Free Communication Sessions

FC01: Novel Role of the Primary Cilia in Renal Proximal Tubular Cell Damage

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Background: The primary cilium is a hair-like microtubule based structure, protruding from nearly all mammalian cells. Originally thought to be a vestigial organelle, it is now well established as a crucial signalling hub. The importance of the primary cilium in cell signalling has become clear with a range of diseases associated with its loss (ciliopathies). In recent years there has been increased interest in the link between the primary cilium and the development and progression of cancer, with several cilia associated genes dysregulated in numerous cancers. The primary cilium has been found to be absent in renal cell carcinomas, breast and pancreatic cancers. The aim of this study was to investigate the functional and mechanistic link between cilia and important epithelial characteristics including phenotypic epithelial marker expression and epithelial barrier function. This involved assessing the effects of cilia loss in a human renal proximal tubular epithelial cell line (RPTEC/TERT1).

Methods: Deciliating agents were used to induce loss of the primary cilium. Immunofluorescent labelling of the ciliary marker, acetylated alpha tubulin, was used to confirm the absence or presence of a primary cilium in the RPTEC/TERT1 cells. Western blotting was used to assess epithelial marker expression and tight junction protein expression. Trans-epithelial electrical resistance (TEER) was measured to assess epithelial barrier function following cilia loss.

Results: Removal of cilia from RPTEC/TERT1 cells by deciliating agents was confirmed by acetylated alpha tubulin staining. Deciliation was found to cause alteration of tight junction protein expression, in particular claudin family members. Cilia loss caused an increase in TEER, suggesting a decrease in tight junction permeability and a change in epithelial barrier function following deciliation.

Conclusion: Results suggest an altering of epithelial cell junctions and barrier function following deciliation. Further analysis is being carried out to understand the relationship between the primary cilium and the maintenance of an epithelial phenotype and function.

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FC02: Elevated Plasma Soluble TNFR1 Levels are Associated with Renal Injury and Reduced Renal Function in Patients with Diabetes.

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Background- Elevated circulating levels (quartile 4 (Q4)) of plasma soluble tumour necrosis factor receptor 1 (sTNFR1) predict long term renal outcomes and mortality in diabetes. Herein we extend validation of sTNFR1 in relation to renal injury and reduced renal function in a study of samples from patients with diabetes registering a haemoglobin A1c (HbA1c) of >48mmol.mol (6.5% DCCT).

Methods Plasma samples were reflex assayed for sTNFR1 (n=3444). Central tendencies for metabolic, inflammatory and renal end-points for sTNFR1 groups above and below the Q4 cut-off were calculated. ROC analysis of sTNFR1 as a predictor of the presence of albuminuria (defined here as albumin-creatinine ratio (ACR) >3.5mg/mmol) and the presence of CKD3 (GFR<60ml/min/m^2) or worse was conducted. The independent predictive power of sTNFR1 in relation to the latter was examined by logistic regression.

Results-Values of sTNFR1 above Q4 (2061pg/ml) were associated with significant elevations in plasma c-reactive protein and urinary ACR. No shift was noted in relation to measures of glucose or lipid homeostasis. Estimated glomerular filtration rate (eGFR) was significantly depressed in the Q4 group. Q4 sTNFR1 outperformed albuminuria as a detector of low eGFR (sensitivity (68%) and specificity of 85%)). Q4 sTNFR1 was associated with an odds ratio of 9 for the presence of CKD3 or worse.

Conclusions-Q4 sTNFR1 is associated with increased CRP, urinary albumin excretion and reductions in renal function in patients with poorly controlled diabetes. j Elevated sTNFR1 may reflect a role for systemic inflammation in the pathogenesis of diabetic kidney disease.

FC03: The Impact of Roux-en-Y Gastric Bypass on Features of Podocyte Injury in an Experimental Model of Diabetic Kidney Disease

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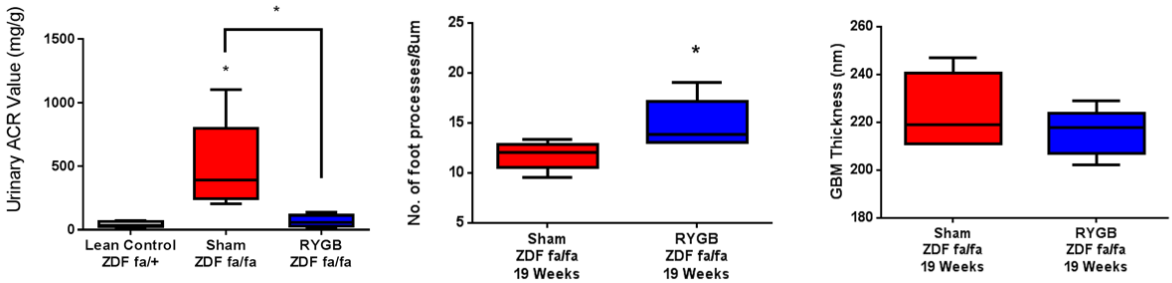
Background-Podocytes injury is implicated as a both a marker and pathogenic driver of diabetic kidney disease (DKD). We describe and quantify changes in podocyte architecture and gene expression in the Zucker Diabetic Fatty rat (ZDF) and assess the impact of Roux-en-Y gastric bypass on these parameters.

Methods- Development of glomerular injury was tracked between 8 and 22 weeks in ZDF (fa/fa) rats with reference to normal lean fa/+ control animals. Renal outcomes were also compared at 19 weeks of age between animals undergoing either sham operation or RYGB at 12 weeks of age. Specific parameters studied were glycaemic control, albuminuria, glomerular basement membrane (GBM) thickness, podocyte number, density, foot process frequency (PFPF) and de novo desmin expression.

Figure



Results-ZDF rats developed significant albuminuria by 12 weeks of age. Glomerulomegaly and early podocyte injury were evident by 12 weeks of age, marked by increases in tuft size, evidence of reduced PFPF, desmin acquisition and a decrease in podocyte density but not absolute number. Reductions in PFPF were more marked at 22 weeks and accompanied by increases in GBM thickness. RYGB normalised hyperglycaemia, albuminuria and glomerular tuft size. Coherent improvements were seen in PFPF and were accompanied by reductions in podocyte associated desmin expression and evidence of the arrest of GBM thickening.

Conclusions-Progressive development of podocyte injury occurs in the kidneys of ZDF rats in line with the development of diabetes. RYGB corrects the metabolic milieu and partially reverses podocyte injury.

FC04: Utility of the Complement Factor H Functional Assay in the Investigation of Thrombotic Microangiopathy

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Background
Thrombotic microangiopathy (TMA) syndromes are an increasingly recognised cause of renal failure. Tests for diagnosing the underlying disease are limited. Here, we present our experience with the complement factor H functional assay (CFHfa) in this setting.

Methods
The CFHfa evaluates the ability of patient serum to protect sheep erythrocytes from lysis by complement. Results are expressed as "% of CFH activity" corresponding to 100 minus the calculated percentage of haemolysis. We retrospectively analysed the electronic-records of all patients at our institution that had CFHfa measured to determine the clinical circumstances. Serum samples from healthy donors were used as controls (n=32).

Results
CFHfa was measured in 211 samples from 90 patients. Forty-one samples were excluded because the patient was receiving plasma-exchange or eculizumab at the time of blood-draw. CFHfa was significantly lower in patients with a diagnosis of atypical-HUS and toxin-HUS compared to controls ($p<0.0001$ and $p=0.0005$, respectively). There was no significant difference in CFHfa between controls and other causes of TMA ($p>0.999$ for all) (Fig. 1). ROC analysis showed that CFHfa can differentiate between aHUS and TTP during acute TMA ($p=0.05$, AUC 0.80). Analysis of samples from patients with available genetic sequencing (n=79) showed that, during acute TMA, CFHfa was significantly lower in patients with *CFH* mutations compared to healthy controls ($p=<0.0001$) (Fig. 2).

Conclusions
Implementation of the CFHfa in local laboratories is feasible. This assay could play a greater role in diagnosing the cause of renal failure than is currently appreciated, and help guide the management of patients with TMA.

Figure 1:

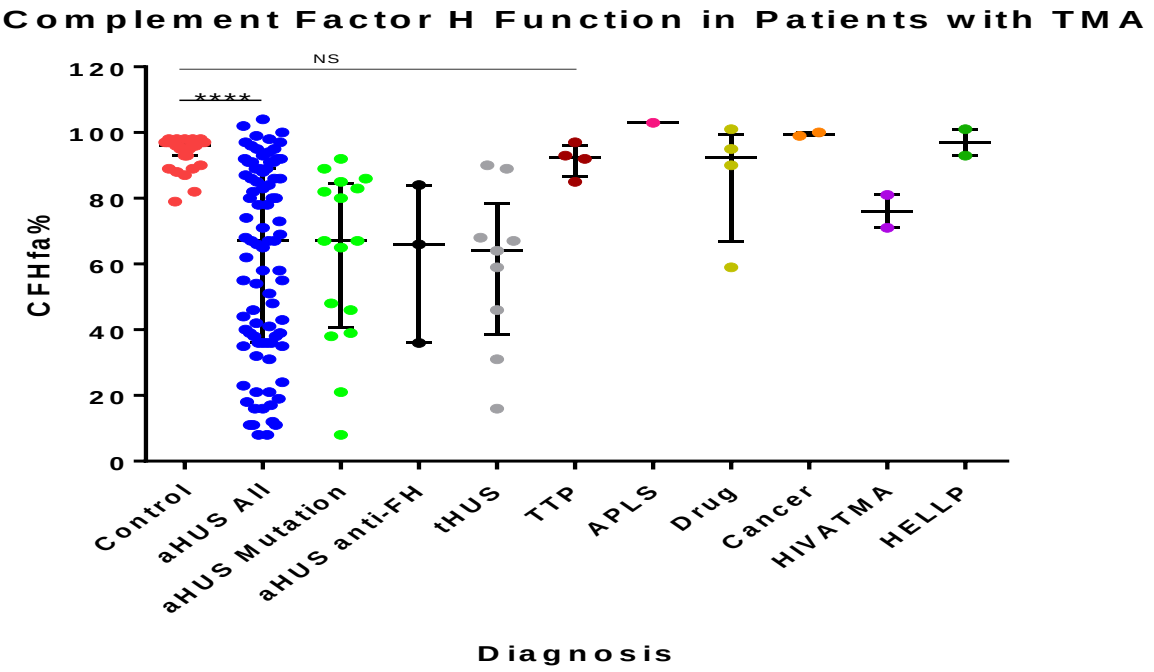
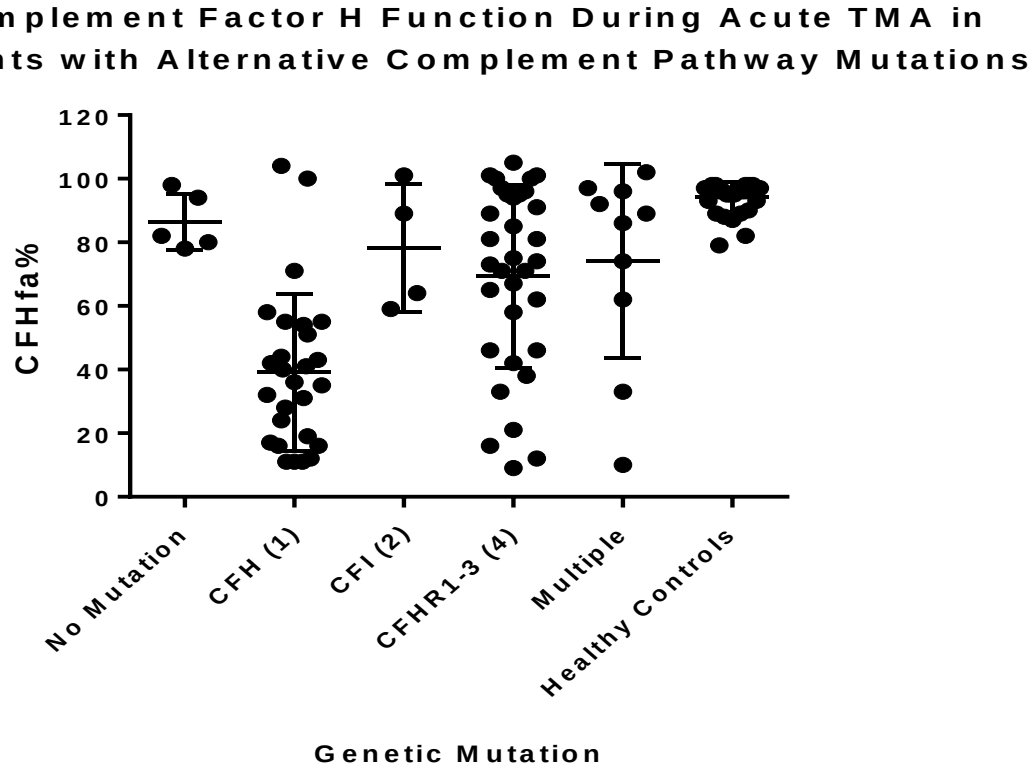


Figure 2:



FC05: Long-term outcomes after living kidney donation

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Background

As demand for living kidney donors increases, concerns have been raised regarding the long-term outcomes of these individuals. Prior to 2010 there were relatively few donors resulting in a paucity of data available for our growing prevalent donor population. We reviewed the outcomes of the living donors in our region who donated at least 20 years ago.

