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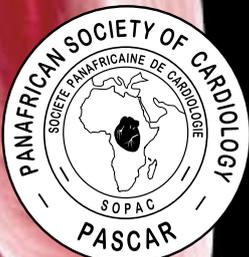
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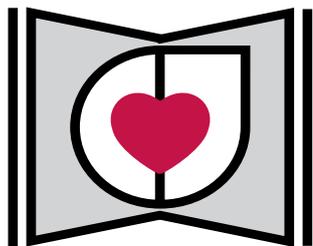
South African Congress of Nephrology

16–19 April 2010

International Convention Centre,
Cape Town, South Africa

ACADEMIC ABSTRACTS





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ABSTRACTS

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SOUTH AFRICAN CONGRESS OF NEPHROLOGY

Abstracts South African Renal Society

NEW ONSET DIABETES AFTER TRANSPLANTATION AT GROOTE SCHUUR HOSPITAL: PREVALENCE AND OUTCOME

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Background: New-onset diabetes after transplantation (NODAT) has been reported with widely varying prevalence in several studies. The aim of this study was to ascertain the prevalence and possible risk factors that may predispose to NODAT, and to examine the impact of NODAT on the outcome of renal transplantation.

Methods: We carried out a retrospective review of all renal transplants in Groote Schuur Hospital 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 sugar level of ≥ 7 mmol/l or a random blood sugar of ≥ 11.1 mmol/l. Graft loss was defined as 'return to dialysis.'

Results: We identified 109 patients who met the inclusion criteria. NODAT occurred in 21 (19.3%) of the study population while 88 (80.7%) patients did not develop NODAT. Mean age at transplant was higher in the NODAT group (43.5 vs 37.8 years) and was significantly associated with the development of NODAT ($p = 0.04$). Patient survival was 20 (95.2%) and 72 (81.8%) patients in the group with and without NODAT, respectively. There was no significant difference between the two groups. Being of mixed racial background was significantly associated with a poorer survival, $\chi^2 = 2, p = 0.03$. Graft survival was 20 (95.2%) and 85 (96.6%) patients in the group with and without NODAT, respectively. There was no difference in graft survival between the two groups.

Conclusion: NODAT was common in renal transplant recipients and age may be useful in risk stratifying patients pre transplant. The lack of adverse impact of NODAT on outcome may reflect a need for more sensitive markers of cardiovascular morbidity in this patient population.

A COMPARISON OF CALCULATED VERSUS PROJECTED Kt/V IN HAEMODIALYSIS PATIENTS

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Background: Measures of solute clearance assist us in determining the adequacy of haemodialysis. Estimated on-line Kt/V during haemodialysis is a useful guide in the dialysis prescription. Other studies have shown that on-line Kt/V under-estimates the calculated Kt/V. We decided to compare calculated versus projected Kt/V to assess our local experience and aid our haemodialysis prescription.

Methods: The machine used was the B-Braun Dialog+ which uses a urea kinetic modelling technique incorporating the Watson formula for V(d). The Kt/V was calculated using single pool urea kinetic modelling method. A total of 19 patients were selected. We calculated the Kt/v on two haemodialysis sessions two weeks apart and compared them to the projected Kt/v for each session. We also calcu-

lated the URR and calcium phosphate product during each session. Data were analysed using Instat 3 Graphpad® program.

Results: Six patients were on Lops 12 dialysers, 11 were on Lops 15 dialysers, one was on a Polyflux 14 and one on a Polyflux 17 dialyser. All patients received four hours of dialysis in each session. The blood flow rate averaged 246 ml/min for all sessions. The average URR during both sessions was 64.2%. The average calcium phosphate product was 3.12. The average calculated Kt/V for both sessions was lower: 1.2 compared to the average projected Kt/V of 1.6 ($p = 0.0006$).

Conclusion: There was a statistically significant difference in calculated versus projected Kt/V in our setting, with the projected value over-estimating adequacy. There are numerous factors such as production variability, haematocrit, clotting and ineffective priming which could account for this discrepancy. We need to be aware of these factors when prescribing haemodialysis with the estimated Kt/V.

THE LONG-TERM CLINICAL OUTCOME AND COMPLIANCE PROFILE OF PATIENTS WITH BIOPSY – PROVEN PROLIFERATIVE LUPUS NEPHRITIS SEEN AT GROOTE SCHUUR HOSPITAL, CAPE TOWN, SOUTH AFRICA

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Background and objective: Lupus nephritis (LN) is associated with increased morbidity and mortality. In view of scarce data from South Africa on factors affecting renal outcome in proliferative LN (i.e. WHO Class III and IV LN), we reviewed our experience to identify predictors of poor renal outcome and the complication profile during treatment.

Patients and Methods: This was a retrospective study of 66 patients with biopsy-proven proliferative LN between January 1995 and December 2004 and subsequently followed up until December 2007 in Cape Town. The primary outcome measure was doubling of baseline serum creatinine at diagnosis of LN, need for dialysis, or death.

Results: The median follow-up period was 39 months (range 1–130 months) and the female:male ratio was 12.2:1. Patients of mixed ancestry were 77.3%. Thirty-two patients (48.5 %) reached primary endpoints of doubling of serum creatinine, dialysis or death. There were 29 events (death and development of ESRD) in 2 253 months of follow-up with 70.8% of the deaths recorded with sepsis and renal failure. Patient survival rates at five and 10 years were 52 and 40% respectively. Predictors of primary endpoints on univariate analysis were serum creatinine at onset of LN ($p = 0.015$), nephrotic range proteinuria at onset ($p = 0.043$), diastolic blood pressure (DBP) at onset ($p = 0.04$), interval between the onset of SLE and LN ($p = 0.006$), non-remission of renal lesion at one year following therapy ($p \leq 0.001$), average systolic blood pressure (SBP) during follow-up ($p < 0.001$) and average DBP during follow-up ($p < 0.001$). Thirty-five (53%) patients developed complications during treatment.

Conclusion: The long-term prognosis of South African patients with proliferative LN is not as good as that reported in patients from western countries. Sepsis and renal failure accounted for the majority of the deaths recorded.

HBV MGN IN CHILDREN: A SUBGROUP WITH RENAL FAILURE

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Background: Hepatitis B virus (HBV)-associated GN has provided a model of human GN. The most frequent form is membranous GN (MGN), particularly in children. HBsAg and HBeAg are usually found in the serum and HBeAg in subepithelial deposits. Clinical features are usually nephrotic syndrome; renal biopsy reveals MGN-mesangiocapillary spectrum. The course, especially in young children, is spontaneous remission. The focus in this study was on a minority group with renal failure.

Design: Between 1973 and 1995, 71 children, 12 years of age and below were identified with HBV MGN in this centre. The focus was on the seven children who developed renal failure.

Results: Seventy-one children with HBV MGN included 46 from the Western and Northern Cape provinces of South Africa and 25 from Namibia. Fourteen of the total group (all from South Africa) went into remission and seven children, one a Namibian, developed renal failure. Of the 46 South African children, six developed renal failure, all initially with normal creatinine levels. The six were all male and five of the six were aged six to 11 years; one was four years old. Renal failure developed at a range of intervals following presentation: two, 94, 117, 233, 253 and 291 months. Four of the five with follow up over five years had become HBeAg negative and four were still HBsAg positive. One became HBsAg negative and had a renal transplant in 2000.

Conclusion: HBV MGN has been documented in 563 children; 50% are in remission and 3% in renal failure. This group of seven with a poor outcome is one of the largest. A long follow up is needed to identify those who develop renal failure. There are two groups: those who develop remission early, at six months to four years, and others in whom the disease persists, some of whom may develop renal failure. HBeAg is usually no longer present in the serum by that time. Vaccination programmes have greatly reduced the incidence of this disease

MICROSATELLITE ANALYSIS OF STEROID-RESISTANT NEPHROTIC SYNDROME IN INDIAN AND BLACK CHILDREN IN SOUTH AFRICA

Rajendra Bhimma, Kareshma Asharam, Miriam Adhikari, Haroon Mohamed Coovadia

Introduction: Various forms of nephrotic syndrome (NS) have been associated with genetic mutations. Microsatellite technology may be used to determine mutations in specific loci on human chromosomes to determine disease causation.

Aim: The aim of this study was to determine the existence of mutations in the NPHS2 gene in black and Indian children with SRNS in KwaZulu-Natal using microsatellite analysis.

Methods: Sixty children with idiopathic SRNS were recruited into the study from King Edward VIII Hospital and Inkosi Albert Luthuli Central Hospital during the period January 2005 to June 2008. Blood and kidney biopsy samples collected from patients were subjected to microsatellite analysis to scan for mutations in the 1q25-1q35 region and the raw data was analysed using the Fragment Manager software. Microsatellite analysis was based on microsatellite instability and allelic imbalance and/or loss of heterozygosity. Mutations in SRNS were compared to 20 controls with steroid sensitive NS.

Results: Thirty-three (55%) patients were male and 27 (45%) were female; 22 (37%) were Indian (17 males) and 38 (63%) were black (16 males). Forty-five (75%) patients showed focal segmental glomerulosclerosis on histology, four (7%) minimal change disease and 11 (18%) had other histological forms of NS. Twenty-five (42%) cases showed mutations on microsatellite analysis: eight (32%) had microsatellite instability only, 14 (56%) allelic imbalance/loss of heterozygosity only, and three (12%) had both; 16 (64%) were black

and nine (36%) were Indian. No significant associations for gender, age or race were detected using all markers. No mutations were detected in the controls with steroid-sensitive NS. Comparison of SRNS patients with steroid-sensitive NS patients showed significant increase in mutations in the NPHS2 gene using microsatellite analysis in SRNS patients.

Conclusion: Mutations of the NPHS2 gene may predispose to the development of SRNS. Other candidate genes not tested for may also play a role.

COLLAGENS AND COLLAGENASES AND LVMI AND PWV IN PATIENTS RECEIVING HAEMODIALYSIS: THE ROLE OF MATRIX METALLOPROTEINASE 1, 2 AND 9; TISSUE INHIBITOR OF MATRIX METALLOPROTEINASE 1 AND 2; C-TERMINAL TELOPEPTIDE OF TYPE I COLLAGEN AND CARBOXY-TERMINAL PEPTIDE OF PROCOLLAGEN TYPE-I

James Chabu, Naicker Saraladevi, Pravin Manga, Raquel Duarte, Angela Woodiwiss, Gavin Norton

Introduction and aims: Recent studies have suggested that a number of markers of interstitial changes (collagens and collagenases) may predict pathological changes in the cardiovascular system. However, this hypothesis has not been tested in patients with renal failure, except for a study on intima-media thickness. This study assessed whether these blood markers (matrix metalloproteinase 1, 2 and 9; tissue inhibitor of matrix metalloproteinase 1 and 2; C-terminal telopeptide of type I collagen and carboxy-terminal peptide of procollagen type-I) of interstitial changes were associated with left ventricular mass (LVM) and geometry and large artery dysfunction in 40 non-diabetic patients receiving maintenance haemodialysis for an average of ~49 (3–300) months.

