and the duration of vaccine response. We describe the response to revaccination. We demonstrate a poorer response to vaccination in transplant patients and in patients on dialysis. Despite vaccination and prophylactic antibiotics the incidence of meningococcal infection was 550 per 100 000 person years on patients on C5 inhibition, compared with a background national incidence of 1 per 100,000. We describe factors associated with breakthrough meningococcal infection.

Conclusion

The response to meningococcal vaccination is variable and is dependent on renal function and immunosuppression associated with renal transplantation. Measurement of sub optimal response to vaccination allows revaccination with subsequent response. Ongoing monitoring is required with a time depended reduction in ACWY titres. Despite adequate vaccination and prescription of prophylactic antibiotics there is a higher incidence of meningococcal infection in patients on C5 inhibition associated with non-compliance with antibiotics. There was no mortality associated with infection. Patients' awareness of the signs and symptoms of disease is key to prevent the morbidity and mortality associated with meningococcal infection .

Uncommon presentation of Pasteurella multocida peritonitis in a Peritoneal Dialysis patient: Diagnostic challenges and skin lesion complications

Dr Praveen Ande[1], Dr Adil Ahmed[1], Dr Devkrishna Revanth Urlam[1]
[1]East Suffolk and North Essex NHS Foundation Trust, Ipswich, United Kingdom

Introduction: Pasteurella multocida is a bacterium commonly found in animals, often causing skin and soft tissue infections in humans after animal bites or contact with infected animals. Rarely, it can lead to severe infections like meningitis, septicemia, or peritonitis. This case report describes a rare instance of Pasteurella multocida peritonitis in a patient with end-stage renal disease (ESRD) on peritoneal dialysis, complicated by an atypical skin lesion.

Case Presentation: A 39-year-old woman with ESRD secondary to polycystic kidney disease, on peritoneal dialysis for two years, presented with abdominal pain, fever, and vomiting. Examination revealed tachycardia, abdominal tenderness, and cloudy peritoneal dialysis (PD) fluid, which grew Pasteurella multocida and Staphylococcus epidermidis. Treated initially with intraperitoneal antibiotics, she re-presented three months later with painful, nodular skin lesions initially suspected to be calcinosis cutis. Despite denying an animal bite, she reported owning a cat. Pasteurella-related skin involvement was considered, and managed with Co-amoxiclav and topical mupirocin, which healed the skin lesions.

Conclusion: This case underscores the importance of prompt recognition of Pasteurella multocida infections in dialysis patients. Atypical presentations, such as associated skin lesions, require careful evaluation and thorough history-taking for effective diagnosis and treatment.

Implementation of an Acute Kidney Injury Tool (ROUNDUP); A Regional Quality Improvement Project

Dr Natalie Phare[1], Dr William Butterfield[1], Mrs Paula D'Souza[1], Dr Bryony Dayment[1], Dr Syed Ali[1], Dr Treasure Buhungiro[1], Doctor Naomi Edney[1], Mrs Alison Wilson[1], Mr Evan Davy[1]
[1]Royal Devon University Healthcare NHS Foundation Trust , Exeter, United Kingdom

Introduction

Acute kidney injury (AKI) has a high morbidity, mortality and cost burden for the NHS. The Nephwork National Audit and NCEPOD report highlighted AKI care was substandard with inadequate knowledge amongst medical staff leading to a lack of core investigations. This Regional Quality Improvement Project (QIP) aimed to improve inpatient investigation and management of AKI by implementing a care bundle/teaching tool called ROUNDUP (figure 1).

Method

QI methodology using PDSA cycle was applied to the project. An AKI champion was recruited in each acute hospital to deliver the project; they were provided with the ROUNDUP infographic, teaching presentation and data collection forms. The team at our site comprised a Renal Consultant, Renal Registrar, Resident Doctors and AKI Specialist Nurse.

Baseline level of care was established at one site within the region by reviewing 192 electronic records for patients with an AKI flag (stages 1-3) in March 2024. Core management steps for AKI completed within 24 hours were assessed (Figure 4).

To improve knowledge and confidence in AKI management teaching sessions were provided from April to September 2024; within this baseline AKI management and SEPSIS 6 knowledge was recorded using a questionnaire. ROUND UP tools were also made available to clinical staff with posters and an electronic note template.

Post intervention data was collected in October 2024 with 169 electronic patient records assessed for the same criteria.

Results

The pre-education questionnaire was completed by 200 resident doctors across the region. A good baseline knowledge of the sepsis 6 was demonstrated (Figure 2) with 78% knowing 5/6 points and only 11% knowing 0/1 point. In comparison 0% knew 6/7 points of AKI management and 63% knew only 0/1 point (Figure 3). Feedback for the ROUNDUP bundle was positive with an average score 4.39/5 for knowledge improvement.

Baseline level of care in March 2024 (Figure 4) showed 67% of patients had renal function checked the next day, 49% had a fluid assessment, 41% obstruction was considered, 36% had urine output requested by a clinician, medications were reviewed in 35% and only 27% had a urine dipstick.

The post intervention data (figure 4) clearly demonstrates improvement in all areas of management.

Discussion

This QI project has confirmed the previously documented inadequate care provided to patients with acute kidney injury and the lack of knowledge amongst medical staff. In contrast resident doctors have high levels of knowledge of sepsis 6 which supports the need for a similar national campaign for

AKI. ROUNDUP education has shown improvement in core investigations and management. ROUNDUP is now embedded in the induction, foundation and internal medical teaching programmes. Regional implementation ensures a transferrable message for resident doctors who often rotate. Our next steps will be to review data from other sites and assess the impact the improvement in management has had on metrics such as length of stay, mortality and re-admission rates. This project is re-producible nation-wide given the sharable infographic and teaching deck; if a unified management bundle was adopted nationally inpatient AKI care could be revolutionised.

The prevalence of Pruritus (itching) and the associated impact on aspects of life within a Haemodialysis population.

Mrs Susan De Waal
[1]Queen Elizabeth Hospital Birmingham , Birmingham , UK

Introduction

Pruritus is common amongst patients with end-stage renal disease. More than 40% of haemodialysis patients suffer from chronic pruritus, causing significant discomfort and affecting different aspects of life. It is associated with poor adherence, -clinical outcomes, therefore essential to recognize and treat promptly.

Pruritus can be difficult to manage as treatment options are limited. A stepwise management is recommended: optimising dialysis treatment, mineral bone disease management; use of antihistamines, emollients and other medications e.g. pregabalin. A more novel treatment option is now available, and renal consultants have commenced its use for a small number of patients with severe itching.

Given the high rate of underreporting clinicians and multi-disciplinary team play a vital role in detecting the presence of and encouraging discussions of itching.

The aim of this study is to ascertain the prevalence and severity of itching within a haemodialysis population, and to determine the associated impact on different aspects of life.

Method

The Worst Itching Intensity Numerical Rating Scale (WI-NRS) was used; a validated 11-point scale ranging from 0 (no itch) to 10 (worst imaginable itch). Patients were asked by the dietitian/haemodialysis nurse to rate the intensity of their worst itch in 24hour period. The dietitian re-assessed the patients one month later and utilised the multi-dimensional 5-D itch scale to further assess the degree of itching and disability.

Results

Of the 67 patients assessed, 55% (37 patients) reported itching. A total of 35% of patients reported a score of ≥4 classified as moderate to severe; of which 16% reported severe itch score of ≥7–10. Twenty percent reported mild itching.

One month later 68 patients were assessed. Results were consistent with 55% of patients reporting itching; total of 34% of patients a score ≥4; of which 19% reported severe itch. Twenty one percent mild itching.

34 patients had 5D assessment completed. For the severe itch patients, 5D scores were the highest with average score of 21; moderate and mild itch patients scored similar, 12 and 11 respectively. Most patients (76%) reported duration of itch <6hrs. Degree of itching reported as mild to moderate was the highest (71%); however 10 patients (29%) reported severe to unbearable. Most patients (22) report itching as unchanged (70%); 7 patients reporting itching getting worse. Sleep is affected in 44% of patients. Leisure, social life reported never/ rarely affected by itch (76%); housework never affected (74%); and for 91% of patients work are never affect or irrelevant.

The most affected areas of itch distribution reported were head, scalp, back, lower legs, forearms and upper arms.

Discussion

The incidence of itching in this population is high with more than half of patient population (55%) reporting itching, and 62% of these patients experiencing moderate to severe itching (1/3rd of total population). Patients with severe itch impacts most on aspects of life as confirmed with the highest 5D scores. Both patient groups reporting mild and moderate itching had similar 5D scores, therefore even mild itch can impact life significantly. The WI-NRS and 5D itch scale can be used to identify the presence of itching, its severity and impact on life in haemodialysis patients and enable clinicians to discuss and monitor itching, treatment options and efficacy.

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Pseudoporphyria associated with hemodialysis

MD Phd Ioana Bancu Dumitrescu[1], MD Guttorrm Guleng[2], MD Milena Chiodan[1], MD Christine Strømme Assnes[1], MD Astrid Eri Montsma[1]
[1]Nephrology Department Sykehuset Østfold Kalnes, Sarpsborg, Norway, [2]Østfold Hudlegeklinikk AS, Fredrikstad, Norway

Case presentation

We present the clinical case of a 83 years old patient, with chronic kidney disease probably secondary to nephroangiosclerosis, on haemodialysis since 2021.

In addition, the patient has a history of atrial fibrillation in treatment with eliquis and prostate cancer treated with radiotherapy in 2017.

The patient had a clinical presentation of about 2 months of evolution consisting of local erythema that gradually turned into blisters and finally into crusts, located only on the dorsal part of the hands. No associated pruritus, no other localisation, discrete pain.

These lesions suggested porphyria/pseudoporphyria. At the time of the dermatological check-up the patient had no blistering lesions that could be biopsied.

Urine and fecal porphyrins were normal and plasma levels were slightly elevated.

The evolution of the lesions was good only with the application of photoprotection measures.

Discussion

The presence of blistering lesions can be as high as 20% among patients on dialysis.

Dialysis is a risk factor for the development of both propyria and pseudoporphyria, two entities with similar clinical and histological features, which can be differentiated by profirin measurements in blood, urine and stool. Patients with chronic kidney disease may have increased blood profirins, due to reduced clearance, without clinical significance.

There is no effective treatment for pseudoporfiria, although numerous attempts have been reported.

We present the case of our patient as a reminder that, although the presence of skin lesions is common among patients with chronic kidney disease on dialysis, nevertheless porphyria and pseudoprophyria are rare entities that the clinician must keep in mind when making the differential diagnosis.

Dialysate leaks in peritoneal dialysis patients – a retrospective review

Dr Anandkumar Pari[1], Dr Zain Ul Abideen
[1]Birmingham Heartlands Hospital, Birmingham, United Kingdom

Peritoneal Dialysis (PD) is a cost-effective form of renal replacement therapy. Recent GIRFT suggests that at least 20% of patients should be on home renal replacement therapies. Home renal replacement therapies allow patients a better quality of life by allowing them to spend more time at home.

Infection-related complications, such as peritonitis and exit site infection, are common in PD patients. Non-infection-related complications, such as dialysate leaks, including pleuroperitoneal leaks and peri catheter leaks, are relatively uncommon but significantly impact technique survival. Dialysate leaks are a consequence of loss of peritoneal membrane integrity. Early leaks are classified as those occurring within 30 days of catheter insertion, and late leaks arise thereafter. The incidence of dialysate leaks in Peritoneal dialysis patients is somewhat more than 5% [1]

We performed a retrospective review to determine the incidence of dialysate leaks in our PD patient population. Given the low incidence of the condition, we looked at several years of data. We analysed the data of patients who underwent PD catheter insertion in our hospital between 1 January 2019 and 31 October 2024. Out of 320 patients, 19 (5.9%) developed dialysate leaks.

Of these 19 patients, 9 were male and 10 were female. Seven patients had pleural leaks, 8 had abdominal (inguinal-scrotal) leaks, and 4 had peri catheter leaks. All pleural and abdominal leaks were right-sided. Five patients had BMIs between 18.5 and 25, 9 between 25 to 30, and 5 had BMIs more than 30. Seven patients developed leaks within 1 month, 7 between 1 and 3 months, and five any time after 3 months. Of the seven dialysate leaks within 1 month of insertion, 5 were abdominal leaks, one was pleural, and 1 peri catheter leak. Of those who developed dialysate leaks nine patients had medical insertions, 4 had radiological insertions, and 6 had surgical insertions.

We did not find any statistically significant associations between dialysate leaks and BMI, previous abdominal surgery, type of PD catheter insertion, peritonitis or exit site infections, age, gender, or aetiology of kidney disease. 74% of the leaks happened within 3 months of starting dialysis.

Retrospective studies looking at dialysate leaks are relatively scarce, given the uncommon occurrence of these complications in PD. Nevertheless, our results depict a similar incidence of dialysate leaks. Given the occurrence of most leaks within 3 months of starting dialysis, an incremental PD approach may be more beneficial in preventing these complications as theoretically higher dwell volumes and dwell times increase intrabdominal pressure and theoretically increase the risk of dialysate leaks.

We are also investigating more variables in these patients, including starting PD prescriptions, dwell volumes, and changes to PD prescriptions, and hope to present these at the conference along with the above data.

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Trying to reduce unnecessary carbon emissions in incentre haemodialysis by reducing dialysate flow rate

Mrs Kathy Whyke, Dr Arjun Sabharwal, Mrs Katie Anderson, Mr Paul Spark, Mrs Leeanne Lockley, Stephanie Choo, Dr Veena Reddy
[1]Sheffield Teaching Hospitals NHS Trust, Sheffield, United Kingdom

Introduction

Our centre has collaborated with the Kidney Quality Improvement Partnership (KQIP) and the regional sustainable quality improvement project, Trying to Reduce UnNecessary Carbon in Haemodialysis (TRUNC-HD) to reduce the carbon footprint of in-centre haemodialysis. A key intervention in the project was reducing dialysate flow rate. This was trialled at a single satellite unit in our organisation.

