AUGUST 2012
SUPPLEMENT VOL 23 NO 7

CVJ AFRICA

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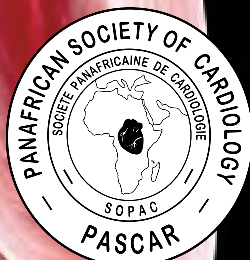
The South African Congress of Nephrology

SCIENTIFIC ABSTRACTS



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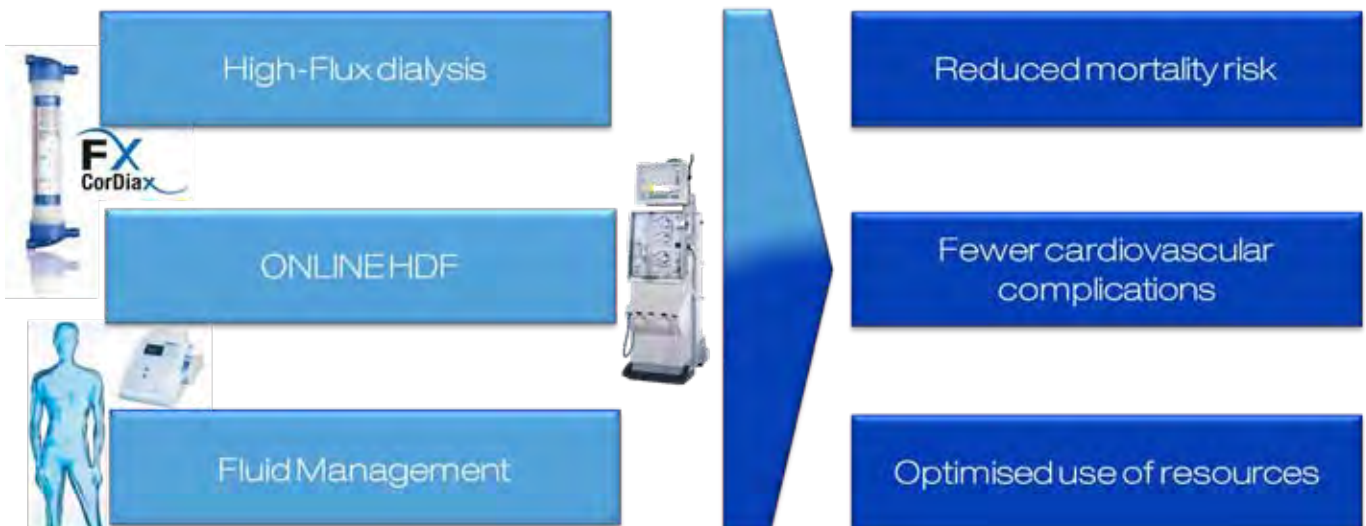

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The South African Congress of Nephrology

30 August – 2 September 2012
CSIR Convention Centre, Pretoria
SCIENTIFIC ABSTRACTS

Abbreviations: P = poster presentation, O = oral presentation

O: PATTERNS OF LEFT VENTRICULAR GEOMETRY AND FUNCTION AMONG CONTINUOUS AMBULATORY PERITONEAL DIALYSIS PATIENTS

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Background: Cardiovascular disease is frequent among patients with chronic kidney disease and many commence renal replacement therapy with abnormal cardiac function and structure. It has been reported that 80% of patients referred for continuous ambulatory peritoneal dialysis (CAPD) had some form of heart disease, and up to 68% had left ventricular hypertrophy (LVH). Several factors are known to contribute to cardiac abnormalities in these patients. We aimed to study the prevalence of LVH and its patterns as well as LV function using echocardiography, and to correlate the findings with parameters of peritoneal dialysis (PD) adequacy.
Methods: This was a cross-sectional study involving 44 patients on CAPD who had echocardiographic examination. Diastolic and systolic function was assessed by the EA ratio, and LV ejection fraction (EF) and fractional shortening (FS), respectively. Linear regression analysis was used to study the association between LV function and solute clearance (weekly Kt/V), haemoglobin (Hb), serum albumin, calcium, phosphate and parathyroid hormone levels, and blood pressures (BP).
Results: The mean age of the patients was 38.1 ± 12.4 years and 58% were males; mean duration on CAPD was 19.5 ± 20.7 months. The mean EF was 58.13 ± 8.10%, mean FS was 31.07 ± 5.63%, and mean E/A ratio was 1.16 ± 0.52. LVH was present in 30 (68%) of the patients, with concentric LVH being most predominant. A significant relationship was noted between the LV diastolic function and Hb level ($p = 0.02$), while none was noted with the weekly Kt/V, BP, and serum albumin, calcium and phosphate levels. There was no significant relationship between LV systolic function and all these parameters.
Conclusion: High prevalence of LVH was noted in our patients with no significant relationship between cardiac function and parameters of PD adequacy. Echocardiography should be included in the initial evaluation of all patients starting CAPD.

P: THE EFFECTS OF ULTRAFILTRATION PROFILING ON BLOOD PRESSURE

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Background: Haemodialysis usually involves the removal (ultrafiltration) of extra fluid, because most patients with end-stage renal failure pass little or no urine. The sudden removal of fluid on dialysis may cause side effects, which are usually proportional to the amount of fluid removed. These potentials side effects include low blood pressure, fatigue, chest pains, leg cramps and headaches. One of the new preventive methods for these side effects is the use of ultrafiltration (UF) profiles. The study was therefore designed to evaluate the effects of UF profiles on blood pressure.
Methods: Thirty patients with end-stage renal failure on haemodialysis were selected, 15 were in the intervention group and 15 in the control group. Patients in the intervention group were ultrafiltration profiled using profile 1–6 for a total of 18 haemodialysis sessions, during which blood was checked and monitored. Patients in the control group underwent unprofiled haemodialysis. All patients who participated in the study were on a three-times-a-week dialysis programme.
Results: Ultrafiltration profiling had an effect on blood pressure and other related factors such as diabetes and cardiac status, which also had an impact on the results obtained. The results demonstrated that ultrafiltration profiling reduces intra-dialytic symptoms compared with standard dialysis with constant ultrafiltration. This method can reduce the incidence of intra-dialytic symptoms such as hypotension, thereby assisting patients to have a more comfortable dialysis.
Conclusion: The findings of this study suggest that ultrafiltration profiling did have an effect on blood pressure and overall patient well-being.

P: THE PREVALENCE OF CHRONIC KIDNEY DISEASE AND ITS ASSOCIATION WITH CARDIOVASCULAR RISK FACTORS AMONG TEACHERS IN SOUTH AFRICA: A PARTNERSHIP FOR COHORT RESEARCH AND TRAINING (PACT) PILOT STUDY

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Background: The prevalence of chronic non-communicable diseases (CNCDs), including chronic kidney disease (CKD) is poorly defined in sub-Saharan Africa. This study aimed to determine the prevalence of CKD and its association with cardiovascular disease (CVD) risk factors among school teachers in the Cape metropole of the Western Cape, South Africa.
Methods: A cross-sectional survey of 493 consenting teachers from primary, secondary and intermediate public schools was conducted. Participants completed self-administered questionnaires capturing demographic data and data on the presence of CNCDs and their risk factors. Physical measurements, blood and urine samples were taken for serum creatinine and cholesterol levels, and urine protein/creatinine ratio (UPCR). Estimated glomerular filtration rate (eGFR) was determined using the Modification of Diet in Renal Disease (MDRD) study equation. Association with cardiovascular risk factors was tested using univariate and multiple logistic regression analysis. A diagnosis of CKD was made if the eGFR was < 60 ml/min or if UPCR was ≥ 0.3 mg/mg.
Results: The average age of the participants was 46.7 ± 8.6 years, with 67% being female and 70% of mixed race. The mean creatinine level, eGFR and UPCR were 74.1 ± 16.5 µmol/l, 89.7 ± 18.4 ml/min and 0.1 ± 0.1 mg/mg, respectively. Overall CKD prevalence was 8.8% (95% CI: 6.4–11.9%) while proteinuria and eGFR < 60 ml/min was present in 5.5 and 4% of patients, respectively. CKD was significantly associated with higher BMI, waist circumference, SBP, DBP and MAP on univariate analysis. The risk of CKD increased by 8% with every unit increase in BMI on multiple logistic regression analysis.
Conclusion: CKD was common and associated with cardiovascular risk factors in our study population. These findings highlight CKD as constituting an important public health problem in South Africa.

P: THE CAUSE OF AN INTERSTITIAL NEPHROPATHY REVEALED BY A LUPUS FLARE IN PERITONEAL DIALYSIS

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Background: In most cases of systemic lupus erythematosus (SLE), glomerular lesions are the main renal complication. Although tubulo-interstitial lesions are often associated with severe glomerular lesions, predominant or isolated tubulo-interstitial injury in the presence of minimal glomerular abnormalities with SLE, so-called predominant tubulo-interstitial lupus nephritis, is rare. Only 10 cases have been reported in the English literature. Owing to the rarity of this entity, the natural history of predominant interstitial nephritis in lupus has not been adequately recorded and an appropriate therapeutic approach has yet to be defined.
Methods: We describe the case of a 52-year-old woman with SLE who, three years earlier, had presented with a deterioration of renal function with a urinary tract infection that was followed by other episodes between 2007 and 2008, and repeated urinary stones with the occurrence of chronic kidney disease. Thereafter, the patient developed arthralgia of inflammatory schedules and proteinuria of 1 g/24 h without urinary tract infection. Renal biopsy and additional laboratory tests were performed and chronic tubulo-interstitial nephropathy was diagnosed. There was no argument in favour of immune allergic aetiology, no crystals were observed within the tubular sections and there were also chronic vascular lesions. Immunofluorescence did not find deposits, the tubulo-interstitial infiltrate consisted of mononuclear cells, lymphocytes, mainly composed of CD_3 + and rare CD_{20} + B cells. This infiltrate was discretely nodular in appearance; a sarcoidosis or Sjögren's syndrome was ruled out.
Laboratory tests: rheumatoid factor was negative, SPEP normal, anti dsDNA Farr test: 17%. After being in end-stage renal disease and beginning on peritoneal dialysis (PD), a lupus flare occurred as follows: malar rash, photosensitivity, haematological thrombocytopenia, inflammatory arthralgia, anti-SM (+) and presence of antinuclear antibody, increased complement C3, normal C4.
Conclusion: Corticosteroid therapy was started at 40 mg/day, with good evolution, regression of cutaneous symptoms and arthralgias, and normalisation of the platelets. The patient is still on PD.

P: KUSSMAUL-MEIER DISEASE REVEALED BY RAPIDLY PROGRESSIVE GLOMERULONEPHRITIS WITH UROLOGICAL ACHIEVEMENT: CASE REPORT

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Background: Polyarteritis nodosa is a rare necrotising inflammatory vasculitis of the medium-sized muscular arteries.
Methods: We report a case of polyarteritis nodosa in a 42-year-old man hospitalised for rapidly progressive glomerulonephritis with paresthesia of the lower extremities, bilateral testicular nodules, hypervascular and urethral stenosis revealed by dysuria, with fever and alteration of the general state. The P-ANCA testing was positive, and there were decreased levels of serum complement (C3, C4) and negative cryoglobulins. The EMG described sensory and motor neuropathy. Brain MRI: sequellar lacuna with filiform stenosis in the basilar artery.
Conclusion: The patient received corticosteroid, immunosuppressive treatment and haemodialysis with endoscopic correction of the urethral stenosis.

P: NEW-ONSET DIABETES AFTER TRANSPLANT: PREVALENCE, RISK FACTORS AND OUTCOME

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Background: New-onset diabetes after transplantation (NODAT) contributes significantly to cardiovascular morbidity and mortality and has been reported with widely varying prevalence in some studies. Several clinical and genetic risk factors have also been implicated in the susceptibility to NODAT. The aim of the study was to ascertain the prevalence, clinical and genetic risk factors that predispose to NODAT in our population, and examine its impact on the outcome of renal transplantation.
Methods: We retrospectively reviewed all renal transplants in our centre between 2004 and 2008. Patients who were lost to follow up or had pre-transplant diabetes were excluded. NODAT was defined as a fasting blood glucose level of ≥ 7 mmol/l or random blood glucose level of ≥ 11.1 mmol/l. We also performed genetic studies on a subset of the cohort.
Results: We identified 111 patients who met the inclusion criteria. The prevalence of NODAT in this cohort was 20 patients (18%). Risk factors for NODAT included age at transplant ($p = 0.03$), body weight ($p = 0.04$), treatment for acute cellular rejection ($p = 0.02$) and original kidney disease (polycystic kidney disease) ($p = 0.005$). None of the genes investigated (TCF7L2 rs11196205, rs12255372, rs7903146 and HNF1β rs1800575, rs121918671, rs121918672) was found to be significantly associated with the risk of NODAT. The genotype frequencies for the single nucleotide polymorphisms (SNPs) studied were similar to that reported for Caucasians. Overall patient survival at five years was 78% while graft survival was 72%. There was no significant difference in patient or graft survival between the groups with/without NODAT.
Conclusion: NODAT was relatively common in renal transplant recipients. Some of the risk factors predated transplant and could be used to risk stratify patients to determine appropriate immunosuppressive protocol and other strategies to reduce this risk. The genetic determinants for NODAT in this population may differ from those reported elsewhere.

P: INTRAVENOUS PULSE CYCLOPHOSPHAMIDE USE IN A SOUTH AFRICAN RENAL UNIT: JUSTIFICATION AND OUTCOME OF PATIENTS

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Background: Intravenous pulsa cyclophosphamide (IVCY) has changed the face of several glomerular diseases, especially lupus nephritis. However, side effects constitute a setback to its use. Over the last five years, the use of IVCY has grown in the renal unit of the Groote Schuur Hospital (GSH). With the recent availability of safer alternatives, it was necessary to carry out an audit on IVCY use in the unit.
Methods: This was a retrospective analysis of the files of all patients who had received pulse IVCY for induction of remission for glomerular disease at the GSH renal unit from 2007 to 2012.The justification for its use, the renal response at six months and the side effects were the main study outcomes.
Results: A total of 62 courses of six once-monthly pulses of IVCY were prescribed to 59 patients. Mean age was 33.9 ± 13.3 years, with females representing 83%. Lupus nephritis constituted the main renal disease ($n = 50$). The pattern of histological lesions justified the use of IVCY in 53.3% of patients. Mean number of IVCY infusions/patient was 5.04 ± 1.57, IVCY dose per infusion = 1.1 ± 0.2 g (713 mg/m² BSA). All patients received corticosteroid therapy. There were 43 complete, 15 incomplete and four on-going treatments. In the complete treatment group ($n = 43$), there was a significant decrease in mean SBP (134.6 ± 23.2 vs 121.54 ± 15.04 mmHg), DBP (81.78 ± 14.8 vs 76.08 ± 12.8 mmHg), serum creatinine (144.92 ± 146 vs

90.10 ± 54.4 µmol/l) and UPCR (0.52 ± 0.42 vs 0.13 ± 0.23 g/mmol) at six months ($p < 0.05$). Renal improvement was observed in 69.8% of cases, with complete and partial remission accounting for 37.3 and 32.5%, respectively. Leucopenia was observed in six cases and severe infections in three cases.
Conclusion: There was justification for both clinical and histological IVCY use, with lupus nephritis being the main pathology. Renal response was good with few major side effects.

P: NEW-ONSET DIABETES IN RENAL TRANSPLANT RECIPIENTS AT TYGERBERG HOSPITAL

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Introduction: New-onset diabetes after transplantation (NODAT) is a common complication of renal transplantation worldwide. However, there are very few data available regarding this condition in sub-Saharan Africa. This study was conducted to determine the incidence of NODAT and its associated risk factors in a South African renal transplant population.
Methods: A retrospective analysis was conducted on 221 patients who underwent renal transplants at Tygerberg Hospital during the period 1 January 1995 to 31 December 2008. Specific information was retrieved from patient files in order to determine the study outcomes.
Results: Fifty of the 221 patients were found to have NODAT, reflecting an incidence of 22.6% (95% CI: 0.17–0.28). The cumulative incidences of NODAT at three, 12 and 36 months were 9, 12 and 17%, respectively. The mean time to onset of NODAT was 18 months after transplantation (95% CI: 11.3–25.3) and the mean age at diagnosis of NODAT was 41 years (95% CI: 38.9–44.8). An age at transplantation of 40 years (odds ratio = 1.05) as well the use of tacrolimus (odds ratio = 0.43) was found to increase the risk of developing NODAT. The development of NODAT did not have any effect on graft or patient survival in this study.
Conclusion: The incidence of NODAT in a South African population appears to be as high as it is worldwide, with the first year post transplantation carrying the greatest risk for its development. The risk for development of NODAT is increased as the time post transplantation increases. An age of 40 years or older at transplantation and the use of tacrolimus appear to be the most significant risk factors.

O: CALCIPHYLAXIS: A CASE STUDY

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Calciphylaxis (calcific uraemic arteriolopathy) is a devastating complication of chronic renal failure. The pathogenesis is not fully understood but calcification of the vasculature seems to play a major role. Certain patient populations are more susceptible, such as obese individuals and diabetics. Hyperparathyroidism seems to be universal and in some cases early parathyroidectomy is not possible. A multidisciplinary approach is needed in the management of these patients. This case highlights the problems faced in the management of such a patient. We describe the use of hyperbaric oxygen therapy as an adjunct in the management of calciphylaxis-associated wounds.