Methods

LD transplant recipients from 1961-1995 inclusive were identified from The Renal Transplant Database. The electronic care record was interrogated for those for whom donor details were available. Recorded data included demographics, alive or deceased, any medical record of cardiovascular disease, hypertension, diabetes, or renal disease.

Results

743 transplants were performed, 58 (8%) from living donors. 33 (57%) were male and mean age at donation was 42 yr. (range 17-65 yr.). Follow-up ranged from 20-50 yr. Initial review identified 22 donors, the majority (18/22) of which are alive. Current mean age is 70 yr. (range 43-87yr). Of the 4 donors who died, age at death ranged between 72 yr. - 87 yr. Causes included malignancy, pneumonia and probable ESRD. 50% had hypertension, the majority requiring at least 2 antihypertensive agents (approximate onset occurring 16- 32 yr. post donation). 5 patients had documented cerebrovascular disease and 5 cardiovascular disease. 4 patients developed Type 2 diabetes mellitus. 20/22 patients had renal function results available within the past 5 years (11 eGFR $\geq$60 ml/min/1.73m,^{2} 8 eGFR 40-59 mls/min/1.73m^2).

Conclusion

Long-term renal outcomes for the living kidney donor population in our region are excellent, despite hypertension being common. Further evaluation of the complete donor population is required to provide more accurate information for the informed consent and selection of potential donors.

FC06: Potential mechanisms of venous thromboembolism in ANCA associated vasculitis.

Moran SM, O'Reilly V, O'Brien E, Hickey FB, Ryan M, Preston R, Little MA.

Background:

ANCA associated vasculitis (AAV) is associated with an increased risk of venous thromboembolism (VTE), the mechanisms of which remain elusive.

Methods:

Clinical data was obtained from the Rare Kidney Disease Biobank and local radiology databases. A cohort with available plasma samples was examined. Tissue factor, endothelin protein C receptor and thrombomodulin ELISAs were performed.

Results:

7.8% (26/333) patients had radiologically confirmed venous thromboemboli. Of this cohort 184 patients with available plasma samples were selected for further analysis.

62.5% (115/184) had active disease (92 with AAV, 23 other vasculitis), mean BVAS was 14.9 (range 1-34). 84.2% (155) had renal vasculitis. Induction therapy comprised corticosteroids in 88% (162). 65.7% (122) had cyclophosphamide induction, 23.9% (44) had induction with rituximab. 14.1% (26) required renal replacement therapy. Of the subgroup analysed 5.4% (10/184) had radiologically confirmed episodes of VTE (7 PE, 2 DVT, 1 PE/DVT). Of those with VTE episodes 6 had AAV and 2 had anti-GBM disease, 1 IgAN, 1 Takayasus arteritis).

There was no difference in thrombomodulin, tissue factor or EPCR levels between those with and without VTE episodes, active and remission disease. There was no association with creatinine, eGFR, CRP, proteinuria, smoking status, plasma exchange, rituximab, cyclophosphamide or BVAS score.

VTE was associated with induction cyclophosphamide (p=0.01), smoking (p=0.05) and weight (p=0.01). VTE did not associate with number of organs involved, eGFR, ESKD, requirement for acute dialysis, plasma exchange administration, corticosteroid usage or BVAS score.

Conclusions:

The mechanisms underlying VTE in AAV remain elusive, further study is required.

FC07: Thin basement membrane nephropathy: clinical features and outcomes of a national case series (Shortlisted for JP Garvey Medal)

Wallis L, Patil A, Kelly Y, Murray S, Kant S, Kaballo M, O'Kelly P, Casserly L, Doyle B, Dorman T, Conlon P

Introduction: Thin basement membrane nephropathy (TBMN) affects 1% of the population and is characterised by haematuria, proteinuria (≤200 mg/L) and a thinned glomerular basement membrane. The prognosis for TBMN is generally good but an increased lifetime risk of hypertension, proteinuria and renal impairment has been reported.

Methods: In this national retrospective case series we describe the clinical features and outcomes of all patients with thin basement membrane nephropathy diagnosed in Beaumont Hospital over the past 40 years. Patients were divided into an older (1974-1994) and a more modern era (1995-2015) according to their date of diagnosis. The main outcomes assessed were patient survival, time to end-stage kidney disease and renal allograft survival.

Results: 395 patients were diagnosed with thin basement membrane nephropathy between 1974 and 2015. 15% reached ESKD during the period of study. Age, male gender and creatinine on biopsy were significant risk factors for ESKD. Age at diagnosis was 32 years for the earlier era versus 43 years for the later era ($p = 0.00$). 54% of those who reached ESKD were transplanted. The median time from ESKD to transplantation was 1.7 years. 8% patients died during the period of study. 20-year patient survival rate was 61%. This was influenced significantly by age.

Conclusions: The manifestations and severity of thin basement membrane nephropathy can vary and are influenced by age, serum creatinine at diagnosis and presence of other renal pathology. Identification of these factors can help us to counsel patients appropriately regarding risk of progression of this disease.

FC08: Introduction of a standaradised methodology for adrenal vein sampling in a hypertension service (Shortlisted for JP Garvey Medal)

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Background

Primary aldosteronism (PA) represents 7% of hypertension and 20% of grade 3 hypertension. 40% of PA is caused by a unilateral adenoma, amenable to adrenalectomy. Bilateral PA is treated with potassium-sparing diuretics. Diagnosis is challenging and few patients are definitively treated. Screening using the aldosterone renin ratio (ARR) is susceptible to antihypertensive-interference. Adrenal lateralisation requires adrenal-venous-sampling (AVS) which often fails to cannulate the right adrenal vein. ^{11}C Metomidate-PET/CT offers a novel imaging for lateralisation. We present data describing a standardised pathway for diagnosis and lateralisation of PA through a specialised hypertension clinic.

Methodology

A standardised pathway was introduced for screening, diagnosis and lateralisation of PA in 2014 (Figure 1), using mid-morning ambulatory ARR, free of medication-interference. Confirmatory-testing used the saline infusion test (SIT). CT venogram adrenal veins was performed prior to AVS, which was carried out by a single, skilled operator.

Results

ARR performed in 185 patients was positive in 42 (23%). To date, 19 SIT produced 12 positive results (63%). 8 strongly-positive ARR proceeded to lateralisation without SIT. Of 20 referrals 9 AVS were performed (success 89%), identifying 4 unilateral and 4 bilateral PA. Due to failed AVS prior to 2014, 4 patients underwent ^{11}C Metomidate-PET/CT, lateralising 2; 6 patients await. Eight patients have undergone adrenalectomy, with improved BP and reduction in anti-hypertensives, compared with 0 over the preceding 2 years.

Conclusion

Standardised, focused screening/diagnosis/lateralisation of PA in a multi-disciplinary hypertension clinic setting is necessary to successfully diagnose and treat patients with PA, improving outcomes.

FC09: Improving Quality of Care for Acute Kidney Injury in the Irish Health System

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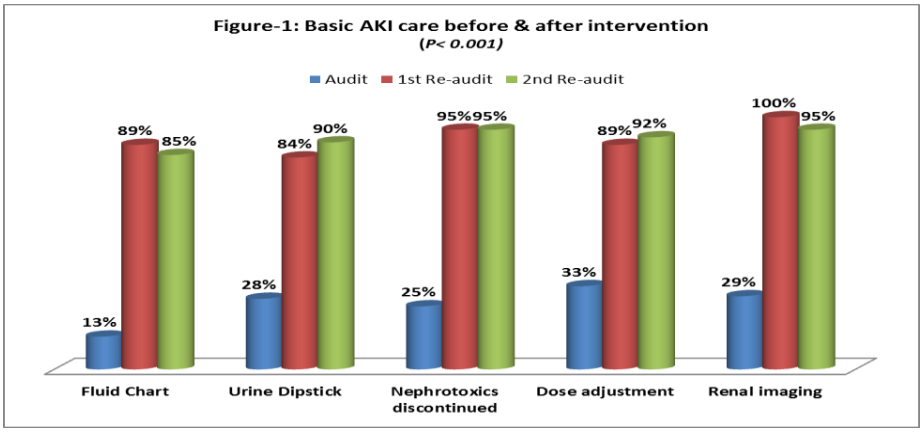
Background: Acute kidney injury (AKI) occurs in approximately 20% of hospital admissions and is associated with adverse clinical and cost outcomes. Patients are frequently under the care of non-renal specialists who may be unfamiliar with AKI optimum management. We conducted an audit to assess the quality of basic AKI care delivered by referring teams.

Methods: Data was collected prospectively using a standardised instrument. Our renal department policy for AKI care was our audit standard and mandated that referring teams pursue the following bundle of care: a)urinalysis b) fluid input/output chart (FIOC) c) discontinuation of nephrotoxic drugs d) medication dose adjustment for estimated glomerular filtration rate (eGFR)<10ml/min e) renal imaging

Results: We included 143 AKI consults. The majority (41%) were referred by surgeons. Urinalysis was completed in 28%, FIOC in 13%, nephrotoxic agents discontinued in 25%, dosage adjustment in 33%, and renal imaging in 29%. A standardized AKI guidance form was developed and communicated to all medical staff that included a checklist covering basic elements of AKI care. To complete the audit cycle, re-audits were conducted at 2 months (37 consults) and 6 months (40 consults) to ascertain quality improvement. Both audits demonstrated substantial improvement in early AKI management (P< 0.001). (See figure-1).



Conclusion: This audit identified core deficiencies by clinical teams in the early management of AKI. Following the introduction of an education programme with a standardised AKI checklist, substantial improvement occurred. A simple and cost-effective intervention can radically improve management of AKI in the hospital setting.

FC10: LESS IS MORE: Pill reduction in the Haemodialysis Unit

Baird W, Murray A, Mitchell A, Caughey K, King C, Coey J, Marshall W, Smyth J, Woodman A , Leonard N.

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Introduction: Pill burden in the Haemodialysis (HD) population is higher than other chronic disease groups[1] with each patient taking an average of 19 pills daily[1]. Increased pill burden in patients with chronic disease and on haemodialysis is associated with increased mortality, reduced quality of life and medication compliance[1,2]. With an average number of 11 pills per patient per day in our haemodialysis population, we aimed to reduce the number of pills by 10% or greater in 50% of patients within an 18-month period.

Methods: A multidisciplinary medications review group reviewed patients' medications monthly from August 2015-January 2016. Suitable medications for discontinuation were decided, discussed and agreed with the patient including advice regarding possible recurrence of symptoms. Medication lists were updated and communicated to Primary Care.

Results: In our population of 100 patients there was an average reduction in pill burden of 24%, exceeding the target of 10% in 50% of patients. The largest reduction in a single patient was 70% (13 pills). There were no adverse incidents and no patient subsequently recommenced discontinued medication. The total projected cost saving per year based on medication changes in our unit is £20,244 with an average cost saving per year per patient of £316 (range of £13-£1224 per patient).