It has been standard practice in our unit to use dialysate flow rate (Qd) of 800ml/min for a haemodialysis prescription, irrespective of the blood flow rate (Qb). Fresenius dialysis machines now have autoflow feature which sets Qd to 1.5 times Qb. A systematic review and meta-analysis (1) found increasing Qd to 500 to 800ml/min was associated with a small increase in spKt/V by 0.08 and urea reduction rate (URR) of 3.38. After reviewing spKt/V and URR data for patients dialysing at a single satellite unit the project team assessed the impact of reducing Qd from 800 to 500ml/min.

Methods

Mean URR and spKt/V over a period of 12 months was calculated for all patients dialysing at the unit. As these results were well above the recommended targets by UKKA, plans to trial reducing Qd to 500ml/min was agreed by senior haemodialysis clinicians and nursing teams. Patients received a letter communicating the rationale for the proposed intervention and were given opportunity to speak to clinicians prior to implementing the change.
In October 2024, Qb was reduced from 800 to 500ml/min for all patients dialysing at the satellite unit. Dialysis adequacy data (spKt/V and URR) was assessed each month.

Results

A total of 66 patients dialysed at the unit of which 2 patients were on twice weekly dialysis. In the 12 months prior to reducing Qd, mean spKT/V and URR was 1.44 and 0.728 respectively. Mean Qb was 382ml/min and mean dialysis duration was 216 minutes.

In the 2 months since reducing Qd, there has been no significant change in the dialysis adequacy data with a mean Kt/V of 1.52 and URR of 0.710. In addition, we observed that the smaller (760g) bicarbonate cartridges could be utilised instead of the larger (1100g) cartridges due to reduction in bicarbonate consumption in 8 of our patients. The estimated reduction in dialysate acid concentrate, as well as water and electricity saved to produce the dialysate is detailed in table 1.

Discussion

2 months following reduction of Qd from 800 to 500ml/min, there has been no detrimental impact on dialysis adequacy in patients dialysing at the satellite unit. The intervention is likely to result in a significant reduction in carbon emission, contributing both to environmental sustainability and cost effectiveness of delivering a dialysis service. Our next step is to analyse the results after a further 2 months and implement the intervention at other dialysis units in the trust.

(1) Y Iman et al. The impact of dialysate flow rate on haemodialysis adequacy: a systematic review and meta-analysis. Clinical Kidney Journal, Volume 17, Issue 7, July 2024,

Enhancing Workflow in the Renal Assessment Unit: A Quality Improvement Project

Dr Anandkumar Pari[1], Dr. Bhamini Gutty
[1]Birmingham Heartlands Hospital, Birmingham, United Kingdom

Introduction:
Our Renal Assessment Unit (RAU) provides an essential ambulatory service for patients requiring urgent renal evaluation and diagnostics, often avoiding unnecessary hospital admissions. Specialist units like RAU are pivotal in reducing emergency department pressures by facilitating prompt review by appropriate teams. This is especially important when resources are limited, and there is immense pressure on our healthcare system at the front door. Since its operation in June 2020, inconsistencies in referral practices have been observed, leading to communication breakdowns and potential errors in patient care. This Quality Improvement Project (QIP) aimed to optimize workflow and documentation processes within the RAU to enhance patient care, improve communication, and streamline referrals and follow-ups.
Methods:
This QIP utilized three cycles to evaluate and improve RAU practices. Retrospective data from electronic medical records focused on referral form usage, discharge summary completion, and follow-up documentation. Baseline data were collected from 12th–23rd April 2021. Key interventions included introducing a standardized referral form, mandatory discharge summaries, staff education sessions, and workflow standardization. Post-intervention data were collected in two subsequent cycles: 20th September–22nd October 2021 and 1st–31st January 2024, respectively.
Results:
In the first cycle, referral form usage was 55%, discharge summary completion was 41%, and follow-up documentation was 41%. Following interventions, the second cycle showed improvements: referral form usage increased to 79%, discharge summary completion to 60%, and follow-up documentation to 74%. However, the third cycle indicated regression, with referral form usage dropping to 41%, discharge summary completion to 20%, and follow-up documentation to 40%. These findings highlighted the need for sustained education and more robust monitoring systems to ensure consistent practice adherence.
Conclusions:
Standardization of workflows and staff education demonstrated initial positive impacts on RAU practices. However, these improvements were not sustained, highlighting the need for ongoing education and training, which has now been implemented. We are in the process of creating an online referral system to improve efficiency, workflow, and documentation. Future initiatives will focus on ongoing education and frequent assessments to deliver consistent, high-quality care and better patient experience.

Risk of intra-procedure hypotension with partial saline replacement for therapeutic plasma exchange – a single center experience

Dr Myint Thu Aye[1], Dr Mahzuz Karim[1], Ms Nicola Korn[1], Dr Htoo Mon Oo[1]
[1]Norfolk and Norwich University Hospitals NHS Foundation Trust, Norwich, United Kingdom

Introduction

The choice of replacement fluid for therapeutic plasma exchange is dependent on the clinical indication and other patient factors, but options include plasma, colloids, crystalloids, or a combination of these. The use of partial normal saline replacement carries a recognized risk of hypotension, and so we have historically avoided this in our centre, instead mainly using human albumin solution (HAS) and / or plasma. However, since 2024 there has been a UK national shortage of HAS, leading to NHS England placing restrictions on its use. We have therefore been using partial normal saline replacement on case-by-case basis.

Methods

A retrospective review was performed of all therapeutic plasma exchange sessions in our centre between 1st August and 30th November 2024, in which 0.9% saline was used as a partial replacement fluid. We examined the proportion of saline used, and the rates of intra-procedural hypotension.

Results

A total of 20 plasma exchange treatment sessions were performed using partial saline replacement in 4 patients (each receiving between 4 and 6 sessions). 15 sessions (in 3 patients) used 75% HAS and 25% saline replacement, and the remaining 5 sessions (in one patient) used 80% HAS and 20% saline. In 5 sessions, HAS was given first followed by saline; in the other 15, replacement was alternated.

In only 1 out of these 20 sessions did the patient experience a hypotensive episode. The indication for plasma exchange was steroid refractory Neuromyelitis Optica, with a replacement volume of 5L. This was the patient's third treatment. The patient was receiving 80% HAS and 20% saline (alternating), and systolic blood pressure fell to <90 mmHg, half way into the treatment, hence, the treatment was terminated prematurely. She tolerated well to subsequent treatments with same replacement fluid regime.

Discussion

Partial saline replacement reduces the cost of plasma exchange but can increase the risk of hypotension due to a reduction in oncotic pressure. A retrospective study by Mehraboon et al of 3624 plasma exchanges in 401 patients showed, in the all HAS group, 18 total hypotensive events were noted in 1169 procedures (1.5%), and 73 out of 2455 in the partial saline replacement (80%HAS/20% Saline) group (3%). suggesting a higher incidence of hypotension in patients receiving partial saline replacement. In our small series rates of hypotension were low, suggesting that this is a viable strategy provided that patients are chosen and monitored closely.

Enhancing Adherence to Prophylaxis and Pre-Administration Screening Protocols for Rituximab Infusions in the Renal Assessment Unit (RAU)

Dr Anandkumar Pari[1], Dr. Bhamini Gutty
[1]Birmingham Heartlands Hospital, Birmingham, United Kingdom

Background: Rituximab (RTX) is a chimeric monoclonal antibody that targets CD20 and depletes B cells. It is used in various glomerulonephritis conditions. Our local departmental protocol is strict pre-infusion blood tests such as HBsAg, anti HBc ab, HCV ab, VZV IgM/IgG, IGRA/ TB Ellispot/ Chest X-ray, to mitigate risks of adverse effects, including infections such as reactivation of tuberculosis and hepatitis[1],[2]. We prescribe antibiotic prophylaxis with co-trimoxazole or atovaquone to prevent the risk of pneumocystis Jirovecii pneumonia infection. Initial data analyses highlighted suboptimal adherence to pre-screening blood tests and PJP (Pneumocystis jirovecii pneumonia) prophylaxis protocols. This QIP aimed to check the adherence to our protocol.

Methods:
This QIP utilized three cycles to evaluate and improve adherence to prophylaxis and pre-administration screening protocols for Rituximab infusion in the RAU. A retrospective data analysis of patient records from the electronic medical record system between November 2018 and March 2024, focusing on adherence to pre-RTX blood testing and PJP prophylaxis protocols. Data were collected and analysed across three cycles—the first cycle data analyses between November 2018–December 2021. Collaborating with renal pharmacists, we developed and implemented a Rituximab infusion checklist. The second cycle data analyses (January 2021–June 2022) and the third cycle data analyses (September 2022–March 2024) were conducted to study the adherence to our protocol. Interventions: Educational initiatives emphasized protocol adherence, such as Pre-Rituximab screening blood tests and PJP prophylaxis. Implementation of the Rituximab checklist and laminated posters were displayed in the RAU to reinforce guidelines. Staff were encouraged to address pre-infusion checks and initiate PJP prophylaxis at the decision-making consultation, with clear documentation for general practitioners to continue care.

Results: The initial data analysis results on PJP prophylaxis with either Co-trimoxazole or Atovaquone showed 79%. The second data collection demonstrated improved adherence to PJP prophylaxis to 92%. However, by the third cycle of data collection, adherence rates declined to 68%. The initial data analysis results on Pre-Rituximab administration blood screening tests showed HBsAg (100%) anti-HBc ab (61%), HCV ab (100%), HIV ag/ab 86%, VZV IgG/IgM (71%), Chest Xray (93%). The second cycle data collection demonstrated significant improvement in adherence to HBsAg (100%), anti HBc ab 100%, HCV ab 100%, HIV ag/ab 100%, VZV 92%, and CXR 85%. In comparison, the third cycle data analysis results showed a slight drop in adherence, HBsAg 98% (98%), anti HBc ab (84%), HCV ab (96%), HIV ag/ab (96%), VZV IgM/ IgG (84%) Chest Xray (90%). This regression highlighted the need for ongoing education and better integration of protocols into RAU workflows.

Conclusions: Targeted simple interventions, which included implementing the pre-infusion checklist and educating the multidisciplinary team, including prescribers, nursing staff, and pharmacists, initially resulted in significant improvement. However, this was not sustained. This has highlighted the need for ongoing regular education and training, which have now been implemented. We plan to evaluate the adherence in protocol in January 2025.

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Hospitalisation after paediatric kidney transplant: a U.K. multicentre retrospective review.

Dr Chloe Searle, Dr Jennifer O'Gorman, Miss Winnie Magadi, Dr Alexander Hamilton, Dr Jelena Stefanovic, Dr Matthew Harmer, Dr Lucy Plumb

Background:
Paediatric kidney transplantation (PKT) care is provided across the UK at tertiary nephrology centres. While national outcomes for PKT patients are monitored, including graft survival and prognosis, there is limited understanding of healthcare utilisation during the critical first year post-transplant.

In this study we assessed:

• Healthcare utilisation during the 1st year post-transplant, focusing on emergency admissions, elective admissions and day-case attendances.
• How healthcare utilisation varied in terms of patient demographics including gender, age, underlying kidney pathology, donor type and reason for admission.
• Finally, we seek to identify any variability in healthcare utilisation between different ethnicities and socio-economic groups, based on the Index of Multiple Deprivation Score (IMD)

Methods:
Using UK Renal Registry data we performed a retrospective observational analysis on all patients up to the age of 25 years who received their first kidney transplant between 01/01/2012 and 31/12/2022 and were cared for in tertiary nephrology centres in England, Wales and Northern Ireland.

Results:
Preliminary data demonstrates that:
- All presentation types (elective, emergency and daycase) are higher in the female population.
- Elective admissions and daycase presentations are highest in those of a black ethnicity.
- Emergency admissions are highest in those of a mixed ethnicity, followed by black ethnicity.
- Patients in the IMD 5 quintile (least deprived) were the least likely to need any of the three presentation types, as a proportion of patients within that quintile.
- Those in the IMD1 quintile (most deprived) had the highest frequency of any of the three presentation types when compared to other quintiles.

Further analysis is in progress and we will present a more detailed reflection of this at the meeting.

Conclusions:
This study highlights significant variations in healthcare utilisation during the first year following PKT, with notable differences based on gender, ethnicity, and socio-economic factors. Understanding the reasons for re-hospitalisation in this population is crucial for identifying strategies to reduce hospital admissions, mitigate associated healthcare costs, and address healthcare inequities. Our findings suggest that targeted interventions may be needed to improve outcomes for patients, particularly those from disadvantaged socio-economic backgrounds.

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An exploration of patient, caregiver, and healthcare professional perspectives of supportive kidney care

Dr Louise Moore[1], Dr Anna Winterbottom[2,3], Professor Helen Hurst[4,5], Dr Hannah Young[6,7], Dr Jyoti Baharani[8,9], Dr Andrew Nixon[1,10]
[1]Department of Renal Medicine, Royal Preston Hospital, Lancashire Teaching Hospitals NHS Foundation Trust, Preston, UK, [2]Department of Renal Medicine, Leeds Teaching Hospitals NHS Foundation Trust, Leeds, UK, [3]University of Leeds, Leeds, UK, [4]Department of Nephrology, Northern Care Alliance NHS Foundation Trust, Salford, UK, [5]University of Salford, Salford, UK, [6]Leicester Diabetes Centre, University Hospitals of Leicester NHS Trust, Leicester, UK, [7]Diabetes Research Centre, University of Leicester, Leicester, UK, [8]Renal Unit, Birmingham Heartlands Hospital, University Hospitals Birmingham NHS Foundation Trust, Birmingham, UK, [9]University of Birmingham, Birmingham, UK, [10]Division of Cardiovascular Sciences, University of Manchester, Manchester, UK

Introduction

Supportive kidney care aims to improve the health-related quality of life for patients with established Chronic Kidney Disease (CKD) at any age, and can be provided together with therapies intended to prolong life, such as dialysis. Supportive care addresses physical, emotional, social, spiritual and informational needs. It is associated with an improvement in symptoms and fewer hospitalisations over time.