P: DONOR KIDNEY EVALUATION USING ^{51}CR-EDTA TO DETERMINE GLOMERULAR FILTRATION RATE AND OUTCOME IN RECIPIENTS: PRELIMINARY DATA

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Kidney donation is the most successful modality of treatment for end-stage renal failure. In Johannesburg, measuring glomerular filtration rate (GFR), as assessed by ^{51}Cr-EDTA clearance with a single or two blood samples is often part of the donor work-up. Although a GFR of 80–120 ml/min/1.73 m^2 is regarded as 'normal', GFRs of 60–80 ml/min/1.73 m^2 are not uncommon and are often associated with a vegan diet. Protein loading such patients with beef and fish for one week can result in a significant increase in GFR of > 20%, i.e. their functional renal reserve is normal. Some of these patients have subsequently donated kidneys.
Aim: To review outcome of (a) these protein-loaded donors after the transplant and (b) recipients receiving kidneys from such donors.
Methods: GFR (^{51}Cr-EDTA clearance) was determined on hydrated fasting patients with blood sampling at two and four hours or with a single three-hour determination. Potential renal donors (PRD) with below-'normal' GFR were requested to consume a diet high in beef and fish protein. GFR was re-measured after one week and after kidney donation where this was determined. Recipients' post-transplant course was followed and compared to recipients receiving kidneys from non-protein-loaded donors with initially 'normal' GFR.
Results: Two hundred and twenty-eight PRDs (36.2 ± 8.8 years; 138 females, 89 males) were screened and had a mean GFR of 95.2 ± 17.2 ml/min/1.73 m^2 with 121 donating (GFR: 98.8 ± 16.3 ml/min/1.73 m^2) and 93 not donating. PRD with below-'normal' GFR were protein loaded, with the GFR increasing in eight/14 patients from 71.3 ± 7.1 to 91.5 ± 11.5 ml/min/1.73 m^2 (21.1 ± 10.2% increase), and these PRDs donated kidneys. GFR did not increase in three/six of the remaining PRDs who did not donate, due to apparent sub-optimal renal function.

Recipients (n = 3/8) receiving kidneys from protein-loaded donors have functioning grafts and have survived 4.11 and 15 years, respectively. Recipients (48/76) with kidneys from donors with initially 'normal' GFR, and where grafts are known to be functioning, the median survival was eight years (range 1–14 years). Limited follow-up data show donor GFR decreased slightly following nephrectomy, and in one case GFR increased following protein loading.
Conclusions: GFR can be increased in PRDs with below-'normal' GFR by protein loading and they can be used as donors when the GFR increases at least to 20%. Outcome in recipients receiving such kidneys can be good and limited data of follow up in these donors appear good.

O: QUALITY OF LIFE OF CHRONIC DIALYSIS PATIENTS

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Objectives: Survival with end-stage kidney disease (ESKD) is made possible by dialysis but is in turn associated with increased morbidity and mortality, and decreased quality of life (QOL). Quality of life is a frequently overlooked, yet critical consideration in evaluating the overall medical care of ESKD patients. This study aimed to compare the QOL of chronic haemodialysis (HD) and peritoneal dialysis (PD) patients.
Methods: A cross-sectional, descriptive, correlational study was carried out on 100 HD (n = 100) and 80 PD (n = 80) patients. QOL was measured using the medical outcomes study 36 (SF-36), which includes a physical health composite score (PCS) and a mental health composite score (MCS). Simple and multiple linear regressions were used to compare the SF-36 scores across treatment groups.

Results: One hundred and eighty ($n = 180$) patients from 10 dialysis units were evaluated. Mean age for the HD group was 49 ± 15 years compared to 52 ± 14 years for the PD group, with no significant difference. Average years on dialysis for the HD group were 2.6 ± 1.8 years, compared to 2.9 ± 2.1 years for the PD group. The HD patient group's PCS was 41.4 ± 10.35 and MCS was 45 ± 9.98, and for the PD group the PCS was 40.81 ± 9.5 and MCS was 46.4 ± 9.5, with no significant difference. However, a positive correlation was found with the effect of kidney disease ($p < 0.0001$) and burden of kidney disease ($p = 0.03$) in the SF-36 score.
Conclusion: The study demonstrated similarities of the PCS and MCS among HD and PD dialysis patients in the dialysis units studied. Haemodialysis had a greater effect on patients but less of a burden on them than peritoneal dialysis. It is important that this be communicated to ESKD patients who are in the process of selecting their therapeutic modality for ESKD. The evaluation of QOL is important for the on-going audit of renal services.

O: AN AUDIT OF THE PATENCY RATE AND COMPLICATIONS OF ARTERIO-VENOUS FISTULAS CREATED IN TYGERBERG HOSPITAL ON HAEMODIALYSIS PATIENTS

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Background: Vascular access-related problems can affect efficiency of haemodialysis and increase the cost of dialysis in addition to access-related morbidity. The aim of this study was to evaluate a single-centre experience with arterio-venous fistula (AVF) patency and complications.
Methodology: A retrospective descriptive study of all consecutive haemodialysis (HD) patients who underwent AVF creation at Tygerberg Hospital (TBH) over a two-year period (January 2008 to December 2010) was done. Data were collected from hospital records and the nephrology unit database using a structured data collection sheet.
Result: A total of 43 AVFs were created in 29 patients ($n = 29$) out of 45 consecutive HD patients managed in the unit during the study period. There were 62% (18) females and 37% (11) males, and the mean age was 41 ± 8 years, and 86% (25) were of mixed race. All patients had a previous central venous catheter (CVC) inserted for a mean duration of 150 ± 30 days before AVF creation. The one-year patency rate was 71% (20) with an average patency duration of 15 months after AVF creation in the study period. The rate of primary non-function of AVF was 10% (three) while the rate of secondary AVF failure after creation was 20% (six). The average duration of patency of secondary AVF failure was three months. The most common reason for failure was hypotension post dialysis.
Conclusion: The short-term patency rate of AVFs created at TBH was high. Patency rate was affected by preceding CVC use and the attendant complications. There is a need to improve primary AVF creation before the use of CVCs.

O: ESTABLISHMENT OF A NATIONAL DIALYSIS AND TRANSPLANT REGISTRY

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The new South African Dialysis and Transplant Registry is an information database on the treatment of end-stage renal disease (ESRD) established by the South African Renal Society. We are collecting data on all dialysis and transplant patients in South Africa to help plan and improve the treatment of patients with kidney failure. The last official figures on the prevalence of patients on renal replacement therapy were 99 per million population in 1994.

The Registry is run by a committee consisting of a registry manager and assistant, a software developer and a national data manager. This team is responsible for coordinating the collection, analysis and publication of data concerning end-stage renal disease and transplantation in South Africa. The development and operation of the Registry will be described and challenges discussed. A first set of results based on data collected to date will be presented.

P: DEVELOPMENT AND USABILITY EVALUATION OF A MULTIMEDIA LEARNING RESOURCE FOR ELECTROLYTE AND ACID–BASE DISORDERS

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Introduction: We developed a Flash® learning resource for electrolyte and acid–base disorders, a subject presenting a heavy intrinsic cognitive load. Reducing extraneous load by improving user interface design could lead to gains in learning efficiency. This study reports on the development and usability evaluation of our electrolyte workshop and a comparison of revised and original versions.
Methods: Flash® with ActionScript™ was used as the development platform for this interactive case-based application, allowing users to apply therapies and see the impact on parameters such as plasma Na concentration and brain volume. User testing and usability inspection was conducted. We recorded and analysed the interaction of typical end-users with the application. Participants also completed a questionnaire which included the validated system usability scale (SUS). An expert panel conducted a heuristic evaluation, evaluating the application against principles of good design. Problem detection by the different methods was compared. The application was revised, and the different versions compared in a randomised trial.
Results: The SUS score was 78.4 ± 13.8, indicating good usability. Participants rated the content as sound, liked the 'clinical detective story' approach and would recommend the application. However, we detected several serious usability errors with the treatment simulation, which was completed successfully by only three/15 participants. Each evaluation method missed at least one major usability issue. The comparison of the original and revised versions revealed improvements in measures of usability but no significant difference in measures of learning.
Conclusion: The evaluation identified usability issues which rendered the resource unusable for many participants. These issues would otherwise have gone undetected, with considerable loss of educational impact. We recommend that the design of e-learning materials should follow an iterative process which includes routine usability evaluation. Combining evaluation methods ensures that most serious usability problems will be detected and addressed, to maximise the potential for effective learning.

P: HUMORAL REJECTION IN THE RENAL ALLOGRAFT: A SINGLE-CENTRE EXPERIENCE

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Objectives: Increasing evidence indicates a significant role for humoral mechanisms in late allograft dysfunction and loss. Anti-HLA alloantibodies have been shown to prognosticate graft outcomes, as have certain histological features. Combination therapy has been shown to be effective in lowering alloantibody level and improving graft survival. We retrospectively reviewed a cohort of patients diagnosed with antibody-mediated rejection (ABMR) at our institution to evaluate the role of alloantibody and histological patterns in predicting graft outcome and therapeutic response.
Methods: Sixteen patients were included. Therapeutic protocol consisted of FK506, MMF, plasma exchange and IVIG. Histological parameters were determined using Banff 09 criteria. Alloantibody levels were measured using Luminex® technology. The χ^2 test was used to analyse categorical variables; the Wilcoxon rank sum test was used for ordinal variables; $p < 0.05$ was considered significant.
Results: Median graft age at diagnosis was 92.73 months (median duration of follow up 8.52, range 2.87–23.0 months). Creatinine level was higher at diagnosis in the graft loss (GL) subgroup ($p = 0.02$). Class II PRA titres were overall higher than in class I ($p = 0.09$). Class II PRA titres were more frequent in the GL subgroup compared to the functioning graft (GF) subgroup ($p = 0.04$). AntiDQ alloantibodies were more common in the GL subgroup ($p = 0.03$) and post-therapy MFI levels were higher ($p = 0.054$) compared to the GF subgroup. AntiDQ may increase GL risk (OR 15.0, $p = 0.11$); i score was non-significantly higher and interstiitis more frequent in the GL subgroup (p = N/S); i score increased on repeat biopsy in the GL subgroup associated with worsened markers of chronic injury.
Conclusions: Class II HLA antibodies (in particular, antiHLA-DQ) may be associated with graft loss. Acute and chronic interstitial damage may identify patients at risk of graft loss.

P: FAILED RESCUE SPLENECTOMY IN THE MANAGEMENT OF LATE HUMORAL REJECTION: A CASE REPORT

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Background: Humoral mechanisms appear to play a significant role in late allograft dysfunction and loss. While combination therapy (FK506, MMF, plasma exchange, IVIG and rituximab) may improve graft survival, this protocol appears to have limited effect on cell populations responsible for antibody production. As a result, some patients with humoral rejection may not respond to conventional protocols. In these patients splenectomy has been reported as a successful rescue therapy. We present the case report of a patient who failed to respond to splenectomy as rescue therapy for humoral rejection. A possible explanation of this failure, based on interpretation of histological and biochemical data, is provided.
Case report: A 44-year-old female presented with deteriorated renal graft function having received an RLD transplant 12 years previously following the development of ESKD due to lupus nephritis. Allograft biopsy demonstrated ACMR IIA and AAMR II on a background of chronic rejection. Possible sensitising events identified were two pregnancies post transplant, and reduced MMF dose (due to GIT complications) on a background of protocol-minimised CyA dose. FK506 was started and the MMF dose was increased. ACMR was treated with ATG. Plasma exchange was contra-indicated for AAMR due to persistent hypocalcaemia, necessitating rescue splenectomy. Despite intervention, alloantibody levels did not decrease, and repeat biopsy showed no improvement in AAMR. Graft loss ensued requiring return to dialysis. Splenic tissue and BMAT did not show significant plasmacyte hyperplasia as reported by others. Iin contrast, marked plasmacyte infiltration was noted on allograft biopsy.
Conclusions: Late-onset ABMR may represent a discreet entity which is less responsive to interventions. In the present case, poor alloantibody response to splenectomy and histological comparisons between graft and splenic/bone marrow tissue suggested the graft to be the predominant site of alloantibody production. This may explain late-onset ABMR resistance to splenectomy.

P: INTERVENTIONAL PROCEDURES: THE CAPE TOWN EXPERIENCE

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Background: Due to limited theatre time, nephrologists around the world have skilled themselves in order to provide dialysis access in a percutaneous and minimally invasive fashion. Furthermore, the use of ultrasound in guiding access has become commonplace.
Method: We conducted an audit of all patients undergoing nephrologist-driven procedures (percutaneous vascular/peritoneal access) in the renal unit at Groote Schuur Hospital, Cape Town and at Livingstone Hospital in Port Elizabeth from December 2010 until June 2012, approved by the research ethics committee. Basic demographic data were recorded as well as details of the procedure, plus any complications. The standard technique for peritoneal access was midline, guidewire-assisted placement. Thrombolysis was performed using multi-dose Actilyse (Boehringer Ingelheim) 1 mg/ml as a catheter lock. This was pre-mixed and stored in the fridge.
Results: Fifty-three tunnelled central venous catheters (CVCs) and 26 Tenkhoff catheters were inserted. The commonest short-term CVC complication was cuff extrusion (8%). Long-term complications included intraluminal thrombosis, requiring thrombolysis (one treatment for every 60 catheter days). One patient with antiphospholipid syndrome required 25% of the total thrombolytic treatments ($n = 10$). The most serious complications were hyperkalaemic cardiac arrest ($n = 1$) precipitated by guidewire insertion (patient recovered fully) and catheter-related blood stream infection from a femoral catheter ($n = 1$), resulting in septic shock and death. Four/26 (15%) of the Tenckhoff catheters were complicated by migration, requiring surgical repositioning. Three/26 (12%) were complicated by minor bleeding and one patient required a transfusion. The most serious complication was bowel perforation which occurred in one patient where an alternative paramedian approach was used. The patient recovered fully.
Conclusion: Ultrasound-guided insertion of catheters has reduced complications and aided difficult placement. The learning curve for Tenkhoff catheter insertion is longer than that for tunnelled CVC insertion. Multi-patient use of pre-mixed, pre-frozen Actilyse appears safe, efficacious and cost effective.

O: RADIONUCLIDE IMAGING OF MYOCARDIAL PERFUSION DURING DIALYSIS

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Background: Myocardial stunning is associated with increased mortality at one year. This segmental dysfunction correlates with

matched reductions in myocardial perfusion. We compared myocardial perfusion in 25 patients, first on conventional haemodialysis (HD) and then on haemodiafiltration (HDF).
Methods: Myocardial perfusion scintigraphy is a validated technique for assessing regional myocardial blood flow. We compared perfusion pre- and post-dialysis, first on conventional haemodialysis and then on haemodiafiltration. Patients were converted to HDF for three months prior to performing the scintigraphy. ^{99m}Tc-methoxyisobutylisonitrile (MIBI) was administered intravenously pre-dialysis, and then within the last hour of dialysis. Ninety minutes after injection, tomographic images were obtained. Blood pressure was recorded pre- and post-dialysis and Kt/V was calculated for each dialysis session.
Results: Patients entering the study were on average 41 years old and on haemodialysis for a mean of seven years. The average single pool KT/V for HD and HDF was 1.5 and 2.0, respectively. The mean substitution volume for HDF was 18 litres. The average mean arterial pressure drop post-dialysis was 18 mmHg on HD and 12 mmHg on HDF. The blood volume change was –8.8% on HD and –9.4% on HDF. There was no change in overall myocardial perfusion in patients on HD and only a 1% worsening of overall myocardial perfusion in patients on HDF. Average perfusion defects were larger in the beginning of the dialysis week after a dialysis interval (3.5%), compared to 2% if dialysed later in the week.
Conclusion: Our study showed that perfusion defects were present before and during dialysis. While some perfusion defects were fixed and worse during dialysis, others improved with dialysis. In addition, there was often no concordance between perfusion defects before and during dialysis, suggesting variability over time in the mechanisms responsible for coronary microvascular dysfunction in dialysis patients. On average, there was no significant difference between perfusion defects before or during haemodialysis or haemodiafiltration.

P: FIFTY-SEVEN SIMULTANEOUS KIDNEY–PANCREAS TRANSPLANTS: A SINGLE-CENTRE EXPERIENCE

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Background: Pancreatic transplantation in insulin-dependent diabetics aims to restore insulin-independent normoglycaemia. This is most widely applied in uraemic diabetic patients as a simultaneous kidney–pancreas transplant, which provides not only normoglycaemia but also renal replacement. There has been progressive improvement in graft survival rates, attributable to improved immunosuppressive regimens and surgical techniques, as well as highly selected recipients. We reviewed our recipient population, immunosuppressive regimens and immediate outcomes.
Methods: A retrospective chart audit of simultaneous kidney–pancreas (SKP) transplant recipients was undertaken. The following were recorded: demographic data, body mass index (BMI), blood group, viral serology, glycaemic status and cholesterol level at time of transplant; dialysis data; prior transplants; transplantation date; surgical technique; B and T-cell cross match; induction agents and initial immunosuppressive regimen; peri-operative complications and discharge outcome.
Results: Fifty-seven SKP transplants were performed between April 2004 and June 2012 at Donald Gordon Medical Centre. All recipients had type 1 diabetes mellitus. There were 24 male and 33 female recipients aged between 15 and 49 years with a mean BMI of 22.54 kg/m². Most recipients were Caucasian (49/57), with O blood group (28/57) and only two had had a prior transplant. Average time on dialysis pre-transplant was 24.64 months. Six patients were transplanted pre-emptively. Average glucose, HbA_{1c} and cholesterol levels prior to transplant were 11.3 mmol/l, 8.6% and 4.9 mmol/l, respectively. As induction, 34 patients received Daclizumab, 22 patients Basiliximab and one received anti-thymocyte globulin. All received solumedrol and initial immunosuppression of mycophenolate mofetil, tacrolimus and prednisone. Ten patients had peri-operative complications requiring intervention, of which five lost their pancreatic graft within 10 days of transplantation. Six patients had delayed kidney graft function, and five required post-operative dialysis, but all renal grafts recovered function.
Conclusion: Surgical complications post-pancreas transplantation remains an important contributor to peri-operative morbidity. SPK is an important modality of treatment for type 1 diabetes patients with ESRD.

P: MESANGIOCAPILLARY GLOMERULONEPHRITIS (MCGN) IN A CAPE TOWN TERTIARY HOSPITAL: A COMMON DISEASE WITH POOR OUTCOME

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Background: Mesangiocapillary glomerulonephritis (MCGN) is a histological pattern of glomerular injury and inflammatory response with several possible aetiologies. It is a common cause of chronic kidney disease and the nephrotic syndrome in developing countries. Data on the renal outcome of patients with idiopathic MCGN are limited, and where available, the outcome is often poor. We are currently unaware of any South African data on the outcome of patients with idiopathic MCGN.
Aim: To investigate the outcome of patients with idiopathic MCGN presenting to the Groote Schuur Hospital renal unit.
Methods: A 10-year retrospective analysis of patients with biopsy-proven MCGN, attending the Groote Schuur Hospital renal unit in Cape Town was done. After patients with an identifiable cause of MCGN were excluded, 85 patients were classified as idiopathic MCGN and included in the analysis. Outcome endpoint was persistent doubling of serum creatinine level or end-stage renal disease. Kaplan-Meier survival was used in the analysis.
Conclusions: The outcome of idiopathic MCGN in Cape Town is generally poor and the degree of proteinuria or use of immunosuppressants does not appear to have an effect on renal outcome.