Conclusion: A multidisciplinary medication review group in this HD cohort has resulted in an average of 24% reduction in pill burden in 64% of patients, with a projected annual cost saving of £20,244. This improvement has been achieved without the need for additional resource.

References

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2. Barton Pai A, Cardone KE, Manley HJ et al. Medication Reconciliation and Therapy Management in Dialysis-Dependent Patients: Need for a Systematic Approach. *Clin J Am Soc Nephrol* 2013; 8:1988-1999.

FC11: Cost minimisation analysis of LA Peritoneal Dialysis Catheter insertion versus GA

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Background

Clinical outcomes regarding peritoneal dialysis catheters (PDC) under local anaesthetic (LA) versus general anaesthetic (GA) have been shown to be comparable, but there is significant cost benefits associated with the LA insertion technique. However, this has not been quantified accurately.

Methods

Retrospective analysis of 117 elective admissions for PDC placement at single centre over 5 years, comparing length of stay (LOS) of LA (group A, n= 65), versus GA (group B, n=50). Costs were calculated using 2013 HIPE records, including ward, theatre, drug, prosthetic, pathology and blood products costs, as well as medical salaries, nursing salaries and non-clinical salaries. Subgroup analysis of GA insertions, excluding patients selected for GA due to complexity, and subgroup analysis of daycase LA insertions were also performed.

Results

Mean cost was €1230 (SD 1315, n=9) for LA versus €7442 (SD 4913, n= 4) for GA. Mean LOS for LA was 2.6 days, versus 9.4 days for GA. Excluding GA insertions selected for complexity, mean LOS was 8.6 days. Mean cost for daycase LA €495 (SD 49, n= 6). Mean LOS for 38 daycase LAs was 0.5 days. 2 daycase LAs were excluded from LOS analysis due to complexity. Only 2 daycase LAs were admitted over 5 years.

Conclusion

Insertion of PDC catheters under LA generates significant cost savings through the minimisation of total costs and inpatient bed days. If nationally 30 PDCs were done as daycase LAs rather than GA, it could produce savings of over €200,000 a year.

FC12: Kidney Transplant Outcomes in Paediatric and Young Adult Patients

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Background

Pediatric and young adult kidney transplant recipients have complex medical and psychosocial care needs. This national review aimed to describe the epidemiology and outcomes of transplantation in the two groups over time.

Methods

The Irish national kidney transplant database was accessed to identify all pediatric (recipient aged 0-17 years; **group 1**) and young adult (recipient aged 18-26 years; **group 2**) kidney-only transplants performed between 1/1/1990-31/12/2014. Medical records and histology reports were reviewed. Statistical analysis was performed using STATA version 13.1.

Results

485 patients received 561 kidney-only transplants. In group 1 (n=261 transplants), the most common cause of ESKD was congenital abnormality of the genitourinary tract. 56 (21%) transplants were biopsied and 21 (8%) had biopsy-proven acute rejection (BPAR).

Glomerulonephritis and reflux nephropathy were the most frequently encountered causes of ESKD in group 2 (n=200). 133 (44%) were biopsied and 50 (16.6%) had BPAR.

Both patient groups had an identical graft half-life of 13.6 years. A significant era effect was noted in both groups (using 2003 as cut-off), largely due to a lower rate of early graft loss since 2003. Looking specifically at 2003-2014, no significant difference was identified in graft survival (censored for death) between group 1, group 2 and all other adult kidney transplants (Figure).

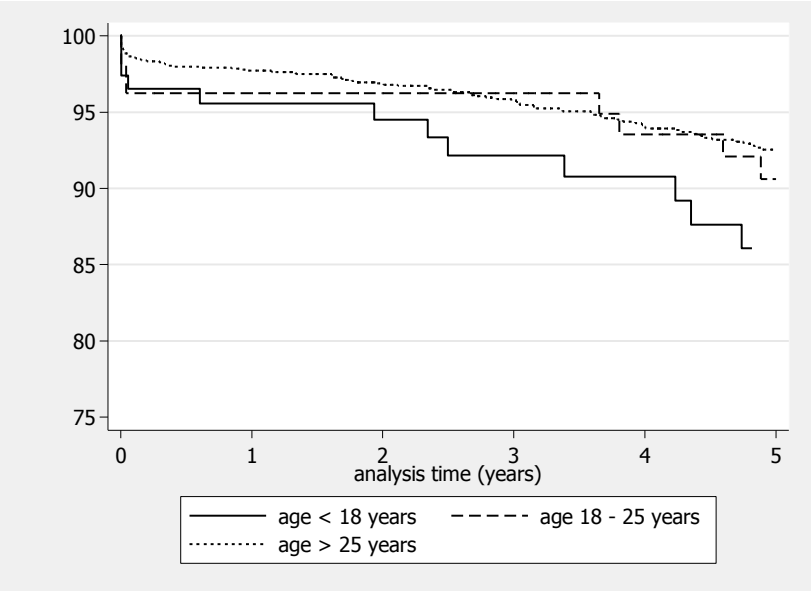

Figure Graft survival censored for death in patients transplanted 2003-2014; p=0.1219

Conclusions

The journey to transplantation and the approach to post-transplant care differed between pediatric and young adult transplant recipients; despite this, graft survival was remarkably similar.

Moderated Poster Session

PO01: Impact of a Multi-Disciplinary Vascular Access Clinic on Arteriovenous Fistula Outcomes

Kelly YP, Auguste F, Conlon P, Denton M

Introduction: Dedicated multi-disciplinary vascular access clinics have been shown to increase the incidence and prevalence of arteriovenous fistula creation and use. In this study we examine the impact of a multi-disciplinary vascular access clinic, based in Beaumont Hospital Dublin, on arteriovenous fistula outcomes for prospective and prevalent haemodialysis patients there.

Methods: Data were collected prospectively on patients assessed in the Vascular Access clinic during 2015. Their dates of assessment and surgery, type of fistula/graft formed, follow-up imaging, complications and date of successful use were recorded and compared with current international standards.

Results: 154 patients were seen in the Vascular Access Clinic in 2015. Of these, 68 patients (44%) had vascular access procedures performed. The remaining patients were either deemed medically unfit for surgery, had unsuitable vasculature or are currently awaiting surgery. 10/68 (15%) underwent ligation procedures. 22/58 (38%) fistulas/grafts were formed pre-emptively. 17/58 (29%) could not be utilised due to complications including thrombosis, failure to mature and anastomotic/venous stenosis. 13/58 (22%) have not yet been required as the patients have not reached ESKD. 28/45 (62%) of fistulas formed were successfully used. Time to 1st successful needling for prevalent dialysis patients was 75 days (range 28-129 days).

Conclusions: Our multidisciplinary Vascular Access Clinic has led to an increased prevalence of fistula use in our dialysis population but ongoing long times to successful needling. This highlights the need for regular surveillance of our fistula population in order to maximise the utility of this venture.

PO02: Exploring Vancomycin Dose and Dose Modification using Citrate and Heparin Anticoagulation Modalities in Patients on CVVHDF

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Background

Continuous renal replacement therapy (CRRT) is commonly used for critically ill patients in Intensive Care Units (ICU). Our institution has recently introduced regional citrate anticoagulation (2013). This is a retrospective audit to determine whether vancomycin dose, relative dose adjustments and proportion of within-range plasma concentrations are comparable with heparin or citrate anticoagulation in CRRT in our institution.

Methods

Our study included all patients on CRRT with either heparin or citrate anticoagulation who were also prescribed vancomycin in 2014. Dose, dose adjustments and therapeutic drug monitoring for vancomycin during the time of CRRT were collected from the hospital electronic lab reporting system. Timing of dialysis and mode of anticoagulation were obtained from the clinical information system in our intensive care unit (ICIP). REDCap (Research Electronic Data Capture) data capture tools were used for data collection and SPSS for data analysis.

Results

A total of 58 patients were included in the audit, 323 patient days in total with an average of 5.57 (SD 2.14) days per patient. This results in 255, 56, 8 and 4 dialysis days on heparin, citrate, both and no anticoagulation, respectively. The average vancomycin dose was 1162.22mg (+/-437mg) and 1306.12mg (+/-343mg) on heparin and citrate respectively (p=0.032). Vancomycin levels were within therapeutic range in 37.9% of patient days while on CRRT with heparin and 29.72% in patients who received citrate. A chi-square test for association was conducted between anticoagulation and vancomycin in therapeutic range. There was no statistically significant association between anticoagulation and vancomycin in therapeutic range, $\chi^2(1) = 1.563$, $p = .668$.

Conclusion

This study suggests an effect of anticoagulation modality on vancomycin dose but not on proportion of therapeutic vancomycin levels. Limitations include small sample size, the use of different modes of anticoagulation while on CRRT, and patient factors. Work is ongoing to further explore vancomycin pharmacokinetics within these patient groups.

PO03: Recurrence of Primary Focal Segmental Glomerulosclerosis in Kidney Transplant

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Department of Nephrology, Beaumont Hospital, Dublin 9

Background: Primary glomerular diseases including primary focal segmental glomerular sclerosis (FSGS) are known to recur in kidney transplants and can lead to graft loss. FSGS recurrence can be early and catastrophic. The ability to predict recurrence pre-operatively would be useful to assist with recipient and living donor counselling.

Methods: A retrospective review of the Irish transplant database from 1982- 2015 was performed. Patients were included for analyses if they had biopsy proven primary FSGS as cause of end-stage kidney disease and went on to receive a kidney transplant. Extensive medical and histological record review was performed.

Results: Thirty-four patients met inclusion criteria, 16 had had two transplants. Eighteen of 34 patients with FSGS developed clinically significant recurrence, 10 developed a second recurrence following repeat transplant. Graft failure occurred in 25/50 total transplants.

The median graft survival was 8 years. The median graft survival was 10.5 years for all other transplants performed in Ireland during the same time period.

Eleven patients were re-transplanted following rFSGS-related graft failure. Of 10 who survived the perioperative period, 80% had further recurrence.

Among patients progressing to ESKD within 1 year of diagnosis 80% developed recurrence post-transplant vs. 58% of those who progressed more slowly.

Conclusions: FSGS does not necessarily recur in kidney transplants. However, patients who have had one episode of recurrence are highly likely to recur a second time.

PO04: A Single-Centre Review of Rituximab Usage for Nephrology and Renal Transplant Indications and Outcomes in Nephrotic Syndrome. (Entrant for JP Garvey Medal)

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Background
Rituximab is a chimeric anti-CD20 monoclonal antibody that is used in several diverse immune-mediated diseases. Its off-label use in a variety of renal diseases has increased in recent years – a trend that needs careful monitoring.

Methods
Beaumont Hospital pharmacy records were cross-referenced with the renal day ward records to identify all nephrology inpatients and outpatients who received rituximab over a 10-year period (2004 – 2014). Medical records and laboratory results were extensively reviewed. Statistical analysis was performed using STATA version 13.1.

Results
61 nephrology patients received rituximab for the following indications: ANCA-associated vasculitis (n= 28), transplant related indications (n=17), focal segmental glomerulosclerosis (FSGS) (n= 9), minimal change disease (MCD) (n=4) and membranoproliferative glomerulonephtis (MPGN) (n=3).

Cases of nephrotic syndrome (FSGS, MPGN, and MCD) included native disease (n=9) and recurrent disease post-transplantation (n=7). 7/9 who received rituximab for native kidney disease maintained remission for over a year; 1/7 had an infusion related reaction precluding further treatment and 1/7 was a non-responder. 4/7 responders required further courses of rituximab to maintain remission. 4/7 with recurrent glomerular disease post-transplantation responded well to a single course of rituximab therapy. The remaining 3 required transplant nephrectomy.

Conclusions
Rituximab is a useful addition to our immunotherapy options in the field of nephrology and transplantation. As off-label usage has increased exponentially in the last decade, careful monitoring and reporting of safety and outcomes is critical.