However, there is significant variation in supportive care provision within the United Kingdom (UK) with little evidence of patient and provider perceptions of models of supportive care. The Renal Service Transformation Programme outlines important principles for delivering supportive kidney care. To support the application of these principles in UK kidney units, this study aims to:

1. Establish patient, caregiver and healthcare professional understandings of supportive care.
2. Describe patient, caregiver and healthcare professional experiences of supportive care.
3. Define ‘good’ supportive care from the perspectives of patients, caregivers and healthcare professionals.
4. Describe barriers and facilitators to providing supportive care in UK kidney units.

Methods

Stakeholder discussion groups will be held across three UK kidney units. There will be five discussion groups: 2 patient groups, 1 caregiver group and 2 healthcare professional groups. Discussion group meetings will be 60-90 minutes and facilitated by two research team members. Two representatives from each stakeholder group (10 people) will be invited to a final workshop, where attendees will be asked to use discussion group findings to describe good supportive care and consider how kidney services should provide supportive care. Discussion group and workshop transcripts will be analysed using framework analysis. Researchers will independently code transcriptions and generate initial codes guided by pre-existing questions/topics identified by the team. Researchers will meet to discuss and refine initial codes, and search for and review themes before defining and labelling them. NVivo (QSR International) software will be used to manage the qualitative data and to facilitate the analysis.

Results

The first patient discussion group was held in November 2024. Recruitment is underway for the remaining 4 discussion groups, which are anticipated to take place in January and February 2025, followed thereafter by the workshop. Results will be available at UK Kidney Week.

Discussion

This study will clarify how patients, caregivers and healthcare professionals understand and experience supportive kidney care, highlighting what enables or hinders its delivery. By gathering

diverse stakeholder perspectives, we aim to identify the core elements of ‘good’ supportive care and ensure that future services align with patient and caregiver priorities.

Our findings will build on existing guidance and support the Renal Service Transformation Programme’s principles. Involving stakeholders in a collaborative workshop will help turn insights into practical strategies that enhance care quality, reduce unnecessary hospitalisations, and promote consistent, patient-centred supportive kidney care across UK units.

A systematic review exploring frailty assessment and clinical outcomes in older people living with ANCA associated vasculitis

Dr Louise Moore[1], Dr Patricio Abarca Sanhueza[2], Dr Lauren Floyd[1,3], Dr Adam Morris[1], Dr Mohamed Elsayed[1], Dr Ajay Dhaygude[1,3], Dr Andrew Nixon[1,3]
[1]Lancashire Teaching Hospitals NHS Foundation Trust, Preston, UK, [2]Blackpool Teaching Hospitals NHS Foundation Trust, Blackpool, UK, [3]Division of Cardiovascular Sciences, University of Manchester, Manchester, UK

Introduction

ANCA associated vasculitis (AAV) typically affects older people. With advancing age there is an increased risk of living with multimorbidity and frailty. Frailty is associated with adverse clinical outcomes such as an increased risk of hospitalisation and mortality. However, there has been limited research to assess how to measure frailty in AAV and its subsequent impact on clinical outcomes.

It is also important to consider the impact on those older people living with AAV by assessing what clinical outcomes have been measured. The International Consortium for Health Outcomes Measurement (ICHOM) have developed a list of patient-centred outcome measures for older people, which are considered to matter most to older people.

This systematic literature review aims to:

1. Identify if frailty is measured in older people (60 years and above) living with AAV, to consider how frailty is measured and its impact on associated clinical outcomes.
2. Identify the clinical outcomes assessed in older people (60 years and above) living with AAV, with comparison to ICHOM outcomes.

Methods

The population, intervention, comparison and outcomes (PICO) framework was used to structure the research question. The protocol was registered and published in PROSPERO, with later amendments performed. Four electronic databases (PubMed, Medline, Cochrane and Web of Science) were searched on 23rd September 2024 for studies in older adults (60 years and above) with AAV that assess clinical outcomes including frailty. Screening and quality assessment is being performed independently by two reviewers. Study quality is being assessed using an adapted Newcastle-Ottawa Scale. Data extraction will be performed and charted to ICHOM outcomes, followed by a narrative synthesis of the results.

Results

Analysis is being undertaken and results are expected to be available at UK Kidney Week.

Discussion

This systematic review will assess if and how frailty is measured in older people living with AAV and identify associated clinical outcomes. More broadly, it will determine if clinical outcomes that matter to older people have been measured in older people living with AAV. This work will identify gaps in the evidence base and inform future prospective studies of AAV populations that address unanswered questions relating to frailty and outcomes prioritised by older people.

Revascularisation outcomes for patients with renal artery stenosis – single centre experience

Dr Iona Watson[1], Dr Jasmine Plummer[1], Dr Omaisa Mushtaq[1], Dr David Makanjuola[1], Dr Bhrigu Sood[1]
[1]Department of Nephrology, St Helier Hospital, Carshalton, United Kingdom

Introduction

Renovascular disease is an important cause of renal impairment, hypertension and cardiovascular morbidity. Following the ASTRAL study, there is debate about the usefulness of angioplasties in renal artery stenosis. Other studies have shown benefit in patients who had strong indications for revascularisation, such as flash pulmonary oedema, declining renal function, and uncontrolled hypertension. Our aim was to review the outcomes in patients who had undergone renal angioplasties in our Centre. The key outcomes were: change in renal function, change in blood pressure and change in number of anti-hypertensives.

Methods

We performed a retrospective analysis on patients who were revascularized between 2011 and 2021 at our Centre. Data were obtained from clinic records and included: demographic information, reason for intervention, kidney function trend 1 year pre and post intervention, blood pressure trend 1 year pre and post intervention and number of anti-hypertensive agents.
Patients with fibromuscular dysplasia, and patients with renal transplant artery stenosis were excluded. Our outcome measures were change in eGFR, inverse creatinine slope (1/creatinine), change in mean arterial pressure (MAP) and change in number of anti-hypertensives. The data were analysed using paired t-tests.

Results

94 patients underwent angioplasty between 2011 and 2021. Of these, 54 met the inclusion criteria and had analysable data. Please see the attached demographic information table.
A significant difference was found in the rate of change of eGFR before vs after intervention (Mean = -5.4, SD = 16.3) vs (Mean = 1.4, SD = 11.8), $p = 0.002$).
A non-significant difference was noted in the creatinine slope (Mean = -0.00009, SD = 0.003) vs (Mean = 0.005, SD = 0.02), $p = 0.139$).
A significant difference was found between MAP before vs after ((M = 113, SD = 24.9) vs (Mean = 94.3 ,SD = 18.6), $p < 0.001$).
A significant difference was noted between number of anti-hypertensives before vs after (Mean = 3.3 ,SD = 1) and after (Mean = 2.5 ,SD = 1.1), $p < 0.001$).

Conclusion

In our study population we found a significant reduction in the number of anti-hypertensive medications and MAP, and a stabilisation of the change of eGFR. In patients with clear indications (pulmonary oedema, reduction in renal function, asymmetric kidneys and uncontrolled hypertension), revascularisation was beneficial.

Tacrolimus Associated Neutropenia Post-Transplant – case series

Mr Paul Clarke[1], Ms Maria Panaite[1], Mrs Andrea Devaney[1]
[1]Oxford University Hospitals NHS Foundation Trust, Oxford, United Kingdom

Introduction

Tacrolimus is the cornerstone immunosuppressant used to prevent graft rejection in solid organ transplantation. Tacrolimus associated neutropenia is rarely observed in solid organ transplant recipients, despite being a recognised adverse event. Furthermore, it is poorly described in the literature. De Rycke et al described 3 cases of tacrolimus induced neutropenia occurring in the early post-transplantation period (<3 months)(1). We reviewed 5 patient cases from a single transplant centre, where tacrolimus was deemed to be the most probable cause for later onset neutropenia (absolute neutrophil count, ANC<1.8 x109/L), with a median onset time of 1297 days post-transplantation, [range: 125-4367 days]. In all cases leucopenia causing medicines were reviewed and other viral and malignancy causes for the neutropenia were excluded before considering a therapeutic switch to ciclosporin (target trough level: 50-150ng/ml).

Key Findings

In all 5 cases stopping medications which can contribute to leucopenia and excluding other common causes did not resolve the neutropenia. 4 of 5 patients were referred to haematology for review of their persistent neutropenia. These patients subsequently underwent a bone marrow biopsy, which revealed no abnormalities and described drug related myeloid maturation suppression. However, in all 5 cases after discontinuation of tacrolimus and switching to ciclosporin there was resolution in neutropenia. It was interesting to note that, after a therapeutic switch to ciclosporin, the mean time to resolution of neutropenia (ANC >1.8) was 65 days [range: 40-88 days]. Reassuringly, renal function remained stable following the switch to ciclosporin in all 5 patients and there was no graft rejection in either of the patients. Some patients, where indicated, went on to restart anti-proliferative immunosuppressants.

Conclusion

These 5 post-transplant cases of probable tacrolimus associated neutropenia, from a single centre over an 11-year period, suggests this adverse event, whilst still uncommon, should be given credence when all other causes of neutropenia have been excluded. Whilst the exact mechanisms of tacrolimus related neutropenia have not been identified, these cases suggest that the association exists and can only be resolved by replacing immunosuppressive treatment. An increased awareness of tacrolimus associated neutropenia may lead to more prompt discontinuation, thereby reducing the risk of infection and other consequences of overimmunosuppression.

CardioRenal Metabolic Diseases: Using a personalised care approach to improve well-being and reduce future risk of advanced kidney disease.

Dr Rakesh Dattani[1], Ms Rashida Rahman[2], Dr Madhvi Joshi[5], Dr Payal Haria[2], Dr Ashok Kelshiker[5], Dr Hannah Bundock[5], Mrs Joana Teles[1], Mr Shaban Siddik[4], Dr Jaymin Shah[6], Dr Sonia Wijesundare[7], Dr Sudesna Chatterjee[7], Mr Mohammed Hussein[2], Mr Ollie Teh[2], Ms Maria Cracknell[7], Ms Aanchal Bahl[6], Dr Radhika Balu, Ms Rashida Rahman[2], Dr Kuldhir Johal[3], Dr Andrew Frankel
[1]Imperial College NHS Trust, London, United Kingdom, [2]Sphere Primary Care Network, Harrow, United Kingdom, [3]NWL ICB, , United Kingdom, [4]Healthsense Primary Care Network, Harrow, United Kingdom, [5]Harrow Network Partners Ltd, Harrow, United Kingdom, [6]London North West University Healthcare NHS Trust, London, United Kingdom, [7]Central London Community Health Trust, London, United Kingdom

Introduction:
Cardiorenal metabolic (CRM) diseases, including obesity, diabetes, dyslipidaemia, and cardiovascular disease, are significant contributors to chronic kidney disease (CKD) and cardiovascular morbidity. These interconnected conditions, linked by systemic inflammation and insulin resistance, require early intervention to halt CKD progression and reduce premature cardiovascular deaths. Developed as part of the Renal 3Ps project, the Harrow CRM project aims to empower people with early features of CRM disease through education, personalised care, and multidisciplinary collaboration. By targeting these high-risk populations, the initiative seeks to improve outcomes through personalised lifestyle modifications and optimised clinical care pathways.

Methods:
Data was collected using EMIS templates to track metrics such as BMI, blood pressure, and albumin-creatinine ratio (uACR) for individuals with CRM diseases. A design-thinking approach, involving a series of workshops, engaged multidisciplinary teams from primary, community, and secondary care to identify challenges, define patient cohorts, and design interventions. The pathway emphasises early identification, clinical parameter monitoring, patient education and engagement, lifestyle interventions, medical optimisation and regular follow-up.

Results:
The Harrow population demonstrated a high prevalence of obesity (24.2%) and diabetes (11.9%). Individuals with BMI >30kg/m² or diabetes frequently exhibited multimorbidity with CKD, hypertension, and CVD. Two cohorts were identified for targeted risk reduction:

1. High-risk individuals with high BMI, diabetes, and one additional condition (CVD or CKD).
2. Intermediate-risk individuals with high BMI, hypertension, and one additional condition.

The developed CRM pathway includes systematic patient identification via clinical searches and NHS health checks, review and optimisation of clinical management, and attendance at two sessions. At these sessions there is a focus on a developing a personalised health approach to ensure personalised care plans, prioritised goal setting, medicines optimisation, and referrals to supportive services, including weight management and mental health support. To date, over 200 individuals have attended their first CRM clinic appointment, with a 3 month follow up appointment scheduled to assess progress and further optimise individual knowledge regarding CRM disease, locally available support services and the importance of medication adherence. Initial evaluation of patient feedback has allowed for reiterations of the CRM pathway, with feedback helping identify the positive impact a personalised health approach can have on an individual's engagement with their health and wellbeing, with many reporting an increased drive to start changing relevant health behaviours.