O: DIFFERENCES IN CLEARANCE USING PERMANENT CATHETER AND AV FISTULA ACCESS AT CHARLOTTE MAXEKE JOHANNESBURG ACADEMIC HOSPITAL CHRONIC DIALYSIS UNIT

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Introduction: Numerous studies have confirmed the association between vascular access and dialysis clearance. There is some evidence regarding the relationship between optimum dialysis and the type of vascular access a patient is using.
Objective: This study was designed to assess the differences in clearance between patients who were using permanent catheters and those using AV fistulae.
Method: A retrospective review was performed of biochemical data of 16 patients on chronic haemodialysis using a pump speed of 300 ml/min, four hours of dialysis, three times a week over a year. Patients were split into two groups of eight, in which one group were patients who are using permanent catheters and the other group were using AV fistulae.

Results: The mean delivered dose of KT/V of patients using AVF was 1.5 throughout the period, whereas the mean KT/V of those patients with permanent catheters was 1.3 relative to the speed, time and size of the dialyser.
Conclusion: A good vascular access (correlated with a number of parameters, such as good pump speed, time of dialysis, etc) results in good clearance, hence a significant difference in clearance when use of AVF compared to permanent catheters was confirmed.

P: PREVALENCE OF 25(OH) VITAMIN D DEFICIENCY IN CHILDREN ON PERITONEAL DIALYSIS
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Background: Peritoneal dialysis (PD) patients are at risk for 25(OH) vitamin D deficiencies due to effluent loss, in addition to traditional risk factors. Previous studies have reported low vitamin D levels in children on peritoneal dialysis from less sunny countries. There are no data reported from South Africa which is a sunny country.
Objectives: To measure 25(OH) vitamin D levels in children on peritoneal dialysis.
Methods: This was a cross-sectional study; 25(OH) vitamin D levels were determined in eight PD patients. The study was conducted during summer and spring to avoid seasonal variation.
Results: 25(OH) vitamin D levels were measured in eight PD patients (five female, three male). Mean age was 111 months (range: 66–192 months). Mean time on dialysis was 21 months (range: two to 54 months). Insufficiency, currently defined as calcidiol level between 75 and 50 nmol/l, was found in two/eight (25%) subjects; deficiency, defined by level below 50 nmol/l, was found in one/eight (12.5%); while the rest (five/eight) (62.5%) had adequate levels.
Conclusion: A significant percentage of children on PD in Cape Town had inadequate 25(OH) vitamin D levels.

O: PREVALENCE OF PROTEINURIA IN PATIENTS ON THE HEALTHY START PROGRAMME
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Background: Proteinuria is an important component of CKD, which has been shown to impact on cardiovascular (CVD) risk and kidney disease progression. Angiotensin converting enzyme inhibitor or angiotensin receptor blocker (ACEI/ARB) medications have been shown to be renoprotective and reduce proteinuria. The aim of this study was to determine the prevalence of proteinuria among Healthy Start Programme (HSP) patients with early stage 2 or 3 CKD.
Method: Patients with CKD stage 2 to 3 and on ACEI/ARBs were detected through a search of the NRC HSP database. Criteria for inclusion were an eGFR of 30–70 ml/min/m2 and age 18–75 years. Those with HIV and other chronic illnesses, and females of child-bearing age (< 40 years) were excluded. Patients must have been on a stable dose of ACEI/ARB for three months. Proteinuria was determined by a urine analysis using both urine protein dipstick and a random urine protein–creatinine ratio (uPCR)
Results: After eliminating patients not within the criteria, only 87 (4.79%) patients of 1 815 were included and tested. Thirteen (15%) patients had an eGFR < 30 ml/min, 71 (81%) between 30 and 70 ml/min and three (0.03%) were > 70 ml/min. Urine dipsticks were positive in 29 (33%), 50 were negative and eight patients were not tested. Eighteen had proteinuria > 0.5 mg/mmolCr, 15 were between 0.2 and 0.5 mg/mmolCr and 48 < 0.2 mg/mmolCr. Eight patients found to have significant proteinuria > 0.5 mg/mmolCr were referred for investigation; other patients 'withdrew' from further investigation.
Conclusion: There was overall a very low prevalence of proteinuria in this cohort of patients screened. This was most likely due to the high number of early-stage CKD patients included, i.e. stage 2 and 3 CKD and the use of broad inclusion criteria. It was not possible to determine whether being on an ACEI/ARB had any influence on this low prevalence. This study highlights the importance of screening high-risk patients to ensure more appropriate use of resources and those most likely to deteriorate towards end-stage kidney failure.

O: ATYPICAL HAEMOLYTIC URAEMIC SYNDROME
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Haemolytic uraemic syndrome (HUS) is a syndrome characterised by the triad of microangiopathic haemolytic anaemia, thrombocytopaenia and acute renal failure. D +ve HUS accounts for the majority of cases most commonly due to vero cytotoxin-producing bacteria, most commonly *E coli* 0157:H7. Atypical HUS (aHUS) is rare but may account for approximately 10% of cases. It may be sporadic or familial. aHUS is a severe renal condition with a poor prognosis and up to 50% of cases require chronic dialysis.

Significant advances have been made both in the diagnosis and treatment of aHUS. Central to the pathogenesis is over-activation of the alternative pathway of the complement pathway. Initially a mutation in the gene CFH encoding the complement regulator factor H was noted. Subsequently mutations have been found in factor I, complement components C3, factor B, membrane co-factor protein and thrombomodulin. Auto antibodies to factor H have also been described. The downstream consequence of all mutational abnormalities is over-activation of the alternative pathway on the glomerular vasculature. Recurrent relapses of aHUS, complicated by malignant hypertension, characterise the course of aHUS.

Treatment options are dependent of the genetic cause and include options such as plasma exchange, Eculizimab (humanised monoclonal anti-C5 antibody) and kidney and liver transplant.

O: ADAPTATION OF THE RENALSMART WEB-BASED APPLICATION FOR THE DIETARY MANAGEMENT OF PATIENTS WITH DIABETIC NEPHROPATHY
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Background: Diabetes mellitus is one of the leading causes of chronic kidney disease (CKD) in developing countries such as South Africa. The aim of this study was to provide standardised support to dieticians by adapting the existing web-based RenalSmart application for the dietary management of the diabetic with CKD.
Objectives: The study objectives were to compile a web-based dietary prescription and meal plan for patients with diabetic nephropathy and test the accuracy and acceptability thereof.
Methods: The RenalSmart web-based application was adapted and enhanced to formulate a nutritional prescription for patients with diabetic nephropathy. The sampling frame consisted of dieticians registered with the Association for Dietetics in South Africa, employed by universities offering a dietetics undergraduate programme, employed by government and private hospitals with a nutrition department, in South Africa. Quality assurance testing was undertaken in different stages.
Results: Thirty-seven dieticians completed the testing of the application. The mean age of the respondents was 33 years and they were mostly from the Western Cape (35%). There was a significant difference between dieticians who usually consult renal patients (compared to those who do not), and their rating of the accuracy of the data-saving function and the fluid requirements, where the former group of dieticians were not satisfied with the saving function

($p = 0.02$) and the recommended fluid requirements ($p = 0.03$). The majority of respondents (81%) rated the overall acceptability of the application as good to excellent.
Conclusion: Most of the tested functions of the application received good ratings, with the majority of respondents being satisfied.

O: COMPARISON OF THE EFFECTS OF A NOCTURNAL HAEMODIALYSIS PROGRAMME WITH CONVENTIONAL HAEMODIALYSIS ON BIOCHEMICAL AND CLINICAL PARAMETERS IN PATIENTS WITH END-STAGE KIDNEY DISEASE

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Background: In-centre nocturnal dialysis (INHD) is not routinely offered by dialysis service providers in South Africa. The National Renal Care (NRC), a dialysis service provider in the private sector, commenced a nocturnal dialysis programme in September 2011. This is the first of its kind in South Africa. The programme was initiated in three NRC chronic dialysis centres in South Africa, namely Umhlanga, Kwa-Zulu/Natal; Sunninghill, Gauteng; and Broadacres, Port Elizabeth.
Aim: The aim of this pilot study was to assess whether there has been a measurable health benefit in converting dialysis patients from CHD to INHD, to assess acceptability of the programme to patients and to evaluate the potential cost of such a programme for healthcare funding. The objectives were to assess blood parameters/known markers of chronic kidney disease before and after conversion from CHD to INHD; to assess clinical parameters known to be significant before and after conversion from CHD to INHD; to review whether there have been any significant reductions in chronic medication requirements after conversion to INHD; and to assess the comprehensive costing of INHD compared with CHD. This would include dialysis, staffing requirements and chronic medication requirements.
Methods: The study was a national retrospective cohort study based in three NRC chronic dialysis units that are running the INHD programme, namely Umhlanga, Sunninghill and Broadacres. Blood results and patient records were reviewed for six months prior to the conversion from CHD and for a minimum of three months, ideally six months, after conversion to INHD.
Results: Because the INHD programme was initiated sequentially in September 2011, starting in the Sunninghill unit, the final data are currently unavailable. They will however be available for the congress.
Conclusion: Pending final analysis.

O: MORBIDITY AND MORTALITY OF HIV-INFECTED PATIENTS WITH END-STAGE KIDNEY DISEASE ON CHRONIC HAEMODIALYSIS IN SOUTH AFRICA

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Background: Few data exist from South Africa regarding the outcomes of HIV-infected patients on chronic haemodialysis.
Aim: The aim was to perform a retrospective record review of HIV-infected individuals with ESKD receiving chronic haemodialysis to assess morbidity, mortality and dialysis-related outcomes compared with HIV-uninfected controls.
Methods: The study was conducted nationally within the National Renal Care (NRC) chronic dialysis units. The HIV-infected participants ($n = 53$) were age-, race- and gender-matched with non-HIV-infected individuals ($n = 114$) in a 2:1 ratio. Data were extracted from the NRC database, patient files in dialysis units, doctors' files and local laboratories. The following parameters were assessed: biochemical parameters [iron status, parathyroid hormone level, calcium, phosphate, albumin and haemoglobin levels, and indicators of HIV disease management (HIV viral load and CD_4 count)]; hospitalisation events (infection, dialysis-related); chronic medication (including antiretrovirals); co-morbid conditions, mode of haemodialysis access, duration of dialysis, and listing for kidney transplantation.
Results: There were no statistically significant differences in mortality between the HIV-infected and non-infected groups, i.e survival in both groups was the same. Similarly, there were no statistically significant sociodemographic differences (employment, members per household, type of residence, distance travelled to dialysis unit, access to running water). Average ages were 44 and 45 years, respectively (HIV+/HIV–) with a 60:40% male:female ratio in both groups. Average ferritin levels were higher in the HIV+ group, and haemoglobin was on average 0.5–1 g/dl lower in the HIV+ group but this was not statistically significant. Calcium, phosphate and albumin levels and Kt/V showed no significant differences between the two groups. Significantly higher TB infection rates were shown in those with HIV infection (15 vs 3.6%) and significantly lower listing for transplantation was shown with HIV+ patients (3 vs 13%). The overall transplant listing rate was low, independent of HIV status. The prevalence of co-morbid diabetes was similar in both groups (19 vs 21%) but the prevalence of hypertension was significantly higher in the HIV– group (88 vs 66% in HIV+). In the HIV+ group, the average CD_4 count in the first year of enrolment was 250/µl and from available data, the last available HIV viral load determination on termination of the study showed that only 43% of HIV+ patients on ART were adequately virally suppressed (undetectable viral load).
Conclusion: Survival and co-morbidity was similar in HIV+ patients compared with an HIV– group.

P: OUTCOMES OF HIV INFECTION POST TRANSPLANTATION

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Background: Renal transplant recipients are at risk for contracting HIV, and its impact on both the allograft and recipient are poorly understood.
Methods: A retrospective review was done of the impact of HIV diagnosed post renal transplantation at the Charlotte Maxeke Johannesburg Academic Hospital Transplant Unit. Eleven patients were reviewed, 10 having acquired HIV post transplantation and one patient at the point of transplantation. The parameters evaluated were: age; duration of follow up; rejection episodes post-antiretroviral therapy (ART) initiation; response to ART.
Results: The average age at diagnosis of HIV was 32 years (range 18–51). The mean period of follow up pre-diagnosis of HIV was 104.6 months, and post-diagnosis of HIV was 27.2 months. The diagnosis was suggested by a change in clinical status: a lower respiratory tract infection; gastroenteritis; and significant loss of weight. Seven/11 patients presented with rejection; five/eight rejections occurring post-ART, three/five rejections presenting with rejection within the first 12 months post-ART, and two/five rejections occurring beyond 36 months post-ART initiation. The three episodes of early rejection included two cases of acute cellular rejection and the other being mixed cellular and humoral rejection. The two cases of rejection beyond 36 months were both humorally mediated. Eight/eight patients achieved viral suppression with ART. Five/11 patients were diagnosed with an opportunistic infection. Four/11 died, three with opportunistic infections and the other with graft failure. Of two/11 with graft failure, one patient returned to haemodialysis; two/11 being treated for continued humoral rejection; two/11with excellent graft function; and one/11 having moderate graft function.

Conclusion: There needs to be a greater index of suspicion with regard to diagnosis of HIV post renal transplantation, with significant overlap in symptomatology of HIV and immunosuppressive therapy. We advocate routine testing of HIV, especially important in the recipients below 40 years, as well as a protocol biopsy at six months post-ART initiation. Further review is required to determine if rejection is to be considered a manifestation of immune reconstitution.

P: AN ANALYSIS OF PERITONEAL MEMBRANE TRANSPORTER FUNCTION IN CAPD PATIENTS AT INKOSI ALBERT LUTHULI HOSPITAL

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Background: Peritoneal dialysis remains a practical and cost-effective form of dialysis especially in resource-limited countries. It is necessary to determine the membrane function in order to tailor the dialysis prescriptions. We analysed the proportion of different membrane types at our facility and compared them with other data from other countries.
Methods: The peritoneal equilibration tests of 53 consecutive patients were interpreted using the Adequest 2.0 programme from Baxter[R], based on a standard four-hour test. The tests were performed from October 2010 to May 2011.
Results: There were 30 females and 23 males and the mean age was 43.4 years; age range 21 to 64 years. The PET was done between four months and two years after initiation of chronic ambulatory peritoneal dialysis. High transporters accounted for 31% of the patients. High-average transporters made up 41% of the membranes. There were 26% low-average transporters and 2% low transporters. The mean Kt/V and creatinine clearance rates were 1.75 and 55.31 l/week, respectively. The average albumin level was 34.06 g/l and the mean body surface area was 1.75 m^2. Black African patients accounted for 47% of the patients. Sub-analysis of black African patients showed that 36% were high transporters and 40% high-average transporters. There was no statistically significant difference compared to the non-black group ($p = 0.6487$, using the Chi-square test).
Conclusion: Our study revealed that peritoneal membrane function was similar to those seen in Saudi Arabia, Canada, New Zealand and India. The analysis has helped improve prescriptions for CAPD.

O: METHAMPHETAMINE USE ASSOCIATED WITH CHRONIC KIDNEY DISEASE AND MALIGNANT HYPERTENSION: A CASE SERIES

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Background: Methamphetamine use is a rising problem in the Western Cape. Cardiac and neurological effects have been described, as has rhabdomyolysis complicated by acute renal failure. Patients having used methamphetamines (Tik) have presented with malignant hypertension and end-stage renal disease. The patients that were referred to the renal unit at Groote Schuur were reviewed.
Methods: The folders of patients were reviewed if the patients admitted to using Tik and were referred to the renal unit for hypertension or renal failure. Blood pressure, creatinine level and estimated GFR, renal ultrasound and biopsy findings were recorded. The complications of chronic kidney disease and hypertension were recorded, as were co-morbidities which impact on renal disease.
Results: There were 32 patients referred to the renal unit between 2005 and 2012 who were recorded as having used Tik. The mean age was 29 ± 8.7 years and 26 (81%) were male. Hypertension was present in 31 (97%) of the patients and stage 5 chronic kidney disease was present in 25 (78%) of the subjects. Of the patients with hypertension, 25 (81%) were documented as having malignant hypertension. Left ventricular hypertrophy was present in 23 (74%) of the hypertensive patients. Seventeen (53%) of the patients admitted to using other recreational drugs (mandrax, cocaine or heroine), one patient (3%) was hepatitis B surface antigen positive but no patients were hepatitis C positive or HIV positive. Eleven (34%) were deceased at the time of data collection. Sixteen of the patients underwent renal biopsy. Five (31%) had hypertensive changes and a further five (31%) had malignant hypertensive changes. Six (38%) of the biopsies showed MCGN (none coinciding with hypertensive changes). Four (25%) showed end-stage renal disease.
Conclusion: Tik usage is associated with malignant hypertension and end-stage renal disease. MCGN may also be associated with Tik usage.

O: AN AUDIT OF THE OUTCOME OF PERITONEAL DIALYSIS INSERTION METHODS AT TYGERBERG HOSPITAL

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Background: Peritoneal dialysis (PD) access creation is limited by availability of theatre time. Insertion at the bedside by nephrologists could be an important way of improving access creation. The aim of this study was to review the effectiveness of bedside insertion compared to surgical insertion at Tygerberg Hospital (TBH).
Method: A retrospective descriptive study of all PD access created on all consecutive patients initiated on PD at TBH between January 2009 and December 2011 was done. Data were collected from hospital and peritoneal dialysis records using a structured data sheet.
Results: There were 110 consecutive patients over the study period, of which 58 (53%) were females and 52 (47%) males. The majority of patients were of mixed race (72.2%) with a mean age of the patients 32 ± 10 years. A total of 147 PD accesses were created during the study period, of which 34% (50) were percutaneous bedside insertions while 66% (97) were surgically inserted. Percutaneous bedside insertion ($n = 50$) was successful in 84% (42) of cases while 16% (8) were unsuccessful and had to be inserted surgically. The most common complication in the immediate post-insertion period was peri-catheter leak and catheter migration which were not significantly different in both groups. There were two major complications in the percutaneous bedside insertions and none in the surgical insertion group. Catheters were removed because of peritonitis in 24% (12, $n = 50$) of the percutaneous and 13.4% (13, $n = 97$) of the surgical insertion groups.
Conclusion: Percutaneous PD catheter insertion is safe and associated with a high success and low major complication rate that is comparable to surgical insertion.