PO05: PERSISTENT POSTTRANSPLANT HYPERPARATHYROIDISM IS INDEPENDENTLY ASSOCIATED WITH LOSS OF MINERAL BONE DENSITY BY QUANTITATIVE CT

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Background:
Hyperparathyroidism (HPTH) often persists despite successful renal transplantation and may contribute to a progressive decrease in Bone Mineral Density (BMD. Quantitative CT (QCT) reliably measures true volumetric lumbar BMD, independently of aortic calcification. The aim of this study was to quantitate the presence, strength, significance and independence of the association of persistent HPTH with change in QCT measured BMD over 4-year follow-up in stable renal transplant recipients.

Methods:
Consenting adults, 0.5-12 years post-engraftment and with a eGFR >30 ml/min/1.73m^2 were followed for a median of 48 months (intra-quartile range [IQR] 38-48) months. At baseline subjects underwent QCT lumbar BMD measurement, bone turnover measurements, iPTH (pg/ml) and a repeat QCT at follow-up. The relationship between baseline iPTH and change in BMD was examined with univariate and multivariate linear regression, using a Type I error rate of 0.05; standard model diagnostics were examined.

Results:
At baseline the 44 subjects included 24 males and 6 subjects with diabetes, the mean (sd) age was 48 years (12), median ESKD duration of 5.4 years and a mean (sd) eGFR of 54 ml/min/1.73m^2 (17.9). Serum phosphate (r=-0.386), Bone ALP (r=0.497), PINP (r=0.555) and osteocalcin (r=0.650) all significantly correlated with baseline iPTH. Mean lumbar cortical BMD decreased over follow-up from 142 g/cm3 (t-score = -1.09) to 131 g/cm^3. (t-score = -1.57) On univariate analysis iPTH was significantly associated with change in BMD (b=-0.357, p=.02), an association which persisted without substantial attenuation despite adjustment in a series of bivariate and multivariate analyses for the above and other potential confounders.

Conclusion:
Persistent post-transplant hyperparathyroidism is significantly and independently associated with progressive lumbar BMD loss as measured by QCT.

Poster Session

PO06: Novel Treatments of Renal Cell Carcinoma: Curcumin - a safer and a cheaper TRAIL sensitizer to fight against renal cell carcinoma than the clinically used Bortezomib

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Background: The use of the TNF related apoptosis inducing ligand (TRAIL) in cancer therapy has been considered as one of the attractive options to kill different types of tumors with minimal toxicity on normal cells. However, the development of resistance against TRAIL by many tumors has been considered one of the problems that limits TRAIL's therapeutic applications in the clinical settings. Yet, Bortezomib (Velcade)® and other proteasome inhibitors have been considered the best options available for halting and reducing resistance to TRAIL, however, the high toxicity profile of Bortezomib, namely, Tumor Lysis Syndrome that cause acute renal failure necessitates searching for an alternative with the comparable TRAIL sensitizing activity but with no toxicity on the normal cells. Curcumin, a polyphenolic phytochemical, has been has been shown to exhibit anticancer potential against different types of cancers including renal cell carcinoma (RCC). Our study aimed at restoring TRAIL sensitization when the renal cancerous ACHN cells were pre-treated with curcumin.

Methods: FluoroFire-Blue ProViaTox fluorescence assays were used to determine the most effective concentrations of both TRAIL and curcumin. Flow cytometry, Caspase assay, western blot and qRT-PCR were used to investigate the mode of cell death and to navigate through a series of molecular targets on route to reach the TRAIL sensitization.

Results: Curcumin sensitized ACHN cancerous cells to TRAIL- induced apoptosis through different mechanisms such as down regulation of cFLIP, ER stress and changing of mitochondrial membrane potential.

Conclusion: Our results suggest that curcumin plus TRAIL synergistically induced apoptosis in ACHN. The mechanism is due at least in part to cFLIp downregulation. The combination therapy of curcumin and TRAIL may be a novel approach to treat RCC and warrants further testing *in vivo.*

PO07: Decreased mitochondrial respiratory capacity in peripheral blood mononuclear cells from patients with active small vessel vasculitis

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Background

Anti-neutrophil cytoplasmic autoantibody (ANCA) vasculitis (AAV) is an autoimmune condition characterised by inflammation of the microvasculature. It can manifest with rapidly progressive glomerulonephritis and vasculitis of the respiratory tract. In recent years alterations in metabolic pathways in immune cells have been shown to effect the inflammatory phenotype of the cell in terms of cytokine production with aerobic glycolysis being associated with inflammatory cell types while oxidative phosphorylation has been shown to predominate in regulatory cells. The aim of this study is to investigate immune cell metabolism and mitochondrial function in the pathophysiology of AAV and other small vessel vasculitides (SVV).

Methods

Peripheral blood mononuclear cells (PBMCs) were obtained from SVV patients (active disease and remission) and age-matched healthy and disease controls. Cellular metabolism was measured by Seahorse extracellular flux analysis. Glucose uptake, reactive oxygen species and mitochondrial content and membrane potential were analysed by flow cytometry.

Results

Our data indicate that basal cellular metabolism, in terms of mitochondrial respiration and glycolysis, is not altered in PBMCs from patients with active SVV in comparison to patients in remission or healthy control individuals. However, we have found decreased oxygen consumption for the production of energy (ATP) in active patients and a significant reduction in the respiratory capacity of cells from these patients. This reduced respiratory capacity is not due to a reduction in mitochondrial mass.

Conclusions

We report that peripheral immune cells from patients with active disease display a decreased capacity for aerobic respiration, indicative of mitochondrial dysfunction, and propose that this contributes to the pathophysiology of SVV.

PO08: Increased glycolysis mediates the pro-inflammatory effect of ANCA stimulation of monocytes

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Background:

ANCA vasculitis is the leading cause of rapidly progressive glomerulonephritis. Most patients harbour autoantibodies to myeloperoxidase (MPO) or proteinase 3 (PR3). Although thought to be a primarily neutrophil-driven disease, monocytes can also be activated by these autoantibodies. Others have shown that the activation of inflammatory cells is dependent on a switch in cellular metabolism from oxidative phosphorylation (oxphos) to glycolysis. We investigated if this switch was required for activation of monocytes by ANCA.

Methods:

Monocytes from healthy donors were isolated and pre-treated with inhibitors of mitochondrial and glycolytic metabolic pathways prior to stimulation with monoclonal antibodies (mAb) directed against MPO or PR3. Cytokine secretion was then measured by ELISA. Cellular metabolism was directly measured using Seahorse extracellular flux analysis.

Results:

Rather than a switch from oxphos to glycolysis, we found that treatment of monocytes with ANCA led to a general upregulation of cellular metabolism (both glycolysis and oxphos). In order to elucidate which metabolic pathway was required for the anti-MPO induced production of pro-inflammatory IL-1β, we examined the effect of blocking glycolysis or oxphos. Inhibition of glycolysis reduced IL-1β levels, indicating that this metabolic pathway is required. Conversely, blocking oxphos increased glycolysis with a concomitant increase in IL-1β secretion.

Conclusion:

These data indicate that stimulation of monocytes with ANCA does not result in a switch from one metabolic pathway to another, but rather leads to an overall upregulation of glucose metabolism. However, we also demonstrate that despite increased oxidative phosphorylation in response to ANCA, glycolysis is the driver of pro-inflammatory IL-1β production.

PO09: Vertical sleeve gastrectomy attenuates diabetic kidney disease in a rat model of obesity and type 2 diabetes.

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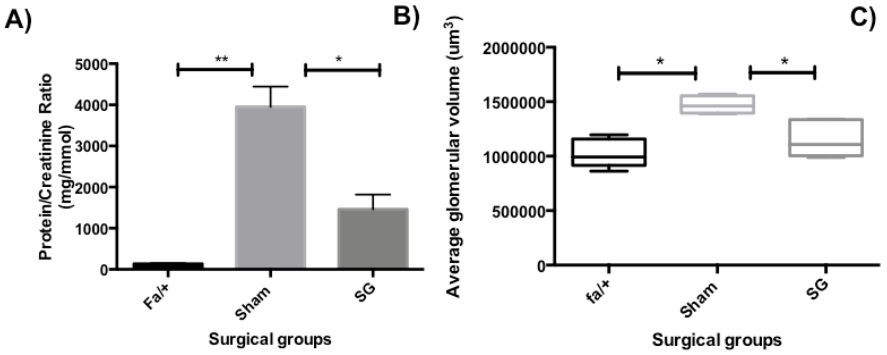
Background: Glomerulomegaly, progressive increases in urinary protein excretion and accelerated decline of glomerular filtration rate (GFR) are typical features of diabetic kidney disease (DKD). Vertical sleeve gastrectomy (VSG) involves resection of > 80% of the stomach and results in 40% of patients achieving diabetes remission at 1 year. The aim of the present study was to investigate the impact of VSG on proteinuria and glomerulomegaly in the Zucker Diabetic Fatty (ZDF) rat model of DKD.

Methods: Eighteen week old ZDF fa/fa rats underwent VSG (n=5) or sham surgery (n=5). Zucker fa/+ rats (n=5) acted as healthy, lean controls. Glycaemic control was monitored over the subsequent 12 week period. Glomerular volume and urinary protein-creatinine ratio were assessed following harvest at post-operative week 12.

Results: Sham operated ZDF rats developed overt hyperglycemia associated with proteinuria and glomerulomegaly. VSG significantly improved glycaemic control versus sham operated rats ($p<0.01$). This was associated with significant attenuation of proteinuria (A) and paralleled at the histopathological level by significant reductions in glomerular volume (B) ($p<0.05$).

Figure:



Conclusion

Biochemical and histopathological indices of DKD in the ZDF rat are reduced following VSG surgery in tandem with improved glycaemic control. VSG may be of value as an intensive intervention in patients with poorly controlled diabetes and DKD.

PO10: Exploiting renal oxygenation to develop novel strategies for detection and treatment of renal disease

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Cellular response to hypoxia (low oxygen) is mediated through stabilisation of hypoxia inducible transcription factors (HIFs). In the kidney, hypoxia promotes fibrogenesis through modulation of the extracellular matrix and inhibiting HIF function attenuates renal fibrosis in vivo. As hypoxia is an early feature of kidney injury, we hypothesised that hypoxia-induced proteins may represent novel urinary biomarkers for the early detection of renal injury and potential therapeutic targets for treatment of CKD.

Hypoxia-induced gene and protein expression was analysed in two pre-clinical models of kidney injury; unilateral ureteral obstruction (UUO) and gentamicin-sulphate-induced (GS) renal disease (40 or 120 mg/kg/day for 9 days) and two independent kidney transplant nephropathy collections, GoCAR (Genomics of Chronic Allograft Nephropathy) and the North Dublin Renal Biobank.

Hypoxia-responsive genes were significantly increased in UUO and down-regulated with resolution of injury. Urinary levels of the encoded hypoxia-responsive proteins correlated with gentamicin-induced injury and inhibition of the function of these proteins preserved renal function. Hypoxia-responsive proteins are currently being evaluated in a CKD patient urine collection.

We conclude that hypoxia-responsive proteins are up- regulated during kidney injury, may be used as urinary biomarkers of kidney disease, and represent potential novel therapeutic targets for the treatment of CKD.

PO11: Role of BMP-7 in renal inflammation

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Renal injury is associated with a chronic inflammatory response, involving recruitment of macrophages which utilise surrounding oxygen leading to hypoxia. Macrophages polarized with Th1 cytokines are called M1 macrophages, are pro-inflammatory and express high levels of iNOS. Macrophages activated by Th2 cytokines are called M2 macrophages and are considered pro-resolution or anti-inflammatory and express high levels of arginase.

Cellular response to hypoxia is predominately mediated through stabilization of hypoxia inducible transcription factors (HIFs). HIFα isoforms can be differentially stabilised, with Th1 cytokines inducing HIF-1α during M1 macrophage polarization and Th2 cytokines stabilizing HIF-2α in M2 macrophages.

BMP-7, a member of the TGF-β superfamily, has been shown to protect against renal fibrosis. The aim of this study was to determine if BMP-7 induces an M2 pro-resolution macrophage phenotype via modulation of HIFs and induction of arginase.

Several cell lines representing different cells found within the kidney were selected for this study and stimulated with BMP-7 under normoxia (21% O2) or hypoxia (1% O2). Gene expression was analysed by qPCR, protein expression by western blot, and cytokine secretion was analysed by ELISA.