Discussion:
The Harrow CRM project highlights the importance of early and targeted interventions in mitigating the burden of CRM diseases. Multidisciplinary collaboration and patient activation are pivotal to

achieving sustainable health improvements. Over two years from 2024, the initiative aims to personalise healthcare, empowering individuals to be at the forefront of their individual management and halt the progression of CRM diseases towards advanced CKD and CVD.

Conclusion:
The Harrow CRM project demonstrates a scalable model for reducing the impact of CRM diseases through proactive, patient-centred approaches. Further evaluation and expansion will be essential to sustaining the benefits and improving outcomes in individuals with CRM disease.

Hypereosinophilia in patients on haemodialysis – Review of characteristics of patients from a single centre.

Dr Aishwarya Mohan[1], Dr Abdisalan Abdullahi[1], Dr Otoabasi UKO[1], Dr Omaisa Mushtaq[1], Dr Okpela Iseko[1], Dr David Makanjuola[1]
[1]Epsom and St Helier University Hospitals NHS Trust, Carshalton, England

Introduction:

Hypereosinophilia is characterized by an absolute eosinophil count of ≥1.5 x 10^9/L and is known to cause end-organ dysfunction.

The prevalence of hypereosinophilia in the hemodialysis population has been reported to be as high as 5% in some studies and can be associated with haemodynamic instability. The cause is unclear, but reactions to the dialyser, dialysis fluids and type of dialysis access are potential factors. In other cases, it is related to atopic, or underlying haematological conditions.

We reviewed our cohort of haemodialysis patients to determine the characteristics and outcomes of these patients.

Methods:

Our study included data from 2010-2024. We searched the renal database for patients with an eosinophil count ≥1.5 x 10^9/L on 3 occasions over a span of at least 4 weeks. Data were analysed using Microsoft Excel.

Results:

Data were available on 189 patients on haemodialysis who met the criteria for inclusion.

We divided patients into 3 groups based on their peak eosinophil count. Group A - patients with eosinophilia > 1.5 -5 x 10^9/L, Group B - patients with eosinophilia 5.1-10 x 10^9/L, Group C - patients with eosinophilia > 10 x 10^9/L.

Diagnostic evaluation for the hypereosinophilia varied based on the peak eosinophil levels and symptomatology. Some patients underwent bone marrow biopsy and cytogenetic studies, but no cause for hypereosinophilia was found. Some patients underwent testing for Strongyloides infection, and this was only positive in one patient. Testing for other parasitic infections was negative for all the patients in which it was performed. Most of these patients did not have vasculitis and were ANCA negative. No patient was diagnosed to have eosinophilic granulomatosis with polyangiitis (EGPA).

Tables 1 and 2 show the relevant demographic and clinical characteristics.

Conclusions:

189 patients in our cohort developed eosinophilia. The peak eosinophil counts were mainly between 1.5-5 x 10^9/L, but a proportion had much higher levels. The clinical characteristics did not differ between the 3 groups however. In each of the groups, the predominant vascular access at the time of diagnosis was a tunnelled dialysis catheter, and this raises the question as to whether having a line might predispose to hypereosinophilia, but we do not have a control group to be able to validate this.

The time from initiation of haemodialysis to onset of hypereosinophilia ranged from 0 days to 14 years, but the median time was 322 days, and this argues against the hypereosinophilia being largely due to de-novo exposure to the components of the dialysis circuit.

The mortality rate did not appear to be different between the three groups, suggesting that very high eosinophil counts may not necessarily portend a worse outcome.

Acute tubulointerstitial nephritis due to Semaglutide - a case report

Dr Michael Habeeb[1], Dr Anika Tasneem[1], Mr Alessandro Regano[1], Dr Daniel Adlington[1]
[1]Royal Sussex County Hospital, Brighton, United Kingdom

Introduction

Glucagon-like peptide-1 receptor (GLP-1) agonists, such as Semaglutide, improve glycemic control in patients with type 2 diabetes. They have recently been approved by NICE for weight loss. There is growing evidence that they reduce the risk of major cardiovascular events and chronic kidney disease progression in patients with type 2 diabetes (1).

Gastrointestinal upset is the most common side effect of GLP-1 agonists and can lead to a pre-renal acute kidney injury (2). Acute tubulointerstitial nephritis (TIN) is a much rarer adverse event and has been described in several case reports (3).

We report a case of biopsy-proven TIN attributed to Semaglutide use.

Case Report

A 65-year-old gentleman with a background of type 2 diabetes, hypertension and obesity (BMI 38) presented with symptoms of lethargy and fluid retention 8 months after starting Semaglutide for diabetes control and weight loss.

Blood tests revealed stage 3 acute kidney injury with a serum creatinine of 550 umol/L. His baseline creatine was 74 umol/L a month before commencing Semaglutide. Urinalysis showed 1+ protein with no blood or leucocytes. The urine protein-creatinine ratio was 33.5 mg/mmol. Immunology, virology, and myeloma screens were all negative or normal. A renal tract ultrasound showed normal kidney size, shape, and echotexture.

An initial attempt at kidney biopsy was unsuccessful due to the patient's body habitus. At that stage, the interventional radiology team discharged the patient with a plan for an urgent re-attempt of a kidney biopsy. He was subsequently readmitted with worsening uraemic symptoms and a decline in kidney function, with a creatinine of 637 umol/L and urea of 29 mol/L. He received two sessions of hemodialysis, and after optimisation, a further attempt at kidney biopsy was successfully performed.

The biopsy yielded two renal cortex and medulla cores, with 33 morphologically normal glomeruli. There was florid and active tubulointerstitial nephritis, with frequent non-caseating granulomas. Some established background tubular atrophy was present. Immunoperoxidase staining was negative. There were no signs of diabetic nephropathy.

No other clinical features suggest an alternate cause for a granulomatous TIN, so the impression was of a drug-induced TIN. The only new medication initiated in the past 9 months was Semaglutide, and the established tubular atrophy on the biopsy was felt to correlate well with the duration of

treatment. Semaglutide was stopped, and he commenced on high-dose prednisolone. No further haemodialysis was required, and there.

There was a rapid improvement in kidney function, with his most recent creatinine measuring 264 umol/L (eGFR of 21) one month after starting steroids.

Discussion

GLP-1 agonist-induced TIN has been described several times, but to our knowledge, this is the first case report in the UK. GLP-1 agonists are frequently used for type 2 diabetes and weight loss, and this is likely to increase significantly in the future. This case illustrates a rare but significant adverse event associated with their use.

The Eastern Network Kidney Inflammatory Disease (ENKID) MDT at 18 Months: Advancing Access to High-Cost Drugs, Clinical Trials, and Complex Case Management in renal autoimmunity.

Dr Lucy Francis[1], Olivia Kanka[1], Dr Lisa Willcocks[1], Dr Ondrej Suchanek[1], Professor David Thomas[1], Dr Kevin Loudon[1], Mrs Clare Morlidge[2], Dr Praveen Jeevaratnam[2], Dr Barbara Thompson[2], Professor David Jayne[1], Dr Rona Smith[1], Dr Rachel B Jones[1]
[1]Cambridge University Hospitals NHS Trust, Cambridge, UK, [2]East and North Hertfordshire NHS Trust, Stevenage, UK

Introduction

Glomerulonephritis (GN) accounts for 20%–25% of chronic kidney disease (CKD) and is a major cause of end-stage kidney disease (ESKD) globally. Regional networks and multidisciplinary team meetings (MDTs) play a critical role in standardising care, ensuring equitable access to expertise, clinical trials and high-cost drugs (HCDs). MDTs facilitate collaborative decision-making, enabling optimised immunosuppression and better management of complexity to enhance patient outcomes and cost-effectiveness.

In rheumatology, for the last decade, specialised commissioning has defined the need for rare autoimmune disease networks. A recent 1,420 patient ANCA vasculitis (AAV) study also found MDT access was associated with reduction in emergency hospitalisations and serious infections. In December 2024 a UK parliamentary review recommended managing rare autoimmune rheumatic diseases through network infrastructure. A parallel rare renal autoimmune network structure has not been defined, despite the recent wave of approvals of new immunosuppressants for renal autoimmune diseases heightening the need for specialist advice.

A 2024 UK GN service survey highlighted gaps: 59% (43/73) of nephrologists lacked access to regional MDTs and HCDs such as belimumab (42%, 24/57) and voclosporin (36%, 26/57) for SLE/lupus nephritis. To address this need in the East of England (EOE), the Eastern Network Kidney Inflammatory Disease MDT (ENKID) was launched in May 2023.

Methods

ENKID is coordinated at Addenbrooke's Hospital, Cambridge, with partial funding from the EOE renal network. A centralised database records referrals, cacase discussions and treatment decisions during fortnightly regional MDTs for primary GN, lupus nephritis, renal vasculitis, and complex multisystem diseases. A quorate MDT requires four GN specialist consultants, a renal pharmacist, specialist nurse and co-ordination support.

Results

Over 18 months, 187 discussions have been conducted for 164 patients over 33 ENKID meetings. 15 renal centres have participated. Meetings averaged 15 attendees from 7 centres per meeting (66% consultants).

11% of discussions were for clinical complexity, 46.7% for HCD usage and 42.3% for both. Clinical trial eligibility was an additional referral reason in 8.2%.

Of 164 patients, 33.5% (n=55) had AAV, 19.5% (n=32) membranous nephropathy, 18.9% IgA nephropathy (n=31),14.6% lupus nephritis (n=24), 5.5% minimal change disease/FSGS (n=9), 4.9% had other rare diseases (n=8) such as fibrillary GN, polyarteritis nodosa, cryoglobulinemia and 3.0% were cases of diagnostic uncertainty.

A HCD (avacopan, belimumab, voclosporin, TR budesonide, rituximab) was endorsed in 75% of patient cases presented and alternatives recommended in 25%. Treatment duration is reviewed according to NICE guidelines (avacopan at 1 year, TR budesonide at 9 months). Response to specific treatments and disease subsets is captured and analysis will be presented alongside heatmaps of patient and clinician distribution to report on equity of access.

Discussion

This new regional MDT highlights the integral role of regional MDTs in improving care for patients with complex and rare kidney diseases.

High attendance and case load underscore the unmet need for this specialist service aligning with the UK government's mandate for rare autoimmune disease. We describe integration of this novel network within the existing renal regional network structure in the EOE, providing governance, training, access to HCDs and patient outcome reporting.

Iron kinetics and factors associated with anaemia in haemodialysis patients

Dr. Khoanh Iien Nhuien[1], Ms Jessa Banez[1], Dr. Aisha Farooque Shaikh[1], Mr Chamika Sudusinghe[2], Dr. Dinesha Sudusinghe[1], Prof Magdi Yaqoob[1]
[1]Department of Renal Medicine , Royal London Hospital , London, United Kingdom, [2]Siebel School of Computing and Data Science, University of Illinois Urbana-Champaign, US. , Illinos, United State of America

Introduction
Anaemia is a common complication in chronic haemodialysis(HD) patients. It is multifactorial in origin and primarily due to reduced erythropoietin production, absolute or functional iron deficiency, impaired bone marrow responsiveness to erythropoietin, or blood loss. Key management strategies include the administration of erythropoiesis-stimulating agents(ESA), hypoxia-inducible factor prolyl hydroxylase (HIF-PH) inhibitors, and iron. Despite following a proactive intravenous (IV) iron infusion protocol, a significant proportion of our HD patients remain anaemic. This study aimed to assess iron kinetics and identify factors associated with lower haemoglobin (Hb) levels in chronic HD patients.
Methods
In this retrospective, cross-sectional study, we evaluated 1,100 chronic HD patients from 14 satellite units. All units followed a proactive IV iron therapy protocol adapted from the PIVOTAL trial. Data on demographics (age, sex, ethnicity), clinical characteristics (primary kidney disease, diabetes, hypertension, ischemic heart disease), dialysis-related parameters (dialysis vintage, vascular access, urea reduction ratio [URR], and eKt/V), and laboratory values (Hb, TSAT, ferritin, red cell distribution width (RDW), C-reactive protein (CRP), parathyroid hormone (PTH), alkaline phosphatase (ALP), vitamin B12, and folate were collected. Following initial analysis, patients were grouped based on Hb levels into below standard (<100 g/L), within standard (100–120 g/L), and above standard (>120 g/L). Standard statistical analyses were performed to identify factors associated with Hb levels.
Results
Among the 1,100 chronic haemodialysis patients, 58.5% were male, with a mean age of 61 years. The most common primary renal diseases were diabetic nephropathy and hypertensive nephropathy, with comorbidities of diabetes (45%), hypertension (65%), and ischaemic heart disease (30%). Figure 1 shows the distribution of Hb levels, TSAT, ferritin, and RDW across 14 satellite dialysis units. 35.32% of patients had Hb < 100 g/L, 52.42% had Hb within the range of 100–120 g/L, and 12.25% had Hb > 120 g/L. Mean ferritin, TSAT, and RDW were 772 µg/L, 28%, and 16%, respectively.
Patients with Hb < 100 g/L required ESA doses of 3.31 kg/month and had CRP levels of 16.06 mg/L, while ferritin showed a decreasing trend with increasing Hb levels, 837.62 µg/L for Hb < 100 g/L, 754.62 µg/L for Hb 100–120 g/L, and 692.19 µg/L for Hb > 120 g/L. TSAT and RDW values were consistent across groups. Multivariable regression identified ESA dose per kg per month ($p < 0.001$), CRP ($p < 0.001$), and ferritin ($p = 0.001$) as significant predictors of Hb levels.
Discussion
Despite proactive anaemia management, a significant proportion of haemodialysis patients remain below target Hb levels. Raised ferritin, increased RDW, and consistently low TSAT (mean 28%) suggest functional iron deficiency, where iron stores are adequate but poorly utilized. Elevated CRP and higher ESA requirements in patients with Hb < 100 g/L indicate chronic inflammation and ESA resistance, likely mediated by elevated hepcidin. Treatment strategies to improve inflammation, optimize iron utilization, and tailor ESA therapy are essential. The use of HIF-PH inhibitors which has shown to improve iron homeostasis and its anti-inflammatory mechanism could improve anaemia outcomes in selected patients in this population.