Methods: Pulse-wave analysis performed at the carotid, femoral and radial artery was employed to determine carotid-femoral pulse-wave velocity (PWV) and central augmentation index (AIc). Echocardiography was performed to determine LVM, which was indexed to body surface area (LVMI).

Results: In either univariate or multivariate regression analysis, neither plasma concentrations of matrix metalloproteinases 1, 2 and 9, nor their tissue inhibitors (tissue inhibitor of metalloproteinases 1 and 2) were associated with LVMI, LV end-diastolic diameter, LV mean wall thickness or PWV. Furthermore, neither procollagen I nor the C-terminal telopeptide of type I collagen (ICTP) was associated with LVMI, LV end-diastolic diameter, LV mean wall thickness or PWV.

Conclusions: The present study suggests that circulating measures of tissue interstitial changes may not predict cardiovascular target-organ changes in patients with chronic renal failure receiving haemodialysis.

NATRIURETIC PEPTIDES IN HAEMODIALYSIS PATIENTS: PREDICTORS OF VOLUME OVERLOAD OR LEFT VENTRICULAR MASS?

James Chabu, Naicker Saraladevi, Pravin Manga, Raquel Duarte, Angela Woodiwiss, Gavin Norton

Introduction and aims: Increased plasma concentrations of natriuretic peptides are associated with both increases in cardiac pre-load and left ventricular mass (LVM). In chronic renal failure, there is uncertainty as to whether plasma natriuretic peptide concentrations predict volume status independent of left ventricular mass index (LVMI). The association between natriuretic peptides and inferior vena cava diameter (IVCD) independent of LVM was assessed in 94 non-diabetic patients receiving maintenance haemodialysis (MHD) for an average of ~49 (3–300) months.

Methods: Echocardiography was performed to determine LVM which was indexed to body surface area and IVCD was determined using ultrasound techniques. Atrial natriuretic peptide (ANP),

N-terminal pro-atrial natriuretic peptide (NT-proANP), brain atrial natriuretic peptide (BNP) and N-terminal pro-brain natriuretic peptide (NT-proBNP) were measured in blood samples taken on the same interdialytic day as echocardiographic measurements.

Results: Natriuretic peptides were correlated with LVMI and IVCD on univariate analysis. On multivariate analysis, adjusting for age, gender, BMI, smoking, number of antihypertensive agents and IVCD, both NT-proANP and NT-proBNP were independently associated with LVMI ($p < 0.0001$). Neither NT-proANP nor NT-proBNP were associated with IVCD independent of LVMI and additional confounders, although a trend effect for NT-proANP was still noted (partial $r = 0.22$, $p = 0.074$, $n = 76$).

Conclusions: These findings suggest that plasma natriuretic peptide concentrations are closely associated with LVMI after adjusting for volume status in patients receiving HD.

ASSOCIATION BETWEEN PERIODONTITIS AND SYSTEMIC INFLAMMATION IN PATIENTS WITH END-STAGE RENAL DISEASE

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Background: Patients with end-stage renal disease (ESRD) experience an increased rate of atherosclerotic complications. Inflammation plays a central role in the pathogenesis of these complications and C-reactive protein (CRP) has been found to be predictive of all-cause and cardiovascular mortality. Many patients have elevated CRP levels without an apparent infection. Periodontal diseases in the general population have been associated with both an increased prevalence of atherosclerotic complications and an elevation in serum CRP values. This study examined the association between periodontal disease and elevated CRP in patients with ESRD on chronic dialysis.

Methods: Eighty patients on chronic dialysis were included in the study. Demographic information, medical history and CRP levels were recorded. Periodontal examination was carried out by a single calibrated examiner and included gingival index (GI), bleeding on probing (BoP), probing depths (PD) and clinical attachment loss (CAL). These measurements were recorded in relation to the Ramfjord teeth. The presence in any one sextant of PD ≥ 4 mm or clinical loss of attachment ≥ 3 mm was diagnosed as periodontitis.

Results: Mean age of subjects was 50.3 ± 9.06 years with a median time on dialysis of 24 months; 57.5% ($n = 46$) of subjects were diagnosed as having periodontitis. Of these 52.2% had CRP levels > 10 mg/l. Of the 34 subjects with healthy periodontium, only 10 (29.4%) had elevated CRP levels. The serum CRP levels between these two groups were significantly different ($p = 0.004$).

Conclusion: The results of the study showed significantly elevated levels of CRP in ESRD patients with periodontitis. Periodontal diseases may be an overlooked source of inflammation in ESRD patients.

EFFECT OF DIURETICS ON URINE CHEMISTRY – ANALYSIS OF TIMED COLLECTIONS WITH EMPHASIS ON RISK OF FORMING CALCIUM STONES

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Introduction: This study involved the analysis of timed urine collections within a 24-hour period to examine the effect of hydrochlorothiazide (HCTZ) and indapamide on the urine chemistry of normal individuals, and their effect on the risk of forming urinary calcium stones.

Methods: Healthy adult volunteers took a four-week course of either HCTZ 25 mg daily or indapamide 2.5 mg daily. Subjects were assessed at baseline, and at weeks one, two and four. Multiple urine samples were collected throughout the day, together with one overnight sample, as well as blood samples for analysis.

Results: In the 24-hour urine samples, calcium excretion decreased, while phosphate excretion was unchanged. Calcium-phosphate and calcium-oxalate products decreased, citrate excretion declined and ionized calcium was unchanged. Ionized calcium-divalent phosphate and ionized calcium-oxalate products were unchanged.

In the timed urine samples, total calcium excretion was decreased, particularly by indapamide. Indapamide, but not HCTZ, decreased urinary citrate excretion, most obviously overnight and in early morning urine samples. No changes from baseline in ionized calcium were observed. Divalent phosphate concentrations were decreased as a consequence of a fall in urine pH (especially in the indapamide group). This contributed to a trend of decreasing Ca^{2+} divalent phosphate products at most time points.

Conclusion: Indapamide 2.5 mg/day has a stronger protective effect against forming urinary calcium stones than HCTZ 25 mg/day. Most of the benefits of therapy appear to be achieved during the daytime. It may therefore be beneficial to give medication twice daily or at night only to maximise the protective effects of these agents, but this will need to be tailored based on the response of individual patients.

RENAL DYSFUNCTION IN THE THROMBOTIC MICRO-ANGIOPATHIES: EXPERIENCE OF THE HELEN JOSEPH HOSPITAL

Malcolm Davies, G Chita

Background: The thrombotic microangiopathies (TMA) are a group of heterogeneous disorders with a shared pathology and include the clinical syndromes of thrombotic thrombocytopenic purpura (TTP) and the haemolytic uraemic syndrome (HUS). A shared clinicopathological feature of TMA is renal dysfunction.

Methods: We retrospectively reviewed the case histories of all patients diagnosed with TMA by the haematology unit at the Helen Joseph Hospital from January 2001 to December 2009 in order to evaluate the nature, severity and prognosis of renal dysfunction in these patients. In the absence of calculated glomerular filtration rate, serum creatinine was used as a marker of renal dysfunction.

Results: During the period of study, 40 patients were diagnosed with TMA at the hospital; 33 of these had evidence of renal dysfunction. HIV seropositivity was associated with more severe renal dysfunction ($p = 0.0004$). Presenting serum creatinine was negatively correlated to CD4 count ($p = -0.214$). Thirty-three patients received plasma exchange and one additionally received haemodialysis. Serum creatinine was slower to respond to plasma exchange in HIV-positive patients ($p = 0.0008$). One patient had persistent renal dysfunction on discharge. Ten patients died; in three this represented failure of plasma exchange therapy. One patient died despite receiving plasma exchange and haemodialysis. A higher presenting serum creatinine was associated with mortality ($p = 0.02$).

Conclusions: Renal dysfunction is a common feature of TMA presentation but responds well to plasma exchange. HIV seropositivity in patients with TMA is associated with more severe renal dysfunction and is slower to respond to therapy than in HIV-negative patients. More severe renal dysfunction in these patients is associated with a lower CD₄ count. Severity of renal dysfunction may be predictive of mortality.

THE IMPACT OF FAMILY INCOME ON SURVIVAL IN INCIDENT PERITONEAL DIALYSIS PATIENTS: IS IT TIME TO REVISIT A MYTH?

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Background: Although poor family income may sometimes be considered a contra-indication for peritoneal dialysis (PD), no consistent data links economical status (ES) to clinical outcome in this group of patients. The goal of this study was to assess the impact of income on patient and technique survival in the Brazilian Peritoneal Dialysis Multicenter Study (BRAZPD) cohort.

Methods: Incident PD patients (1 952) enrolled in this prospective cohort from December 2004 to October 2007 were divided according to monthly family income (Brazilian minimum wage MW: 1 MW = US\$4.94/day) into three groups: low (< 2 MW), middle and high ES (> 5 MW). The patients' median age was 59 years, 54% were women, 60% Caucasians, 41% diabetics and 24% had cardiovascular disease (CVD). Most of them were in CAPD (55%), had not received pre-dialysis care (58%), had < four school years (67%) and a family income < 5 MW (80%). Survival analysis was performed using the Kaplan–Meier curve and the Cox proportional hazards model adjusting the results for age, gender, educational status, pre-dialysis care, first renal replacement therapy, PD modality and co-morbidities.

Results: The follow-up period ranged from three to 34 months and during this period 307 patients died (16%). Causes of death were classified as cardiovascular in 42%, infection related (14%) or not (15%) to PD therapy, other (17%) and unknown (12%). There was no difference among income groups according to causes of death. Transfer to haemodialysis by patient choice was the most prevalent cause of drop out (32%) and no significant difference was found in reasons for drop out among income level groups (*p* = 0.195). The two-year patient survival was 70% and technique survival was 73%. Cumulative patient (log rank test 2 = 2.92, *p* = 0.22) and technique (log rank test 2 = 4.36, *p* = 0.11) survival did not vary significantly among groups. In a multivariate Cox regression analysis, no statisti-

cal difference in patient survival according to ES was observed. The crude hazard ratios were not significantly different among the three groups. When adjusted for age, gender and modality, a trend was observed in the low-ES group when compared to the high-ES group [hazard ratio (HR) = 1.34; 95% confidence interval (CI) = 0.97–1.85; *p* = 0.07]. This trend remained when adjusted for first dialysis modality and time of referral (HR = 1.32; CI = 0.96–1.82; *p* = 0.08) and, also when adjusting for educational level, CVD and diabetes (HR = 1.39; CI = 0.98–1.98; *p* = 0.06).