This study confirms BMP-7 protects against renal injury, stabilizes HIFα expression and induces an M2 pro-resolution macrophage phenotype. In conclusion, these results suggest that BMP-7's ability to drive M2 macrophages may be exploited to offer novel treatments for kidney disease or other inflammatory disorders.

PO12: Alport's syndrome: clinical features and outcomes of a large national case series (Entrant for JP Garvey Medal)

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Background: Alport syndrome is an inherited renal disease characterised by haematuria, renal failure and hearing loss. Patients with Alport syndrome who undergo renal transplantation have been shown to have overall survival and graft survival rates similar to or better than those of patients with other renal diseases.

Methods: In this national retrospective case series we describe the clinical features and outcomes of all patients with Alport syndrome diagnosed over the past 40 years. Patients were divided into an older (1974-1994) and a more modern era (1995-2015) according to their date of diagnosis. The main outcomes assessed were patient survival, time to end-stage kidney disease and renal allograft survival.

Results: 133 patients were diagnosed with Alport syndrome between 1974 and 2015. 59% patients reached ESKD during the period of study. 95% of those who reached ESKD were successfully transplanted. Mean transplant survival was 18.8 years. 20-year patient survival rate was 66.1%. No significant difference in graft survival was found between Alport and non-Alport renal patients ($p = 0.12$). Patient survival with Alport syndrome was significantly better than that of patients with other renal diseases ($p = 0.01$) but not when adjusted for age.

Conclusions: In this national case series the majority of patients with Alport syndrome who reached ESKD were successfully transplanted with long transplant survival times. Patient survival was greater than that of other renal diseases but was accounted for mainly by younger age. Early diagnosis and management can lead to favourable outcomes for this patient cohort.

PO13: An audit on the treatment of chronic kidney disease associated anaemia in a cohort of dialysis patients in the west of Ireland (Entrant for JP Garvey Medal)

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Background:

The majority of CKD patients on dialysis suffer from anaemia, which is treated with a combination of iron and ESAs. Iron is administered to all patients with iron deficiency. ESAs have also become a treatment of choice leading to a reduced need for blood transfusions. However ESAs are expensive and over treatment may reduce survival. International trends are evolving toward reducing ESA doses with a greater reliance on iron.

Methods:

We undertook to determine trends in prescribing patterns of ESAs and iron for CKD associated anaemia in two representative Irish dialysis centers. Patient data was accessed from the Kidney Disease Clinical Patient Management System (KDCPMS) for the period 2012 to 2014. We generated reports on ESA and iron doses, lab data (haemoglobin, TSAT and ferritin) and patient population characteristics. We used line graphs to demonstrate the trends in ESA and iron dosing and lab parameters achieved. Correlation tests showed the significant of these trends over time.

Results:

The data revealed a drop in ESA dosing in the second, third and fourth quarters of 2014. Dosing of intravenous iron increased throughout but a large increase was seen in the third and fourth quarters of 2014. Ferritin levels decreased over the three years.

Conclusions:

We observed a drop in ESA dosing and an increase in IV iron use. These observations may have economic implications given ESA costs and the relative affordability of iron. The reports we generated could possibly be applied to other centers nationally as all are now using KDCPMS.

PO14: Hypertension control in Chronic Kidney Disease (CKD) - An analysis of an Ambulatory Blood Pressure Monitor (ABPM) service

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Background

Hypertension is associated with adverse outcomes such as progression of Chronic Kidney Disease (CKD) and increased cardiovascular mortality (1). Blood Pressure (BP) targets vary depending on presence of diabetes and/or proteinuria. We aim to assess BP control in patients with CKD who were referred for a 24-hour ambulatory blood pressure monitor (ABPM).

Methods

ABPM results (Space Labs Healthcare) of patients with CKD between the years 2011 and 2014 were extracted from proprietary software using custom Perl scripts. Clinical data was then incorporated, stored securely on REDCap (Research Electronic Data Capture) data capture tools and analysed using SPSS. Patients with end-stage kidney disease were excluded. BP control was assessed according to several international guidelines: NICE, KDOQI and JNC 8.

Results

A total of 1429 ABPM results were analysed, the median age was 54 years (+- 16.34); 44.5% were female. BP control was sub-categorized and studied by CKD stage (1-15.4%, 2-21.8%, 3-36.1%, 4-10.2%, 5-16.4%) and presence of diabetes (25.7%). Patients achieving BP targets of 140/90 (KDIGO, JNC8) were 1-62.5%, 2-66.5%, 3-62.5%, 4-58.8%, 5-47.4% and BP target of 130/80 (DM, Proteinuria) were 1-38.3%, 2-41.2%, 3-51.5%, 4-45.9%, 5-38.7%.

Conclusion

The above data highlights suboptimal BP control in patients sent for ABPM, especially in the diabetic and proteinuria sub-group. We have incorporated this ABPM data into an electronic clinical tool for convenient access to results in the outpatient clinic.

References: Ravera, M. "Importance Of Blood Pressure Control In Chronic Kidney Disease". *Journal of the American Society of Nephrology* 17.4_suppl_2 (2006): S98-S103. Web. 15 Feb. 2016.

PO15: Cystatin C versus creatinine as a predictor of objective tests of physical performance in older adults

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Background

Estimated glomerular filtration rate derived from cystatin C [eGFR(cys)] has a more linear relationship with mortality than that derived from creatinine [eGFR(cr)]. The association between eGFR and more proximal, person-centred outcomes like physical performance is less well studied. We hypothesised that eGFR(cys) would out-perform eGFR(cr) as a predictor of objective physical outcomes.

Methods

Cross-sectional analysis from wave 1 of The Irish Longitudinal Study on Ageing, a cohort study of community-dwelling adults aged 50 and over. Participants with valid measurements of cystatin C and creatinine who completed the following tests were included: gait speed (n=3986), timed-up-and-go (n=4559), grip strength (n=4576). The exposure variable was eGFR calculated for either cystatin C or creatinine. Multivariable linear regression was used to examine the association between eGFR and each of the three outcome measures.

Results

All 3 physical performance outcomes were linearly related to eGFR(cys). After adjusting for potential confounders each 10ml/min/1.73m^2 reduction in eGFR(cys) was associated with slower gait speed (-0.7 [-0.3,-1.1] cm/s, $p<0.001$), delayed timed-up-and-go (0.16 [0.1,0.23] seconds, $p<0.001$) and reduced grip strength (-0.17 [-0.05,-0.3] kilograms, $p=0.008$). The relationship between eGFR(cr) and physical outcomes was non-linear (inverse u-shape). Each 10ml/min/1.73m^2 reduction in eGFR(cr) was associated with increased grip strength (0.38 [0.25,0.52] kilograms, $p<0.001$).

Conclusions

Estimated GFR was independently related to poorer physical performance in older adults. This relationship was stronger for eGFR(cys) than eGFR(cr). Cystatin C may be a better filtration marker than creatinine to predict frailty outcomes in older adults. This will be the subject of future longitudinal studies.

PO16: The relationship between estimated glomerular filtration rate and quality of life in community-dwelling older adults.

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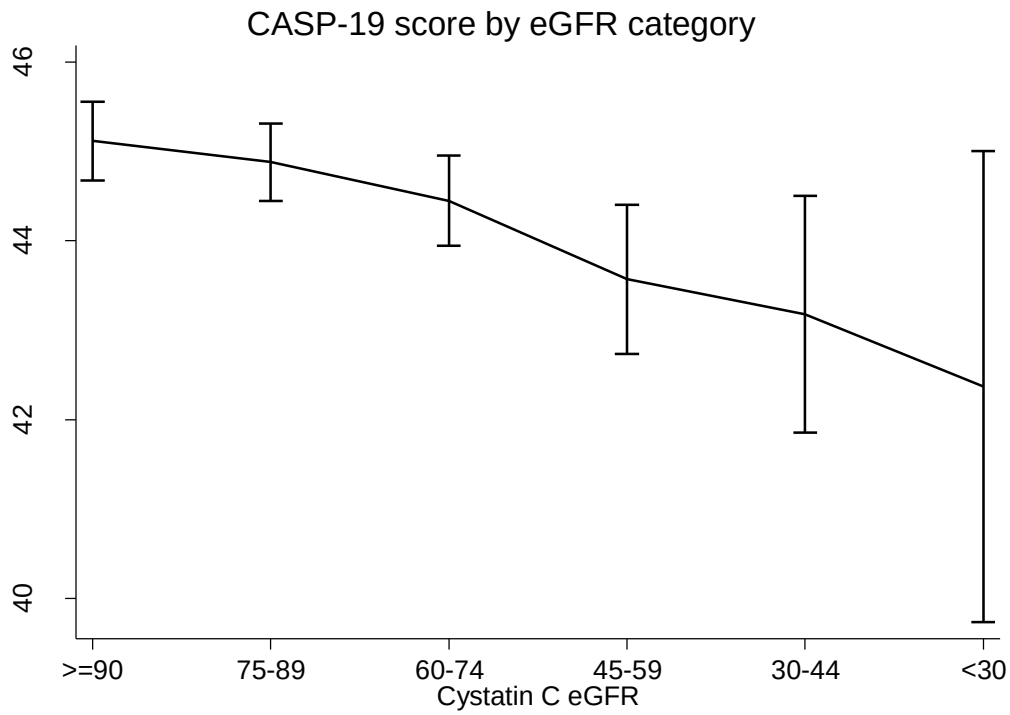
Background
Advanced chronic kidney disease (CKD) is associated with reduced health-related quality of life (QoL). Less is known about overall QoL across the spectrum of estimated glomerular filtration rate (eGFR). We sought to characterise the relationship between eGFR and overall QoL in a general population of older adults.

Methods
Cross-sectional analysis from The Irish Longitudinal Study on Ageing, a cohort study of community-dwelling adults aged 50 and over. Participants with complete questionnaire data and a valid measurement of creatinine and cystatin C were included (n=3645). The exposure was eGFR (mls/min/1.73m^2) categorised as follows: ≥90 (reference, n=1243); 75-89 (n=1087); 60-74 (n=805); 45-59 (n=341); 30-44 (n=137); <30 (n=32). The outcome was the Control Autonomy Self-Realisation Pleasure (CASP-19) scale (range 0-57; higher scores indicate better QoL). The relationship between eGFR and CASP-19 was estimated using multivariable linear regression, adjusting for socio-demographic and health variables.

Results
The mean (SD) age of the sample was 62 (10) years; 53% were female. Cystatin C eGFR was negatively associated with CASP-19 (p<0.001 for linear trend). Compared to the reference group, adjusted CASP-19 scores tended to worsen below 60mls/min/1.73m^2 (-1.5 [-2.6, -0.5], p=0.003, **figure**). Irrespective of CKD status, average CASP-19 initially increased with advancing age. There was no substantive association between creatinine eGFR and CASP-19.

Conclusions
Overall QoL was reduced in older individuals with cystatin C eGFR<60mls/min/1.73m^2. CKD did not appear to modify the relationship between QoL and age. Longitudinal studies are required to determine if CKD is associated with an accelerated decline in QoL among older adults.


CASP-19 score by eGFR category
46
44
42
40
>=90
75-89
60-74
45-59
30-44
<30
Cystatin C eGFR

PO17: eGFR equation agreement and mortality discrimination in obese and overweight community dwelling individuals. The Irish Longitudinal Study on Ageing.

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Introduction

Little is known regarding the interchangeability of different eGFR equations in the obese population and their performance in mortality risk discrimination in the community.

Methods

A cross-sectional investigation of estimated kidney function in the first wave of the Irish Longitudinal Study on ageing (TILDA) of adults aged over 50 years. All-cause mortality was assessed at wave 3 with approximately 4 years of follow up. 95% limits of agreement between equations were calculated. Integrated Discrimination Improvement (IDI) was then used to compare mortality classification (vs MDRD equation). Models were adjusted for: age, sex, mean systolic blood pressure, cardiovascular disease, smoking and serum cholesterol.