Serum miRNAs as Novel Biomarkers and Modulators of Rapidly Progressing Chronic Kidney Disease in Patients with Diabetes

Mr Callum Mcdowall[1], Dr Stephen White[1,2], Dr Fiona Wilkinson[1], Dr James Pritchett[1], Dr Ivona Baricevic-Jones[3], Proffesor Philip Kalra[3], Dr Liliana Shalamanova[1]
[1]Department of Life Sciences, Manchester Metropolitan University, Manchester, United Kingdom, [2]Faculty of Medical Sciences, Newcastle University, Newcastle, United Kingdom, [3]Donal O'Donoghue Renal Research Centre, Salford, Salford, United Kingdom

Background and Aims:

Chronic kidney disease (CKD) is common in diabetes, occurring in around 40% of patients. Without treatment, CKD can lead to end stage renal disease (ESRD), which requires costly dialysis and transplantation. The current methods for rapid identification of patients prone to accelerated CKD progression are limited, as they are based on measuring estimated glomerular filtration rate (eGFR) over prolonged periods of time, as well as albuminuria, which can be variably reliable. Therefore, there is a clinical need for novel biomarkers that can predict rapid CKD progression (defined as annual eGFR decrease ≥ 3ml/min/1.73m2/year) earlier.
The aim of this study was to determine whether serum microRNAs (miRs) can be used as biomarkers to predict the speed of CKD progression in diabetes patients, and to identify potential pathophysiological mechanisms that underpin rapid CKD progression.

Methods:
Next Generation Sequencing (NGS) established the miR profiles in sera from patients with type 2 diabetes classed with either slow or fast progressing CKD by their eGFR (n=17; obtained from the Salford Kidney Study sample collection). Several significantly dysregulated miRs were identified in fast progressing patients, and their relative levels were validated by quantitative PCR in a larger cohort of stable and fast progressing CKD patients (n=70).
Bioinformatic analysis using miR databases and Ingenuity Pathway Analysis platform identified several miR target genes of interest within a select miR panel. The 3'UTR of those target genes were synthesised and cloned into a pmiRGlo dual luciferase target miR expression vector (Promega, UK), and then transfected into HEK293 human kidney cells.
Stable luciferase-expressing clones exposed to miR mimics have been used to establish the interaction between the 3'UTR of the target genes and the miR panel.

Results:
Six miRs were significantly upregulated in the serum of fast-progressing patients, and correlated with demographic and clinical parameters.
A backwards stepwise regression model created using the miR expression levels and the patient demographics, successfully stratified patients as fast progressors with an accuracy of 86%.
Bioinformatic analysis identified three possible gene targets of the six upregulated miRs. Those genes could potentially affect the progression speed of CKD as they are key regulators of inflammation, cell proliferation and regeneration.
Luciferase reporter vector constructs containing the miR binding regions of the three genes will be co-transfected in HEK293 cells with miR mimics to determine their effect on the expression of the target genes. These novel results will be available within the next 2 months and will be reported at UKKW 2025.

Conclusion:
A biomarker panel of 6 miRs has been identified and validated by qPCR, a model created using the panel has a predictive power of between 86% for fast progression of CKD. A panel of miRs that could accurately predict progression speed of CKD patients could lead to faster and earlier diagnosis of

patients to enable better treatment. It is hoped that identification of the effects of these dysregulated miRs on their gene targets might eventually enable development of novel therapeutic treatments to halt the progression of CKD to ESRD.

Retention of Dietetic Information in Patients with CKD stage 4/5: The Impact of Group Education Sessions

Mrs tadala kolawole, mr Richard Florence, Mrs Gladys Laurente, Ms Meagan Stoby-Fields, Dr Luxme Nadarajah, Dr Sajeda Youssouf, Prof Magdi Yaqoob

Introduction:
Chronic Kidney Disease (CKD) management necessitates effective patient education to promote dietary adherence. In order to self-manage, patients need to demonstrate the ability to obtain, process/retain and apply the information given in order to slow decline in their kidney function. Pilot data from our unit shows that over 60% of patients with CKD 4/5 have limited or marginal health literacy. There is also evidence that cognitive impairment is higher in advanced CKD.
We designed a study to evaluate the retention of dietetic information in CKD patients following a single structured group education session, paying specific attention to the diverse health literacy needs of this patient population.
Intervention:
New patients referred into the Advanced Kidney Care Clinic (AKCC) who accepted a face to face group dietary education session delivered by a dietitian were invited to participate. Data was collected from small group teaching sessions between June 2022 and January 2023. The session covered topics such as salt, phosphorus, potassium, additives, fruit and vegetable intake, protein intake, and potassium lowering cooking methods. Pre and post questionnaires were administered on the day of the session, with a third identical questionnaire completed over the phone 3 months later.
Results:
A total of 19 patients took part in face to face group education delivered in English. The group comprised of 85% male and 15% female with a mean age of 65 years. Ethnicity: 47% white, 26% black, 21% Asian, and 5% other. 16% reported English as not their primary language. Baseline knowledge showed patients answering 43% of the questions asked correctly. Questions answered correctly post questionnaire increased to 78% and when contacted 3 months later was 66%. Using a paired T test, the improvement in knowledge after group education was statistically significant with $p<0.0001$. Further analysis of knowledge demonstrated a decline in knowledge after 3 months, but crucially, there was still a significant improvement as compared with baseline ($p <0.001$).
Discussion:
There was a moderate level of dietetic knowledge at baseline, related to dietary sodium restriction and general tenets of a healthy diet. The group education session resulted in a statistically significant improvement in knowledge of potassium, phosphate and protein, that decreased at three months but was sustained when compared with baseline knowledge.
Baseline cognition was not assessed in our cohort, therefore it is difficult to understand whether dietetic knowledge can be improved further after education, or the reasons for the decline at 3 months.
In addition, it is important to note that the participants were not representative of our AKCC population as a whole, with a higher proportion of male participants and more native English speakers. However, we believe this illustrates the necessity for us to continue to offer a variety of options for how our patients receive their information; via group sessions in English or Bengali (face to face on online), as individual face to face or telephone appointments with native speakers for those who don’t speak English, or an interpreter where this is not possible.
Further work to evaluate cognition, and the impact of social deprivation on renal dietetic management is ongoing in our unit

MODY probability in a kidney transplant waiting list population

Dr Adrian McGrath, Dr Parizad Avari, Jo Reed, Dr Andrew Frankel, Dr Michelle Willicombe
[1]Imperial College Healthcare NHS Trust, London, United Kingdom

Introduction

MODY (Maturity Onset Diabetes of the Young) is a group of 13 monogenic disorders of beta-cell dysfunction which makes up 1-2% of cases of diabetes. Over 80% of cases in the UK are thought to be undiagnosed. The contribution of MODY to diabetic CKD has been understudied and referrals for genetic testing show significant inter-regional variability. Health inequity is a key driver of this variability, with data for MODY prevalence in the non-white population particularly sparse. Diagnosing MODY carries significant benefit for patients and affected family members, owing to implications for glycaemic strategies, pancreas-kidney transplantation and cascade testing. This study sought to identify patients with diabetes eligible for genetic testing within a kidney transplant waiting list.

Methods

This single centre study involved data collection from electronic patient records for patients on the local kidney transplant waiting list. NHS England National Genomic Test Directory testing criteria were used to identify patients eligible for genetic testing for MODY. These criteria include the use of the Exeter diabetes MODY Calculator tool, which provides a MODY probability score. This score is based on age at diagnosis, sex, current diabetic medication, time to insulin treatment, BMI, Hba1c, current age, family history, ethnicity and MODY syndromic features such as the presence of renal cysts and deafness.

Results

962 patients on the local kidney transplant waiting list were screened, of whom 82.5% were non-white. 346 (35.9%) patients were found to have a diabetes diagnosis. 20 of these patients were identified who met nationally agreed MODY genetic screening criteria, amounting to 5.7% of those with a diabetes diagnosis. 18 of these 20 patients were non-white. Those meeting the threshold for MODY genetic screening were equally likely to have been labelled with type 1 and type 2 diabetes.

Discussion

This study identified a sizeable cohort of patients eligible for MODY genetic testing within a kidney transplant waiting list population. Despite often being associated with a milder phenotype in medical literature when compared to other forms of diabetes, MODY encompasses a heterogeneous group of disorders with significant variability in rates of complications such as CKD between types. Our findings suggest that the contribution of MODY versus other types of diabetes towards advanced CKD may be greater than previously thought. It also provides valuable evidence towards prevalence in a largely non-white advanced CKD cohort. Current MODY genetic screening criteria is limited in its precision by a scarcity of data on prevalence in the UK's non-white population and so expanding genetic testing of these patients will allow better refinement of these criteria.
Patients who meet the threshold for genetic testing can proceed via central funding from NHS England. Making a MODY diagnosis permits more precise glycaemic control strategies, which is vital in slowing CKD progression as well as providing the opportunity for cascade testing. A MODY diagnosis also confers added benefit to SPK (Simultaneous Pancreas Kidney) transplantation, mechanistically through its inherent beta-cell dysfunction and as evidenced by data showing high rates of insulin independence after SPK transplantation.

Spatial transcriptomics in paediatric kidney transplant rejection

Dr. Barian Mohidin[1,2], Dr. Girishkumar Kumaran[3], Dr. Matthew Bottomley[3], Dr Daniyal Jafree[1], Dr Karen Price[1], Professor David Long[1], Prof. Stephen Marks[1,2,4]
[1]UCL Great Ormond Street Institute of Child Health, London, UK, [2]NIHR Great Ormond Street Hospital Biomedical Research Centre, London, UK, [3]Chinese Academy of Medical Sciences Oxford Institute, Oxford, UK, [4]Department of Paediatric Nephrology, Great Ormond Street Hospital for Children NHS Foundation Trust, London, UK

Introduction

Unfortunately, many children suffer kidney failure for a variety of reasons. Kidney transplantation provides the best outcomes for these children. However, kidney transplants are a finite resource and are unlikely to last beyond 25 years, meaning most children will need re-transplanting in the future. We aim to identify biomarkers that may help diagnose transplant rejection earlier and with greater sensitivity than monitoring serum creatinine.

Methods

First, we de-paraffinised and then stained five kidney transplant biopsy samples with allograft dysfunction with haematoxylin and eosin (H&E). We then used a proteinase digestion protocol to remove barriers that will impede RNA collection. The degraded samples were then stained using immunofluorescence techniques with a variety of antigen markers. The samples were then imaged using confocal microscopy.

Results

We confirmed a diagnosis of acute T-cell-mediated rejection (aTMR) with the H&E stain and identified areas of borderline rejection (BR) in the same sample. We optimised our immunofluorescence staining protocol and decided on using CD45, Pan-CK, and Syto-13 stains for identifying leucocytes, tubular epithelial cells, and nuclei, respectively. We are now able to segment areas around leucocyte involvement in BR and aTMR.

Discussion

We now plan on measuring RNA transcripts in areas of BR and comparing it with areas of aTMR using a spatial transcriptomics approach with Bruker GeoMx technology.

Improving the Safety for Renal-Impaired Patients on Dalteparin: A Quality Improvement Initiative

Miss Dana Qiqieh[1]
[1]Addenbrooke's Hospital, CAMBRIDGE, United Kingdom

Low molecular weight heparins (LMWHs) are widely used anticoagulants with favourable pharmacokinetics, generally eliminating the need for routine monitoring. However, in specific populations, such as patients with renal impairment, monitoring is crucial following dose adjustments to avoid toxicity, or suboptimal efficacy. Despite established institution guidelines advocating for anti-Xa monitoring in patients receiving renal-adjusted doses of dalteparin, there remains a significant gap between these recommendations and
actual clinical practice. Addressing this gap is essential for enhancing the safety and efficacy of dalteparin in a vulnerable patient population that is both pro-thrombotic and at an elevated haemorrhage risk.

A 2023-2024 retrospective audit at our institution assessed 67 adult patients on renal treatment-dose dalteparin over two months. The audit found that 56.5% of patients did not have an initial anti-Xa level measured after treatment initiation. Among those who did, only 37.8% had their levels measured at the appropriate time, three days after consecutive therapy. This lack of compliance was linked to a significant
incidence of bleeding events, including upper gastrointestinal bleeding, which affected one-third of the patients. Notably, these bleeding incidents were not reported via DATIX.

In May 2024, a quality improvement project (QIP) was launched to enhance the safety of renal-impaired patients on LMWH. The first intervention cycle aimed at increasing awareness improved anti-Xa monitoring compliance to 50% from a baseline median of 31.85%. The second cycle focused on enhancing pharmacy led interventions, maintaining a 50% compliance rate and achieving a 60% improvement in anti-Xa levels measured at the correct time. To sustain these improvements, stakeholders have endorsed adjustments to the electronic prescribing system for LMWH in renal patients, with plans for broader implementation across the Trust. This ongoing effort underscores the challenges of translating guidelines into practice and the need for systemic changes to ensure patient safety.