P: PREVALENCE OF PROTEINURIA IN HIV-POSITIVE PATIENTS IN RWANDA HEALTH CENTRES

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Background: In 2009, there were an estimated 2.6 million people infected with HIV; 69% live in sub-Saharan Africa. In Rwanda, the prevalence rate was 3.1 % among adults aged 15 to 49 years, with a total number of about 190 000 in 2008. Although renal complications are common among HIV-positive individuals, little is known of the prevalence of HIV and kidney disease in sub-Saharan Africa and in Rwanda in particular, despite the fact that kidney disease represents an increasing concern in the care of HIV-infected persons. This is especially so in low-economy countries including Rwanda, a small landlocked country in Central Africa with a population of about 11 million.

Methods: We prospectively measured proteinuria semi-quantitatively using urine dipsticks in 311 stable HIV-positive patients attending outpatient HIV clinics, all of whom were on highly active antiretroviral therapy. Urine dipsticks were repeated twice for persistent proteinuria. The patients' files were reviewed retrospectively for the latest available demographic, clinical and laboratory data.
Results: Among 311 study participants, all black, 72% were female and 28% were male, with a mean age of 38 years. The study results showed a prevalence of 21.6% of patients with persistent proteinuria and 38.7% had renal dysfunction as per raised serum creatinine level. There were significant correlations between patients with persistent proteinuria and the clinical stage of the disease as per WHO definition and the CD_4 count (21%).
Conclusion: The prevalence of persistent proteinuria was remarkably high, implying a high prevalence of glomerular diseases in our HIV-positive patients. Therefore we strongly suggest that all HIV-positive patients be checked for proteinuria for early management of a wide range of renal diseases. The study confirmed a significant correlation between proteinuria and the CD_4 count and HIV stage.

P: HIVAN PREVALENCE IN BLACK SOUTH AFRICANS AND SNP SELECTION WITHIN MYH9 AND APOL1 FOR AN ASSOCIATION STUDY: A PRELIMINARY ANALYSIS

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Background: HIVAN remains an important cause of morbidity and mortality in HIV-positive black persons aged 20 to 64 years. Genetic susceptibility to HIVAN has been attributed to genetic variations within *MYH9* and *APOL1* on chromosome 22. As part of an ongoing study, we examined the prevalence of HIVAN in Johannesburg residents and developed an algorithm for selection of single nucleotide polymorphisms (SNPs) to test for association with HIVAN and other kidney diseases.
Methods: A five-year (2007–2011) retrospective review of all adult (age > 18 years) native kidney biopsies received was undertaken. The data were collected and stratified according to age, gender and clinical presentation. SNPs within and flanking *MYH9* and *APOL1* were selected by identifying all SNPs documented from 1 000 base pairs upstream and downstream of the two genes, with a minor allele frequency of > 0.05 in an African population based on the international HapMap and 1000 Genomes projects. SNPs with previous association to kidney disease were included, as was a panel of ancestry informative markers (AIMs).
Results: A total of 1 674 biopsies were assessed: 840 (50.2%) from males, 783 (46.8%) from females and 51 (3.0%) with unstated gender. The mean age for females was 33.9 and for males 38.9 years. Sixty-seven (4.0%) biopsies from HIV-positive patients showing collapsing glomerulopathy with tubular microcysts were classified as true HIVANs. A total of 1 162 SNPs were detected for *MYH9* and 233 for *APOL1*. To reduce the number of SNPs to fit an Illumina BeadXpress assay of 96 SNPs, a Tagger algorithm selected 25 and 29 SNPs in *MYH9* and *APOL1* respectively; previously associated SNPs were 24 and AIMs for high-level population admixture were 18.
Conclusion: Biopsy-proven HIVAN remains a major cause of nephrotic syndrome and secondary glomerulonephritis and therefore an SNP selection algorithm was developed in preparation for HIVAN genetic susceptibility studies.

P: DEMOGRAPHIC DATA OF PATIENTS REFERRED FOR PERMANENT VASCULAR ACCESS FOR CHRONIC HAEMODIALYSIS (HD) AT THE GLYNNWOOD HOSPITAL, JOHANNESBURG

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Introduction: The population of patients requiring renal-replacement therapy increases at a rate of about 10% per year. There has also been a 10% increase in cardiovascular disease as well as 15% increase in diabetes mellitus in end-stage renal disease patients over the last 15 years.
Methods: A retrospective analysis was done of prospective data collected from a dialysis unit and vascular surgeon's practice at the Glynnwood Hospital from 2005 to 2011. There were 1 117 permanent central vein catheters (CVC) inserted for chronic HD. We also constructed 306 arterio-venous fistulae (AVF) based on patients' native vessels and 131 arterio-venous bridge graft fistulae (AVG).
Results: There was a male predominance in both study groups. The female:male ratio in the CVC vs AVF/AVG groups was 2005: 1:1.9 vs 1:1.5, 2006: 1:1.5 vs 1:1.4, 2007: 1:1.2 vs 1:1.7, 2008: 1:2.9 vs 1:2.4, 2009: 1:2.2 vs 1:1.5, 2010: 1:1.5 vs 1:1.8, and 2011: 1:1.4 vs 1:1.5. The average age of the patients in the CVC vs AVF/AVG group was: 2005: 52.4 vs 49.5 years, 2006: 54.1 vs 53.7 years, 2007: 52.9 vs 49.5 years, 2008: 55.2 vs 50.1 years, 2009: 55.0 vs 50.9 years, 2010: 56.7 vs 54.2 years and 2011: 55.6 vs 48.8 years. The majority of patients in both groups were hypertensive. Between 2005 and 2011 in the CVC group there were 90.8–96.9% hypertensives and in the AVF/AVG group, 93.6–97.3% hypertensives. We recorded an average 26.8% (23.5–36.7%) prevalence of diabetes mellitus in the CVC group and 24.8% (17.5–38.3%) in the AVF/AVG group. There was steady increase in HIV-positive patients from 8.5% in 2005 to 9.0% in 2011 in the CVC group and from 6.4 to 12.7% in the AVF/AVG group. Obesity increased from 7.3% in 2005 to 11.6% in 2011 in the CVC group compared to an 8.5 to 12.7% increase in the AVF/AVG group.
Conclusions: There was no major change in age, male prevalence, arterial hypertension or DM prevalence in our patients over a seven-year period. Female/male ratio fluctuated in both groups but was similar in the same years. We noted a slight increase in the number of HIV-positive patients and obesity in both study groups.

P: PERI-PROCEDURAL COMPLICATIONS DURING INSERTION OF TEMPORARY CENTRAL VEIN CATHETER FOR HAEMODIALYSIS BASED ON BODY LANDMARKS. A CLINICAL AUDIT OF A SURGICAL PRACTICE

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Introduction: At present non-tunnelled catheters are the predominant vascular access for acute or temporary HD. The femoral vein is the preferred route due to easy insertion and relatively low risk of peri-procedural complications or thrombosis.
Methods: From 2005 to 2011, 1 280 temporary, non-tunnelled catheters for HD were inserted. Of these 1 201 catheters were placed for the first time and 79 were re-placements 'over a wire' which, were subsequently excluded from this analysis. For all the first-time placements, we selected the common femoral vein (CFV) in the majority of cases. In the remaining cases, the internal jugular (IJV) or subclavian veins (SCV) were used. All catheters were inserted using body landmarks. The procedures were carried out under local anaesthesia in high care/ICU for 976 (81.3%) of the casaes, 129

(10.7%) in the operating theatre and 96 (7.9%) in the renal ward. In the group there were 764 males and 437 females with an average age of 57.1 years (16–94). The co-morbidities were: arterial hypertension 64.5%, diabetes mellitus 15.9%, HIV (+) 13.9%, morbid obesity 10.6%. Acute renal failure was the indication for insertion in 65.6% and chronic renal failure in 34.4% of patients. The choice of catheter and insertion site was left up to the operator's discretion.
Results: There was 100% immediate success in all cases. The CFV was selected in 1 007 (83.8%) cases, the IJV in 155 (12.9%) and the SCV in the remaining 39 (3.2%) patients. The average number of passes of a needle to allocate the CFV was 1.9, for the IJV 2.0 and 2.3 for the SCV. There was no need for conversion to an open surgical insertion. There were 75 incidental punctures of the CFA resulting in three false aneurysms (3/1 201: 0.25%), requiring surgical intervention in two cases. The third patient died with no repair of the CFA due to her co-morbidities. We recorded 14 punctures of CCA with no surgical or neurological sequelae. One patient (1/155: 0.6%) developed pneumothorax and was treated with an intercostal drain. Significant bleeding or haematoma around the exit site occurred in 54 (4.5%) patients. All of these were treated with pressure dressings. Transient malfunction of the catheter occurred in 142 patients (11.8%) with only 18 patients requiring replacement of their catheters. There was no injury to the nerves. There were two lymph leaks from the groin and one death probably related to the procedure.
Conclusions: Insertion of a temporary catheter for HD may be safely carried out using only body landmarks. The procedure carries reasonably low complication rates.

P: INSERTION OF THE PERMANENT CENTRAL VEIN CATHETER FOR HAEMODIALYSIS: CLINICAL AUDIT OF A SINGLE-SURGEON PRACTICE

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Introduction: The recent recommendation by the NKF-DOQI guidelines as well other clinical societies is that the CVC should be inserted under sonographic guidance (Site-Rite device, Bard or similar) to precisely locate the selected vein and decrease the risk of peri-procedural complications.
Methods: From 2005 to 2011, 1 117 permanent CVCs for haemodialysis (HD) were inserted. Among these were 621 catheters placed for the first time into the internal jugular vein (IJV). The ultrasound-guided (U/SG) insertion was performed in 363 cases and body landmark-guided insertion (BLG) was carried out in 258 cases. The majority of insertions were in patients with chronic renal failure; 73.6% in the BLG and 82.6% in U/SG groups. The procedures were performed in the operating theatre, under general or local anaesthesia with fluoroscopy. The groups were comparable for age, gender, arterial hypertension, diabetes mellitus and HIV.
Results: There was 100% immediate success in all cases. The right (R) IJV was selected in 209 (81%) cases and the left (L) IJV in the remaining 49 (19%) patients in the BLG group, and 298 and 65 cases in the U/SG group, respectively. The average number of needle passes to locate the IJV was 2.8 in the BLG and 1.27 in the U/SG groups. The first pass location of IJV was achieved in 49.8% in the BLG and 85.1% in the U/SG groups. There were 52 (20.2%) incidental punctures of the common carotid artery in the BLG group, and 16 (4.4%) with no neurological sequelae. Five patients (1.9%) in the BLG and 1/0.3% patient in U/SG groups developed pneumothorax, treated with an intercostal drain. Bleeding from the operative wound or exit site occurred in 45 and 21 patients in both groups. Transient malfunction of the CVC occurred in 32 (2.4%) patients of the BLG and 39 (10.7%) of the U/SG groups. Three patients in each group required an early replacement of their catheters. There were no deaths related to the procedure.
Conclusion: Insertion of CVC for HD should be performed under U/S guidance for safe location of IJV and in an operating theatre with fluoroscopy.

P: RESTRICTIONS AND CHALLENGES OF A PD PROGRAMME IN THE GOVERNMENT SECTOR: OVERVIEW FROM TYGERBERG HOSPITAL

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Background: An overview is presented of the restrictions and challenges of managing a PD programme in the government sector and consequently, the resultant outcomes for the PD patients and staff working conditions.
Method: We undertook assessment of existing patient selection criteria, peritonitis rates and common organisms responsible, as well as resources available and patient outcomes.
Results: Staff rotation and patient selection criteria were not ideal, and unacceptably high peritonitis rates were observed, resulting in PD failure and patients having to switch modalities.
Conclusion: Restructuring of PD programmes in terms of dedicated PD nurses is needed, selection criteria should be more stringent if possible, and more concise follow ups on PD patients' wellbeing are important to improve PD patient outcomes.

P: METABOLIC SYNDROME AND CARDIOVASCULAR RISK IN DIALYSIS PATIENTS ATTENDING THE GROOTE SCHUUR HOSPITAL IN CAPE TOWN

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Introduction: The metabolic syndrome (MS) is a clustering of cardiovascular (CV) risk factors and is noted to be increasing in prevalence globally. End-stage renal disease (ESRD) is associated with increased morbidity and mortality due to increased CV disease in ESRD patients. The prevalence of the MS and CV risk is currently unknown in the dialysis population in Cape Town.
Methods: Prevalent dialysis patients (haemodialysis – HD, and peritoneal dialysis – PD) who consented were used for this study. Demographic and clinical data were recorded. Fasting blood was used to measure various biochemical indices. The MS was defined using the Adult Treatment Panel III (ATP III). CV risk was stratified according to number of risk factors as low (≤ one), moderate (two to four) or high (≥ four). Relevant statistical methods were used for analysis.
Results: Of the 143 patients in the study, 67.8% were on HD and 32.2% were on PD. The mean age of all the patients was 38.5 ± 10.4 years. The MS was present in 37.1% of all patients (PD 52.2%, HD 29.9%; $p = 0.015$) and the frequency of increased waist circumference and hypertriglyceridaemia were significantly higher in PD than HD patients ($p < 0.0001$ and $p = 0.006$, respectively). The frequency of CV risk was 3.5, 75.5 and 21.0%, respectively for low, moderate and high CV risk and there was no difference in CV risk between HD and PD patients. High CV risk correlated with BMI, increased waist circumference, hyperphosphataemia, raised calcium–phosphate product, raised PTH and elevated C-reactive protein ($p < 0.05$).
Conclusion: The prevalence of the MS was higher in dialysis patients compared to the general population in South Africa, and among dialysis patients, the prevalence was higher in PD than HD patients. Strategies to reduce CV risk in the dialysis population should be targeted.

P: ATYPICAL HAEMOLYTIC–URAEMIC SYNDROME BY MCP DEFENCIENCY DIAGNOSED IN A TEENAGER

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Background: The atypical haemolytic–uraemic syndrome (HUS) is characterised by microangiopathic haemolytic anaemia without

prodomes. It is associated with thrombocytopenia and renal failure and is often associated with a deficit in complement fraction.
Methods: We reported the observation of a 17-year-old teenager whose first symptom appeared in January 2011. She presented with anaemia, severe hypertension and anuric acute renal failure without a triggering factor. In the biological work-up, we noticed: haemolytic anaemia with schizocytes, very high LDH and the rate of haptoglobulin decreased. A study on the activity of the complement was done and it showed a deficit in MCP (CD46), with factor H and I normal. A trans-jugular renal biopsy was performed; it showed thrombotic microangiopathy. The patient received plasma exchanges with conventional haemodialysis. The plasma exchange was partial and not sustainable, and she benefitted later with Eculizumab. Our patient regained her renal function (35 ml/min), with normal rate of platelets and haemoglobin level. The genetic study showed her parents and younger sister were heterozygous.
Results: It is the first case of atypical HUS with MCP deficiency diagnosed in Algeria. The patient responded partially to the sessions of plasma exchanges and she responded well to treatment with Eculizumab with partial recovery of renal function.
Conclusion: The MCP deficiency was an anomaly of the complement associated with the atypical HUS. Eculizumab treatment provided therapeutic possibilities.

P: SOUTH AFRICAN SCHOOL HYPERTENSION (HT) SURVEY

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Primary HT is the cause of CKD5 in 40 to 60% of black South Africans. Early diagnosis and treatment could prevent this. Children were targeted to obtain data on early onset and to stimulate awareness of early HT detection and treatment.
Methods: Studies were conducted in grade 11 and 12 learners in five public schools for the previously disadvantaged and two private schools for comparison, using a protocol accepted by the University of the Witwatersrand Ethics Committee. The protocol included a 1½-hour kidney health lecture. BPs were measured via calibrated automated equipment. Subjects rested for 30 min before the BP was taken. Subjects with BP ≥ 138/88 mmHg were checked by a doctor before a final BP reading was recorded. All learners with any abnormality were given a document suggesting further management.
Results: Patients (946) (427 female and 519 male) were 98% black South Africans in public schools with a family history of HT in 80% of the HT subjects. BMI was 23.6 ± 5 kg/m^2 in males and 22.5 ± 5.6 kg/m^2 in females ($p < 0.004$). Systolic BP was 125.1 ± 15.7 mmHg in the females vs 118 ± 15 mmHg in males ($p < 0.0001$); 121 were hypertensive (12.5%). Significantly more females with HT correlated with BMI ($r = 0.54$, $p < 0.004$) but not with age. Four/427 (0.94%) of the females had type 2 diabetes, 11 (12%) had proteinuria.
Conclusions: Primary HT was six times more prevalent in South African children than in the USA. Obesity correlated with HT. Similar results were obtained in the peri-urban and rural public schools. We urge that this valuable screening exercise should be performed throughout South Africa.