Results

N=4590 participants were included in this study, 43.3% were overweight, 33% were obese (N=1520), 2.2% were extremely obese. In the overall cohort mean (SD) BMI was 28.5 (5.0) kg/m^2, and in the obese group 33.9 (4.1) kg/m^2, age was 62.4(9.8) yrs. with 54% females. Mean (SD) eGFR in the obese group was 78.4 (18) $ml/min/1.73m^2$. 95% limits of agreement (vs CKD-EPI creatinine) (ml/min/1.73m2) were: MDRD mean diff 3.8 (-5.7, 13.3), CKD-EPI cystatin 2.7 (-24.5, 29.9), creatinine and cystatin combination equation 1.4 (-13.8, 16.2). N=75 (5%) deaths at follow up in the obese group. The IDI 95%CI for mortality was as follows (vs MDRD): CKDEPI creatinine 0.011 (0.0069-0.015), cystatin CKDEPI 0.019 (0.0088-0.028), combination equation 0.022 (0.013-0.032) (all $P<0.001$).

Discussion

Cross sectional estimation of GFR displays poor agreement between equations in community dwelling obese individuals. Mortality risk classification differs by equation and may possibly be superior with the combination equation.

PO18: Weight loss in haemodialysis (HD) patients following hospitalisation: relationship to length of stay and dietitian referral times.

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Background: Patients on haemodialysis (HD) are a high nutritional risk group, with an incidence of malnutrition of 29% - 40% (de Mutsert *et al*, 2009). The aim of this audit was to assess average time to dietetic referral of HD patients admitted to hospital and to assess if time to referral had an impact on the patients' weight on discharge.

Methods: Data was collected on 31 HD patients admitted from November 2014 to March 2015. Data collected included weight changes; referral times to dietitian; volume issues and use of oral nutritional supplements at discharge.

Results: Average time to referral was found to be 2.77 days in this patient cohort. Average time to being seen by the dietitian was 4.13 days. 74% were referred to the service by the Renal Dietetic team. The mean weight change was -0.9kgs. Seventeen patients (55%) lost weight, and of this the mean weight loss was 3.4% of their body weight. Mean length of stay (LOS) was 24 days. Patients with the longest LOS had the highest percentage weight loss (correlation co-efficient -0.67). No correlation was found between time to dietitian referral and weight loss (correlation co-efficient 0.315).

Conclusions: Weight loss occurred in 55% of the dialysis patients admitted, which highlights the importance of ensuring adequate nutrition as soon as possible post admission. Whilst no correlation was found between weight lost during inpatient stay and time to dietitian referral, this may be due to the early time to referral of this patient cohort by the Renal Dietetic team.

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PO19: The nephrologist as the primary care physician for chronic haemodialysis patients: the patients perspective

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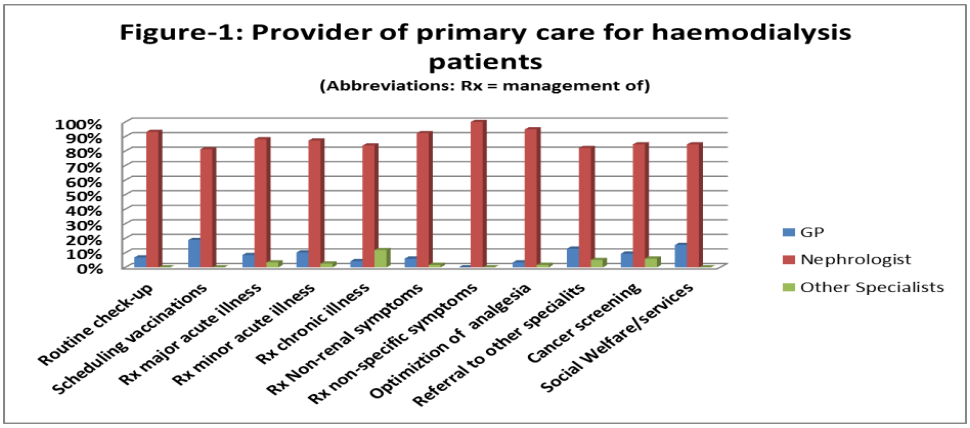
Background: The extent to which haemodialysis (HD) patients rely on nephrologists versus the general practitioner (GP) for primary-care is not known. We conducted a survey to ascertain the patient perspective on the extent of care provision by either nephrologists or GPs.

Methods: A 14-item survey-questionnaire was conducted on patients undergoing haemodialysis at a regional-unit. It captured information on demographics and components of care provided by either GPs or nephrologists. Statistical analyses were performed using Fisher's exact test and unpaired-Student's t-test. *P*-value <0.05 was considered significant.

Results: Response rate was 86%(117/136), 68% were men, average age= 62.4 years(SD±13.4) and 83% were on dialysis for >3years. All patients have a GP. Most patients (90%) attended their GP six monthly, while 7.7% attended more frequently. Medication prescribing (81%) was the principal reason for attending the GP. For routine care, patients reported dependence on their nephrologist as the primary-care provider rather than their GP or other specialists (*Figure-1, P< 0.001 for all comparisons*). For emergencies, 87.2% reported first contact with their dialysis unit or nephrologist rather than GP or emergency department. Virtually all patients felt that their nephrologist could totally replace their GP as a primary-care doctor.

Figure-1: Provider of primary care for haemodialysis patients

(Abbreviations: Rx = management of)



Conclusion: Most in-centre HD patients view their nephrologist as the "*primary-care provider"* and expect all healthcare needs to be coordinated through the dialysis-unit. This contributes an additional workload on nephrologists which is not taken into consideration in workforce planning. Further studies are warranted to determine the effectiveness and costs of having nephrologists function as primary healthcare providers.

PO20: Experience of data extraction from multiple sources for a CVVHDF and pharmacokinetic retrospective analysis.

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Background

The aim of the current study was to develop a reliable methodology to extract and amalgamate retrospective data from continuous veno-venous haemodiafiltration (CVVHDF) machines, an intensive care clinical information system and laboratory information system for use in future pharmacokinetic analyses of drug clearance in patients on CVVHDF. Extraction and amalgamation of such large and detailed data sets requires a systematic approach, considering feasibility of data extraction, quality assurance of retrospective data accuracy, security of data storage while facilitating access for research purposes.

Methods

Reliability of data extracted was considered as either high or low risk in terms of time-sensitivity and patient specificity. The process flow and risk assessment exercises were carried out by a multidisciplinary team consisting of clinical staff in the intensive care unit, nephrology and pharmacy departments . Patient data was included if they were on CVVHDF and an antibiotic of interest (in this case, vancomycin) during the period January 2014 to December 2015. Ethical approval was given by AMNCH research and ethics committee. Multiple open source technologies were utilised including Perl, REDCap (Research Electronic Data Capture) data capture tools and MySQL.

Results

A reliable and automated method for data extraction was developed. Each data variable was assigned a risk category with higher risk data points having a two part validation system to match variables across multiple databases. A fully coded-anonymised database for retrospective analysis was created.

Conclusion

The current approach represents a promising set of tools to establish useful large databases from multiple routine clinical recording systems for retrospective data analysis, with specific relevance to critically ill patients on CVVHDF.

PO21: Development of a Nephrologist-led Peritoneal Dialysis Catheter Insertion Program

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Peritoneal dialysis (PD) is a renal replacement modality which can offer selected patients significant advantages over haemodialysis. Specifically it can allow for treatment at home with greater lifestyle flexibility, less attendances to the hospital, and preservation of vascular access sites in the event of needing haemodialysis in the future.

Potential barriers to PD catheter insertion can include access to surgical specialists, need to attend for additional surgical appointments, availability of theatre space, patient suitability for general anaesthetic and need for pre-operative assessment. Nephrologist placement of PD catheters under local anaesthetic can overcome these barriers leading to improved patient experience and access to PD.

38 Nephrologist PD catheter insertions were attempted since commencement of the program in 2014. The mean patient age was 54 years (range 30 to 90 years). 4 patients had a previous renal transplant, 2 had a previous hysterectomy, and 1 had a previous cholecystectomy. 5 attempts were unsuccessful, of which 3 also failed insertion under general anaesthetic. No direct complications of insertion, including viscus perforation, occurred. There were no episodes of peritonitis within 1 month of PD catheter insertion or of PD fluid leakage. 1 patient developed drainage problems 6 months post commencement of PD which did not improve with catheter manipulation and transferred to haemodialysis.

Our data suggests that Nephrologist insertion of PD catheters can be performed under local anaesthetic with a high success rate and no insertion related complications.

PO22: Factors associated with acute kidney injury in the Irish health system

MA. Kaballo[1,2], X Li[1], TM Khair[2], A Alghali[2], ME Elsayed[2], MU Sharif [2], GS Ahmed[2], A Hannigan, H Johnson[3], R Saran[4], PT Murray[5], AG. Stack[1, 2, 6]

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BACKGROUND: Acute Kidney Injury (AKI) is common and associated with adverse consequences in all health systems. We evaluated the relationship between clinical and non-clinical factors with first AKI events in the Irish Health System.

METHODS: Clinical data from the Midwest and Northwest health information systems were merged with mortality data from 2005 to 2011 (n= 533,773). We modelled the association of demographic factors, county level data, location of supervision, and laboratory variables with the likelihood of first AKI event from 2005 to 2011.Multivariable logistic regression explored associations expressed as odds ratios (OR) and 95% Confidence Intervals (CI).

RESULTS: Higher odds of AKI were associated with increasing age (per 5 year) 1.12 (1.11, 1.13), male sex (vs women) 1.36 (1.28-1.44), WBC (> 10.5 vs less (1.15, 1.07-1.24), neutrophils (> 6 vs less, 1.34, 1.25-1.43), phosphorous (per unit higher (1.05, 1.04-1.06), ESR, (> 20 vs less (1.32, 1.23-1.41), Lymphocytes (> 3.2 vs less (1.16, 1.03-1.31), while a lower odds of AKI was associated with higher haemoglobin (0.89, 0.88-0.91 per 1 gm higher), higher albumin (0.93, 0.93-0.94) per 1 gm increase, and higher baseline eGFR (0.91, 0.90-0.91 per 5 ml/min increase). Significant differences were present by location of supervision and by county of residence as shown.

Location of Supervision	Adjusted Odds Ratio 95% CI
General practice (vs general practice)	1.00
Inpatient (vs general practice)	31.62 (28.82, 34.70)*
Outpatient (vs general practice)	6.26 (5.64, 6.94)*
Emergency room (vs general practice)	6.03 (5.51, 6.60)*
Outside facility (vs general practice)	3.65 (2.93, 4.53)*
County of residence	
Donegal (referent)	1.00
Sligo (vs referent)	0.78 (0.69, 0.87)*
Leitrim (vs referent)	0.59 (0.51, 0.70)*
Limerick (vs referent)	1.51 (1.39, 1.64)*
Clare (vs referent)	1.29 (1.16, 1.43)*

All P<0.001, C-statistic for model 0.93
Model adjusted for demographic factors, 11 laboratory variables, county of residence, location of supervision, and calendar year

CONCLUSIONS: AKI tends to occur more commonly in older patients, men and in high-risk clinical settings. A targeted approach to prevention and treatment is essential. Significant county-level variation exists in the Irish health system which may indicate differences in patient case-mix and availability of AKI education programmes.

PO23: Temporal trends in the rates of acute kidney injury in the irish health system

MA. Kaballo[1,2], X Li[1], H Johnson[3], R Saran[4], PT Murray[5], AG. Stack[1, 2, 6]

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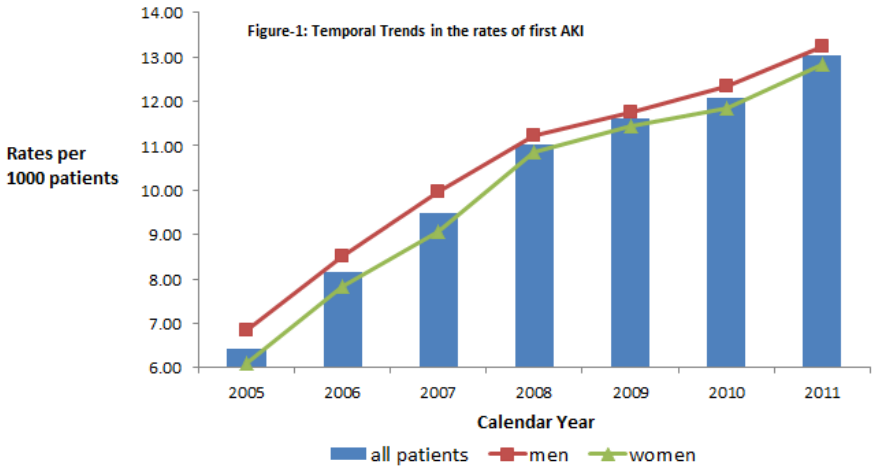
BACKGROUND: Complete ascertainment of the true rates of AKI and emerging trends are essential for the deployment of robust management within health systems. We determined the rates of AKI and annual trends from 2005–2011 in the Irish Health System.