Conclusions: According to these results, ES is not independently associated with outcomes in this large cohort. When choosing the dialysis modality, ES should not be considered a barrier for PD indication.

HIV SEROCONVERSION AFTER RENAL TRANSPLANT – OUTCOMES AND CHALLENGES

Glendah Kalunga, Sarala Naicker

Introduction: Patients with HIV infection are at risk for end-stage organ disease including ESRD requiring RRT, including transplantation. Data on the safety and efficacy of solid-organ transplantation in people with HIV infection are both limited and mixed, with more favourable data in the HAART era. Some recent studies have shown similar one-year patient and graft survival rates to patients without HIV, although they demonstrated higher rejection rates. This report is a retrospective review of the records of eight patients who seroconverted post transplant, with emphasis on the challenges and outcomes.

Results: Five of the patients are on HAART and are doing well with good virological and immune responses and acceptable renal function. Two of these patients had episodes of acute rejection, one responded well to steroids while the other was steroid resistant and was eventually started on haemodialysis. The other three patients had episodes of rejection as well and eventually died. One was due to non-compliance despite being commenced on HAART, the second had a series of opportunistic infections and succumbed despite HAART, while the third patient was never started on HAART.

Discussion: Some of the factors that could be attributed to the various outcomes of the patients are as follows: poor compliance, repeated occurrence of opportunistic infections due to persistently low immunity and the high prevalence of some of these opportunistic infections in our community.

Pt No.	Age at Tx	Age at HIV Dx	Follow up Pre HIV Dx (months)	Follow up post HIV Dx (months)	CD4 pre ART	CD4 post ART (latest)	Creat pre ART μmol/l	Creat current	OIs	ART used	Immuno-suppression	No. of rejections	Outcomes
1	13	13	5	84	?	953	?	154	Nil	D4T 3TC EFV	MMF/Pred/Rapa	0	Well
2	25	34	108	1	114	Pending	132	170	PCP CMV	TDF 3TC EFV	MMF/Pred/Rapa	0	Relative well
3	39	49	120	60	113	471	205	112	LRTI	D4T 3TC EFV	Imuran/Pred/CYA	0	Well
4	20	32	144	11	198	469	158	113	LRTI HPV CMV	D4T 3TC EFV	Imuran/CYA MMF/Pred/CYA Myf/Pred/CYA	2	Well Transfer
5	21	22	14	29	272	1116	65	371 (8/6/7)	Nil	D4T 3TC EFV	MMF/Pred/CYA MMF/Pred/FK	2	Died Defaulted
6	44	52	97	8	80	?	255	415 (8/2/7)	PCP TB HPV	D4T 3TC EFV	Imuran/Pred/CYA Imuran/Pred/FK Imuran/Pred/Rapa	3	Died
7	23	39	186	44	147	573	154	403 (13/11/7)	Nil	D4T 3TC EFV	Pred/CYA Imuran/Pred/CYA MMF/Pred/CYA	2	On HD
8	19	30	131	9	148	No ART	370	No ART 370	TB	No ART	Imuran/Pred/CYA MMF/Pred/CYA	2	Died
Avg	25.5	33.9	100.6	30.8				263.5					

Conclusion: A recommendation for routine screening for HIV infection post-transplant, as in dialysis, should be considered for regions with high endemic rates of infection.

TRANSPOSED BASILIC VEIN ARTERIO-VEIN FISTULA FOR HAEMODIALYSIS. A SINGLE-SURGEON EXPERIENCE

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Introduction: Autologous arterio-venous fistula (AVF) has been regarded for the past 35 years as the primary and best choice for vascular access in haemodialysis (HD) patients. In an increasing number of elderly patients with a lack of superficial veins, patients with previous vascular access or poor vein management, these possibilities have vanished. An alternative, second-choice vascular access usually involves the implantation of a prosthetic bridge graft. Currently, the KDOQI guidelines recommend that the primary, secondary and even tertiary vascular access for haemodialysis should be based on a native vein. Only then can a prosthetic graft be used for creation of a vascular access for haemodialysis. In 1976 F Dagher described a new technique of transposing the proximal basilic vein for AVF. The surgical technique of this procedure comprises one long, or multiple short skin incisions in the medial aspect of the arm, dissection of the basilic vein, tunnelling it subcutaneously in the anterior aspect of the same arm and anastomosis between the distal vein and brachial artery proximal to the elbow.

Material and Methods: From 2005 through 2008 we preformed 32 transpositions of the basilic vein in the arm for AVF. There were 14 female and 18 male patients. An average age was 47.7 years (19–82 years). All 32 patients were hypertensive, 6/32 (18.8 %) had diabetes mellitus and 4/32 (12.5 %) were HIV (+). The left arm was selected in 21 (65.6 %) patients and the right arm in the remaining 11. Twenty-two (68.8%) patients had previous vascular-access surgery. Prior to surgery, all the patients underwent evaluation of the upper limb veins with conventional contrast venography. The operations were performed under general anaesthesia. The average time of surgery was 90 min. There was no need for intra-operative blood transfusion.

Results: There were 32 AVFs created with 100% immediate success. One fistula blocked 18 hours after surgery due to dissection of the brachial artery in a patient with advanced SLE treated on high doses of steroids. Another fistula had to be ligated 24 hours after creation due to a massive pulmonary oedema in an 82-year-old patient with under-diagnosed tight aortic valve stenosis. Four patients (12.5 %) developed wound haematoma requiring surgical evacuation. Therefore, overall complication rate was 18.8% (6/32). There were no periprocedural deaths. Three patients were lost to follow-up after 12 months. Four AVF spontaneously thrombosed six, 12, 13 and 19 months after creation. Three patients died with functioning AVFs. The primary 30-day, six-month and one-year patency of AVF was 94, 81 and 62%, respectively.

Conclusion: The basilic vein transposition AVF is a safe procedure with a good one-year patency rate. It can be considered as good access for patients who lack adequate superficial veins for conventional AVF. Transposition AVF due to its surgical complexity carries a higher complication rate.

IDIOPATHIC FOCAL SEGMENTAL GLOMERULOSCLEROSIS (FSGS): CAPE TOWN EXPERIENCE

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Background: FSGS is increasing in prevalence in some countries. It is an important cause of ESRD accounting for 2.3% in some populations. Idiopathic FSGS is the most common primary glomerular disease detected on renal biopsy that leads to ESRD in all races. It is slightly more common in males than females (1.5:2) and the incidence is higher in blacks than Caucasians.

Subjects and Methods: We retrospectively reviewed idiopathic FSGS from 1 January 1978 to 31 December 2009. A full clinical, biochemical, serological and histopathological assessment excluded other glomerular and or tubular diseases as a cause of urinary abnormalities of all subjects who had indications for biopsy. The same experienced pathologist reviewed the biopsy results over the years.

Results: One hundred and seventeen subjects were identified with idiopathic FSGS. There were 41.9% black Africans, 47.9% of the patients were of mixed ancestry and only 11.1% were Caucasian patients. Males and females were equally affected. The mean age at presentation was 39.7 ± 14.8 years. The mean SBP was 131 ± 20.5 mmHg and mean DBP was 80.26 ± 12.32 mmHg. Proteinuria and haematuria were seen in 82 and 39% respectively. At presentation, mean serum creatinine was 175 ± 154 μ mol/l, estimated creatinine clearance was 59.4 ± 26.01 mol/min, serum albumin was 24.05 ± 12.07 g/l and mean total cholesterol was 10.8 ± 4.8 mmol/l. Those reaching ESRD were 15.3% with a mean interval of 3.02 ± 2.97 years from diagnosis. Six patients were transplanted with a recurrence rate of 50%. One subject lost graft from FSGS.

Interpretation: FSGS is common in patients of African and mixed-ancestry populations in GSH. The disease cannot be distinguished from other causes of glomerular disease on clinical and biochemical grounds. Genetic testing to evaluate for these ethnic differences might shed light on this apparent racial difference.

A 10-YEAR FOLLOW UP (FU) OF LIVING KIDNEY DONORS (LD) AT THE CHARLOTTE MAXEKE JOHANNESBURG ACADEMIC HOSPITAL

Anthony M Meyers, Ann Morolo, Saraladevi Naicker, Russel Britz

Background: Collation of post-transplant (PTxLD) data is currently, appropriately, attracting international interest. We embarked on annual LD Tx follow up and data collection in 1992. This study is of the recent 10-year follow-up (1998–2007) period.

Methods: Annual reports on general health, weight, blood pressure, and haemoglobin, fasting blood sugar and lipid levels, renal function, urinalysis and microalbuminuria (MA) were recorded. Compliance (C) was defined as good ($G = \geq 50\%$ visits) or bad ($B = \leq 40\%$ visits). BC necessitated multiple contact endeavours and C was correlated with distance from domicile. Subgroups were paediatric (PLD) and adult (ALD), and because of socio-economic and disease-pattern differences, they were further grouped as black (BLD) or 'other' (OLD).

Results: Of 240 potential LDs, 128 were Txd: 48 B and 80 OLDs. FU: good in 54/128; single B FU in a further 46; zero FU in 28. Obesity (Ob): PreTx in 22 (17%), pre and post Tx in 18 and post Tx only in three. FU = B in 17/22 (68%), Ob and post Tx hypertension in 11/21 (52%) with BFU in 12/21 (68%) Hypertension: pre Tx = 0; post Tx 'apparent' prevalence = 34/128 (26.6%); projected hypertension = 34/100, i.e. 34%. eGFR: ($n = 92$); CKD1 = seven patients, CKD2 = 77, CKD3 = eight (creatinine 130–166 μ mol/l and Ob = 5/8), mean age = 43.7 years. Post TxMA in five; two with Ob and hypertension, two with CKD3. No post Tx diabetes or reported deaths.

Conclusions: Our LDs were significantly younger than in other studies, with a high prevalence of hypertension, especially BLD (reflecting family history hypertension and recipient hypertension). FU was zero to bad in 58% and ongoing Ob was a major problem with significant renal dysfunction in eight (8%) patients, which correlated with older age and hypertension. Our data highlighted the necessity for better LD screening, for improved PTx tracing techniques and for prospective trials for long-term FU. Creation of a donor registry is MANDATORY.