P: PROGRESSIVE DETERIATION IN RATES OF LIVING DONOR (LD) AND DECEASED DONOR (DD) KIDNEY TRANSPLANTATION (KT_X): A THREE-YEAR JOHANNESBURG HOSPITAL POTENTIAL LIVING DONOR (PLD) SURVEY (2009–2011)

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Aims: We previously reported on PLD and successful LD (SLD 1993–2001); 60% were failed LD (FLD). We update the data to illustrate a worsening situation, to investigate why and to suggest solutions.
Methods: A retrospective record analysis of PLD (2009–2011, Group I) was compared with PLD (1993–2001, Group II). Actuarial survivals for DD, SLD and HD (haemodialysis) are shown to aid in solution finding. Appropriate statistics were used.
Results: GI: 137 PLD/121 FLD. Ages: FLD 33.9 years (18–69); SLD 33.8 years (21–57). 15/16 PLD ages 18–21 years = FLD. SLD vs FLD = 16 of 121 in GI vs 52 of 75 in GII points corrected to a three-year mean; $\chi^2 = 280$, $p < 0.0001$. PLD per year = 46 of 38 GI and 9 GII i.e. Δ% + 9. SLD per year = 5.3 GI vs 15.5 GII i.e. a 'net swing' of –75%. African FLD and SLD GI vs GII = 86 + 7 vs 35 of 9: $\chi^2 = 4.84$, $p < 0.03$.

Causes of FLD in GI: social (e.g. absconded) = 34, hypertensive = 27, immunological = 16, recipient related = 15, HIV =12, renal = 8, obesity = 8 (12 more obese patients also hypertensive), medical/surgical = 4, 'error' = 1. These were compared with FLD in GII KT_X survival (GII); DD = 48% at five years, LD = 79% at five years vs HD survival (01–06) = 70% at six years.
Conclusions: There was a slight increase in annual PLD in GI vs GII with a significant drop in SLD KT_X rate. Many potentially avoidable or reversible social refusals, progressive HIV control, relaxation of refusal criteria in non-hypertensive obese patients and immunological solutions could all potentially cut the FLD rate. Also because of favourable HD survival, we are to lobby authorities to eliminate the phrase 'must be transplantable' in the selection criteria and to substantially increase new and expand existing dialysis facilities countrywide.

P: EFFICACY OF HEPATITIS B VACCINATION IN CHRONIC KIDNEY DISEASE PATIENTS AT CAPE TOWN KIDNEY AND DIALYSIS CENTRE

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Background: Patients on maintenance haemodialysis are at high risk for hepatitis B virus infection. These patients are immuno-suppressed and susceptible to nosocomial infections. Although vaccination is routinely recommended in ESRD patients, antibody response to vaccination is suppressed and its level rapidly declines among patients on chronic dialysis due to the decreased immunological responses. This study's objective was to ascertain how effective the hepatitis B vaccine is in chronic haemodialysis patients. A positive hepatitis B surface antibody level of > 10 mIU/ml indicates immunity to hepatitis B.
Methods: A retrospective study was done on 18 chronic haemodialysis patients at the Cape Town Kidney and Dialysis Centre. Data analysis was done on patients who received the hepatitis B vaccine at zero, one, two and six months in the time period from 2007 to 2011, to determine whether they had developed immunity after six months of vaccinations.
Results: The results showed that out of the 18 patients who received the vaccine, three patients had ≥ 100 mIU/ml hepatitis B surface antibodies, one had 50–100 mIU/ml hepatitis B surface antibodies, 12 had 10–49 mIU/ml hepatitis B surface antibodies and three patient had 0–9 mIU/ml hepatitis B surface antibodies.
Conclusion: The hepatitis B vaccine is effective in developing antibodies in patients on chronic haemodialysis. Of the 18 patients receiving the vaccine, hepatitis B surface antibodies increased significantly in 96% of patients. Only 16.7% of the patients had no change in hepatitis B surface antibodies.

O: HYDROTHORAX IN PERITONEAL DIALYSIS PATIENTS

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Background: Hydrothorax is a known complication in peritoneal dialysis (PD) patients, where dialysis fluid migrates across the diaphragm and into the pleural space. Risk is low (1–2%) but serious complications can occur, including the ending of PD as a dialysis option. Fifty per cent or more will require permanent switching to haemodialysis (HD). If expertise or resources exist it may resolve after a brief interruption on HD or with combined use of small exchange volumes semi-sitting and following pleurodesis (repair of hydrothorax). It is not life threatening and can be treated but recurrence is high. This case study emphasises the importance of consistent surveillance, and early recognition and treatment options.
Methods: This was a retrospective review of six patients who presented with hydrothorax following PD catheter insertion.
Results: These cases were detected from a total of 108 patients on PD in the unit, making the incidence 5.5%. Patients included those detected from May to December 2011. The diagnosis was made after recognising that dialysis fluid had migrated into the pleural space when patients presented with fluid overload, migration of dialysis fluid across the diaphragm into the pleural space.

Case 1, a female aged 32 years, presented 10 years ago with hydrothorax. She presented with coughing and fluid overload. Ten years later five cases were diagnosed, four female patients and one male patient. Case 2 presented early post insertion, 17 days, whereas cases 3, 4 and 5 had a wide range of presentation. Case X presented after four years on PD. Ages also varied significantly from 38 to73 years. All the leaks occurred on the right-hand side, and effusion was transudative differentiating it from other causes of pleura l effusion. Most cases had a negative ultrafiltration and presented with fluid overload. PD treatment was stopped in all cases. All were admitted, a negative pressure drain was inserted and the hydrothorax was repaired. Post surgery, all remained on HD treatment for two months to recover. Two patients successfully returned to PD. The other two preferred to stay on HD and were never restarted on PD.
Conclusion: Hydrothorax does occur on PD. Early diagnosis and treatment can result in patients successfully returning to PD treatment. Unfortunately, some patients choose not to return to home dialysis therapy. These cases demonstrated a good outcome with surgical treatment of hydrothorax.

O: OUTCOME OF PRIORITY SETTING APPROACH TO ACCESS RENAL REPLACEMENT TREATMENT (RRT)

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Background: Access to RRT in the Western Cape has always been limited and the crude rationing previously used disadvantaged certain groups. In 2008, the Western Cape provincial government adopted a priority setting policy following recommendations made by a clinical team using the Accountability for Reasonableness (A4R) approach. The main purpose of the policy was for more explicit and accountable decision-making. In terms of the policy, CKD patients were grouped by a multidisciplinary committee into three categories. Category 3 patients were considered not transplantable and were not accepted for RRT. Category 1 patients were considered 'ideal' patients who were *always* accepted. Category 2 patients were those who were transplantable but had confounding factors making them less ideal. They were offered treatment only if resources allowed.
Methods: We reviewed our experience over the four-year period between May 2008, when the policy was implemented, and April 2012. All data were captured on Excel spread sheets. Demographic details, clinical details and results of assessment (with reasons) were extracted from captured data and analysed.
Results: Over the four years, 697 patients were assessed, with a progressive increase in patient numbers assessed each year. Of all patients assessed, only 29% were accepted for treatment. Significantly more females were offered treatment but there was no racial difference. The patients accepted for treatment were 10 years younger than those treated conservatively. Diabetes and HIV infection were the main medical reasons patients were denied treatment but poverty-related issues remained the main barrier. The majority of patients fell into Category 2. Only 10.6% of patients were Category 1 patients and therefore assured of treatment.
Conclusion: The priority setting approach ensures fairer access to renal replacement treatment and ensures that deserving patients are not deprived of treatment.

O: PREVALENCE OF HIV-ASSOCIATED NEPHROPATHY IN CHILDREN: A FIVE-YEAR EXPERIENCE AT THE CHARLOTTE MAXEKE JOHANNESBURG ACADEMIC HOSPITAL –NATIONAL HEALTH LABORATORY SERVICE

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Introduction: Renal disease remains an important cause of morbidity and mortality in children infected with the human immunodefiency virus (HIV). The prevalence of human immunodefiency virus-associated nephropathy (HIVAN) in children with kidney disease is not well reported in the literature. In this study, we assessed the prevalence of HIVAN among children with renal disease.
Methods: A five-year (2007–2011) retrospective review of renal biopsies received at our laboratory was performed to assess the prevalence of HIVAN in children who presented at two paediatric nephrology centres and on whom a renal biopsy was performed. The data were collected and stratified according to age, gender and clinical presentation. Children were defined as patients ≤ 17 years.
Results: Of the 449 biopsies received from children, 12 (2.67%) showed collapsing glomerulopathy with tubular microcysts diagnostic of HIVAN. Of these, seven (58.3%) were female and five (41.7%) were male. Six had proteinuria, three had nephrotic syndrome and two had chronic renal failure. The clinical presentation was not stated on the histology report for one patient. The mean age was 8.75 years and the median was 9 years. The age range was 5 to 14 years.
Conclusion: Biopsy-proven HIVAN is an important cause of proteinuria in children. From our results we can conclude that in the paediatric age group, the average interval between acquisition of HIV and development of HIVAN is 8.75 years.

P: COPING WITH HAEMODIALYSIS: FAMILIES' PERSPECTIVE

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Introduction: Chronic renal failure patients are confronted by many challenges and often express feelings of being a burden to their families. Since 1913, limited research has been conducted to explore the coping behaviours of families of haemodialysed patients, especially in a South African context. The family's inability to cope with the treatment may impact on both their wellness and that of the patient on haemodialysis.
Methods: A mixed-methods approach with a sequential design was used to explore and describe the coping behaviours of families in the Gauteng province, South Africa. Phase one identified and described the coping behaviours of families using the F-COPES scale, and in phase two the theme was further explored by means of interviews.
Results: The mean scores of the subscales ranged from 3.05 to 4.16,

with reliability indices found to be within the normal range. The mean scores were for subscale 'seeking spiritual support' (M = 4.16), then 'mobilising the family to acquire and accept help' (M = 3.94) and 'acquiring social support' (M = 3.05). Categories from qualitative data were challenges, co-ordinated care, support structures, and beliefs about diseases. Subscales 'seeking spiritual support', 'mobilising the family to acquire and accept help', and 'reframing and acquiring social support' showed concordance with the categories derived from the qualitative data.
Conclusions: Most of the patients felt that not enough support was offered by the professional healthcare workers. It was recommended that another study on a larger scale be undertaken and that these families be given preference for support groups.

P: PREVALENCE, RISK FACTORS AND PATTERN OF KIDNEY DISEASE IN PATIENTS WITH HIV/AIDS AT AMINU KANO TEACHING HOSPITAL: A CLINICO-PATHOLOGICAL STUDY

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Renal disease in HIV/AIDS contributes significantly to the morbidity and mortality associated with HIV infection worldwide. This cross-sectional study was aimed at providing data on the prevalence, risk factors and histological pattern of kidney disease in HIV-positive patients in Kano, Nigeria.
Methods: Four hundred consecutive HIV-positive treatment-naïve adults satisfied the inclusion criteria and were screened for proteinuria and decreased GFR between May and October 2010. Patients with other conditions known to cause kidney disease were excluded. Sociodemographic and clinical features were documented using an interviewer-administered questionnaire. Proteinuria was tested using dipstick and repeated after four weeks if positive. Spot urine was used to estimate 24-hour urine protein excretion using the protein-creatinine ratio. Complete blood count, CD_4 cell count, serum urea, electrolytes and creatinine, serum proteins and cholesterol levels were determined. Twenty patients were biopsied.
Results: The male:female ratio was 1:1.5 and mean age was 34.03 ± 10.23 years. Renal disease defined by the presence of proteinuria or decreased GFR (< 60 ml/min/1.73 m^2) or both was found in 227 patients (56.8 %), with 141 (35.3%) and 64 (16%) having proteinuria and low GFR, respectively. Prevalence was higher in females (121, 53.3%). Commonest clinical features were anaemia in 162 (71.4%) and low BMI in 64 (28.2%) patients. Risk factors for kidney disease were low CD_4 cell count ($p = 0.034$) and anaemia ($p = 0.0001$). Collapsing FSGS was found in 11 (55%) while five (25%) had interstitial nephritis. One patient had normal histology on light microscopy despite proteinuria of 2.7 g/day, suggestive of minimal change disease.
Conclusions: The prevalence of renal disease in HIV-positive patients is high in Kano, Nigeria. Low CD_4 cell count and anaemia were risk factors identified. Collapsing FSGS was the predominant histological type. Routine screening of HIV-positive patients for the presence of kidney disease is recommended.

O: THE CLINICAL PRESENTATION OF PAEDIATRIC KIDNEY DISEASE AT QUEEN ELIZABETH CENTRAL HOSPITAL (QECH), BLANTYRE, MALAWI

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Background: Anecdotal evidence suggests paediatric kidney disease in Malawi is common and outcomes are poor. There is no literature from Malawi or the sub-region on the clinical presentation of kidney disease in children to inform clinical decision making. There is a pressing need to study paediatric kidney disease in Malawi to understand the underlying pathologies and improve outcomes.
Methods: This was a cross-sectional study over nine months at QECH to determine the clinical phenotype of paediatric renal disease. Ward referrals and patients from the new paediatric renal clinic were included in the study. Fully anonymous demographic, clinical and laboratory data were collected for each referral. Clinical and laboratory parameters were analysed by a nephrologist and paediatrician to determine the most likely cause of kidney disease using all available data combined with clinical judgement. Renal histology is not available locally.
Results: Thirty-eight patients were referred over nine months, 19 male, mean age 7.9 years. One patient tested HIV positive, 17 were non-reactive while 18 were HIV unknown. The median creatinine level at presentation was 1 mg/dl (range 0.1–33 mg/dl). Twenty (53%) patients presented with glomerular disease; 11 nephritic syndrome, nine pure nephrotic syndrome (all were steroid sensitive). Six (16%) patients were admitted with non-glomerular, acute kidney injury; four died during admission. Four (10%) patients had urological disease with impaired kidney function; two (5%) had evidence of chronic kidney disease and six (16%) had uncertain diagnoses.
Conclusion: Glomerular diseases predominated in this study, similar to that in sub-Saharan Africa. The mortality from acute kidney injury in children presenting to QECH is high and a significant proportion of cases do not have a clear diagnosis. Improving patient outcomes by developing diagnostic services including renal pathology and early detection and intervention for acute kidney injury are priorities for the paediatric renal service.

O: FACTORS ASSOCIATED WITH HEALTH-RELATED QUALITY OF LIFE (QOL) IN CHRONIC HAEMODIALYSIS PATIENTS IN CAPE TOWN

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Background: Quality of life (QOL) is low in dialysis patients worldwide and several factors including anaemia, poor nutrition, hyperparathyroidism and the uraemic state have been reported to be associated with poor QOL in dialysis patients. Recent observational studies have suggested that eKt/V below 1.3 or URR below 65%, in patients attending dialysis three times per week is associated with increased mortality. The aim of the study was to determine haemodialysis factors associated with QOL of chronic haemodialysis (HD) patients.
Methods: The study was a cross-sectional study of 91 HD patients who had been on dialysis for at least six months. Patients' QOL was assessed using a short form (SF-36) health survey questionnaire. Patients' Kt/V and serum biochemical data were recorded. Descriptive methods were used for data analysis, and factors associated with QOL were sought for. A p-value < 0.05 was taken as significant.
Results: The mean age of the patients was 39.9 ± 10.3 years, 54.9% of all patients were of African ancestry and 69.2% of patients had ESRD due to hypertension. Overall, 60.5% had Kt/V ≥ 1.2 and 62% had URR ≥ 65%. Scores from the QOL domains ranged from a minimum of 50.0 ± 18.2 to a maximum of 74.9 ± 16.4. Mean haemoglobin (Hb) was 9.26 ± 2.21 g/dl and correlated with body pain, $p = 0.005$. Kt/V and other biochemical parameters did not correlate with any QOL domain. Male HD patients had higher physical functioning and vitality scores compared to females ($p = 0.015$ and $p = 0.035$, respectively). Physical functioning scores were significantly different between the different racial groups ($p = 0.035$).
Conclusion: Haemoglobin and certain demographic variables such as gender and race were the factors that correlated with QOL domains in our HD population. However, there is a need to ensure better adequacy of dialysis and correction of abnormal biochemical factors in these patients to continue to improve their QOL.

O: HIV AND KIDNEY DISEASE

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There is a wide clinical spectrum of renal disease in the course of HIV infection, which includes acute kidney injury, electrolyte and acid–base disturbances, HIV-associated glomerular disease, acute-on-chronic renal disease, and side effects related to the treatment of HIV. The availability of antiretroviral therapy (ART) has resulted in increasing numbers of patients with renal disease requiring RRT. Acute kidney injury occurs in approximately 20% of hospitalised patients, while the epidemiology of chronic kidney disease (CKD) has not been accurately estimated, with a reported prevalence of 1.1–48.5% in different regions of the world. HIV infection of the renal epithelium and the subsequent expression of viral gene products is a major determinant of the pathogenesis of HIV-associated nephropathy (HIVAN). The recently described association of APOL1 gene variants G1 and G2 (which are in strong linkage disequilibrium with MYH9) and the risks of FSGS (HIV and non-HIV associated) give some insights into the predilection of HIVAN for black ethnicity. Progression to ESRD in HIVAN is probably due to the extent of chronic kidney damage evident at biopsy, supporting the need for screening when diagnosed with HIV infection in order to facilitate the early diagnosis of CKD. Antiretroviral therapy probably needs to be initiated early in the course of HIV infection, with several studies having postulated a role for ART in preventing progression of HIVAN when started timeously. Some drugs used in ART regimens are potentially nephrotoxic and require dose adjustment or avoidance in advanced kidney failure. HIV-infected patients requiring either haemodialysis or peritoneal dialysis, who are stable on ART, are achieving survival rates comparable to those of dialysis patients without HIV infection and the choice of dialysis modality does not impact on survival. Patient and graft survival rates are similar to those in HIV-uninfected transplant recipients.

P: A COMPARATIVE STUDY TO EVALUATE THE EFFECTS OF HAEMODIALYSIS FREQUENCY IN END-STAGE KIDNEY DISEASE (ESKD)

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Introduction: The quality of haemodialysis (HD) plays a role in patient survival. Enthusiasm exists for use of more frequent and longer-duration HD which seems to offer improved outcomes.
Aims: This study evaluated the effect of longer haemodialysis in ESKD.
Methods: Twenty patients with ESKD from the Umhlanga Renal Unit participated in the study. Ten patients (Group A), received dialyses for four hours and 10 (Group B) < four hours and < three times a week. Adequacy makers, using the spKt/v or std-Kt/v and URR ratio, were taken every three months.
Results: Statistical analysis revealed a directly proportional relationship between URR and Kt/V. Over five testing periods, Kt/V values in Group A correlated closely, indicating a low inter-measurement variability. The overall mean kt/V for Group A over the five testing periods was higher than in Group B; a maximum of 1.44 and minimum of 1.33 in Group A vs a maximum of 1.14 and minimum of 1.03 in Group B. Group A minimum mean URR value was 72.5% and maximum was 75%. Group B had a maximum of only 66.4%. ANOVA and *t*-test comparing Group A vs Group B revealed significant differences for Kt/V, URR% and post urea over the five testing periods ($p > 0.001$). There were no significant differences in serum albumin levels.
Conclusion: The results of this study confirm longer duration dialysis was beneficial even in a small group of patients over a short time period. Results indicated post urea played a role in the final result for both URR and Kt/V dialysis adequacy using these traditional markers of adequacy. On-going and a larger cohort may indicate better long-term outcomes. Improved education supported by large randomised control studies and on-going education are still needed to assist renal clinicians to ensure longer duration and daily HD becomes accepted by reimbursing authorities and patients.