METHODS: Clinical data from health information systems in Midwest and Northwest regions were linked with mortality data from 2005–2011(n= 533,773). AKI events were identified as per KDIGO-guidelines. Incidence rates were calculated for each calendar year, by county of residence, geographic region, location of medical supervision [Emergency room(ER), General practice(GP), Inpatient(IP), Outpatient(OP) Outside facility(OF)] and expressed as events per 1000 patients. Statistical comparisons were conducted using ANOVA, general linear modelling(GLM) and logistic regression.

RESULTS: Incidence rates increased significantly from 6.44 (6.27, 6.61) in 2005 to 13.04 (12.69, 13.39) in 2011 per 1000 patients. Rates were significantly higher in men than in women, increased with advancing age, and varied by county of residence, by healthcare region and by location of medical supervision, P<0.001 for all. From 2005 to 2011, the rates of AKI increased significantly in IP(from 33.56 to 50.15/1000), in ER(9.38 to 20.23/1000), in OP(6.56 to 21.61/1000), in OF(3.2 to 13.59/1000, P< 0.001), and in GP(0.84 to 2.31/1000), P<0.001 for all trends. In multivariate analysis, the likelihood of AKI was significantly higher in 2011(OR=5.20, 95% CI: 4.59, 5.89) vs 2005(OR= 1.00).



CONCLUSIONS: The incidence rates of AKI have increased substantially in the Irish health system over time and in all healthcare setting. A comprehensive strategic plan needs to be put in place to reduce AKI events and avoid adverse consequences.

PO24: Acute Kidney Injury in Crohn's Disease: Incidence, Risk Factors and Outcomes.

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Background:
The association between interstitial nephritis and glomerulonephritides in Crohns disease (CD) is well described. However, the incidence of AKI and CKD is not known.

Methods:
We retrospectively examined laboratory records of all patients with CD from a tertiary referral centre over a 7 year period.

Results:
416 patients were identified. Mean baseline creatinine was 70.8umol/L, mean baseline eGFR was 103.3 mls/min.

3.8% (16) of patients had CKD with an eGFR less than 60mls/ min. 3.3% (14) CKD stage 3 and 0.5% (2) had CKD stage 4 (none had CKD 5).

Overall 20.2% (85) of patients with CD experienced an episode of AKI during the time period of evaluation. 23.5% (20) of affected patients had more than one episode of AKI. 77.3% (85) had AKIN stage I, 11.8% (13) had AKIN stage II and 10.9% (12) had AKIN stage III. Peak creatinine values ranged from 72-955umol/L (mean of 178; SD of 146). 12.7% (14) of patients did not recover their renal function to baseline level. Episodes of AKI correlated with lower baseline GFR, higher CKD stage and increasing age ($p<0.001$). Increasing age correlated with higher AKI stage and baseline CKD.

There was a 3.3% annualized risk of AKI in patients with CD. Recurrent episodes of AKI were associated with increasing severity of AKI ($p=0.039$), higher baseline creatinine and CKD ($p<0.001$).

Conclusions:
We report the first study of the incidence and outcome of AKI in patients with Crohns disease. AKI is a common event in the natural history of this illness with an annual incidence of 3.3%.

PO25: Statins use in kidney transplant recipients with high risk for coronary artery disease: A cross-sectional descriptive study

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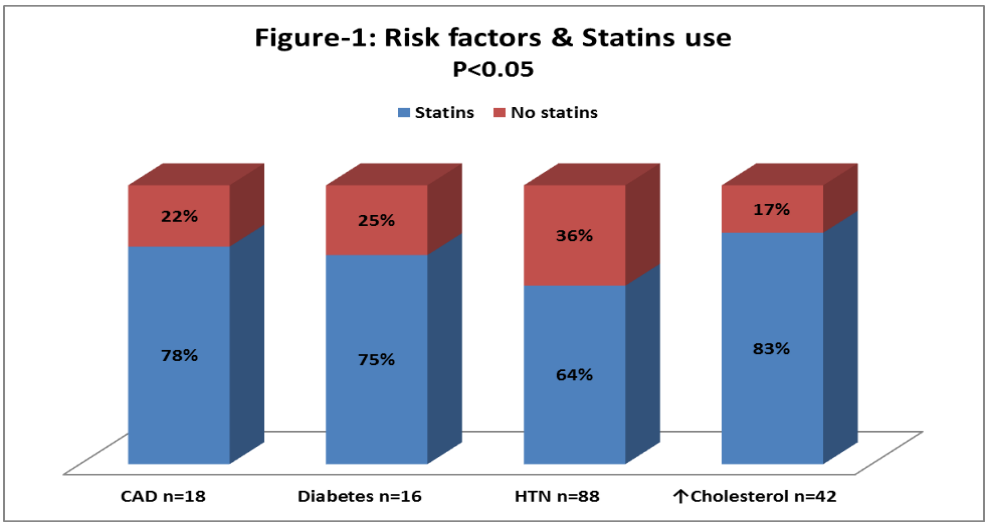
Background: Coronary artery disease(CAD) is the leading cause of deaths after renal transplantation. Its risk after successful transplantation remains 3-5 times that of the general population. Elevated serum cholesterol is a major independent risk factor for CAD. Statins have been convincingly shown to reduce the risk of adverse cardiovascular events in CKD population, including kidney transplant recipients (KTR). We conducted this cross-sectional descriptive study to ascertain the extent of statins use in a cohort of KTR with an estimated 10-year incidence of CAD>10%.

Methods: Clinical data from health information systems in a regional renal-unit was collected, retrospectively, using a standardised instrument. It captured information on demographics and components of care provided. Statistical analyses were performed using Fisher's exact test and unpaired-Student's t-test. *P*-value<0.05 was considered significant.

Results: A total of 102 patients were included. Males were 64%. Mean age was 54years (SD±15). The renal allograft age ranged from 3months to 35years with a mean of 10years. The majority had a deceased-donor transplant (95%). Coronary artery disease was present in 18%, diabetes mellitus in 16%, hypertension in 86% and hypercholestrolaemia in 41%. Two-percent were active smokers while 10% were Ex-smokers. More than half patients were on statins (58%), with atorvastatin being the most commonly used agent in 38/59 (64%). History of CAD was associated with higher statins use, 78% (see figure-1).



Conclusion: This study shows that statins use is under-utilized in KTR with high risk for CAD. Causes should be identified and special efforts are required to detect and reduce possible therapeutic inertia.

PO26: Sirolimus use in renal transplant recipients- a single centre experience

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Sirolimus is a mammalian target of rapamycin inhibitor which can be used as an alternative to calcineurin inhibitor based immunosuppresion regimens in renal transplant recipients. We performed a retrospective review of all renal transplant recipients treated with sirolimus during their post-transplant course.

92 patients at our centre received sirolimus as part of their immunosuppression at some point in their post-transplant follow up. 1 patient was excluded because of insufficient data. The mean duration of sirolimus treatment was 5.14 years. Reasons for use of a sirolimus regimen were nephrotoxicity in 34 patients (37.4%), non-melanomatous skin cancers in 24 patients (26.4%), enrolment in a sirolimus clinical trial where sirolimus was used as part of the initial immunosuppression regimen in 15 patients (16.5%), non-cutaneous malignancy in 7 patients (7.7%), and other indications in 6 patients (6.6%). The indication for using a sirolimus based regimen was unclear in 4 patients (4.4%). The other indications category consisted of 2 patients with ciclosporin induced gingival hyperplasia, 2 patients with recurrent cutaneous warts, 1 patient who was intolerant of mycophenalate, and 1 patient diagnosed with myelofibrosis who was transitioned to sirolimus to reduce myelosuppression.

The number of patients with functioning grafts at 1 and 5 years post commencement of sirolimus were 73 (79.3%) and 45 (48.9%) respectively. Mean creatinine at baseline, 1, and 5 years were 186.4 μmol/l, 153 μmol/l, and 157 μmol/l respectively.

Of the 91 patients included 25 patients remain on treatment with sirolimus, 53 patients had sirolimus discontinued and 13 patients died in the follow up period. The reasons for discontinuation of sirolimus were graft failure in 21 patients, drug side effect in 13 patients, peri-operative discontinuation without recommencement in 4 patients, reduction or discontinuation of immunosuppression as part of malignancy management in 3 patients, biopsy proven rejection with transition to alternative immunosuppression regimen in 3 patients, recurrence of HUS in 1 patient, and worsening cutaneous warts in 1 patient. The reason for discontinuation was not clear in 7 patients. The limiting side effects consisted of 4 cases of oedema deemed to be exacerbated by sirolimus, 3 cases of pulmonary fibrosis, 2 cases of proteinuria, and 1 patient each with joint pain, acneiform rash, myalgia with skin rash, and diarrhoea. The patient discontinued because of diarrhoea was also receiving colchicine and metformin.

PO27: A Study to Determine the Extent of Respiratory Limitation Post Renal Transplantation

S Kant, WD Plant, MR Clarkson, EB Hunt, BJ Plant, JA Eustace, DM Murphy

Introduction- The frequency of co-morbid respiratory disability in renal allograft recipients is not well documented in current literature. In this study we aimed to rectify this deficiency and elucidate the prevalence of co-existing respiratory conditions in this patient population.

Methods- We conducted a cross sectional study to determine the extent of respiratory limitation in renal transplant patients at our institution. In addition to recording demographics, we performed spirometry in all enrolled subjects and all were assessed and assigned a Medical Research Council (MRC) dyspnoea score. Based on these initial results, patients who had possible respiratory impairment, underwent formal assessment with a respiratory physician, and subsequent additional diagnostic testing.

Results- Of the 103 patients enrolled, 54 displayed evidence of a contingent respiratory compromise, based forced expiratory volume in one second (FEV1) of less than 90% MRC scores more than equal to 2 in 44% and 36% of the patient cohort respectively . A formal respiratory consultation and subsequent investigations (pulmonary function tests, computed tomography of thorax, and echocardiogram) revealed nearly half of these patients had an undiagnosed respiratory condition, most prominently chronic obstructive pulmonary disease (COPD) and asthma. An additional 10 percent having symptoms attributable to cardiovascular causes.

Conclusion- Renal transplant patients exhibit a significant amount of undetected respiratory infirmity. Early identification might improve allograft and patient outcomes.

PO28: IgG4: An elusive pathological diagnosis. We present a case with a favourable outcome.

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IgG4 is a newly described clinico-pathological diagnosis with multi-system involvement characterised by raised serum IgG4 and lymphocytic infiltration of various organs.

We present a case of a 67yr old gentleman with recurrent admissions attributed to HFPEF and exacerbation of COPD. His past medical history was significant for ischaemic heart disease requiring CABG, Type 2 DM, Cirrhosis, Paroxysmal Atrial fib on warfarin and obstructive airway disease in the absence of a smoking history.

During his most recent admission his creatinine continued to rise despite optimisation of his cardiac function with no other obvious contributory factors. His initial investigations including renal US and serological screen were unremarkable however he did have proteinuria with a PCR of 117mg/mmol. His creatinine peaked at 860umol and given associated oliguria and uraemic symptoms was commenced on haemodialysis.

In the interim a CT Thorax was performed which revealed ground glass opacification with a wide differential and pulmonary function tests revealed a reduced DLCO at 35%.