LVH IN DIALYSIS PATIENTS

Saraladevi Naicker, James Chabu, Aliyu Abdu, Pravin Manga

Introduction: LVH is a common finding in ESRD and an important adverse prognostic indicator. While the prevalence figures for LVH in ESRD appear to be consistent irrespective of the population

group studied, there is some discrepancy in prevalence figures for LVH in CKD in Africa. LVH was reported in 68% on HD patients in Zimbabwe, 14% of pre-dialysis type 2 diabetics in Nigeria and 95.5% of pre-dialysis CKD stages 4 and 5 in Nigeria, and 68% of dialysis patients at Chris Hani Baragwanath Hospital.

Methods: We undertook an echocardiographic study of 92 prevalent HD and 44 CAPD patients at Charlotte Maxeke Johannesburg Academic Hospital, excluding patients with diabetes mellitus, HIV infection and those under 18 years of age. Correlations were made with adequacy of dialysis, haemoglobin, calcium x phosphate product and blood pressure.

Results: LVH was present in 34% of HD patients on ECG and 72.8% on echocardiography, with LV systolic dysfunction in 57.6%. Using multivariate regression analysis (adjusting for age, gender, BMI, smoking and number of anti-hypertensive agents), pre- ($p \leq 0.005$), post- ($p < 0.05$) and averaged dialysis ($p < 0.015$) systolic BP were associated with LVMI. Haemoglobin ($r = -0.001$, $p = 0.99$) and PTH were not associated with ($r = 0.15$, $p = 0.18$) in HD patients.

LVH was present in 68% of CAPD patients. Linear regression analysis showed a significant association between diastolic function and haemoglobin level ($p = 0.02$). Mean Hb was 10.99 ± 2.14 g/dl, with 56% of patients reaching the target haemoglobin level of 11–12 g/dl. There was no correlation between BP and LVH in CAPD patients.

Conclusions: LVH occurred commonly in the HD and CAPD patients. Longitudinal studies are required to study the progression of cardiac changes over time and their impact on cardiac function in dialysis patients.

EPIDEMIOLOGY OF RENAL DISEASE IN CAPE TOWN: A 10-YEAR REVIEW OF A SINGLE-CENTRE RENAL BIOPSY DATABASE

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Background: The patterns of glomerular diseases have been widely reported from different regional and national biopsy registries in Europe. However, there are scant studies on the epidemiology of biopsy-proven renal disease, particularly glomerular diseases in sub-Saharan Africa.

Methods: We retrospectively analysed the reports of 1 426 native renal biopsies, reviewed by the same pathologist and performed at the Groote Schuur Hospital in Cape Town from 1 January 2000 to 31 December 2009.

Results: The mean age of all the patients biopsied was 36.8 ± 14.1 years with 61.8% of the patients being under 40 years of age. There was a preponderance of females (54.7%). The frequencies of clinical indications for a renal biopsy were: nephrotic syndrome (52.3%); acute renal failure (21.3%); asymptomatic urinary abnormalities (13.8%); chronic renal failure (6.2%); acute nephritic syndrome (6.1%) and haematuria (0.3%). Lupus nephritis (LN) was the most frequent cause of the nephrotic syndrome (16.9%). HIV-related biopsies increased from 6.1% in 2000 to 22.6% of all biopsies in 2009. Also, among the numerous pathologies seen in HIV-positive patients, HIVAN was the dominant histological type we observed (51.6%). The frequencies of the primary glomerulonephritis (GN) included mesangiocapillary GN (MCGN) (20.0%); membranous GN (MGN) (19.8%); mesangiolipofibrillar GN (MPGN) (18.3%); crescentic and necrotising GN (11.8%); focal and segmental glomerulosclerosis (FSGS) (10.1%); IgA nephropathy (IgAN) (5.6%); minimal-change disease (MCD) (5.6%) and post-infectious GN (PIGN) (8.3%). Lupus nephritis, HIVAN and diabetic nephropathy (DN) were the most frequent secondary GN that was observed (37.4, 21.3 and 9.3%, respectively).

Conclusion: Our results are fairly different from those published in Brazil, Europe and most of Asia. Our data are an important contribution to the epidemiology of renal disease in Africa. We hope that this will be the basis for developing a renal biopsy registry in South Africa and across the continent.

GRK-4 GENE POLYMORPHISMS DETERMINE BLOOD PRESSURE RESPONSES TO DIETARY INTERVENTION IN BLACK SUBJECTS WITH MILD-TO-MODERATE HYPERTENSION

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Background: This study determined the effect of polymorphisms in the GRK-4 gene on blood pressure (BP) responses to a dietary intervention of Na⁺ restriction and increased K⁺, Mg⁺⁺ and Ca⁺⁺. GRK-4 has been implicated in Na regulation in the proximal tubule of the kidney.

Methods: Black subjects aged 50 to 75 years, with drug-treated mild-to-moderate hypertension were eligible for the study. The major exclusion criteria were significant hypertensive target-organ damage, and the requirement of two or more diuretics. Subjects were randomised to an eight-week dietary intervention ($n = 40$) or standard diet ($n = 40$). BP was measured at baseline, four and eight weeks using Omron M4-I, and 24-hour ambulatory BP at baseline and eight weeks. All subjects had DNA analysis for the R65L and A142V polymorphisms. Data were analysed using generalised linear models.

Results: Baseline characteristics were similar between the groups. Between-diet difference in change in office systolic BP was -6.19 mmHg ($p = 0.021$) and mean 24-h ambulatory systolic BP between-diet change was -4.53 mmHg ($p = 0.05$). The control group BP responses were identical between the R65L and A142V polymorphisms of the GRK-4 gene. However, in the intervention group, the combined CT and CT alleles compared to the TT group of the A142V, and the combined GG and GT compared to the TT group of the R65L showed a significantly better BP response to intervention, with the latter showing the more marked response.

BASELINE RENAL INSUFFICIENCY ASSOCIATED WITH RISK OF RENAL FAILURE OR DEATH IN HIV-INFECTED ADULTS ON TENOFOVIR DISOPOXIL FUMARATE

Ian Sanne, Denise Evans, Alana Brennan, Prudence Ive, Mhairi Maskew, Thapelo Maotoe, Thembi Xulu, Saraladevi Naicker

Background: In the public sector in South Africa, tenofovir disoproxil fumarate (TDF) is currently used as an alternative agent for patients with toxicities on d4T or AZT therapy. Current research shows mixed results regarding the risk of TDF in renal toxicity.

Methods: We analysed prospectively collected data from a cohort of HIV-infected adults who received TDF at the Themba Lethu Clinic (TLC) in Johannesburg, South Africa. Baseline characteristics were assessed and the association between baseline creatinine clearance (Cl_{cr}), renal insufficiency and renal failure or death was estimated with Cox proportional hazard models.

Results: Between June 2006 and December 2009, 1 510 HIV-infected adults received TDF and of these 19 (1.3%) had renal failure, while 21 (1.4%) ended TDF due to toxicity. In the majority of these patients (60%), renal failure or toxicity occurred in the first six months on TDF. Of the 1 510, 896 had baseline Cl_{cr} values and were included in the analysis. Patients with renal failure or toxicity had a lower median Cl_{cr} of 61.7 ml/min (IQR 50.2–81.7) at baseline, compared to those without (97.4 ml/min; IQR 80–117). A total of 331 (37%) had renal insufficiency at baseline: 30% mild (61–90 ml/min) and 7% moderate/severe (≤ 60 ml/min). Adjusted proportional hazard showed an increase risk for renal failure in those with mild (HR = 1.92; 95% CI: 0.8–4.7) or moderate/severe (HR = 19.8; 95% CI: 8.9–44.1) renal insufficiency. There was a slight increased risk of death among patients who had moderate/severe renal insufficiency (HR = 1.3; 95% CI: 0.64–2.7) when compared to those with normal levels after adjusting for baseline characteristics.

Conclusion: The frequency of TDF-related renal failure or toxicity in this cohort was higher (2.7%) than those reported in clinical trials (1%) and observational studies (2%). It is likely that most of the renal dysfunction in patients on TDF was related to pre-existing renal pathology which was exacerbated by TDF. We recommend that

a patient with a low Cl_{cr} at baseline be monitored more closely in order to potentially decrease the risk of failure or death.

MORTALITY DATA FOR THE POLOKWANE PROVINCIAL RENAL UNIT

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Background: The number of patients undergoing maintenance dialysis is on the increase in South Africa. Limpopo province, with a population around 5.4 million, launched a public-private partnership in December 2006 to improve the renal services in the province. The patient population on chronic renal replacement has increased dramatically. In an attempt to compare mortality to that in other units, we calculated our mortality, year on year since 2007. There is limited information about mortality in maintenance dialysis in South Africa. We have therefore decided to present our mortality data with the view of doing a follow-up five-year mortality review later.

Methods: All patients enrolled into the chronic renal replacement programme at the Polokwane Hospital renal unit are entered into the Baragwanath active renal tracking programme (BART) and all patient records from 01/01/2007 to 31/12/2009 were reviewed. Patients who died within three months were excluded. Only transplantable patients are enrolled into the chronic renal replacement programme as per national guidelines.

Results: The total dialysis population for the years 2007, 2008 and 2009 were 111, 142 and 162 patients, respectively with a mortality of 24 (22%), 22 (16%) and 11 (7%) respectively. The three-year mortality for patients on PD was 14% compared to 15% on HD.

EXPERIENCE WITH SIROLIMUS IN RENAL TRANSPLANT PATIENTS AT CHARLOTTE MAXEKE JOHANNESBURG ACADEMIC HOSPITAL

Gertrude Thusi, Glendah Kalunga, Graham Paget, Sagren Naidoo, Russel Britz, Sarala Naicker

Introduction: Sirolimus is a novel agent with immunosuppressive and antiproliferative actions, relatively lacking in renal toxicity when compared with ciclosporin (CNI). At Johannesburg Hospital, Sirolimus has been in use since June 2000. We therefore present our experience with Sirolimus.

Methods: A retrospective review of 80 files was performed. The demographics of the patients were assessed. Outcomes in terms of graft function, lipid profile, proteinuria, blood pressure and blood sugar control, use of RAAS blockers, lipid-lowering, antihypertensive and hypoglycaemic agents were assessed. The mean age of patients was 36 years; 75% were males and 66% were blacks. Duration of the initial regimen was three to 147 months; for the second regimen, it was 0.04 to 99 months.