P: PERITONEAL DIALYSIS IN SOUTH AFRICA: A SINGLE-CENTRE EXPERIENCE

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Introduction: Patients are often offered CAPD as a first choice for renal replacement therapy by default because of lack of haemodialysis slots and financial constraints as they cannot afford to travel to the haemodialysis unit three times a week.
Methods: We reviewed our CAPD experience at the Johannesburg Hospital peritoneal dialysis unit for the years 2000 to 2005. This was a retrospective review of records of 263 CAPD patients from 2005 to 2009. The age range was 15.05 to 63.77 years, with a mean of 39.42 years. Aetiology of end-stage renal failure (ESRD) was unknown in the majority, due to late presentation with ESRD, hypertension and shrunken kidneys; 78% of patients had achieved or exceeded the target haemoglobin level of 11–12 g/dl and were receiving a mean erythropoietin dose of 2 500 IU/week. There were a total of 153 episodes of peritonitis, with the majority being gram-positive organisms; *Staphylococcus aureus* was the commonest cause of peritonitis. Thirty-nine patients discontinued CAPD and were transferred to haemodialysis. Fifty seven died. Thirty patients received a kidney transplant.
Discussion: Because of the scarcity of resources, only those who are eligible for transplantation are accepted onto our programme. The corollary is that many who may benefit are not offered CAPD. Until recently this has included HIV-infected individuals. Even though our dialysis numbers are capped, and there are invariably no slots available on our haemodialysis programme, the number of kidney transplants is declining annually. Unfortunately, the dilemma of shortage of organ donors persists, which limits the numbers of transplants to free up dialysis slots. This further compounds the problem of trying to make dialysis services readily accessible to our rural populations. Even though peritonitis and non-compliance are often cited as some of the major reasons for failure of CAPD in a patient, more often than not psycho-social issues are not adequately addressed.

P: A SINGLE BASE-PAIR MUTATION CAUSES CYSTINOSIS IN THE MAJORITY OF WESTERN CAPE PATIENTS

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Background: Cystinosis is caused by mutations in the CTNS gene and is relatively common in Cape Town. While many mutations have been diagnosed in other race groups, local mutations are unknown. The local phenotype has not been described.
Method: A retrospective chart review was done of 14 patients diagnosed with cystinosis. Molecular analysis was carried out in all patients and six parents. Genomic DNA was extracted from EDTA blood or fibroblasts, and exons 1–13 of the CTNS gene were sequenced together with the splice sites and 100 bp of intronic sequence on either side of each exon. In some cases mRNA was extracted from fibroblasts, then reverse transcribed and the CTNS cDNA sequenced.
Results: Fourteen patients were analysed (six black, eight mixed

race). Mean age at presentation was 2 years and 5 months (range: 5 months to 5 years). All patients presented with a history of vomiting and polyuria. All patients had developed proximal renal tubular acidosis. Six patients have developed chronic kidney disease (two end-stage). One patient had hypothyroidism; 13 patients had corneal cysteine crystals. All patients had raised white cell cysteine at diagnosis (0.9–3.6 nmol cysteine/mg protein). A molecular diagnosis of cystinosis was made in all 14 patients. Eleven patients were positive for a homozygous G>A mutation in intron 11 (c.564-12G>A).This is a new mutation not previously described. Another was homozygous for S141F. Two were compound heterozygotes for c.1564-12G>A and either c.16 del ctga or S141F.
Conclusion: Most patients in the Western Cape presented with a severe clinical phenotype. Most mixed race and black patients had G>A mutation in intron 11 (c.971-12G>A) It is not a mutation reported in Caucasian patients. This will aid in the diagnosis of patients with cystinosis in South Africa as well as ante-natal testing for families.

O: ABNORMAL IGA1 *O*-GLYCOSYLATION IN A MULTI-ETHNIC POPULATION OF IGA NEPHROPATHY PATIENTS IN KWAZULU-NATAL, SOUTH AFRICA

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Background: IgA nephrology (IgAN) is a leading cause of chronic kidney disease worldwide. The pathogenesis is poorly understood and no curative therapy currently exists. Studies in Caucasian and Asian (Chinese, Japanese) populations and one in African Americans describe abnormally elevated serum levels of degalactosylated IgA1 molecules, exposing the GalNAc antigen. Immune complexes mask the ligand for the hepatic asialoglycoprotein receptor, preventing clearance, and promoting selective mesangial deposition which showed higher levels of degalactosylation compared to the serum of the patient. There was a lack of pathogenetic data on IgAN in Africa.
Aim: To study the *O*-glycosylation of serum IgA1 molecules in a multi-ethnic population of IgAN patients in KwaZulu-Natal, South Africa.
Methods: An ELISA-based lectin-binding assay was used to measure and compare the level of IgA1 degalactoslyation between IgAN patients and controls. Participants included individuals of African, Caucasian, Indian (predominantly) and mixed-race descent. Nineteen IgAN patients at various stages and 20 healthy controls were recruited between 2005 and 2011. The mean absorbance value corresponding to the degree of degalactosylation for the IgAN group was compared to that of the normal control group for each test. A non-parametric Wilcoxon matched-pairs test was used accordingly. The two-tailed p-value was used to assess for statistical significance between the groups.
Results: When all the means were compared, the average means (SEM) of the tests of the IgAN patients was 0.3678 ± 0.0790, which was statistically significantly greater than the normal controls (0.2969 ± 0.0586) ($p = 0.0076$). IgAN patients exhibited abnormal IgA1 *O*-glycosylation with a greater level of terminal degalactosylation of IgA1 in comparison to normal controls.
Conclusion: This finding is consistent with that of other populations globally, supporting a universal strategy for therapeutic or curative agents that target this aberrancy.

O: FREQUENT BODY COMPOSITION MONITORING IN HD PATIENTS AT WINELANDS KIDNEY AND DIALYSIS CENTRE: EFFECTS ON HYPERTENSION AND INTRADIALYTIC HYPOTENSION

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Background: The purpose of this study was to establish whether regular measurement of a haemodialysis patient's body composition with the BCM (hereby determining and maintaining the patient's dry weight) could assist in reducing hypertension and intradialytic hypotension.
Methods: A group of 20 patients who were compliant in their medicine adherence was randomly chosen. Their weekly average blood pressure, dry weight, and intradialytic hypotension episodes were monitored over a period of 12 months. (First six months were with conventional dry weight assessment and management, second six months with BCM measurements done on months one, three and six.)
Results: There has been a marked improvement in all 20 patients' blood pressures. The difference between pre- and post-blood pressures decreased. Interdialytic and postdialytic hypotensive episodes decreased. The number of patients requiring oxygen pre- and during dialysis decreased. We observed that patients who experienced a change in body composition (decrease in tissue mass and overhydration) over the 12 months also developed a decreased Hb level. Patients with no major fluctuation in body composition over the 12 months showed stable Hb levels.
Conclusion: Frequent monitoring of body composition and fluid status in HD patients with the BCM and fluid management software tool can assist in reducing hypertension and intradialytic hypotensive episodes. Complications due to over-/under-hydration and malnutrition can be detected early and managed accordingly.

O: A TWO-YEAR RETROSPECTIVE REVIEW OF OUTCOMES OF ACUTE PERITONEAL DIALYSIS IN KING EDWARD VIII HOSPITAL

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Background: Acute peritoneal dialysis (PD) is a renal replacement treatment modality that is still relevant today, especially in low-resource centres, due to its relative ease of set up and operation in the treatment of patients presenting with acute kidney injury or unprepared chronic kidney disease requiring an urgent start to dialysis. This study evaluates the outcomes of acute PD among dialysis-requiring renal failure patients admitted to King Edward Hospital (KEH) between September 2009 and August 2011.
Methods: This was a single-centre retrospective observational study on 41 patient files that were successfully sourced from hospital records from a list 134 patients identified to have been offered acute PD via a rigid catheter as the initial modality of dialysis at KEH PD unit. Short-term clinical outcomes [urea reduction rate (URR), fluid removal, metabolic control and patient outcome] and complications (mechanical and infective) were evaluated.
Results: There was a mean URR of 68.8% and PD ultrafiltration of 12 118.75 ml accomplished over a mean PD ward stay of 4.7 days and 62.6 PD cycles. Acceptable metabolic control was achieved when comparing pre-PD values (means for urea, potassium, bicarbonate and phosphate of 52.06, 5.66, 11.12 and 3.07 mmol/l, respectively) to post-PD values (16.26, 3.11, 25.44 and 1.55 mmol/l, respectively). Fifty-six per cent of patients had catheter-related complications with 17% having infective complications, while 39% had mechanical complications. There was a 29% mortality rate during PD ward stay with 67% of the patients dying within 48 hours of insertion of the PD stick catheter and 17% having had a mechanical complication during PD ward stay.
Discussion: This study demonstrated that acute PD can produce acceptable solute clearance and metabolic control; nevertheless, it is associated with a very high complication rate. The study was, however, limited by its single-centre, retrospective, non-comparative, small-sample nature.

P: AN AUDIT OF THE EFFECT OF INADEQUATE WATER PURIFICATION ON ANAEMIA MANAGEMENT PARAMETERS IN HAEMODIALYSIS PATIENTS AT TYGERBERG HOSPITAL

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Background: Haemodialysis (HD) patients are exposed to large volumes of water on a weekly basis and are at risk for contaminant accumulation from inadequately purified water. The aim of the study was to evaluate the effect of the inevitable use of municipal water, due to a breakdown of the water-purification system, on anaemia management at Tygerberg Hospital (TBH) over a six-month period (June to December 2011).
Method: A retrospective, descriptive study of all HD patients managed at TBH was carried out over an 18-month study period (January 2011 to June 2012). The period of study was divided into three components of six-month periods before (P1), during (P2), and after (P3) the purification system breakdown, respectively. Anaemia-management parameters, such as haemoglobin (HB), mean corpuscular volume (MCV), red blood cell distribution width (RBCDW), transferrin saturation (TSAT) and ferritin (Ferr) were compared over the three component periods of six months. The data were collected from the hospital and HD records of all patients.
Results: A total of 43 HD patients were on dialysis at the study onset, while only 29 (67%) were on dialysis all through the study period. Other patients (14, 33%) had died or were transferred to other treatment modalities, hence, were excluded due to incomplete data. Most patients were Coloured (79%, $n = 29$), 55.2% (16, $n = 29$) were female, with an average age of 44.2 ± 8 years. The average HB levels were lower during period P2 (9.32 ± 0.7 g%) than in the periods P1 (11.0 ± 0.4 g%) and P3 (10.4 ± 0.4 g%). The average Ferr level was higher during period P2 (773 ± 120 µg/l) than in periods P1 (514 ± 115 µg/l) and P3 (734 ± 94 µg/l). The average MCV was lower during period P2 (75.1 ± 3.1 fl) than in periods P1 (80 ± 4.3 fl) and P3 (82.7 ± 5.7 fl).Other measured parameters were not significantly different during the component study periods.
Conclusion: Water contamination may play a role in anaemia management of haemodialysis patients.

P: BLOOD PRESSURE CONTROL IN A SUBSET OF PATIENTS WITH CHRONIC KIDNEY DISEASE ATTENDING A RENAL CLINIC: A SINGLE-CENTRE EXPERIENCE

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Introduction: CKD is emerging as a global threat to health. Hypertension and proteinuria are the major risk factors responsible for the progression of CKD. Some antihypertensive drugs have additional renoprotective effects that are partially independent of the reduction in blood pressure.
Methods: We reviewed data from 141 files of patients who attended the renal clinic over the period from 2005 to 2008, with follow up for a minimum of three years.
Results: There were 72 females (51%) and 69 males (49%), with an age range of 20–85 years. There were more black patients (52.4%), than Caucasian (25.5%), Indian (16.3%) and mixed-descent patients (5.7%). Aetiology of CKD was hypertension in 41%, diabetic nephropathy in 25%, unknown in 23.4% and other in 10.6% of patients. BP control on treatment remained poor throughout the study period. Calcium channel blockers were the most frequently prescribed antihypertensive drugs in 59% of patients (93% dihydropyridines and verapamil 7%); angiotensin converting enzyme inhibitors were used in 51.7% of patients. The use of angiotensin receptor blockers was infrequent at 7.1%, used mostly in combination with verapamil.
Conclusion: BP control was sub-optimal during the study period. As tight BP control has been related to remission and prevention of progression of CKD, this needs to be improved upon. BP targets should ideally be correlated to proteinuria levels in future studies.

P: CLINICO-PATHOLOGY OF MESANGIOPROLIFERATIVE PRIMARY CHILDHOOD NEPHROTIC SYNDROME IN THE RED CROSS CHILDREN'S HOSPITAL, CAPE TOWN

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Background: Several studies on primary nephrotic syndrome have focused on minimal-change nephrotic syndrome (MCNS). The clinico-pathology of MCNS has been well defined. However the other histological sub-types have not been fully studied especially in sub-Saharan Africa. This study was carried out to document the clinico-pathological pattern of children with mesangioproliferative histopathological sub-type of primary childhood nephrotic syndrome following renal biopsy, presenting at the Red Cross Children's Hospital between 2003 and 2011.
Objectives: To describe the clinico-pathological correlation and clinical course of the mesangioproliferative histopathological sub-type of primary childhood nephrotic syndrome at the Red Cross Children's Hospital.
Methods: This was a retrospective descriptive study. The charts and medical records of patients with a diagnosis of mesangioproliferative histopathological sub-type of primary childhood nephrotic syndrome following renal biopsy reports at the Red Cross Children's Hospital were reviewed.
Result: Sixty-one children had mesangioproliferative histological sub-type primary nephrotic syndrome on renal biopsy in the period of eight years (2003–2011). Age range was 1–12 years, mean age was 4.9 ± 2.8 years with a mode age of 2 years. The male:female ratio was 1:7. Ethnic distribution was mixed race 26 (42.6%) patients, Afro-Africans 23 (37.7%), Euro-Africans 11 (18.0%) and Asian-Africans 1 (1.6%) patient. Presentation was atypical with haematuria in 45 (73%) patients, hypertension in 28 (45%) and anasarca in 40 (65.5%) patients. Fifty-seven (93.4%) patients had estimated GFR > 60 ml/min/1.73 m^2 and four (6.6%) had GFR < 60 ml/min/1.73 m^2 at presentation. Indications for renal biopsy in these patients were atypical presentation in 17 (27.9%) patients, frequent relapses in 14 (23.0%), steroid dependence in 12 (19.7%), and steroid resistance in 18 (29.5%). The outcome of second-line immunosuppressive drugs (chlorambucil/cyclophosphamide) and the biopsy was 46 (75.4%) in remission, three (4.9%) in partial remission, and no response in nine (14.9%) patients. The final outcome following the third-line immunosuppressive drug therapy (cyclosporine/tacrolimus/mycophenolate mofetil) was complete remission with no relapse after an average of three years in 26 (42.5%) patients, remission with occasional relapse in 24 (39.3%), remission with frequent relapse in three (4.9%), no response in five (8.2%), and loss to follow up in three (4.9%). Renal function deteriorated in one patient (1.6%) to CKD stage III in the follow up of this review.
Conclusion: We concluded that mesangioproliferative sub-type was the commonest histological sub-type of nephrotic syndrome in our setting and patients ran a benign course with atypical presentation.

P: RENAL BIOPSY IN CHILDHOOD NEPHROTIC SYNDROME: A NEW HISTOPATHOLOGICAL TREND

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Background: In children, about 80% of primary nephrotic syndrome has minimal-change disease (MCNS). The term minimal-change nephrotic syndrome has become synonymous with steroid-sensitive nephrotic syndrome because of the sensitivity to steroid therapy, such that renal biopsy is not usually indicated in MCNS. However, renal biopsy is required in patients whose clinical features are not in keeping with that of MCNS. In this study we documented the histopathological pattern of children who were diagnosed with nephrotic syndrome and required renal biopsy who presented at the Red Cross Children's Hospital between 2003 and 2011 (eight years).
Objectives: To determine the histological patterns of renal biopsy of patients with primary childhood nephrotic syndrome at the Red Cross Hospital.
Methods: This was a retrospective descriptive study. The charts and medical records of biopsied patients with nephrotic syndrome and their histopathological reports of renal biopsies were reviewed.
Results: One hundred and thirty primary nephrotic syndrome patients were biopsied in the period of eight years (2003–2011). Age range was 1 month to 14 years and mean age was 4.9 ± 2 years with mode age of 2 years. Male:female ratio was 1:1.7, 60 (46.2%) patients were mixed race, 44 (33.8%) were Afro-Africans, 23 (17.7%) Euro-Africans and three (2.3%) Asian-Africans. Indications for renal biopsy in these patients were steroid resistance in 45 (34.6%) patients, atypical presentation in 36 (27.7%), frequent relapses in 23 (17.7%), steroid dependence in 19 (14.6%), and congenital nephrotic syndrome in seven (5.4%). The biopsy reports showed mesangial proliferative nephropathy (mesangioproliferative) in 62 (47.7%) patients, focal segmental glomerulosclerosis (FSGS) in 25 (19.2%), minimal-change nephrotic syndrome (MCNS) in 16 (12.3%), membranoproliferative (mesangiocapillary) in 13 (10.0%), and others types in 14 (10.8) patients.
Conclusion: We concluded that mesangioproliferative histopathological sub-type represents a remarkable percentage of our biopsied primary nephrotic syndrome patients and clinical presentation is atypical. It is therefore pertinent to carry out more studies on this histological sub-type in the region.