Predicting the 2- and 5-year risk of kidney failure for patients with chronic kidney disease in the United Kingdom: external validation and update of the Kidney Failure Risk Equation

Mr Steven Wambua[1], Dr Mohamed Mhereeg[2], Mr Ayodele Opatola[2], Dr Shamil Haroon[1], Prof Sinead Brophy[2], Prof Richard D Riley[1], Prof Krishnarajah Nirantharakumar[1], Dr Kym I E Snell[1], Dr Nicola Adderley[1], Dr Anthony Fenton[1]
[1]University of Birmingham, Birmingham, United Kingdom, [2]Swansea University, Swansea, United Kingdom

Introduction
The Kidney Failure Risk Equation (KFRE) is used to estimate the risk of kidney failure in patients with chronic kidney disease (CKD). The NICE CKD guideline recommends using KFRE for risk counselling and to trigger referrals to secondary care. However, the KFRE version in NICE was developed in a single UK region, did not include ethnicity data, used complete case analysis, and lacked external validation. This study aimed to assess the performance of this KFRE version in a large primary care dataset of CKD patients, including ethnic minority groups (a key research recommendation by NICE), update the model where necessary, and compare the performance of the original and updated versions in external validation.
Methods
We conducted a population-based retrospective cohort study using the CPRD Aurum primary care database. Adults with CKD (two eGFRs <60 ml/min/1.73m² at least 3 months apart) and no prior history of kidney failure, were included. Patients were followed from the date of the second eGFR until the earliest of kidney failure, death, transfer from practice, or the last date of practice collection. We evaluated the performance of KFRE and updated the model by re-estimating the baseline hazard and predictor effects (age, sex, urine ACR, and eGFR) (Model 1), and considered additional predictors (diabetes and ethnicity) (Model 2). Models were developed using cause-specific Cox proportional hazard regression for time to kidney failure, accounting for the competing risk of death. We evaluated and compared the models at 2 and 5 years in CPRD GOLD and SAIL, using measures of discrimination, calibration, and clinical utility, including by ethnic subgroup.
Results
Among 1,859,287 CKD patients, 6,299 (0.3%) and 13,546 (0.7%) experienced kidney failure within 2 and 5 years, respectively. Performance measures (discrimination statistics and calibration slope) of KFRE and the updated models in external validation are summarised in Table 1 and the calibration plots are presented in Figure 1. KFRE demonstrated excellent discrimination at 2-and 5-years, but systematically overestimated risk. Updating the baseline hazard and predictor effects (Model 1) improved discrimination at 2- and 5-years. Adding diabetes and ethnicity (Model 2) further improved discrimination. Furthermore, Model 1 demonstrated better calibration, which was improved further in Model 2 in CPRD GOLD, although was slightly reduced in SAIL.
Discussion
The KFRE version recommended by NICE systematically overestimates the risk of kidney failure in primary care CKD patients. Our updated models, particularly those including diabetes and ethnicity, improve discrimination and calibration. The updated models also demonstrate higher clinical utility than the original KFRE. Current guidelines could consider incorporating diabetes into risk assessments for kidney failure and further evaluate the impact of including ethnicity in the risk prediction model to avoid reinforcing existing biases.

Using Acoustic Emission technology to understand the composition of kidney stones: Translating Geological Principles into Clinical Applications

Miss Aleksandra Agata Berezowska[1], Mr Kevin Cao[1], Dr Jack Eckstein[2], Miss May Bisharat[1], Professor David Long[3], Mr Navroop Johal[3], Professor Michael Carpenter[2], Professor Ekhard Salje[2]
[1]Department of Paediatric Surgery,Cambridge University Hospitals, , Cambridge, UK, [2]Department of Earth Sciences, University of Cambridge, Cambridge, UK, [3]UCL Great Ormond Street Institute of Child Health, London, UK

INTRODUCTION

Kidney stones are a growing global health burden, with a reported incidence of 106 million cases in 2021 [1]. In the UK alone, treatment costs range from £190–324 million annually [2]. Despite advancements in medical treatments, recurrence rates remain high, with 26% of first-time stone formers developing new stones within five years. This highlights the urgent need for effective, minimally invasive treatments that reduce recurrence.

Historically, percutaneous chemolysis—chemical irrigation to dissolve stones—was used to treat bulky stone burdens but fell out of favor due to prolonged treatment times. The rise of endourological techniques, such as laser lithotripsy, allows for day-case procedures but often leaves behind residual fragments that serve as a nidus for recurrence. Combining endoscopic surgery with chemolysis, where stone remnants are exposed to dissolution agents during and after surgery, offers a promising approach to reduce recurrence rates.

Acoustic emission (AE) science is an emerging analytical technique that captures waveforms emitted during stone breakdown. Previous studies under mechanical compression identified two distinct fragmentation processes: ‘mild,’ involving low-energy cleavage, and ‘wild,’ representing intense, high-energy acoustic avalanches [3]. However, the fragmentation mechanisms under laser energy or chemical dissolution remain poorly understood. Advancing this knowledge is critical to developing novel treatment strategies for kidney stone management.

This study aimed to investigate the acoustic fragmentation patterns of human kidney stones ex vivo under laser energy and chemolytic agents. We evaluated a range of potential dissolution agents alongside laser lithotripsy to establish proof-of-concept for a combined treatment approach.

METHODS

Kidney stone samples were obtained from endourological procedures (percutaneous lithotripsy). Samples were treated respectively with solutions of: 10mM potassium citrate, 10 mM Ethylenediaminetetraacetic acid (EDTA), 10 mM sodium hexamethaphosphate and 0.9% saline. All concentrations were matched for osmolality. A selection of stone samples was immersed in the solution for 8 hours and analysed in the frequency range of 25–850 kHz, with a time resolution of 50 ns and a threshold of 23.6 dB. The emitted acoustic emissions were transferred to the AMSY-6 measurement system (Vallen-Systeme GmbH).

RESULTS

Acoustic emission spectrometry readings were obtained, demonstrating varying fragmentation patterns and crossover energies. Energy jerks of up to 10,000 KJ were registered. In chemolytic experiments mild events were more prevalent compared to avalanches. Laser fragmentation of the stone samples results in an opposing pattern, characterized by predominantly wild events. These findings suggest the potential for a synergistic or additive effect when combining both approaches in stone destruction surgery.

CONCLUSIONS

Acoustic emission spectrometry is a viable and highly sensitive method of investigating kidney stones ex vivo to aid development of novel, adjuvant therapies. This work provides evidence of the effectiveness of chemical dissolution therapies and the tailoring of laser fragmentation energy levels and frequency for human kidney stone treatment. This research provides the basis for studying adjuvant techniques to improve the treatment provided for and care of adults and children with kidney stone disease.

Word Count: 478

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Association of serum potassium levels with clinical outcomes and healthcare resource use in a large UK population – an observational study

Dr James O. Burton[1], Mr Ben Heywood[2], Dr Jil Billy Mamza[3], Mr Ewan Laws[4], Ms Maha Serhal[4], Dr He Gao[3], Dr Geraldine Chiu[3], Dr Paul R. Kalra[5], Dr Albert Power[6]
[1]Dept of Cardiovascular Sciences, University of Leicester, Leicester, United Kingdom, [2]Human Data Sciences, Cardiff, United Kingdom, [3]AstraZeneca, Medical and Scientific Affairs, Biopharmaceuticals Medical, London, United Kingdom, [4]AstraZeneca, Market Access, Biopharmaceuticals Medical, London, United Kingdom, [5]Portsmouth Hospitals University NHS Trust, Portsmouth, United Kingdom, [6]North Bristol NHS Foundation Trust, Southmead Hospital, Bristol, United Kingdom

Introduction
Abnormalities of serum potassium (SK) are associated with adverse clinical outcomes, yet evidence from large UK populations is limited. Understanding how SK levels influence morbidity, mortality, and healthcare resource use (HCRU) in different patient subgroups; particularly those with chronic kidney disease (CKD) and heart failure (HF) is crucial. This observational study aimed to examine the relationship between serum potassium levels and clinical outcomes including associated HCRU in UK clinical setting.

Methods
Using a retrospective observational study design, data from the Clinical Practice Research Datalink (CPRD) with linkage to Hospital Episode Statistics (HES) and Office for National Statistics (ONS) death registration data were used. The study period was between January 2004 and March 2021 and the study population included adult patients with: a coded diagnosis of hyperkalaemia; or prescription of a potassium binder; or having a serum potassium measurement between January 2016 and January 2019. Analyses explored serum potassium levels ranging from <3.5 mmol/L to ≥6.0 mmol/L through 0.5 mmol/L increments with serum potassium 4.5-5.0 mmol/L as the reference. Associations with clinical outcomes were estimated using incidence rate ratios (IRRs) with Generalised Estimating Equation model accounting for repeated measures over time and adjusting for baseline characteristics.

Results
A total of 4,789,407 people met the inclusion criteria with a mean age of 57.5 years; 55% were male. Average serum potassium level was 4.4 mmol/L (standard deviation: 0.4). At baseline across 7 different serum potassium strata, 8.4–41.3% had CKD, 3.5–18.1% had HF, with the highest prevalences in the SK≥6.0 mmol/L group and lowest in the SK 4.0–4.5 mmol/L group; 27.4–56.5% of the patients were prescribed renin–angiotensin–aldosterone system inhibitor (Table 1). In a U-shaped relationship, both low and high serum potassium levels were associated with higher rates of major adverse cardiovascular events (MACE), all-cause mortality, and all-cause hospital admissions compared with reference (SK 4.5–5.0 mmol/L). IRRs indicated a stepwise increase in risk at serum potassium extremes, consistent across CKD and/or HF subgroups (Figure 1). Compared with the reference group, patients with SK≥6.0 mmol/L and SK 5.5–6.0 mmol/L had 3.2 fold (95% confidence interval (CI): [2.7, 3.8]) and 1.7 fold (95% CI: [1.5, 1.8]) increased incidence of all-cause mortality, respectively in patients with HF alone. In a similar U-shape curve, the highest mean total resource use per person-year (PPY) was in the SK ≥6.0 mmol/L group (33.1 primary care contacts, 103.3 prescriptions, 7.2 and 10.1 inpatient stays and outpatient appointments, respectively), who also had the longest length of stay (mean 40.4 days PPY) and overall costs (£25,996 PPY).

Discussion
In this large UK cohort, hypo- and hyperkalaemia were associated with worse clinical outcomes and greater healthcare resource use. These findings underscore the importance of maintaining serum potassium within optimal ranges, informing future strategies to improve outcomes in CKD, heart failure, and broader patient populations.

Prediction of Recovery of Kidney Function in Severe ANCA-Associated Glomerulonephritis

Dr Megan Leffek[1], Kavita Gulati[2], Gavin Chapman[3], Jennifer Scott[4], Emma Barrett[1], Nina Brown[5], Li Jin Ooi[1], Tony Lopez[6], Lauren Floyd[7], Ajay Prabhakar Dhaygude[7], Kate Stevens[8], Mark Alan Little[4], Neeraj Dhaun[3], Stephen Paul McAdoo[2], Silke R. Brix[1]
[1]University of Manchester, Manchester, United Kingdom , [2]Imperial College London, London, United Kingdom , [3]University of Edinburgh, Edinburgh, United Kingdom, [4]University of Dublin Trinity College , Dublin, Ireland, [5]Salford Royal Hospital , Salford, United Kingdom, [6]Imperial College Renal and Transplant Centre , London, United Kingdom , [7]Royal Preston Hospital , Preston, United Kingdom , [8]University of Glasgow , Glasgow, United Kingdom

BACKGROUND

Anti-neutrophil cytoplasmic antibody (ANCA) vasculitis often involves the kidneys and kidney failure confers significant morbidity and mortality. An improved prognostication of kidney function recovery will enable tailoring treatment to patients' needs.

METHODS

Multi-centre, retrospective analysis of newly diagnosed ANCA glomerulonephritis (GN) patients requiring kidney replacement therapy (KRT) at the time of diagnosis of 16 registries and vasculitis referral centres. Unadjusted and adjusted multivariable Cox regression for primary outcome of kidney function recovery.

RESULTS

372 patients required KRT at the time of diagnosis and 137 of these recovered kidney function during follow-up (36.8%). The median age was 67 years (interquartile range, IQR, 56 – 74 years) and 57.4% were male. 159 patients were anti-myeloperoxidase positive (42.7%), 174 patients were anti-proteinase 3 positive (46.8%), and 39 patients were ANCA negative (10.5%). Median creatinine and estimated glomerular filtration rate (eGFR) at time of diagnosis were 618µmol/l (IQR 470 – 844µmol/l) and 6.2mls/min (IQR 4.7 – 9mls/min). 243 patients developed ESKD (65.3%) during a median follow-up of 3.6 years (IQR 0.6 – 6.2 years). 120 patients died during follow-up (32.3%).

Patients recovering kidney function showed a median of 22.8% normal and 33.5% crescentic glomeruli, patients remaining KRT-dependent demonstrated a median of 5.7% normal and 27.3% crescentic glomeruli in their biopsies. The percentage of normal glomeruli, interstitial fibrosis and tubular atrophy (IFTA), creatinine and eGFR associated with kidney function recovery. In a multivariable adjusted analysis, the percentage of normal glomeruli and creatinine correlated with outcome ($p<0.001$, $p<0.001$, respectively) while antibody subtype and diagnosis did not.

CONCLUSION

Kidney function and the percentage of normal glomeruli were predictive of kidney function recovery in patients with newly diagnosed ANCA GN requiring KRT. The percentage of crescentic glomeruli did not differ between patients recovering from kidney failure and patients remaining on KRT.

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Enhancing access to evidence-based therapies for heart failure with reduced ejection fraction in patients with chronic kidney disease - the use of potassium binders and the role of cardio-renal multidisciplinary team meetings.