Results: Ten patients were started on Sirolimus as an initial regimen; 70 patients were switched to Sirolimus later, mainly because of CNI toxicity. CNI toxicity was biopsy proven in 49 patients (70%). Sirolimus was discontinued in two patients because of acute rejection, and in 12 patients mainly because of proteinuria. There was no incidence of malignancy in the Sirolimus patient group. In the Sirolimus group, 67 vs 56 patients from the CYA group required more than two antihypertensive agents for blood pressure control. More patients in the Sirolimus group (nine vs six) were on hypoglycaemic agents and 55 patients required a lipid-lowering agent, compared to 21 patients in the CYA group.

Conclusion: This file review verified the renal toxicity of the CNIs. The rate of rejection following Sirolimus therapy was low. The current literature states better renal function, diabetic and blood pressure control with Sirolimus, but that was not verified in this file review, as the majority of patients were 'switched' due to CNI toxicity.

OUTCOME OF HIV PATIENTS PRESENTING WITH RENAL FAILURE AT CHARLOTTE MAXEKE JOHANNESBURG ACADEMIC HOSPITAL (CMJAH)

Ahmed Ismail Vachiat, Shoyab Wadee, Sagren Naidoo, Graham Paget, Saraladevi Naicker

Background: The majority of the 33.4 million people infected with HIV worldwide reside in sub-Saharan Africa. The HIV prevalence among young South Africans (ages 15–49) is 16%. HIV is the third leading cause of ESRD in Afro-Americans aged 20–64 in the United States. There is a lack of data regarding acute kidney injury (AKI) in HIV patients in sub-Saharan Africa.

Methods: A retrospective review of 101 HIV-positive patients presenting with renal failure to the CMJAH from October 2005 until October 2006 was undertaken and compared with a matched control group.

Results: A total of 684 patients presented with renal failure; 101 (14.8%) were HIV positive; 99 of these patients were black and 56 were male. Fifty-seven patients presented with AKI, 21 with acute on chronic renal failure and 23 with chronic renal failure.

The common underlying aetiology of the 106 HIV-negative patients presenting with AKI were sepsis (31%) and toxins (8.5%). Ninety of these patients recovered; 16 died, compared to the 33 in the HIV-positive group.

Conclusion: HIV patients with AKI presented late (more than 50% had $CD_4 < 100$). Sepsis was the most common aetiology of AKI and significant proteinuria was present on admission. Supportive management or renal replacement therapy resulted in recovery in a large number of patients.

CLINICAL CHARACTERISTICS AND HISTOLOGICAL SUBTYPES OF NEPHROTIC SYNDROME IN CHILDREN TREATED AT THE STEVE BIKO ACADEMIC HOSPITAL

Getruida van Biljon

Aim: To review the clinical characteristics of children with nephrotic syndrome (NS) treated at the Steve Biko Academic Hospital from June 1986 to December 2009, and to determine relative frequencies of the histological subtypes.

Patients and Methods: A retrospective chart review was done of all children with NS treated at the Steve Biko Academic Hospital from June 1986 to December 2009. NS was defined according to standard criteria. Children who presented with mixed nephritic-nephrotic syndrome were also included. Data collected included patient demographics, growth parameters, blood pressure and macroscopic appearance of urine. Standard investigations for secondary NS were done. Kidney biopsy was carried out in 319 patients (88.85%).

Results: The study included 359 children, 0–12 years old; 7.54% were \leq one year old. Racial distribution of the patients reflects racial distribution in the population. Male:female ratio was 1.3:1; 29.3% of all patients were stunted; 75.98% of children in the age group $>$ one and \leq six years presented with clinical features in keeping with minimal-change nephrotic syndrome. Familial nephrotic syndrome or possible hereditary cause was suspected in eight children. Secondary NS was clinically suspected or discovered with routine special investigations in 26 patients; 9.7% of patients had macroscopic haematuria, 44.13% had both systolic and diastolic hypertension at presentation and 62.6% received antihypertensive drug treatment, which was an angiotensin converting enzyme inhibitor in 59.5% cases. The incidence of peritonitis and other infections was inversely related to age. Three patients died of *S pneumoniae* septicaemia; 5.57% of patients had creatinine clearances < 30 ml/min/1.73m² at presentation and 15.6% at last follow up. The main histological diagnoses were MCNS and FSG, with a relative higher incidence of FSG compared to that reported by ISKDC, which is in keeping with reports from elsewhere in South Africa and other developing countries.

Conclusions: Black children with NS should be biopsied at first presentation.

Abstracts

Renal Care Society of South Africa

AN INVESTIGATION INTO THE QUALITY OF LIFE OF CHRONIC HAEMODIALYSIS PATIENTS MANAGED WITH OUTCOME-DRIVEN PROTOCOLS IN SOUTH AFRICA

Chevon Becker, Ivor Katz, Elmiën van den Heever

Objectives: Prevalence of end-stage kidney disease (ESKD) is a matter of survival made possible by dialysis and is associated with increased morbidity and mortality, and decreased quality of life (QOL). The nephrology community is facing numerous challenges because of increasing numbers of patients on dialysis, limited resources and increased complexity of achieving better patient outcomes. This study aims to investigate chronic haemodialysis patients' QOL in relation to clinical outcomes and knowledge of ESKD.

Methods: A descriptive study of ESKD patients undergoing haemodialysis, evaluating factors such as demographics, duration on dialysis, medical history, clinical indicators (haemoglobin, albumin, calcium, phosphate, dialysis dose), and the patient's understanding thereof, was performed. QOL was measured using the medical outcomes study 36 (SF-36), which included a physical health composite score (PCS) and a mental health composite score (MCS). These factors, clinical scores and QOL measures were compared.

Results: One hundred patients from 10 units were evaluated: mean age 49 ± 15 years and on dialysis 2.6 ± 1.8 years. The PCS was 41.4 ± 10.35 and MCS 45 ± 9.98 . A positive correlation was found between haemoglobin and PCS ($p = 0.0093$), MCS ($p = 0.014$), and the patients' anaemia knowledge ($p < 0.05$). PCS was shown to be affected by their understanding of access care ($p = 0.0160$) and haemodialysis complications ($p = 0.0051$). MCS was also found to be affected by the patients' knowledge of their fluid management ($p = 0.0187$) and influenced by family support ($p = 0.0092$). Albumin (38 ± 5.2 g/l) and Kt/v (1.1 ± 0.3) did not affect QOL. Overall, patients meeting the K/DOQI guidelines in clinical indicators had an improved QOL (NS).

Conclusion: The study indicated that clinical indicators, patients' knowledge of ESKD, and family support all impact on a patient's QOL and their clinical outcome markers. Factors influencing QOL are complex; achieving guideline targets and educating patients have clear benefits for patients. Recognising this will help clinicians manage patients better and improve outcomes on dialysis.

BRUCELLA PERITONITIS IN PATIENTS ON CONTINUOUS AMBULATORY PERITONEAL DIALYSIS

Dee Britten, Diane Campbell, Jenni Cronin

Peritonitis is one of the major problems encountered by patients on continual ambulatory peritoneal dialysis. The most common organisms are *Staphylococcus*. Because of this, treatment is usually initiated with anti-staphylococcal drugs. Response is usually rapid. Failure of response implicates other organisms. Chronic peritonitis is less common. Tuberculosis and fungal infections are usually then implicated. We report on a 64-year-old diabetic patient from Zimbabwe who presented with acute peritonitis. Blood and peritoneal fluid cultured *Brucella* species. PCR confirmed the infection. There was an incomplete response to doxycycline and gentamycin. On removal of the Tenckhoff catheter, the patient made a full recovery. The literature suggests that catheter removal is essential to clear the infection.

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NUTRITIONAL MANAGEMENT IN RENAL DISEASE. THE NEGLECTED ESSENTIAL: A LITERATURE STUDY

Ronelle du Plessis

Introduction: Several studies state nutrition is a neglected essential in the treatment of renal patients.

Challenge: A large percentage of renal patients are malnourished. Malnutrition is associated with increased morbidity and mortality. Appropriate, timely intervention and monitoring of renal patients are essential.

Requirements: The most important factor is quality of life. Determining a balance between sustaining life and maintaining a desirable quality of life is the main priority. Nutritional intervention must commence with the early diagnosis of renal disease and be continuously monitored and updated according to circumstances. Nutritional intervention by a registered dietician must include:

- nutritional assessment
- calculation of nutritional needs
- education regarding nutrition in renal care
- implementation of diet
- monitoring of the patient
- regular updating of diet.

Conclusion: Optimal nutrition improves patient outcome. Nutritional tools used for education are directly linked to nutritional status. As dieticians, we need to optimise the nutritional tools in order to reduce morbidity and mortality among renal patients.

'LIFE AFTER A KIDNEY TRANSPLANT'

Robyn Emslie

Introduction: Adaption to life after a kidney transplant can be a challenge. One is often used to your life before dialysis, then on dialysis, but once you've had the transplant, there are many changes you have to accept and adjust to; it's still not plain-sailing ahead. Everything may seem 'normal', but there are obstacles to overcome along the way, before you reach the best quality of life possible.

Methods: This is not a scientific research paper, it is my personal experience and journey following my kidney transplant. I will explain physical, as well as emotional changes I experienced. Also changes in my daily routine, because of follow-up tests to do, medication to be taken very strictly, and a complete new lifestyle to get used to.

So, once you've achieved that – what do you do? I decided I wanted to help others that are in the same place I once was; the place you think you will never make it through. To help them to accept and adjust to these changes, and try and make things a little easier for them – things they don't yet understand. I try and make a difference

where ever possible. And how I do this is as the National Renal Care's Healthy Start Practitioner!

Findings: My quality of life is amazing post transplant, also rewarding in that I am able to help others by education and support through a very trying illness.

Conclusion: This presentation will help you understand my journey forward following my transplant, and my ongoing journey helping others in any way possible. It will also help you understand how important the Healthy Start programme is to all early-stage renal-failure patients, how to detect early-stage renal failure, how to slow the progression to end-stage renal disease and how it benefits patients in the long term.

IN-CENTRE NOCTURNAL HAEMODIALYSIS OPTIMISING CHRONIC DIALYSIS THERAPY – FIRST EXPERIENCES IN SOUTH AFRICA

Elsabe Fourie, Sonja Stevens, Chevon Becker

Background: Survival on dialysis has not changed much over many years, until recently. Evidence from New Zealand and Australia has shown that survival with longer night dialysis, both at home and in-centre has increased. Survival is now similar to transplantation. This study provides the first experience of such a regime in South Africa.

Methods: By using the existing infrastructure of National Renal Care, we introduced an additional available dialysis modality, in-centre nocturnal haemodialysis (INHD) to a small, select group of patients. Protocols used were those from existing international INHD guidelines. We used a dialysis prescription of eight hours / three times a week, dialysate flow of 300 ml/min, and blood pump speed 200 to 300 ml/min.