Given the unclear aetiology with associated proteinuria a renal biopsy was performed. This showed evidence of significant patchy tubulointerstitial nephritis with predominant lymphocytic involvement. His serum IgG4 subclass returned at a level > 6.8g/L (reference value 0.039-0.864g/L) which helped to confirm the diagnosis of IgG4 disease.

Given these findings he was commenced on corticosteroids at a dose of 60mg of prednisolone with a planned taper. He became dialysis independent at 6 weeks and recovered to Stage 4 CKD.

PO29: CATCHING THE RED EYE - A complication of haemodialysis catheter Infection

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Introduction: Catheter related bacteraemia (CRB) is the commonest complication of haemodialysis catheters with estimated incidence of 0.6-6.5 cases per 1000 catheter days. We present a case of endophthalmitis, a rare site-threatening condition, due to Staphylococcal Aureus (S Aureus) metastatic CRB.

Case Presentation: 64 year-old lady with ESRD secondary to Diabetic Nephropathy commenced haemodialysis via a right internal jugular tunnelled haemodialysis catheter. Four months later she presented with exit site infection and rigors on dialysis. Peripheral and line blood cultures were positive for staphylococcal aureus, confirming the diagnosis of S Aureus CRB.

48 hours post tunnelled catheter removal the patient remained pyrexic and complained of painful loss of vision in the left eye. On examination there was inflammation in the anterior chamber and vision was reduced to hand movements only.

The diagnosis was endogenous metastatic endophthalmitis from S Aureus CRB. Intravitreal Vancomycin, topical Olfloxacin, Cyclopentolate and Dexamethasone was commenced in addition to intravenous Vancomycin. The patient completed four weeks of intravenous Vancomycin in addition to intravitreal treatment. Vision improved from hand movements only to 6/60 two months post treatment.

Conclusions: Endophthalmitis is a rare site-threatening complication that can occur from metastatic spread of bacteraemia. It is an important differential diagnosis in the haemodialysis patient with a painful eye and signs of CRB. In our unit we have a low incidence of CRB. This is the first case of CRB related endophthalmitis that we have encountered and to our knowledge the first reported case of haemodialysis catheter associated endophthalmitis in Ireland.

PO30: Pseudohyperaldosteronism and Liquorice Tea

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Background:

Chronic liquorice ingestion is known to have many serious side effects including the most widely published, that of liquorice-induced hypertension secondary to his mineralocorticoid effect.

Presentation:

A 50 year old female with no significant past medical history apart from gestational diabetes presented complaining of headache, photophobia and myalgia. On examination she was notably hypertensive at 170/107mmHg. She was not taking any regular prescribed medications and denied using/abusing diuretics/laxatives, despite recent successful attempts at weight loss. Fundoscopy was normal and urinary sediment was bland. She had a normal brain radiology including CT cerebral angiogram and MRI brain.

Laboratory Findings

Laboratory findings were significant for marked hypokalaemia in the presence of a metabolic alkalosis with potassium of 2.7mmol/L and bicarbonate of 30mmol/L. The Transtubular Potassium Gradient (TTKG) was high at 11.97 in the setting of hypokalaemia. FeNa was low/normal at 0.7% which would suggest ECF volume depletion or hyperaldosteronism. Her plasma magnesium was normal at 0.92mmol/L Plasma Renin and Aldosterone levels were <2pg/ml and <10pg/ml when plasma potassium was corrected with supplementation to 3.7mmol/L. The combined clinical and biochemical findings are in keeping with a diagnosis of pseudohyperaldosteronism. Further questioning revealed a high liquorice intake in the form of five cups of liquorice tea per day.

Following 24h urine collection for the assay of cortisol/cortisone metabolites, her liquorice was discontinued. BP has returned to normal without the need for potassium supplemantation.

Conclusion:

Prognosis of liquorice induced hyperaldosteronism is good with cessation of liquorice indigestion, potassium supplementation and aldosterone receptor antagonists.

Reference:

Omar HR, Komarova I, El-Ghonemi M, et al. Licorice abuse: time to send a warning message. *Therapeutic Advances in Endocrinology and Metabolism*. 2012;3(4):125-138. doi:10.1177/2042018812454322.

PO31: TB or not TB: An isolated renal presentation of sarcoid-like granulomatosis complicating adalimumab therapy

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Background: Granulomatous Interstitial Nephritis (GIN) is only identified in 0.5% - 0.9% of native kidney biopsies. Sarcoidosis, infectious or drug-related causes are most commonly implied. Highly-efficacious, anti TNF-**α** therapy is in widespread use and reactivation of latent TB infection is a well known risk. The possibility of treatment-related paradoxical immune responses, however, and specifically the syndrome, sarcoid-like granulomatosis, is poorly appreciated. The latter may affect multiple tissues including lungs, lymph nodes, skin, liver and the nervous system. Presentations may be systemic or localized but kidney involvement has been rarely described (only 3 reported cases, so far). Response to cessation of anti-TNF therapy, plus/minus steroids, is typical and relapse has followed re-exposure.

Case Report: We report GIN in a patient with ankylosing spondylitis, presenting with a rising serum creatinine, eighteen months into treatment with the tumour necrosis factor-**α** (TNF-**α**) inhibitor, adalimumab. In this case, all AKI-related laboratory and radiological studies were normal as well as urinalysis findings including albumin to creatinine ratio. Extensive microbiological and molecular testing for TB was negative and the kidney function stabilized with cessation of adalimumab.

Conclusion: Better knowledge of this unusual cause of GIN, early renal biopsy for unexplained AKI, and thorough microbiologic investigation could prevent irreversible kidney injury.

PO32: Voriconazole Induced Periostitis in ANCA-vasculitis

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A 61 year-old previously well man was referred to Beaumont Hospital with acute kidney injury stage 3 due to PR3+ ANCA vasculitis. He was treated with IV Methylprednisolone, Cyclophosphamide and Plasmapheresis, but developed a small-bowel perforation after the first dose of cyclophosphamide. Following surgery, the patient was admitted to ICU where he had a prolonged stay after contracting Aspergillus Fumigatus causing a fungal pneumonia. Following recovery (7 months), the Mycologist recommended long-term treatment with Voriconazole.

He was re-admitted 3 months after discharge following a plateau in rehabilitation. On this admission, he complained of joint pain and swelling in his hands and shoulders. X-ray and bone SPECT-CT appearances (Image 1+2) were consistent with peri-ostitis. A diagnosis of Voriconazole-induced periostitis deformans was made and the voriconazole was stopped. Plasma fluoride level was 278μg/L (NR <50μg/L). Discontinuation of Voriconazole led to clinical improvement.

Peri-ostitis due to fluorosis is a known complication of Voriconazole treatment. Most cases describe patients with solid organ transplantion[1]. There have been two previous cases reported in patients with connective tissue disease, one of whom had Granulmoatous Polyangiitis[2,3].

References:

1. Fluoride Excess and Periostitis in Transplant Patients Receiving Long-Term Voriconazole Therapy. Wermers, Cooper, Moyer et al. Clinical Infectious Disease (2011) 52 (5): 604-611.
2. Voriconazole-induced periostitis in a patient with overlap syndromes. Hirota, Yasoda, Fuji, Inagki. BMJ Case Reports (2014)
3. Voriconazole-induced periostitis causing arthralgias and mimicking aflare of granulomatosis with polyangiitis. Glaude, Fox. Journal of Clinical Rehumaotlogy (2013) 19(8):444-5

PO33: Polymethylacrylate induced hypercalcaemia with renal failure

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A 32 year old lady presented to the Emergency Department with lethargy. On routine testing she was found to have hypercalcaemia with associated hyperphosphataemia and renal impairment (corrected calcium 3.30 mmol/l, phosphate 2.25 mmol/l, creatinine 488 μmol/l). Renal ultrasound showed markedly increased renal echogenicity consistent with nephrocalcinosis(A). Renal biopsy showed 80% interstitial fibrosis and extensive parenchymal calcium deposits. Further investigation revealed a suppressed parathyroid hormone level (PTH, 7 pg/ml), absent parathyroid hormone-related protein, negative myeloma screen and no features of occult malignancy on CT-TAP imaging. Serum angiotensin converting enzyme (76, reference range 8-65) and 1, 25 dihydroxy-vitamin-D levels (132, reference range 43-108) were raised. She denied taking calcium or vitamin D supplements. On further questioning she admitted to extensive polymethylacrylate (PMA) injections into the thighs and buttocks. FDG PET scan showed uptake into these areas(B). Buttock muscle biopsy confirmed granulomatous inflammation(C). Hypercalcaemia responded well to corticosteroid therapy but she required ongoing renal replacement therapy.

PMA is a synthetic permanent filler used for soft tissue augmentation in aesthetic procedures. PMA injections have been reported to cause disordered calcium metabolism through a foreign body induced granulomatous inflammation. The granulomatous inflammation that arises expresses dysregulated 1-alpha-hydroxylase activity and leads to excess circulating 1, 25 dihydroxy-vitamin-D and increased gut calcium absorption. A previously published case series suggests this is a subacute complication occurring around 6 months post procedure[1]. The typical features are hypercalcaemia with suppressed PTH and a disproportionately elevated 1, 25 dihydroxy-vitamin-D level for the degree of renal impairment.

References:

1. Negri AL et al. Hypercalcaemia secondary to granulomatous disease caused by injection of methacrylate: a case series. Clinical Cases in Mineral and Bone Metabolism 2014; 11: 44-48.

PO34: Focal Segmental Glomerulosclerosis with Trisomy 2q: a case report

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We report a case of a male with partial trisomy 2q13-2q21 who developed childhood nephrotic syndrome. A kidney biopsy confirmed focal segmental glomerulosclerosis (FSGS). The clinical course was characterised by nephrotic syndrome followed by rapid decline in renal function and subsequent end stage kidney disease (ESKD) in early adulthood. Karyotyping demonstrated duplication in the long arm of chromosome two. Alterations of chromosome 2q has previously described in cases series of infants congenital anomalies of the kidney and urinary tract (CAKUT). This is the first case of FSGS in a patient with partial trisomy 2q13-2q21.

PO35: Successful treatment of a Nocardia farcinica brain abscess in an immunocompromised patient with ANCA vasculitis.

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Background: We report a case of Nocardia farcinica brain abscesses in a 65-year-old female on immunosuppression for anti-Myeloperoxidase (MPO) Anti Neutrophil Cytoplasmic Antibody (ANCA) vasculitis. This is the second reported case of a nocardia brain abscess in an immunosuppressed vasculitis patient.

Methods: A retrospective review of medical notes, imaging and laboratory results was performed.

Results: The patient was commenced on mycophenolate mofetil for alveolar haemorrhage. Three months into treatment she underwent dental work. A month later, she presented with left upper limb weakness and facial droop. Magnetic Resonance Imaging (MRI) showed three rim enhancing lesions in the right cerebral hemisphere. The patient underwent neurosurgical drainage, empirical treatment for cerebral abscesses and her mycophenolate mofetil was stopped. Preliminary cultures isolated Nocardia species, so co-trimoxazole and linezolid were commenced. The patient developed leukopenia so was switched to imipenem and amikacin. Despite this, MRI at three weeks post-surgery showed interval increase in the size of all three lesions so the patient had a second resection of both frontal abscesses. A sensitive Nocardia farcinica was isolated, so ceftriaxone was commenced, and imipenem and amikacin were stopped. Co-trimoxazole was cautiously re-commenced two weeks later. Imaging at a month post resection showed further reduction of the largest abscess. The patient was discharged on co-trimoxazole to complete a year of therapy and has made a full functional recovery.

Figures:

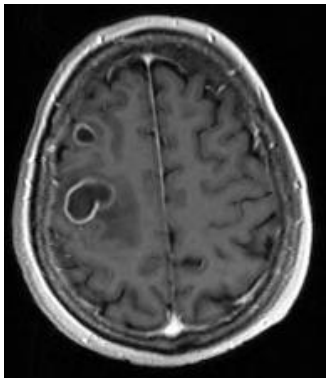

Figure 1**:** *MRI (Post contrast) showing two right frontal lobe rim enhancing lesions at presentation*

Conclusions: This case highlights a rare complication of immunosuppression with a successful outcome and emphasizes the importance of a microbiological diagnosis of cerebral abscesses in immunocompromised patients.