Dr Rahima Hashemi[1], Dr Aminu Olusegun, Dr Babu Ramakrishna, Dr Michael Sagmeister, Dr Smrithi Shetty Ujjar, Dr Waleed Shaker, Caroline Dix, Dr Ayisha Khan-Kheil
[1]Royal Wolverhampton NHS Trust, Wolverhampton, United Kingdom

Introduction

Chronic kidney disease is commonly associated with heart failure and carries significant morbidity and mortality. Evidence- based disease modifying drugs for management of heart failure with reduced ejection fraction (HFrEF) carries the risk of hyperkalemia and renal impairment and as a result these therapies can often be underused in the chronic kidney disease population. NICE recommends the use of potassium binders for heart failure patients that can not be optimised on RAAS inhibitors due to hyperkalemia. Our aim was to optimise access and monitoring to these therapies with the use potassium binders through monthly cardio-renal MDTs.

Method

We conducted a single centre retrospective audit of cardio-renal MDT referrals from 2021-2023 that included chronic kidney disease patients with HFrEF. Data was sourced from MDT transcripts and electronic patient records. The referrals were assessed for initial medical management, the use of potassium binders and the subsequent effect of this on optimising medical management.

Results

20 patients were identified to have chronic kidney disease and HFrEF with an average left ventricular ejection fraction (LVEF) of 28% at the point of referral. See table 1. Of these, 3 patients were haemodialysis dependent. Prior to the MDT all patients were already established on beta blocking therapy, 60% were on ACEi/ARB/ARNI, 15% were on MRA therapy and 10% on SGLT2 inhibitors. Following the MDT meetings, potassium binders were advised in 60% of the patients with MRA associated hyperkalemia being the major indicator (75%) followed by hyperkalemia associated with RAAS inhibitors (25%). 40% were then maintained on potassium binder therapy. Two haemodialysis patients were started on Entresto and Spironolactone separately and did not require potassium binders. Following cardio-renal MDT the percentage of patients on MRA increased from 15% to 40%, those on ACEi/ARB/ARNI increased from 60% to 75% and the use of SGLT2 inhibitors increased from 10% to 50%. See figure 1. The number of patients on 4 pillar therapy increased from 0 to 25%.

Discussion

Potassium binders can increase access to evidenced-based therapies in CKD patients with HFrEF however, a proportion of these patients need to remain on maintenance dose potassium binder to mitigate hyperkalemia. Cardio-renal MDT meetings are key in identifying such patients in order to provide optimised medical management and monitoring.

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Minuteful kidney and hypertension: A collaboration between West Yorkshire Integrated Care Board, Yorkshire and Humber Kidney Network and Healthy.io

Dannii Robinson[1], Sarah De-Baise[2], Dr Sunil Daga[3]
[1]Yorkshire & Humber Kidney Network, , , [2]West Yorkshire Integrated Care Board , , , [3]Leeds Teaching Hospitals NHS Trust, ,

Introduction: In 2024, the prevalence of chronic kidney disease (CKD) in West Yorkshire (WY) is 4.15%, slightly lower than the national average of 4.27% across England. The prevalence of CKD (stages 1-5) in WY is approximately 10%. Patients with CKD are at higher risk for cardiovascular disease (CVD), and hypertension is a major risk factor for both CKD and CVD. The project aims to improve kidney health across WY, prevent end-stage renal disease and elicit cost savings for the Integrated Care Board (ICB) over five years by providing optimal care to individuals at risk due to hypertension.

Methods: 30,000 Minuteful Kidney uACR (urinary albumin-to-creatinine ratio) test kits were available to hypertension patients who hadn't received a uACR test in the last year. Onboarded GP practices identified eligible patients through clinical searches, sending text messages and letters (with an opt-out option) to invite patients to take the at home uACR test. The test kit allocation used a "proportionate universalism" approach, prioritizing practices in more socioeconomically deprived areas based on the IMD (Index of Multiple Deprivation) score and practice size.

The use of interoperable software enabled sharing of test results from Healthy.io into primary care systems. The process measures tracked included the size of the eligible population, opt-out rates, adherence to testing, and uACR results. Uptake was analysed in relation to socioeconomic deprivation and differences between those who completed the test and those who didn’t were examined; enabling the assessment of how improved access to at-home uACR testing for hypertensive patients impacts the detection, diagnosis, and management of CKD through a real-world evaluation with longitudinal follow-up. Throughout the project, clinical leaders supported primary care with education, peer reviews, and access to renal specialists.

Results: 64 practices are involved in the project, with a total of 10,919 patients onboarded. 5,979 patients have completed the test, resulting in an adherence rate of 55.7%.

Table 1 displays data on the number of test kits allocated to each GP practice, adherence rates, and the proportion of patients with a positive uACR (abnormal or high abnormal), broken down by practice IMD decile score.

Table 2 shows adherence rates in males and females where similar at 60% and 55% respectively. Adherence rates for different age deciles.

Discussion: Engagement in the project in WY is low, with only 25% of total practices participating. GP collective action had a direct impact on this. Practices onboarded saw greater than 50% adherence rates. Prioritizing practices in the lowest IMD deciles (1-3) effectively reached individuals at higher risk of health inequalities. While the positive test results were similar across all IMD deciles, a higher rate of positive results was observed in practices from deciles 1-5 (33.7%) compared to deciles 6-10 (29.8%). This suggests that while digital home testing for uACR can help mitigate health inequalities, it doesn't fully ensure equity, as adherence declines with increasing socioeconomic deprivation. The identification of 1,948 patients with A2/A3 results needing follow-up underscores the value of improved access to testing in detecting those at risk of CKD.

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Reviewing the management of paediatric patients with lupus nephritis against SHARE initiative recommendations and KDIGO 2024 clinical practice guidance for lupus nephritis

Dr Alison Conlon[1], Dr. Sarah Roy
[1]Evelina London Children's Hospital, Department of Paediatric Nephrology, London, United Kingdom
Introduction:
Paediatric onset Systemic Lupus Erythematous (SLE) has a prevalence of 9.73 per 100,000 children(1). Renal involvement in SLE, lupus nephritis (LN), is one of the most severe manifestations of the disease, and in paediatric patients is associated with higher mortality and morbidity(2).
The SHARE initiative provides evidence based recommendations for the diagnosis and management of childhood-onset LN. While the KDIGO 2024 clinical practice guideline for management of glomerular disease includes recommendations for the management of LN. Both are widely used in paediatric nephrology for helping to diagnose and treat LN.

Objectives:
The objective of this project was to review the management of patients with a diagnosis of LN known to our team and compare this management to current recommendations from the SHARE initiative and KDIGO guidelines. Our intention was to ensure our current practice is up to date and in keeping with current recommendations, and to review outcomes for our patients.

Methods:
Using our electronic record keeping systems, we listed all patients known to the paediatric nephrology team with a diagnosis of LN from over the last 10 years, and collected information regarding their management and the clinical outcomes at 3 months to 5 years post-diagnosis with LN. After collecting this data, we compared treatment methods to the recommendations based on histological classification of LN outlined by the SHARE initiative and KDIGO clinical practice guideline. We created a data collection sheet which included some demographic information, the patients' histological LN classification, along with a summary of patient treatment and a summary of the outcomes seen at 3, 6, 12 months, 3 years, 5 years and most recent follow up (which may have fallen outside of these timeframes). In terms of outcomes, we examined numbers of relapses/remission achieved, end stage renal failure, need for dialysis and complications of treatment/SLE.

Results/Discussion:
We collected data for 42 patients in total. Our patients were made up of histological class II – V only. For the most part, it would seem that management of these patients is in keeping with current guidance, for example, 100% of patients were treated with hydroxychloroquine and initially treated with steroids. 100% of patients have also been treated with MMF at some point. Certain non-compliances with recommendations are present however, for example ACE inhibitors/ARBs are recommended by the SHARE initiative for reducing proteinuria, however only 59% of patients have been prescribed these (either currently or previously).
When looking at outcomes at different time intervals, 9.5% of patients required dialysis at some point during the course of their treatment for LN, while only 1 patient required a renal transplant. It would seem that outcomes for our patient group seem to be reflective of the outcomes seen among the adult population with lupus nephritis, where approximately 10-30% of patients develop end stage renal failure requiring dialysis and/or transplantation (3)
40% of patients experienced 1 or more relapses, having previously achieved full or partial remission. Similar numbers are seen among a similarly sized group of of adult patient with LN (4).

Clinical Frailty as Proxy Measure for Infection Risk in ANCA Vasculitis

Dr Joshendra Durailingam, Dr Tony Lopez, Dr Gavin Chapman, Emma Barrett, Dr Ooi Li Jin, Dr Neeraj Dhaun, Dr Stephen McAdoo, Dr Silke Brix
[1]University of Manchester, Manchester, United Kingdom

BACKGROUND
Frailty is a functional term referring to a decline in physiological function that leads to dependency, vulnerability and a high risk for poor health-related outcomes. Anti-neutrophil cytoplasmic antibody (ANCA) vasculitis affects the elderly and often results in a rapid decline in general health. Our aim is to better understand the interaction between the rapid evolving ANCA-associated inflammation and the impression of frailty to improve prediction modelling for adverse outcomes. Here, we investigated the clinical frailty scale (CFS) at time of diagnosis for its association with clinical outcomes.

METHODS
We performed a three-centre, retrospective analysis of newly diagnosed ANCA glomerulonephritis (GN) patients in the UK. Wilcoxon-Rank-Sum, Kruskal-Wallis and Fisher-Exact testing were used to analyse the relationships of age, CFS and infections, end stage kidney disease (ESKD) and death.

RESULTS
A total of 247 patients were included, median follow up 3.8 years (interquartile range, IQR 2.1-5.3 years). The median age at presentation was 68 years (IQR, 63-76 years) and 119 were of male gender (48%). A total of 52 patients develop ESKD (21.1%) and 80 patients (32.4%) during follow-up. Age and CFS did not influence the development of ESKD ($p=0.4$ and $p=0.21$). Higher age and CFS were both associated with deaths during follow up ($p=0.04$ and $p=0.02$, Figure 1) The frequency and severity of infections did not differ across age ($p=0.4$ and $p=0.2$). CFS however associated with infection in frequency and severity ($p=0.01$ and $p<0.001$, Figure 2)

CONCLUSION
An initial clinical assessment using frailty tools at the time of diagnosis assists predicting infections in patients with newly diagnosed ANCA glomerulonephritis. Prospective use of frailty tools will determine their ability to guide the intensity of therapy.

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What are the modifiable psychosocial variables that influence access to and outcomes after paediatric kidney transplantation ?

Dr Jisoo Kim[1], Dr Barian Mohidin[1], Professor Jo Wray[1], Professor Stephen Marks[1,2]
[1]University College London Great Ormond Street Institute of Child Health, London, United Kingdom, [2]Great Ormond Street Hospital for Children NHS Foundation Trust, London, United Kingdom

Introduction: Kidney transplantation, compared with dialysis, is seen as the gold standard management for children with Stage 5 Chronic Kidney Disease (CKD-5). A cross-sectional survey of 12 UK paediatric nephrology centres on their transplantation plans for all children registered with CKD-5 revealed that 19% of children had psychosocial factors listed as a barrier to transplantation. However, it is unclear what these factors are.

Aim: A prospective, multi-centre (12 UK paediatric nephrology centres) mixed-methods study with QUAL-QUANT and QUANT-QUAL phases, with the aim to investigate these psychosocial factors, has been designed, implemented and now completed recruitment. We aim to report the results of this study and describe the baseline participant characteristics and questionnaire output from the QUANT phase to date.

Methods: We approached all families whose child with CKD-5 was being prepared for kidney-only transplantation, including children whose previous allografts had failed. Age-appropriate and validated questionnaire packs for children and their carers were distributed at pre-transplant baseline. These questionnaire packs collected psychosocial data including quality of life (QoL), mental health, family dynamics and relationship with healthcare. Follow-up questionnaires were distributed again either 1-year later or at 3-, 6- and 12-months post-transplant. Baseline medical data were collected prospectively from medical notes.

Results: 125 families were recruited to the study. 66 families have responded to their questionnaires to date, giving a 53% response rate. Where ethnicity has been reported, the majority of families were White (76.6%), followed by Asian (11.7%), Mixed-race (7.8%) and Black (3.9%). The majority of families had two carers living in the same household (74.0%), followed by single carer (19.5%), two carers living in separate households (5.2%) and other configurations (1.3%). Most carers reported their highest level of education as a college or university degree (52.4%), followed by secondary education (14.3%), post-graduate education (11.9%) and primary education (2.4%).

Conclusions: These preliminary findings reveal the demographics of families most likely to engage in longitudinal research examining psychosocial factors influencing access to kidney transplantation. Further analysis is required to examine the changes in psychosocial factors over time and their associations with kidney transplantation access and outcomes.