Results (on-going): Initial results were overwhelmingly positive, with haemodynamic stability and subjective improvement of patient well-being a requisite. The following markers are used for individual pt outcomes:

- clinical outcomes
- nutritional outcomes (SGA and dietetic study with pre-trial baseline)
- quality of life (QOL measuring tool in-depth questionnaire with pre-trial baseline).

Conclusion: In South Africa the medical aid authorities are still firm believers in measuring and paying for 'adequate' treatment. Until the pioneers for 'optimal' dialysis can design a tangible measuring tool, the only lobbying tool we as dialysis professionals have, is the patient, and their desired quality of life.

We thank NRC for enabling us to make this possible for this first group of INHD patients. We aim to develop this form of haemodialysis further, and look at future possibilities of home nocturnal haemodialysis.

PERITONEAL DIALYSIS (PD): GLOBAL TRAVEL – MAKING IT POSSIBLE

Dheeviasovindhree Silvia Gounden

Background: The dialysis patient is faced with many lifestyle challenges, travel being one concern. This presentation provides an insight on how healthcare professionals can encourage dialysis patients to maintain a pre-dialysis 'travel lifestyle'.

Methods: Since 1994, Baxter has supported patients with peritoneal dialysis with their solutions and consumables to most large cities around the world. In the last year patients are being afforded the opportunity to travel into the rest of Africa. This programme is coordinated by a dedicated team of homecare support specialists (CSS), who have access to Baxter's extensive global manufacturing and distributor services. Patients merely need to provide their itinerary to their local renal clinic and this worldwide network makes sure the necessary solutions and supplies are at their destinations when they arrive. Baxter arranges for PD solutions and supplies to be delivered from its local subsidiaries whenever possible, reducing costs and

minimising potential logistical problems. Patients also receive a travel pack with booking and departure information and advice on what to do if they experience any technical, medical or supply problems while away from home.

Results: More than 20 000 patients globally have visited more than 60 countries through this service. In the last two years, 70 patients visited South Africa from various overseas destinations and 15 left South Africa on vacation. The challenges are sending supplies into the rest of Africa, but with corporation from logistics companies with relevant knowledge of the various regulatory issues, it is becoming more accessible for patients to receive their supplies at their door.

Conclusion: The Baxter Travel Club affords patients the freedom and relaxation of being able to travel worry-free. The extension of service to include visit by local PD nurse or renal product specialist at least once, to evaluate the patient's stay, and information can support training during pre-dialysis counselling.

IN SICKNESS AND HEALTH: A REPORT ON SPOUSAL KIDNEY DONATION IN TRANSPLANTATION

Anne Kemlo

Introduction: Since 1996, there have been 358 kidney transplants carried out at Christiaan Barnard Memorial Hospital. Of these, 203 kidneys were donated by living donors; 164 donors were blood relatives of the recipients, 39 were not, 16 unrelated donors were friends, neighbours, colleagues and church associates, with one undirected altruistic donor, and 23 kidneys were donated by husbands and wives of the recipients.

Methods: A study was made of 23 cases of spousal kidney donation and their outcomes, medically, as well as psycho-socially.

Medically: Age, cause and duration of renal failure in recipient, blood and HLA tissue match, physical health, renal function and blood pressure of donor were recorded pre-transplant. Outcome of transplant and any peri-operative complications in either recipient or donor were recorded. Both patients were followed up regarding success of transplant and maintenance of renal function in the recipient, while the donor was followed up regarding renal function, blood pressure and physical health.

Psycho-socially: taking into consideration age, occupation, social group, duration of marriage, personal relationship, motivation of donor, expectations regarding family life following transplant, and the actual effect of the donation on the spousal and family relationship.

Results: Three recipients have suffered loss of the function of the grafted kidney, two have undergone slow deterioration of function and have a creatinine level more than 300, and 20 recipients at present maintain good renal function and physical health. Two donors had post-operative complications, one donor is receiving antihypertensive medication and two record creatinine levels between 130 and 160 $\mu\text{mol/l}$. Most donors have maintained their previous occupation and degree of activity. In two cases, couples have had a definite improvement in relationship. Most couples found an improvement in their physical relationship, but two couples experienced a definite deterioration in their emotional relationship. One donor expressed a definite regret about the donation.

Conclusion: Spousal donation can be successful in kidney transplantation.

IMA/IQRAA RENAL DIALYSIS UNIT

S Khan

Many patients with chronic renal disease who do not meet the criteria of state dialysis programmes often have to resign themselves to a poor-quality lifestyle and eventually early, untimely death, or seek assistance from private institutions at great expense to themselves and family resources.

This paper aims to highlight a community-based dialysis unit in providing an essential service for indigent patients who do not qual-

ify for the above reasons. A novel approach to funding such patients will be presented and some of the challenges faced, thus providing efficient affordable care and an improved quality of life.

EVALUATION OF WATER TREATMENT PROTOCOLS AND PURIFICATION IN SOUTH AFRICAN DIALYSIS UNITS

Tebogo Malele

Background: Good dialysis requires that the ‘water for dialysis’ is purified and meets certain criteria. Water quality in dialysis is overlooked but yet a key factor to providing dialysis.

Aim: To determine the water quality used in selected renal units and assess sanitisation procedures as required.

Methods: The study was conducted among nine renal units located in the Limpopo, North West and Gauteng provinces. The research was conducted as a retrospective survey and included checking records collected from the renal units. The study was carried out from January 2006 to December 2007. The received data from participating units was then analysed and is presented below.

Results: All participating renal units’ water systems had basic components with plastic circulation loop pipes. All units had a disinfecting protocol that was user friendly for the staff but only 14.29% of the renal units adhered to this protocol while 85.71% did not follow the protocol. Table 1 indicates how many units had results within the requirements set out by the AAMI.

Contaminants	Within limits (n)	% within limits	Outside limits (n)	% outside limits
Bacterial count	6	85.71	1	14.29
Aluminum	7	100	0	0
Calcium	6	85.71	1	14.29
Chloride	1	14.29	6	85.71
Copper	6	85.71	1	14.29
Sodium	4	57.14	3	42.86
Potassium	5	71.43	2	28.57

Conclusion and recommendation: All participating renal units had basic water-treating systems but it appears that not enough attention is being given to water-purification protocols, and this is resulting in poor water quality and inadequate following of protocols. More attention needs to be given to the water system, especially given its importance in high-flux dialysis and haemodialfiltration.

CARDIOVASCULAR RISK ASSESSMENT IN HAEMODIALYSIS PATIENTS AT GROOTE SCHUUR HOSPITAL: USING THE METABOLIC SYNDROME PREVALENCE AS A SURROGATE MARKER

Marilyn Maree, Brian Rayner, Charles Swanepoel, Ikechi Okpechi

Background: Cardiovascular disease (CVD) disproportionately affects patients with end-stage renal disease (ESRD) and remains the leading cause of death for dialysis patients in the United States. The metabolic syndrome represents a novel approach to traditional CVD risk factors and has been reported to be associated with an increased risk of CVD from several large studies. The prevalence of the metabolic syndrome is presently not known in our dialysis population.

Methods: Demographic and relevant clinical details including systolic and diastolic blood pressures, waist and hip circumference and body mass index were obtained from consenting haemodialysis patients attending the Groote Schuur Hospital in Cape Town. Blood was drawn in the fasting state for assessment of full lipogram, glucose, ferritin, iron, calcium and phosphate levels. The metabolic syndrome was defined using the International Diabetes Federation (IDF) criteria as presence of any three out of five traits (hypertension, increased waist circumference, impaired fasting glucose, high triglycerides and low HDL cholesterol).

Results: Gender distribution in the study was fairly equal (F = 51.2%) with a mean age of 38.8 ± 1.2 years in all the subjects. Glomerulonephritis accounted for most cases of ESRD in the patients (40.7%). The metabolic syndrome was present in 31.4% of the participants. The prevalence of hypertension, raised fasting glucose levels, increased waist circumference, high triglycerides and low HDL cholesterol was 87.2, 34.6, 24.7, 17.8 and 38.8%, respectively. Analysis of variance (ANOVA) showed significantly increased serum phosphate as the number of metabolic syndrome traits increased (*p* = 0.036).

Conclusion: The prevalence of the metabolic syndrome is high in our haemodialysis (HD) population, especially giving the criteria for selection of patients for the chronic renal replacement therapy program. The impact of this high prevalence on morbidity and mortality in our HD patients still requires further studies.

LOCAL ANAESTHESIA OF TENKOFF INSERTION FOR PERITONEAL DIALYSIS: FIVE-YEAR REVIEW AT CHRIS HANI BARAGWANATH HOSPITAL

Connie Mbele

With an increasing incidence of chronic kidney disease and the need for dialysis, combined with insufficient haemodialysis facilities, peritoneal dialysis remains one of the best options of renal replacement therapy. Peritoneal dialysis Tenckhoff catheters can be inserted under local anaesthesia in the renal unit or under general anaesthesia in an operating theatre.

This presentation will report on the advantages, disadvantages, outcome and complications of both methods as identified over a five-year period at the Chris Hani Baragwanath Hospital.

TOTAL FLUID MANAGEMENT DURING CRRT: A KEY QUESTION

Jean Paul Mennequerre
Baxter CRRT Therapies Senior Director

This presentation will focus on a new total fluid management during CRRT, including a different management for the in- and output strategies regarding the fluids. Focus will be on the New Aquarius 6.02 SW and the way fluid management is achieved. The keywords will be safety, accuracy and efficacy for the patient and the user.

MALAWI: CLINICAL OUTCOMES AND FUTURE PLANS

Charles Munthali

Introduction: The Kamuzu Central Hospital in Malawi is currently the only dialysis centre serving a population of over 13 million.

Background: The main reason for dialysis is for renal failure; both acute and chronic cases. Acute causes are from malaria, sepsis, obstetrics, e.g. PET, and the use of herbs. The chronic causes are due to hypertension, diabetes mellitus, glomerulonephritis, HIV nephropathy and idiopathic causes. It is important to note that to date no biopsies have been done to confirm diagnosis.

Challenges: The main concerns are high staff turnover, inadequate machines and their frequent breakdown, inadequate laboratory support, lack of drugs and supplies (this is improving), and patients missing their schedule due to travel issues.