P: OUTCOME AND COMPLICATIONS ASSOCIATED WITH PROLIFERATIVE LUPUS NEPHRITIS IN CAPE TOWN

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Background: Renal disease in systemic lupus erythematosus (SLE) is a significant cause of mortality and morbidity. Proliferative lupus nephritis (PLN; ISN/RPS class III, IV, and mixed class V) has often been reported with poorer outcomes compared to non-proliferative LN.
Aim: To report the long-term outcome and complication profile of South African patients with PLN.
Methods: A retrospective review was done of 66 patients with biopsy-proven PLN [58 diffuse proliferative LN (Class IV) and 80 focal proliferative LN (Class III)] under our care from January 1995 to December 2009.
Results: Thirty-three (50%) reached the composite end-point of doubling of serum creatinine levels, end-stage renal disease (ESRD) or death. The five-, 10- and 15-year cumulative event-free survival rates were 54, 34 and 27%, respectively. Variables associated with the composite end-point were simultaneous diagnosis of SLE and LN ($p = 0.048$); serum creatinine level at onset ($p = 0.009$); systolic blood pressure ($p < 0.001$) and diastolic blood pressure ($p < 0.001$) on follow up; and non-remission following induction therapy ($p < 0.001$). The five-, 10- and 15-year renal survival rates in our patients were 63, 52 and 52%, respectively. Hypertension at onset of LN ($p = 0.037$), nephrotic-range proteinuria ($p = 0.033$), eGFR < 60 ml/min/1.73 m^2 ($p = 0.013$), and lack of remission following induction therapy ($p < 0.001$) were all significantly associated with development of end-stage renal disease (ESRD). Failure to achieve remission (95% CI = 0.175–0.809, $p = 0.012$) was the only factor associated with ESRD on multivariate analysis. Thirty-five (53%) patients developed complications. The leading complications were persistent leucopenia, gastritis, sepsis, tuberculosis (TB) and herpes zoster. Ovarian failure occurred in four (11%) patients.
Conclusion: Failure to achieve remission following induction therapy predicted poor renal survival on multivariate analysis.

P: USING CLINICAL MODELS TO PREDICT THE OCCURRENCE OF PROLIFERATIVE LUPUS NEPHRITIS: A STUDY OF 251 PATIENTS WITH BIOPSY-PROVEN LUPUS NEPHRITIS

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Background: The outcome of proliferative lupus nephritis (PLN) is often poor if not identified and treated timeously. The performance of a first kidney biopsy (or a re-biopsy) to diagnose PLN may be hindered by various factors.
Aim: To determine the clinical and laboratory models that best predict PLN in South Africans.
Methods: A retrospective analysis was carried out of 251 native kidney biopsies performed in patients diagnosed with SLE from 1 January 2000 to 31 December 2009 at Groote Schuur Hospital, Cape Town. Using four models that combined different clinical and laboratory parameters (presence of dipstix haematuria and proteinuria, hypoalbuminaemia, low C3, low C4, positive ds-DNA and male gender) we computed the positive and negative predictive values and likelihood ratios for the occurrence of PLN.
Results: Of the 251 patients, 84.1% were females and the mean age of all the patients at the time of biopsy was 31.0 ± 11.6 years. Most of the patients were of mixed ancestry (79.3%) and nephrotic range proteinuria was the most frequent indication for performing a renal biopsy (46.7%). Univariate odds ratio for factors associated with PLN was significant for gender (OR = 2.28, 95% CI = 1.03–5.03), presence of haematuria (OR = 3.06, 95% CI = 1.66–5.64) and proteinuria (OR = 2.85, 95% CI = 1.05–7.71) on dipstix urinalysis, low serum albumin level (OR = 1.87, 95% CI = 1.07–3.27), low C3 (OR = 6.72, 95% CI = 2.96–15.24), low C4 (OR = 3.00, 95% CI = 1.35–6.66) and for positive ds-DNA antibodies (OR = 2.96, 95% CI = 1.08–8.10). The specificity and positive predictive values were highest for the model that combined all these clinical and laboratory features in our patients.

Conclusion: Although the performance of renal biopsy is still the gold standard in making therapeutic and prognostic decisions in patients with lupus nephritis, we believe that these clinical models can help predict the occurrence of PLN and ensure therapy is commenced in good time to avoid a poor prognosis.

O: WERNICKE ENCEPHALOPATHY ON DIALYSIS: A CASE STUDY

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A 50-year-old chronic dialysis patient presented with nausea, severe anorexia, marked fatigue and abulia 11 months after initiation of chronic dialysis therapy. A neurological examination showed intention tremor and gait disturbances with a prevailing incidence of mental clouding and speech impairment. A nuclear magnetic resonance (NMR) scan showed bilateral, symmetric basal ganglia alterations extending to the hypothalamus, partially involving the internal and external capsules, with oedematous reaction. This neurological picture suggested Wernicke's encephalopathy, a disease normally diagnosed in chronic alcoholics. After treatment with intra-muscular thiamine and oral vitamin supplementation, this patient made a full recovery and returned to her normal duties. This case study shows that Wernicke encephalopathy can not only manifest in chronic dialysis patients due to malnutrition and the effect of chronic disease that has been described, but can also be affected by factors such as genetics and the environment. Genetically the cause of this condition could be attributed to this patient's markedly reduced polymorphism of pyruvate dehydrogenase (PDH) level. PDH is a thiamine mitochondrial enzyme that influences thiamine sensitivity. The environmental impact on this condition was the fact that this patient was a florist and in contact with pesticides containing organophosphates that are known to suppress PDH levels in normal individuals.

P: OUTCOMES OF HIV CHRONIC KIDNEY DISEASE WITH HIGHLY ACTIVE ANTIRETROVIRAL TREATMENT

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Chronic kidney disease (CKD) with HIV infection has been increasing in prevalence worldwide with the use of highly active antiretroviral treatment (HAART), due to improved survival of HIV-infected populations. The objectives of this retrospective study included assessment of outcomes of CKD and predictors of outcome in 169 HIV-infected individuals at Charlotte Maxeke Johannesburg Academic Hospital.

The subjects were divided into two groups, Group 1 had baseline results prior to HAART initiation and Group 2 were on HAART for a mean of 25 months prior to referral. The Modification of Diet in Renal Disease (MDRD) equation was used to calculate the glomerular filtration rate, and proteinuria was measured by spot protein-creatinine ratio. Improvement in renal function was quantified as the movement from one class of chronic kidney disease to the next, as well as resolution of proteinuria.

HIV-associated nephropathy (HIVAN) (16 patients) and HIV-immune complex disease (HIVICD) (11 patients) were the main histological findings and both showed a response to HAART. Lower starting eGFR (OR 1.01, CI: 1–1.03, $p = 0.01$) and diabetes mellitus (OR 4.9, CI: 1.2–18.9, $p = 0.02$) were associated with worse renal outcomes. Analysis of the data suggests that renal function may plateau at 24 months post-HAART initiation and could deteriorate thereafter. Our findings suggest that initiating HAART before severe renal dysfunction has developed improves renal outcomes and reduces the burden of HIV CKD in resource-limited settings.

O: THE NEW SOUTH AFRICAN HYPERTENSION GUIDELINES

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Outcomes: Extensive data from randomised controlled trials have shown the benefit of treating hypertension. The target blood pressure (BP) for antihypertensive management is systolic < 140/90 mmHg, and < 130/80 mmHg in patients with end-organ damage, co-existing risk factors and co-morbidity.
Benefits: Benefits of management include reduced risks of death, stroke, cardiac failure, chronic kidney disease and coronary heart disease.
Recommendations: The correct BP measurement procedure is described, and evaluation of cardiovascular risk factors and recommendations for antihypertensive therapy are stipulated. Lifestyle modification and patient education are cornerstones in the management of every patient. Major indications, precautions and contraindications to each recommended antihypertensive drug are listed. Combination therapy should be considered *ab initio* if the BP is ≥ 20/10 mmHg above goal. First-line drug therapy for uncomplicated essential hypertension includes low-dose thiazide-like diuretics, calcium channel blockers (CCBs) or angiotensin-converting enzyme inhibitors (ACEIs) or angiotensin receptor blockers (ARBs).
Validity: The guideline was developed by the Southern African Hypertension Society.

P: CONTINUOUS-FLOW PERITONEAL DIALYSIS (CFPD): DESCRIPTION OF USE IN CLINICAL SETTING IN CHILDREN WITH ACUTE KIDNEY INJURY

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Introduction: Previously described use of CFPD in AKI involved a labour-intensive method as clearances and MTACs were meticulously calculated. In the non-study environment CFPD can be implemented safely in a much more practical way, using the Baxter/Edwards BM25.
Aim: To describe the practical use of CFPD in AKI outside the study scenario.
Method: CFPD was implemented in five patients with fluid overload and AKI who were not ultra-filtrating adequately using conventional peritoneal dialysis. Firstly a second bedside catheter was placed using the Seldinger technique. Only the venous and fluid side of the BM25 was used. Transducers were connected to display in and out pressures. Each patient was treated with CFPD for 6 to 8 hours. A three-way tap was connected to one of the patient's catheters to measure intra-abdominal pressure, which was recorded hourly after stopping the pump for a short while. Abdominal circumference measurements were taken hourly as well. Initial filling was at 20 m/kg dialysate fluid. Dialysate flow was set at 100 ml/1.73 m^2/min and UF rate at 2.5 ml/1.73 m^2/min. If IPP was greater than 15 cm H_2O, 5 ml/kg was drained from the abdomen at a time to maintain IPP. Conventional blood monitoring was continued.
Results: In all patients CFPD ran smoothly. The mean age of the patients was 36.8 weeks (range: 2 weeks to 2 years). One patient required drainage of fluid from the abdomen for increased IPP. One patient required reversal of flow to unblock the catheter. Ultrafiltration was increased three- to five-fold as opposed to conventional PD.
Conclusion: CFPD can be implemented in a safe, practical and effective way in the clinical setting.

P: AN AUDIT OF THE PATTERN OF URINARY TRACT INFECTIONS IN KIDNEY TRANSPLANT RECIPIENTS AT TYGERBERG HOSPITAL

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Background: Urinary tract infection (UTI) is common in kidney transplant recipients and its frequency is dependent on numerous factors. The aim of the study was to determine the pattern of UTIs in kidney transplant recipients at Tygerberg Hospital (TBH).
Method: A retrospective descriptive study was done of all consecutive renal transplant recipients managed at the renal transplant clinic over a two-year period (January 2009 to December 2010). Data were extracted from hospital and transplant records using a structured data collection sheet.
Results: Forty-seven patients were transplanted in the study period, of which 59.6% (28) had a living-donor transplant. The mean age of recipients was 36 ± 7 years, 24 (51%) were females, 40 (85%) were of mixed race and the most common primary kidney disease was chronic glomerulonephritis (59%). Nine recipients (19%) were not followed up at our clinic and were not included in the analysis. Twenty-eight (73.7%) of the 38 patients who were included in the study had at least one episode of UTI, of which 22 (57.9%) had an infection during the first three months after transplantation. Twenty-one recipients (55.3%) had recurrent UTIs related to repeat infections by the same microorganism (42.1%) or to persistent colonisation (31.6%). The most common organisms were *Escherichia coli* (57.9%) and *Klebsiella pneumoniae* (36.8%). The average duration of post-transplant urethral catherisation was 14 days and ureteric stents were removed after an average of 7 weeks. Urinary tract infection was diagnosed in 53% of cases before stent removal and in 82% within three months of transplantation. At one year, patient survival was 94.7% in this group and mean serum creatinine level was 130 ± 10 μmol/l.
Conclusion: The rates of UTI were high and recurrent infections common. Causative organisms proved difficult to eradicate. Short-term patient and graft survival were not adversely affected.

P: A TRIAL OF PROTEIN SUPPLEMENTATION AND ITS EFFECT ON ALBUMIN LEVELS IN MALNOURISHED HAEMODIALYSIS PATIENTS

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Background: The annual mortality rate in malnourished HD patients is close to 30%. A serum albumin level less than 35 g/l is considered an indicator of malnutrition. Concentrations of albumin are influenced by dilution and inflammation. Evidence shows oral supplementation is equally effective as intradialytic parenteral nutrition in preventing protein catabolism. Nutritional support is able to improve nutritional status in malnourished HD patients, leading to an improvement in morbidity.
Objective: This study aimed to establish the effect of supplementation on albumin levels in malnourished haemodialysis patients over a three-month period.
Study Design: This was a non-randomised prospective study of HD patients from Goodwood Haemodialysis Unit meeting the study inclusion criteria. This included patients who had been on haemodialyis for > three months, had a Kt/V > 1.2 on a thrice-weekly HD, albumin < 35 g/l, and signs of deranged nutritional status. Active infection, hospitalisation within the last three months and use of immunosuppressive agents were exclusion criteria. Data collected included BMI, and potassium, phosphate and calcium levels. Patients received a protein-predominant supplement during the last hour of each dialysis session.
Results: Twenty-eight (n =28) patients screened had an albumin < 35 g/l and 18 (n = 18) did not meet the criteria. The remaining 10 (n = 10) meeting the criteria were commenced on supplementation. Five patients (n = 5) had an improvement in albumin level, four patients (n = 4) showed no change and one patient (n = 1) had a drop in albumin level. There were no significant changes in potassium, phosphate and calcium levels, BMI and nutritional status.
Discussion: In this small pilot study only one patient did not show improvement or maintain a stable albumin level. No significant improvement was shown, although this was expected due to the small sample size. The recommendation would be to complete a larger randomised study comparing this supplement to a nutritionally complete supplement and a control group of patients.

P: A SINGLE CASE PRESENTATION: DIABETIC HD PATIENT WITH SUSTAINED ELEVATED HAEMOGLOBIN OF UNKNOWN AETIOLOGY

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Background: We present a 54-year-old non-smoking male on renal replacement therapy since August 2004 due to diabetic nephropathy (diagnosed with type 1 diabetes mellitus at age 10 years). The patient has been presenting with elevated haemoglobin levels – average of 12.4 g/dl over 24 months, despite not receiving any erythropoietin (EPO) and minimal iron sucrose.
Methods: Data, including monthly haemoglobin levels, three-monthly white cell counts, serum ferritin and TSAT levels over a period of 24 months were analysed. Data regarding EPO usage and IV iron was taken into account as well as diagnostic tests and outcomes, including lung function and abdominal pelvic ultrasound.
Results: Mean Hb of 12.4 g/dl was observed over the 24-month period, despite the patient not receiving any EPO in this time and a total of 1 200 mg of IV iron sucrose (which was only administered in the last six months). The patient also presented with two infective episodes during this time, reflected in raised white cell counts and C-reactive protein levels, but still maintained significantly high haemoglobin levels. Diagnostic test outcomes showed no definite cause for the elevated haemoglobin levels.
Conclusion: Despite intensive appropriate investigation relating to sustained elevated haemoglobin level, the aetiology behind this patient's condition remains unknown.

P: PERITONEAL DIALYSIS IN LKDC, POLOKWANE: A SINGLE-CENTRE EXPERIENCE

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Introduction: PD is growing in South Africa and currently approaching 33% of the total ESRD population. The CAPD programme at the Department of Nephrology in the Limpopo Kidney Dialysis Centre (LKDC), Polokwane was initiated in 2007.
Methods: One hundred and twenty-three patients with a mean of 38 years (13–64) and a median eGFR MDRD of 6.3 ml/min/1.73 m^2 were started on peritoneal dialysis from 2007 up to December 2011. There were 47% males, 92% blacks, 3% Indians and 4% whites. Only 6% of the patients were diabetics. Biochemical analyses of creatinine, albumin and haemoglobin levels were performed. Body mass index (BMI) was recorded and expressed as kg/m2.Values were expressed as median (10–90th percentiles) or percentage of total as appropriate. Spearman's univariate correlation coefficient (rho) was calculated.
Results: Sixty-one patients are still alive on PD with a mean time of

19 months (2–48). Median BMI was 24 (18–31) kg/m², median eGFR (CG) was 7 (4–13) ml/min and median eGFR MDRD was 6 (4–12) ml/min. Systolic BP was 137 (114–160) mmHg and diastolic BP was 85 (72–92) mmHg. Mean creatinine level was 1 041 (549–1521) mmol/l, albumin was 29% (21–35) and haemoglobin was 11 (8–13) µg/dl. The overall peritonitis rate has been one episode/15.37 patient-months, achieving one episode per 21 patient-months in the last 12 months; 49% are still on PD, 27% of patients were transferred to HD, 20% died due to various reasons, and 3% recovered their renal function. In relation to home conditions, 91% of patients have electricity, 33% have access to tap water and 83% had more than three rooms. Correlations were found between age and BMI (rho = –0.40; $p < 0.01$), and diastolic BP and BMI (rho = 0.22; $p < 0.01$).There was a significantly better patient survival at two and three years for those patients under 38 years of age compared to those over 38 years of age.
Conclusion: The Polokwane experience at LKDC is positive and reflects the PD reality in South Africa with a predominantly young population with limited home conditions. Our results regarding peritonitis rates and patient survival are similar to those from other developing countries, but with a much younger population. Our experience with the use of PD as RRT has been successful and in line with the results obtained elsewhere in South Africa.

P: ASPERGILLOMA: 25 YEARS POST RENAL TRANSPLANT

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Introduction: *Aspergillus fumigatus* commonly affects the lungs and has a spectrum of clinical syndromes including aspergilloma, chronic necrotising aspergillosis, invasive pulmonary aspergillosis and allergic bronchopulmonary aspergillosis. *A fumigatus* is a ubiquitous organism; however, in the absence of major immunodeficiency, humans are relatively resistant to infection. Clinical disease has been reported in 1–15% of transplant recipients, with aspergilloma being most common. Mortality occurs in up to 77% of patients. We report a case of successful treatment of aspergilloma in a renal transplant recipient. Aspergillosis in the context of renal transplantation is also reviewed.
Case presentation: A 60-year-old male presented with dyspnoea and non-productive cough 25 years after RLD renal transplantation (maintenance immunosuppression: rapamycin, myfortic, prednisone). Significant past medical history included cutaneous squamous cell carcinoma and 25 pack-years smoking history. CXR was non-contributory, D-dimers were elevated, VQ scan indicated PTED. Thrombotic work up and occult malignancy screen were negative. CT PET was therefore undertaken revealing increased uptake in the left lung. Wedge biopsy of this lesion indicated aspergilloma. The patient was treated with IVI amphotericin B for one week, followed by oral voriconazole for three weeks. Repeat CT chest indicated resolution of infection.
Discussion: Although relatively uncommon, aspergilloma should be considered in the diagnosis of undifferentiated lung lesions in transplant recipients. While optimal therapy remains uncertain, good results were obtained in this case using a combination of antifungal agents.