Is CT scan Contrast-induced nephropathy the past or the present? – A single-centre experience

Mr Callum Clohessy[1], Dr. Anita Whale[2,1], Dr. Rosa Montero[2,1]
[1]City St George's, University of London , London, England, UK , [2]St George's University Hospitals NHS Foundation Trust, London, England, UK

Background
Contrast-induced nephropathy (CIN) is an iatrogenic renal injury due to radio-opaque contrast media use. CIN causes one third of hospital-acquired AKIs and affects between 2-3% of the general population and up to 20% in selected patient subsets, such as those with renal and cardiovascular disease. Controversy continues to exist regarding the optimal treatment to prevent CIN. People with eGFR ≤40mls/min/1.73m2 are at particular risk of CIN with oral hydration pre- and post-contrast recommended. For inpatients, people with eGFR ≤30mls/min/1.73m2, renal transplant recipients and large contrast volume CTs, our centre currently recommends intravenous NaCl 1ml/kg/hr 3-12 hours pre- and 6-12 hours post-contrast administration. We looked to determine how eGFR impacted on acceptance of contrast CT scans, whether local protocol was adhered to and the frequency of CIN in these groups.
Methods
A retrospective observational study of all patients at our centre who had a CT requested in 2022 with an eGFR ≤30mls/min/1.73m2 were reviewed. Clinical data was extracted from electronic patient records and the radiology electronic system to identify patients with an eGFR ≤30mls/min/1.73m2. Age, gender, ethnicity, CT examination, baseline eGFR, contrast-use, documented pre- and post-NaCl, and repeat eGFR (within 1 week) were collected, together with reason for request, rejections and repeated scans. Paired t-tests and ANOVA were used to perform statistical analysis with a $p<0.05$ significance level.
Results
1445 CT scan requests for patients with eGFR ≤30mls/min/1.732 were made in 2022. 877 (60.7%) males, 568 (39.3%) females, median age 74 (range 19-98 years). White 41%, Black 16%, Asian 16%, Chinese 1%, Mixed 5%, Other 10%, not stated 11%. 69.4% (1003/1445) scans were approved and 30.6% (442/1445) were rejected. 14.5% (64/442) were rejected due to low eGFR. 60.9% (39/64) had repeat scans, of which 61.5% (24/39) were given contrast. 66.7% (16/24) had pre-NaCl and 62.5% (15/24) had post-NaCl. 73.3% (11/15) had a follow-up eGFR within one week and 36.4% (4/15) of these had an AKI ($p>0.05$). Median reduction in eGFR was 11mls/min/1.73m2 (range 4-20). Of the 1003 approved scans, 60.5% (607/1003) had contrast. 17.5% (106/607) had pre-NaCl and 17.0% (103/607) had post-NaCl. 86.4% (89/103) had a follow-up eGFR within one week and of these 34.8% (31/89) had an AKI ($p<0.05$). Median reduction in eGFR was 4mls/min/1.732 (range 1-15).
Conclusion
An eGFR ≤30mls/min/1.73m2 accounts for a notable number of CT scan request rejections. Pre- and post-hydration protocols are not adhered to consistently with post-contrast scan eGFR's being ad hoc. There was a significant difference between AKI recovery in those with tested eGFR's post-imaging in those approved versus the rejected requests. However, there is insufficient data to determine the frequency of CIN in these patients. Education is underway to improve local protocol adherence, whereby the incidence of CIN may be determined in people with eGFR ≤30mls/min/1.73m2. These patients may be disadvantaged by having scans rejected unnecessarily should the protocol be adhered to. Additionally, it is unclear whether the eGFR threshold should be set at or ≤30mls/min/1.73m2. Our team continue to investigate this.

Case series of Parvovirus B19 infection associated with pure red cell aplasia post solid organ transplantation

Dr Dalal Mohamed[1], Dr Kevin Loudon[1]
[1]Addenbrooke's Hospital, Cambridge, United Kingdom

This case series describes 6 patients who developed pure red cell aplasia (PRCA) associated with parvovirus B19 infection following solid organ transplantation over the past 10 years. Five patients had kidney transplantation, and one had a multivisceral transplant (small bowel, colon, pancreas, and abdominal fascia). At the time of diagnosis, immunosuppression consisted of Tacrolimus, Prednisolone, and Mycophenolate Mofetil (MMF) in 3 patients; Tacrolimus and Prednisolone in 2 patients; and Ciclosporin, Mycophenolate Mofetil, and Prednisolone in 1 patient. Kidney transplant recipients received Basilixumab as induction therapy.

The main presenting symptoms were shortness of breath on exertion, generalized weakness, and fatigue. The hemoglobin levels ranged from 48 to 70 g/L. LDH, haptoglobin, and reticulocyte counts were not consistent with hemolysis. Diagnosis was confirmed by parvovirus PCR quantification. Three out of 6 patients underwent bone marrow biopsy, which confirmed parvovirus B19 infection. Kidney biopsy was performed in 2 patients due to elevated creatinine levels; one showed thrombotic microangiopathy (TMA) associated with parvovirus B19 infection, with no evidence of rejection. Treatment consisted of withdrawal of MMF, reduction of immunosuppression, and intravenous immunoglobulin (IVIG) therapy. All patients received 3-7 units of blood transfusions to maintain hemoglobin levels. A rapid response in hemoglobin levels was observed as early as 9 days in one case, and within 3 months, all patients achieved stable hemoglobin levels greater than 100 g/L.

In conclusion, pure red cell aplasia (PRCA) due to parvovirus B19 infection should be considered in solid organ transplant recipients presenting with persistent anaemia in the absence of bleeding or hemolysis.

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Trends in CKD management across primary care between 2015-2024: the impact of changes to the CKD Quality Outcomes Framework (QOF), the COVID-19 pandemic and local quality improvement initiatives

Dr. Javeria Peracha[1], Miss Karenjit Sahota[2], Dr. Jonathan Odum[2], Dr. Mona Sidhu[2], Mr. Duncan Jenkins[3], Mrs Julie Hewitt[4], Dr. Shashidhar Cherukuri[2]
[1]University Hospitals Birmingham NHS Foundation Trust, Birmingham, United Kingdom, [2]The Royal Wolverhampton NHS Trust, Wolverhampton, United Kingdom, [3]Dudley Integrated Health and Care NHS, Dudley, United Kingdom, [4]Black Country Integrated Care Board, , United Kingdom

Introduction:

There is a paucity of data examining the management of patients with CKD in primary care across ethnically diverse and socially deprived urban populations in the UK. The advent of integrated care systems (ICS) provides a unique opportunity to develop data dashboards that will allow improved understanding of population health challenges at locality level. In this study, we set out to examine trends in CKD management across our population of 1.26 million (30% BAME and 46% from the most deprived quintile) over the last 10 years. We were keen to explore the impact of the removal of CKD indicators from the national incentive and rewards scheme for GPs, 'Quality Outcomes Framework' (QOF) in 2015/2016 and to assess the impact of the 2020 Covid-19 pandemic on patient care.

Methods:

Aggregate data on CKD management metrics, derived from the 2021 NICE CKD guidelines, was extracted from a bespoke primary care dashboard at 12 monthly intervals between 1st April 2015-1st April 2024 inclusive, for four localities (previously known as CCGs) within our ICS. Data on CKD coding was extracted from the CVD Prevent Dashboard between January 2022 -January 2024.

Results:

Between 2015-2024, rates of annual eGFR testing for patients on the CKD register remained relatively stable, between 77-83%. The rate of annual urine ACR testing was 69% in 2015, prior to its removal from QOF, following which the rate plummeted to 29% in 2016. There was partial recovery to 43% in 2020 when the covid-19 pandemic struck, resulting in a drop in testing rates to 24% in 2021. There has been slow improvement since then to 47% in 2024 (Figure 1). Of note, one locality in our ICS introduced a local contract in 2017 that continued to incentivise annual urine ACR testing for patients with CKD and were noted to have significantly higher rates of ACR testing, reaching 77% in 2024 (Figure 2). Rates of statin prescription for patients on the CKD register improved from 20-72% over the study time period. There was a slight dip in the proportion of patients who had their BP checked during the pandemic from 83% (2020) to 55% (2021) but this recovered back to 83% by 2023. Renin-angiotensin-aldosterone-system inhibitor (RASi) prescriptions in eligible patients with CKD improved from 16 to 64% for those with diabetes and 19 to 47% for those without diabetes. 21% of eligible patients with CKD and diabetes were prescribed a sodium-glucose cotransporter 2 inhibitor (SGLT2i) in April 2024 whereas only 4% of eligible CKD patients without diabetes were prescribed this (Figure 3). The number of uncoded patients with biochemical evidence of CKD fell from 7,205 in 2022 to 3,935 in 2024 (Figure 4).

Discussion:

Financial incentivisation appears to be an important driver for improved urine ACR testing in patients with CKD. Overall however, trends over the last 10 years show significant improvements in CKD care

relevant to improved coding and prescription of statins, RASi and SGLT2i, although significant further work is still required to optimise this further.

The evolving landscape of chronic kidney disease (CKD) care across England: results from a national practice pattern survey 2022-2023

Dr. Javeria Peracha[1], Dr. Kristin Veighey[2], Professor Paul Cockwell[1], Smeeta Sinha[3], Dr. Gavin Dreyer[4]
[1]University Hospitals Birmingham NHS Foundation Trust, Birmingham, United Kingdom, [2]University Hospital Southampton NHS Foundation Trust, Southampton, United Kingdom, [3]Northern Care Alliance NHS Foundation Trust, Manchester, United Kingdom, [4]Barts Health NHS Trust, London, United Kingdom

Introduction

Early identification and optimisation of care for patients with CKD is a public health priority, aimed at reducing long term patient morbidity, mortality and healthcare costs. New models of CKD care are urgently required to help address this challenge but there remains a paucity of data on the current landscape of these services nationally. In this study, we set out to address this question, to help inform ongoing clinical strategy, quality improvement and commissioning activity.

Methods

An electronic survey was distributed to all renal 'Clinical Directors' in England and completed between July 2022–March 2023. We asked for details of the provision of any non-face-to-face services for patients with CKD, including work being undertaken to improve CKD care across primary care settings.

Results

Responses were obtained from 29/52 (56%) renal units in England, across a wide geographical distribution. Of those responding, 27/29 (93%) were offering alternatives to the traditional outpatient face-to-face appointment models and in many cases, units offered more than 1 type of service. These included - standard NHS advice and guidance through the e-RS system (n=22, 76%), with read-only access to patients primary care record available at 9 units and full shared remote access to the primary care record, in which nephrologists could leave entries, at 6 units. Other models of care included email advice between a nephrologist and GP (n=15, 52%) and a clinical MDT between primary and secondary care (n=4, 14%). The time taken to respond to 'virtual' CKD clinic referrals at 23 responding units was <1 week (n=15, 65%), 1-2 weeks (n=4, 17%), 3-4 weeks (n=3, 14%) and > 4weeks (n=1, 4%). Only 10/29 (34%) units were directly writing to patients with the outcome of their 'virtual' CKD review. Specialist trainees were taking part in the 'virtual' CKD clinics across 6/29 (21%) units. Data sharing agreements allowing secondary care nephrologists access to patients primary care records were either already in place or due to be implemented at 17/29 units (59%). Access to dashboards outlining the management of patients with CKD in primary care were accessible at only 5/29 (17%) units. 17/28 units (61%) said that they were unaware of any initiatives to support identification of uncoded and/or high-risk CKD patients in primary care locally. Primary care initiatives to (i)improve rates of SGLT2 inhibitor prescription for patients with CKD, (ii)improve awareness and uptake of the kidney failure risk equation and (iii)improve rates of urine ACR testing were reported at 26/29 (90%), 19/29 (66%) and 19/29 (66%) units respectively.

Conclusions

This survey highlights the increased uptake of new and innovative models of care for patients with CKD across England, focussed on improving timely access to specialist opinion and interventions to

improve detection and management of patients with CKD across primary care settings. Significant disparities are apparent however and the picture across the 44% of units that did not respond to this survey remains unclear. As integrated care systems and regional renal networks mature we anticipate that they will be able to support ongoing developments in this area.

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Evaluation of Peritoneal Dialysis dropouts- A single centre observation over two years

Renal Clinical Fellow Varun Mamidi[1], Joanne Collier[1], Joanne Martin[1], Dr David Lewis[1], Rajkumar Chinnadurai[1]
[1]Salford Care Organisation (SCO), NCA , Salford, United Kingdom

Introduction:
According to the UK Renal Registry Data 2022, while 36.4% were on in-centre haemodialysis (HD) only 5.4% were on peritoneal dialysis (PD). PD offers greater flexibility, better quality of life, a lower risk of infections, better preservation of residual kidney function, and lower healthcare costs. Despite the advantages, over 35% of PD patients transition to HD annually. Although kidney transplantation is the optimal modality of RRT, the other most common reasons for PD dropouts include mechanical failure, infection, inadequate clearance, and death. This study investigates the reasons for PD dropout and the characteristics of patients who did drop out of PD in our centre over two years.

Methods:
This retrospective study included 49 patients who dropped out of PD between January 2023 and December 2024. Reasons for dropout and patient characteristics were compared between the two years. Data collated included demographic characteristics, duration of PD, Charlson comorbidity index (CCI) scores, home visit assessments prior to PD, and dialysis education visits. Clinical parameters analysed included catheter insertion method (surgical vs. medical), elective vs inpatient procedure, and acute complications (e.g., catheter malposition). Continuous variables were expressed as median (IQR) and p-value by the Mann-Whitney U test. Categorical variables were expressed as numbers (percentage) and p-values by the Chi-square test.

Results:
Our centre's prevalent PD patient numbers are between 90-100 patients. We had 22 dropouts in 2023 and 27 in 2024. The cohort's median age was 53.5 years, predominantly male (63%) and of White ethnicity (79%). Pre-procedure assessments, including dialysis education attendance, functional status, and issues identified during the home visit, were similar in the two years. Operative considerations, including medical insertion (2023: 81.9% vs 2024:74.1 p=0.518) and elective insertion (2023: 81.9% vs 2024:77.8 p=0.727), were similar between the years. No differences were observed in the post-operative characteristics, including constipation issues, CCI scores or the number of medications between the years. There was no significant trend in the reasons for PD dropout between the two years. Catheter dysfunction as a reason for dropout was noted to be similar between the years. (Table-1)

Discussion:
The demographic, clinical characteristics and reasons for PD dropouts were broadly similar between 2023 and 2024. The study highlighted no clear trend in undesirable causes of PD dropout that would require an immediate change in practice. Careful pre-procedure assessments in advanced kidney care services and dialysis preparation clinics are warranted to prevent undesirable PD dropouts and sustain a healthy PD programme.