Outcomes: The statistics between 1998 and March 2010 are as follows: 226 patients had haemodialysis, 162 patients had acute renal failure, 64 had CKD, three patients had kidney transplants outside the country and 95 patients died. Current status is as follows: eight patients are on HD, seven with CKD are on PD and in addition, an average of three to six ARF patients are being dialysed monthly.

The success at the national level has been the commissioning of a renal unit at Queens Hospital in Blantyre, which is to be followed by one at Mzuzu Central Hospital. Seven medical engineers were trained and certified in South Africa and Tunisia. Adcock Ingram was instrumental in working with AI Scientific Group to service six

machines in Lilongwe.

Conclusion: The current facility requires expansion to include an admission ward. Strategies are needed to retain nurses and clinicians. A surgeon and dietician are necessary to run an effective service, and provision must be made for a resident technician. PD services must be expanded, particularly for CKD patients nationally.

The renal programme in this country has had many challenges but with constant perseverance and the commitment of government and dedicated staff, the programme continues, respecting the lives of patients who require dialysis.

PERITONEAL DIALYSIS AS A DIALYSIS OPTION FOR EMERGING COUNTRIES: PERSPECTIVES FROM A QUALITY-OF-LIFE (QOL) STUDY IN CAPE TOWN

Tebogo Nthite, Charles Swanepoel, Craig Arendse, Ikechi Okpechi

Background: Haemodialysis (HD) is the dominant form of dialysis in South Africa. Peritoneal dialysis (PD) is a well-accepted form of renal replacement therapy (RRT) for end-stage renal disease (ESRD) and should preferably be the ideal modality of RRT for ESRD in developing countries due to its numerous advantages such as cost saving (fluids are locally produced), home-based therapy, avoidance of hospital-based treatment and costly machinery, and avoidance of infections (HIV, hepatitis B and C). Similar or a superior QOL should be another reason for the preference of PD in South Africa. Our study aim was to compare QOL in HD and PD patients at Groote Schuur Hospital, Cape Town.

Methods: Demographic and biochemical details of HD and PD subjects were obtained. The KDQOL-SF 1.3 questionnaire was administered to the subjects. Responses obtained were graded and scored and an ESRD-related QOL score, an SF-36 QOL score and a total QOL score were obtained from each subject. Statistical analysis of the data was performed with the SPSS statistical software (version 10.1).

Results: The mean age of all the subjects was 39.0 ± 10.2 years with 56.9% being male. QOL scores were similar in HD and PD patients but were significantly higher in PD patients in the work domain ($p = 0.027$). Total and SF-36 QOL scores in all the subjects were inversely and significantly correlated with serum PTH level ($p = 0.049$ and $p = 0.028$, respectively). Total and SF-36 QOL scores also showed significant inverse correlation with CXP and PTH in HD patients ($p < 0.05$). QOL scores showed no significant correlations in PD patients.

Conclusion: QOL is generally similar in HD and PD patients in Cape Town. PD patients, however, enjoy a better QOL in the work domain. Increased use of PD should therefore be encouraged across South Africa to reduce the cost and burden of patients on HD.

TWIN-BAG SYSTEM BRINGS RENEWED HOPE FOR ESRD PATIENTS UNDERGOING CAPD AT KENYATTA NATIONAL HOSPITAL RENAL UNIT (KENYA)

DK Nyarera

Despite the fact that continuous ambulatory peritoneal dialysis is the most usable RRT for ESRD patients, it has been a nightmare for the patients choosing this therapy. The therapy when well tolerated gives the patient good metabolic control. Since the patient is continuously dialyzing, he or she does not have the strict diet restrictions that the patients on haemodialysis do. It also allows patients freedom to travel and go to work without fear of being far from a dialysis unit.

However for this unit, the therapy has not been very convenient for most of our patients because of frequent episodes of peritonitis and having to carry around the empty plastic bags after exchange when using the single-bag system. Because of this, many patients should convert to haemodialysis either:

- by choice, especially the young patients
- membrane failure due to frequent peritonitis.

Before September 2009, continuous ambulatory peritoneal dialysis (CAPD) had become very unpopular in this unit. The twin-bag system was introduced into the unit around this time. Before this date we had only two patients on CAPD and now the number has risen to nine and more patients are lined up for peritoneal dialysis.

Advantages of the system:

- The patient has more freedom, does not have to carry the empty bag since all the bags are discarded after the exchange.
- There are fewer episodes of peritonitis reported owing to no bags lying around. Case scenario: patients A on twin bag started on CAPD in November 2009, reported signs of peritonitis only once while in the ward, unlike patient B on single bag since February 2009 who had three episodes of peritonitis from June 2009. Converted to HD but succumbed to infections.
- The disinfection caps used in the twin-bag system also play a role in prevention of infection to the patient.

Future of CAPD in this unit: The department has opened a separate ward for only CAPD patients with a dedicated team of nurses. The patients are trained and discharged home for follow up. The unit is to select motivated patients for this programme and develop a patient education programme to help them appreciate the therapy.

Challenges:

- The patients are still coming in in crisis, they require dialysis urgently, giving no time for wound healing after catheter placement. (In future patient selection will start from the clinic)
- Cost: this still remains a challenge since the fluids are not locally produced.

A FLEDGLING RENAL PROGRAMME IN A DEVELOPING COUNTRY: THE RWANDAN EXPERIENCE

Françoise Nyirazibera, Dianne Longson, Jules Kabahizi

Background: Rwanda is a small landlocked country in Central Eastern Africa. The July 2005 estimate of the population of Rwanda was 9 038 000. King Faisal Hospital, Kigali (KFH,K) is a tertiary referral hospital, one of two university hospitals in the capital and one of three in the country.

The renal programme was established at KFH,K in 2004. It is part of the Medical Unit and expands or contracts according to the number of patients requiring peritoneal dialysis (PD). The unit also conducts a donor screening programme. When money is available, the Rwandan government, through the Ministry of Health and the medical referral board, pays the costs associated with transplantation on the condition that the patient can afford to pay for the ongoing medication and medical coverage.

Methods: Retrospective review of patients receiving PD at KFH,K since 2004/2005 considering their demographic data, and the clinical indications for PD in both acute and chronic circumstances. Clinical co-morbidities will be considered along with laboratory parameters such as mean haemoglobin and albumin.

Results: Approximately 55 patients received PD over the period 2004 to now. Eight (14.5%) had acute renal failure; the rest had chronic renal disease. A significant number of patients (> 50%) developed peritonitis whilst receiving PD. Ten (18.2%) have received a transplant. Mortality: 20 (36.4%) died pre-transplant and one (1.9%) post-transplant.

Conclusion and challenges: Although the renal programme has assisted many patients needing dialysis, much needs to be done, including the collection of epidemiological data about renal disease in Rwanda, the establishment of a Rwandan renal registry and the development of policies for the use of renal replacement therapies. Other factors to be addressed include: economic issues, issues associated with consistent availability of consumables, establishment of haemodialysis, supportive care such as social workers or dieticians, and training of staff, both nursing and medical.

A LITERATURE REVIEW ON THE PREVENTION OF CATHETER-RELATED INFECTIONS

Michelle Odayan

This is a brief overview from a literature revision on the prevention of catheter-related infections utilising TauroLock as a catheter lock solution in medical devices. TauroLock is a new medical device product to prevent biofilm formation in the catheter or port systems and makes the inner lumen of the device hostile to bacterial and fungal growth. Also the patency of the catheters is ameliorated due to citrate and heparin in the solution. The active ingredients are (cyclo)-taurolidine as an antimicrobial compound and citrate and heparin as an anticoagulant.

Catheters and port systems are used for central venous access (CVA) in haemodialysis patients, for total parenteral nutrition and for drug application in oncology patients. Into these central venous access systems heparin is normally instilled in different concentrations; 1 000 to 5 000 IU is used in haemodialysis patients (HD) and 100 to 500 IU in oncology patients. Heparin has no bactericidal activity. As an oligosaccharide, it promotes the growth of microbes in the central venous access systems.

To avoid the growth of microbes in the access system, a bactericidal lock solution should be instilled in the catheter or port system to prevent catheter infections and sepsis. Clinical trials have shown that antibiotics (gentamycin) should not be used as catheter lock solutions to prevent catheter infections. The risk of developing resistance problems is too high. TauroLock therefore contains no antibiotic and can be used to prevent catheter related infections.

In this presentation it is shown that the instillation of TauroLock in catheter or port systems can reduce the infections rates by 90%.

A CONTINUUM OF CARE FROM HOSPITAL TO HOME: AN ILLUSTRATIVE CASE STUDY

Regina Pieters, Megan Abbotts, Peter Nourse, Priya Gajjar

Ambulatory peritoneal dialysis is the preferred mode of dialysis for children. This fosters independence and minimises time in hospital. More importantly, it allows children to lead a near-normal life, facilitating their educational and developmental needs. This does however place a great onus on parents who already have to deal with the stressors of caring for a chronically ill child.

The following in-depth case study highlights the need for a home-based nursing support system. It illustrates that the family can benefit from:

- ongoing training to enhance their confidence with the practicalities of doing home dialysis; and preventing peritonitis with good catheter care
- provision of support to alleviate psychosocial stressors
- channelling their fears of the unknown by effective communication
- improving co-ordination of hospital visits and logistics regarding supply of consumables
- providing information leaflets and clear instructions to deal with potential complications
- ultimately reducing hospital visits and admissions.

The development of a home-based support system is not only a reasonable and achievable goal, but is an integral part of healthcare provision for children with chronic illness. It embodies a primary healthcare principles.

FROM ANTAGONISM TO ACCEPTANCE: ADOLESCENT TRANSITION

Lesley Prentice-Hoogervorst

Advances in medical care have increased the survival rate of children with a chronic illness surviving well into adulthood. This requires that children, who were diagnosed and managed successfully in paediatric settings, now transfer to adult services. This transition

takes place during the challenging adolescent stage of development when physical and psycho-social pressures are high, and compliance to treatment regimens is generally low.

The transition of the chronically ill adolescent from paediatric to adult care has been the subject of numerous studies, yet despite interventions aimed at improving quality of life, clinicians globally remain uncertain regarding effectiveness of such interventions. Adolescent patients continue to struggle with issues of non-adherence, high-risk behaviour and the resultant morbidity or mortality during or after their transition to adult care.

Aim: To explore the lived experience of chronically ill adolescents at the renal/liver-transplant clinic following their transition process from paediatric to adult care.

Method: This will be a qualitative research design, using an interpretive phenomenological approach (IPA) to explore transition from child to adult healthcare.