O: EXERCISE AND SPORT FOLLOWING TRANSPLANTATION: A UNIVERSAL WINNER

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Background: It is well documented that the levels of physical functioning and physical activity are extremely low in dialysis patients and that interventions to improve physical functioning are not a routine part of the care of dialysis patients. The same goes for kidney transplant recipients. They are expected to engage in myriad self-care activities, including medication and dietary compliance and exercise, among others. However, the role of exercise after kidney transplantation has traditionally not been emphasised. There is no uniform agreement among transplant professionals about the need for or recommended extent of exercise after kidney transplantation.
Quality of life following a transplant can be enhanced with regular exercise, which lowers the risk of cardiovascular disease and diabetes. Participation in sport enhances self-confidence and social integration, as is evident at the World Transplant Games (WTG) events.
Objectives: To describe the benefits of exercise and sport for transplant recipients and healthcare personnel; to describe the demographic profile of South African transplantees participating in sport; to propose a strategy where sports science institutes, transplant centres and sports organisations can coordinate services to benefit the health and rehabilitation of transplantees.
Methods: This was a retrospective, descriptive study using registration data from sporting events for transplanted athletes over the past six years, as well as reports from countries who are affiliated with the World Transplant Games Federation.
Results and Conclusion: Transplantees participating in regular exercise and sport exhibit reduced weight, improved dietary habits and better blood pressure control. They also have a sense of achievement and discipline. Transplantees participating in sport are mainly kidney (63.5%) and heart transplantees (18.75%) while the age group ranges from six to 70 years. More than 60% of them have had their transplant for less than five years.

O: URINARY TRACT INFECTIONS IN CHILDREN'S PRACTICE GUIDELINES BASED ON BEST EVIDENCE, NICE AND AMERICAN ACADEMY OF PAEDIATRICS RECOMMENDATIONS

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Aim: Management of urinary tract infections (UTI) in children is often based on personal or 'expert opinion' rather than sound evidence. The aim was to determine which changes can be implemented to improve the clinical outcome.
Methods: The clinical practice guidelines of the American Academy of Paediatrics and the National Institute for Health and Clinical Excellence were reviewed. The guidelines focus on febrile infants and young children of two to 36 months without obvious neurological or anatomical abnormalities known to be associated with recurrent UTI or renal damage.
Results: In any febrile infant, a urine sample should be collected with a catheter or supra-pubically for urine analysis and culture. Bag samples have an unacceptably high false-positive rate. A bag sample may be used for a screening dipstick test only. Positive leukocyte esterase and nitrites suggest UTI. It should be followed up with a urine sample collected as stated above. Diagnosis of UTI is confirmed if there is pyuria and/or bacteriuria and culture of ≥ 50 000 col/ml. The choice of antibiotic should be based on the local sensitivity pattern. Oral and parenteral antibiotic treatment is equally efficacious. Infants should be investigated with renal and bladder ultrasound if prenatal ultrasound was not done. Nuclear imaging rarely affects acute clinical management. VCUG should not be performed routinely after the first febrile UTI. It is indicated if there are features suggestive of obstructive uropathy or high-grade VUR. Prophylactic antibiotics do not prevent recurrence of febrile pyelonephritis. Prompt diagnosis and effective treatment of febrile UTI is most important. Recurrence is common; urine should be examined with every febrile episode.
Conclusion: Guidelines are intended to assist clinicians in decision making and do not replace clinical judgement.

P: HEMODIALYSIS VERSUS PERITONEAL DIALYSIS

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More and more patients develop chronic kidney disease. Although most will not reach end-stage disease, an ever-increasing number will need end-stage care. This end stage care can be:

- Pre-emptive kidney transplantation. This is the ideal therapy for the suitable patient. Donor numbers are however decreasing.
- Conservative treatment without dialysis (elderly/frail patients).
- Haemodialysis.
- Peritoneal dialysis.

There is a wide difference in the world in the application of PD. In many countries the prevalent PD rate is less that 10%. The choice of treatment modality should be decided on by the following factors:

- contra-indications to a specific form of dialysis
- quality-of-life factors
- mortality of different types of dialysis
- patient preference
- treating practitioner's advice
- haemodialysis is normally the default therapy.

To try and compare haemodialysis versus peritoneal dialysis is like comparing the incomparable, but in many patients a rational choice can be made.

O: A REVIEW OF PATTERNS OF RENAL DISEASE AT CHRIS HANI BARAGWANATH ACADEMIC HOSPITAL FROM 1982 TO 2011

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Background: Studies reporting renal pathology in sub-Saharan Africa are few and in South Africa, recent data has been published in only two studies, each with a specific regional location. Minimal data are available for the Gauteng region. This study reports an overview of the results of biopsy-confirmed renal pathology in Soweto and its surrounding areas.

Methods: A retrospective analysis was conducted of 1 758 histopathology reports from the adult renal unit at Chris Hani Baragwanath Academic Hospital between 1982 and 2011.

Results: The study sample had a relatively even distribution with regard to gender (females 50.6% and males 49.4%). The majority of patients were black (96.1%) The mean age of patients was 33.46 ± 12.36 years. The most frequent clinical indications for renal biopsy were nephrotic syndrome (51.19%), acute kidney injury (15.07%), hypertension (8.65%), nephritic/nephrotic syndrome (6.94%), chronic kidney disease (5.86%) and asymptomatic urine abnormalities (6.37%). Primary glomerulonephritis (PGN) was the most frequent histological finding (45.68%). Approximately 3.78% of all biopsies conducted between 1992 and 2001, and 36.31% between 2002 and 2011 were confirmed HIV positive. In HIV-positive patients during the period 2002 to 2011, the dominant diagnosis was HIVAN (32.69%), followed by FSGS (13.27%) and HIV-ICD (13.27%).

Conclusion: The data from this study, in conjunction with data from other regions, adds to the overall view of the epidemiology of renal pathology in South Africa. These results show definite differences from other regions and highlight the need for a national renal registry.

P: DIALYSIS-RELATED AMYLOIDOSIS: A SINGLE CASE STUDY

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Background: Does HDF have a significant reversal/retardation effect on dialysis-related amyloidosis?

Methods: We assessed the patient's medical history in terms of duration on dialysis, technical aspects of dialysis history (low flux/high flux, HD/HDF). We compared pre/post B2M serum levels from 2009 to date, subsequently adjusted the patient's dialysis prescription accordingly, also taking into account clinical observations and documentation over the same period in terms of joint pain/dexterity, and signs and symptoms of carpal tunnel syndrome.

Results: This case presentation outlines the dialysis journey of this patient dating from 1978 – the progression from acetate dialysis to bicarbonate dialysis, from a low-flux dialyser to a high-flux dialyser and finally from haemodialysis to online haemodialfiltration. This progress has shown a reduction in the beta2microglobulin, improvement of joint pain, of the dialysis dose and the urea reduction rate. The overall clinical picture of the patient has also improved markedly. However, due to the daily production of beta2microglobulin (breakdown product of DNA/RNA) in combination with the rebound effect [serum being cleared from beta2microglobulin and the saturated tissues (joints, heart, skin, etc) mobilising beta2microglobulin to the serum down a diffusion gradient] the beta2microglobulin is reduced significantly but still builds up on non-dialysis days.

Conclusion: No medical treatment presently exists to reverse or alter the disease course. It is difficult to assess, but the possible solution to decrease the incidence of dialysis-related amyloidosis is with online HDF (using a high-flux dialyser and ultrapure dialysate) to dispose of the daily production of beta2microglobulin.

P: INVESTIGATION OF AMBULATORY BLOOD PRESSURE PROFILE AND THE PREVALENCE OF CKD PARAMETERS IN HEALTHY HIV-POSITIVE PATIENTS, PRE AND POST ART

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Background: Few studies have been done in South Africa to establish the extent of renal dysfunction in stable HIV-infected outpatients. Our aims were to document the prevalence of renal dysfunction and blood pressure (BP) at baseline [anteretroviral (ART) naïve], document changes at six months on ART, and to observe characteristics of ambulatory BP in a subset of patients. Nocturnal BP is superior to daytime or office BP as a predictor of cardiovascular disease. The relationship between circadian BP patterns, measured via ambulatory blood pressure monitoring (ABPM), and HIV has never been documented in our HIV population.

Methods: We conducted a longitudinal prospective study of ART-naïve HIV-positive patients at Crossroads Community Health Centre in Cape Town. Renal function parameters (microalbumin:creatinine ratio, creatinine, dipsticks and eGFR calculation) were measured at baseline and at six months, after the initiation of ART. A subset of patients underwent ABPM. A control group of HIV-negative patients, from similar demographics, was also recruited for ABPM. Ethics approval was obtained from the UCT ethics committee.

Results: Of the 63 HIV-positive patients recruited, none had an eGFR below 60 ml/min, three patients had microalbuminuria and only one had overt albuminuria. No patient was hypertensive at baseline, however there was a significant rise in office systolic BP after

six months on ART. Dipping status of 22 HIV-positive individuals (pre and post ART) and a control group of 11 HIV-negative patients was recorded; 85.8% of HIV-positive patients and 45.5% of HIV negative controls were 'non dippers'. The very high prevalence of non-dipping on ABPM was revealed

Conclusion: The prevalence of CKD in ART-naïve patients in a typical HIV outpatient clinic was lower than expected. The earlier introduction of ART may have a major impact on the prevalence of HIVAN. We found that non-dipping status is four times more likely among HIV-positive cases than controls. Therefore, we have shown a significant relationship between loss of dipping status and HIV infection. The phenomenon is unexplained and suggests an underlying dyregulation of the cardiovascular (CV) system, and may be associated with future CV risk.

P: A DESCRIPTIVE STUDY OF THE NON-HIVAN HISTOLOGIES SEEN IN PATIENTS WITH HIV UNDERGOING RENAL BIOPSY

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Background: Much of the recently published work on HIV-related kidney disease has focused on HIV-associated nephropathy (HIVAN). Little is known about those patients with HIV undergoing renal biopsy with non-HIVAN pathologies. This study aims to expand on the non-HIVAN renal pathology and assess their clinical correlates.

Methods: All HIV-positive renal biopsies from January 2005 to 31 March 2012 were analysed. Patients with HIVAN with and without immune complex glomerulonephritis (ICGN), ICGN without HIVAN and patients with histologies unrelated to HIV (NON-HIVAN) were included. Patient demographics and treatment, renal function (eGFR), kidney size, CD_4 count and blood pressures were recorded.

Results: Of the 321 renal biopsies, 90 were considered to have pathologies not directly related to HIV (non-HIVAN). The demographics and clinical correlates of these patients were calculated and the mean of each group was recorded; 156 patients had HIVAN, 58 had HIVAN + ICGN and 26 had ICGN in isolation of HIVAN. Other pathologies: lymphoma three patients, diabetes two patients, amyloidosis, microangiopathic haemolytic anaemia, myeloma and mesangioproliferative glomerulonephritis (each one patient); 46% of any HIVAN biopsy had at least one other additional pathology with a maximum of four pathologies on one biopsy. The most common additional pathologies were acute tubular necrosis, drug reactions and granulomas. There were 30 cases with poorly formed granulomas (10%); the epithelioid cells had scantier cytoplasm and were not quite as eosinophilic as granulomas formed in patients without HIV. Organisms were not commonly identified on renal biopsy (one patient). There were 27 drug reactions (9%). The main culprits included rifampicin (five/27) (18%), tenofovir (four/27) (15%), and bactrim (four/27) (15%).

Conclusion: Although HIVAN is the most common pathology seen in the setting of HIV, other pathologies do occur. Importantly, HIVAN is often seen in conjunction with multiple pathologies. Granulomas are very common and the role of the novel tuberculosis tests using urine for analysis may play an important role in the future. Drugs remain an important cause of renal failure in this setting. It is still uncertain whether ICGN in isolation of HIVAN is a direct result of HIV infection.

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P: MYOCARDIAL TWIST CHARACTERISTICS IN AN AFRICAN CHRONIC KIDNEY DISEASE POPULATION ON HAEMODIALYSIS BEFORE AND AFTER DIALYSIS AS MEASURED BY SPECKLE TRACKING ECHOCARDIOGRAPHY

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Introduction: Haemodialysis causes variable loading conditions on the heart, affecting measurement of ventricular function by ejection fraction. Myocardial twist, defined as the 'wringing' action of the heart, describes an aspect of myocardial deformation which results in clockwise rotation at the base of the heart and counter-clockwise rotation at the apex. Net twist is the difference between peak apical and basal rotation, and represents a novel way to assess myocardial function. In this pilot study, the net twist was measured in an African population before and after haemodialysis compared to matched controls.
Methods: Twenty-one patients were recruited from the Chris Hani Baragwanath Hospital haemodialysis unit. Transthoracic echocardiography was performed before and after a single dialysis session using an IE33 system with offline speckle tracking, and myocardial twist measurements were made using the Excelera system (Philips Ltd). Twenty-two age- and gender-matched controls were similarly echoed.
Results: The mean age of the control versus the renal group was 43.77 and 43.95 years (male: 43 and 41%, respectively). Apical rotation was significantly diminished in renal patients compared to their controls (5.25° vs 6.29°, $p = 0.04$), but did not appear to be affected by load changes after a single dialysis session (5.25° vs 5.89°, $p = 0.12$). In comparison, no statistical difference was seen in basal rotation and net twist characteristics between renal patients versus the control group, or after dialysis.
Conclusion: Apical rotation is diminished in patients with chronic kidney disease on haemodialysis compared to matched controls, but does not appear to be significantly affected by the load change of dialysis.

P: OUTCOMES OF CHRONIC DIALYSIS IN HIV-INFECTED PATIENTS: A SINGLE-CENTRE EXPERIENCE

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Background: The survival of HIV-infected patients has significantly improved on antiretroviral therapy. More patients reach end-stage renal disease, requiring chronic renal-replacement therapy. Outcomes of survival in HIV-infected patients receiving chronic dialysis in South Africa have not been reported. The aim of the study was to assess outcomes in these patients at Helen Joseph Hospital.
Methods: We retrospectively reviewed medical records of HIV-infected patients on chronic dialysis between January 2003 and December 2011. Patients who defaulted on dialysis and those transferred to other institutions were excluded.
Results: We had 32 patients, of whom 40.6% were male and 59.4% were female. Most patients were black (87.5%). The mean age at dialysis initiation was 36.75 ± 9.61 years; 73% of patients were diagnosed with HIV at presentation with ESRD. Mean CD_4 count was 261 (range 9–843) /µl; 84.4% were HAART naïve at dialysis initiation; 62.5% died and 37.5% survived, with one patient regaining normal renal function after eight months of dialysis. Mean dialysis duration in the group who died was 6.48 months vs 38.47 months in the surviving group; 68.8% of patients who died had a CD_4 count of < 350/µl compared to 55.56% in the survival group ($p = 0.670$). More patients were on peritoneal dialysis (58.0%) vs haemodialysis (42%). The outcomes of peritoneal dialysis vs haemodialysis were not different ($p = 0.4$). Peritonitis was the cause of death in 75% of patients on CAPD. Fluid overload was the cause of death in 42% of the patients on HD. There was no difference between survivor and mortality subgroups for the initiation of HAART prior to dialysis ($p = 0.199$).
Conclusion: Infection is a major cause of mortality in dialysis patients with HIV infection, with a significant risk of peritonitis in CAPD patients. Initiation of HAART prior to dialysis did not impact on outcome.

Notes:

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[S6] Plagrol tablets. A 8.2. Each tablet contains 97,875mg clopidogrel bisulfate.Reg No. 40/8.2/0673. [S3] Adco-Bisocor 5mg tablets. A 5.2. Each film-coated tablet contains 5mg bisoprolol. Reg. No. 37/5.2/0010. [S3] Adco-Retic 20/12,5 tablets. A 18.1. Each tablet contains 5 mg amiloride hydrochloride and 50 mg hydrochlorothiazide. Reg. No.V/18.1/260. [S3] Adco-Atenolol 50 mg tablets. A 5.2. Each tablet contains 50 mg atenolol. Reg.No.W/5.2/115. [S3] Adco-Zildem 60 tablets. A. 7.1. Each tablet contains 60 mg diltiazem hydrochloride. Reg.No. 30/7.1/0287. [S3] Migroben® 80 tablet. A7.1.3 Each film-coated tablet contains 80 mg valsartan. Reg. No. 43/7.1.3/0032. Applicant: Novartis South Africa (Pty) Ltd [S3] Adco-Zetomax 5 mg tablets. A. 7.1.3. Each tablet contains lisinopril 5 mg (as the dihydrate salt). Reg. No. 33/7.1.3/0513. [S3] Adco-Vascard 30 SR capsules. A 7.1. Each sustained release capsule contains 30 mg nifedipine. Reg. No. 32/7.1/0551. [S3] Adco-Dapamax tablets. A 7.1. Each tablet contains 2,5 mg indapamide. Reg. No. 30/7.1/0092 [S3] Adco-Zildem180 SR tablets. A. 7.1. Each tablet contains 180 mg diltiazem hydrochloride. Reg. No. 30/7.1/0183. [S3] Co-Migroben® 80/12,5 tablet. A7.1.3 Each film-coated tablet contains 80 mg valsartan and 12,5 mg hydrochlorothiazide. Reg. No. 43/7.1.3/0083. Applicant: Novartis South Africa (Pty) Ltd [S4] Adco-Simvastatin 10 mg tablets. A 7,5. Each tablet contains 10 mg simvastatin. Reg. No. 35/7,5/0277.

Further information available on request. ZA.12.CVS.002 03/2012

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