Design: A purposive sample will be selected from those adolescents who have been transferred from Red Cross War Memorial Children's Hospital (RCCH) to the renal/liver outpatient clinic at Groote Schuur Hospital (GSH). Since purposive samples are small, a minimum of eight adolescents will be requested to participate in individual narrative interviews. These interviews will explore the lived experience of the participants until saturation of information is reached. They will be conducted within six months of the participant's transition process from RCCH to GSH.

Significance: The findings of this study will be used to inform appropriate interventions to improve the quality of life and the level of success in the transition process of all chronically ill children and adolescents into adult services in this setting.

MALAWI: A HISTORICAL EVOLUTION IN DIALYSIS. COMMITMENT BY THE NATIONAL HEALTH SYSTEM

Jane Rijab

Introduction: Kamuzu Central Hospital was established in November 1977 and is the second-largest hospital in the country, and the only centre offering dialysis services in Malawi. It was only in 1986 that the intensive care unit (ICU) was commissioned and at the same time, two side wards were identified to commence dialysis, the only unit serving 13 million population.

These two rooms became home to two manually operated haemodialysis machines (HD), the Artificial Kidney 2000AK, as they were called, from Israel. This unit also did some peritoneal dialysis to complement their HD programme. The initial staff complement consisted of two ICU-trained nurses, one doctor and a technician. Unfortunately this was not to last, and in 1988 both machines were grounded and the unit was closed down. During this period, 11 patients underwent HD, and the longest survival was six months. Of the two patients on PD, one lived eight years and died of unrelated causes.

May 1998 saw the rebirth of dialysis, with the acquisition of four new Gambro AK200 HD machines. The renal team at Norwood Dialysis Centre in South Africa trained five nurses, two doctors, one clinical officer, two laboratory technicians and two technical personnel for five days of intensive training. All went well until 2005, when the machines broke down due to a lack of maintenance.

At the same time, the Ministry solicited six refurbished AK95 machines from Spain. After three years, due to lack of maintenance, all the machines had broken down, and coupled with this, there was a high staff turnover. Despite training a further three nurses for seven months at the Johannesburg General Hospital, in South Africa, they too, left for greener pastures. Amidst all of this, with great dedication, doctors with minimal knowledge of dialysis and one nurse persevered and continued with the therapy.

Outcome: In early 2008, there was a glimmer of hope, when the unit developed ties with Adcock Ingram Critical Care (AICC) in Johannesburg, who, with their distributor in Malawi, brought about some positive outcomes:

- Two-day well-attended in-service training on PD was conducted at Kamuzu Central Hospital and as a follow on to this, a nurse

- spent a week at AICC to attain training skills on PD.
- The physical assets management unit at the Ministry of Health sent technicians to be trained in South Africa.
- PD was re-introduced with the twin-bag system and emphasis was placed on hand-washing practice to reduce the risk of infections.

Conclusion: This is a story of sheer perseverance from an integrated team with a common goal of adding value to life. With the re-introduction of the PD programme, patients have become master trainers to peers in order to increase uptake of PD service. This has become very important to reduce pressure on the few available HD machines, reduce running costs of the unit, and for convenience and to reduce travel costs of the patients.

RENAL COMPLICATIONS OF JEJUNO-ILEAL BYPASS

M Samuels, A Savvidou
National Renal Care, Olivedale Clinic

This case study reports on two patients in the Olivedale renal unit who had had renal therapy following jejunum-ileal bypass surgery. Patient A was a 58-year-old female with no prior history of renal failure, but had prior surgery for a hysterectomy. Patient B was a 52-year-old female who presented with no prior history of either renal failure or surgery. It is important to note that both patients had no previous history of either hypertension or diabetes prior to the gastric bypass surgery.

On presentation, Patient A had undergone the bypass surgery in 2005 and patient B in 2003. However in 2008, both patients had to have the procedure reversed due to the accumulation of clinical evidence that the status of their digestive system was progressively compromising their renal function.

Currently, patient A is clinically stable and consults for check ups on a regular basis. Patient B, who had had the procedure for longer before it was reversed, is on chronic haemodialysis three times a week and is awaiting kidney transplant.

Conclusion: Due to the sample size and the fact that this was not a commissioned clinical study, we cannot conclude that the jejunum-ileal bypass surgery causes renal impairment but cases such as these do raise concerns about a possible link between the surgery and renal complications.

EVALUATION OF PATIENT KNOWLEDGE OF PHOSPHATE INTAKE AND CONTROL COMPARED WITH OTHER NUTRIENTS IN HAEMODIALYSIS PATIENTS IN THE WESTERN CAPE

Sonja Stevens
National Renal Care

Background: The control of phosphate is increasingly recognised as playing an important role in chronic kidney disease, but is also a major factor associated with cardiovascular morbidity. Dietary restriction and the use of phosphate binder medication remains the mainstay of treatment of hyperphosphataemia. Despite dietary counselling, patients often have difficulty in understanding and implementing dietary recommendations. Dietary evaluation using a standardised method has been used to evaluate dietary intake.

Objective: To assess knowledge of phosphate compared with other nutrients in haemodialysis patients and to compare the data to existing literature.

Methods: Evaluation of phosphate and nutritional intake was carried out on patients receiving treatment at Blaauwberg, Paarl and Kuils River haemodialysis units. The Chronic Kidney Disease Knowledge Assessment Tool for Nutrition (CKDKAT – N) questionnaire was completed during a semi-structured interview with patients, by a single dietitian. The CKDKAT – N is composed of 25 multiple-choice questions reflecting dietary knowledge on phosphate, sodium, protein and potassium. The questions are based on guidelines from the National Kidney Foundation and the Kidney Disease Quality

Outcomes Initiative (KDOQI)

Results: Thirty-three patients participated in the study [male ($n = 24$) and female ($n = 9$)]. The CKDKAT – N scores ranged from 6 to 19 of 25 questions, mean score 12.8. Results were similar to other studies. Patients' knowledge was poorer on dietary phosphate (44% correct answers) compared with knowledge on other nutrients (56% correct answers). Knowledge on phosphate was found to be similar to that in other studies (40% correct answers) but knowledge on other nutrients was found to be poorer in the South African patients who participated in the study.

Discussion: The results indicated that knowledge on phosphate was similar to that of other dialysis patients in developed countries but knowledge on other nutrients was lower. Despite regular dietary instruction, patients continue to have a poor knowledge of dietary phosphate content. There is mounting evidence that individual education does not translate into improved knowledge on dietary phosphate. Perhaps more innovative methods of dietary counselling and control are required.

VASCULAR ACCESS: SUCCESS THROUGH TEAMWORK. THE ROLE OF DIAGNOSTIC ULTRASOUND IN THE VASCULAR ACCESS TEAM

Belinda Stevens

The optimal management of end-stage renal disease on haemodialysis is dependent on functional vascular access. DOQI guidelines were established to promote standardisation of care. Essentially there are the following five stages that ensure success:

- pre-operative vascular assessment of outflow with mapping
- appropriate site selection dependent on history and vascular integrity
- technically sound surgical creation
- postoperative evaluation of AVF with flow studies
- responsible access management.

As a vascular unit providing a comprehensive service, we are closely involved in the five stages of access management and are faced with a variety of problems.

- The last decade has brought about a relaxation in the stringency of acceptance criteria for patients placed on dialysis. This translates into a significant role played by co-morbidities.
- There has been an exponential increase in the age of dialysis patients entering chronic programmes.
- Age-related vasculopathies have a big impact on access success.
- Increasing surgical load places pressure on the specialist operative teams.
- A change of focus in the staffing of dialysis units brought about by shifting employment trends has resulted in a lack of staff continuity and experience in many centres.

Access management must be regarded as a multi-disciplinary situation with a vital role played by:

- patient educators
- renal physicians
- diagnostic ultrasonographers/radiologists
- vascular surgeons
- haemodialysis unit staff.

Many of the incidences of access complication and failure can be avoided or solved if the 'what, who, why, where and how' questions are answered. This applies directly to situations arising from the five stages. The role of the vascular laboratory or radiology unit is unique in that it can be used from planning through creation to maintenance. Two-dimensional imaging and Doppler ultrasound afford us a unique no-risk tool in compromised patients. Information is real time and findings reliable in experienced hands.

The ultimate goal in creating AVF access is the provision of a functioning portal whereby the patient can be successfully dialysed in the long term and thereby enjoy optimal therapeutic benefit. Most importantly, repeated failures result in diminished surgical options, a compromised quality of life and a reduced life expectancy. The burden of added expense cannot be ignored.

NEPHROLOGY WORLD WITHOUT BORDERS

Heilie Uys

The aim of this presentation is to identify and describe the opportunities and benefits of expanding professional horizons in order to grow professionally and improve patient care.

Nephrology practitioners should not be only 'unit-bound' but must extend their horizons by belonging to an international network of practitioners. By doing so, they will benefit from educational and clinical resources and opportunities that will not only lead to professional growth, but also improve patient care.

The Renal Care Society of South Africa (RCSSA) provides such a stepping-stone to professional growth. This presentation will also discuss the profile of membership of the RCSSA and the challenges that face all nephrology practitioners in South Africa.

TREATMENT OF PSEUDOMYXOME PERITONNEI OR 'JELLY BELLY' VIA INTRA-PERITONEAL CHEMOTHERAPY USING PERITONEAL DIALYSIS CATHETERS: A CASE STUDY

Drienie Vaughan, PT Paradza, Adria Moorcroft

Background: Pseudomyxoma peritonei is a slowly progressive disease that presents as a 'false mucinous tumour' of the peritoneum and is characterised by production of large amounts of mucous fluid resulting in a 'jelly belly'. If left untreated this condition can be fatal.

Patient: A 36-year-old African woman who had experienced severe abdominal pain and swelling, was diagnosed with pseudomyxoma peritonei by her general practitioner, who referred her to her gynaecologist for a hysterectomy. After performing a total abdominal hysterectomy and bilateral oophorectomy she was referred to an oncologist, Dr PT Paradza.

Method: Dr Paradza based this patient's treatment on a method used by Sugarbaker and co-workers in 2004. This method involved the administration of heated chemotherapy into the peritoneum after partial removal of the tumour. Five swan-neck coil catheters were inserted into the patient's peritoneal cavity to be used for the chemotherapy.

Results: A 20% volume of the tumour remained but the patient is asymptomatic and being followed up by her oncologist. Renal function is normal.

Conclusion: Peritoneal dialysis can be used as a treatment option for intra-peritoneal chemotherapy.

FABRY DISEASE – A CASE STUDY

Gerda Venter

Fabry disease is a lysosomal storage disorder caused by a genetic deficiency of α -galactosidase-A, resulting in an inability to catabolise lipids with terminal α -galactosyl residues. Progressive accumulation of lipids in the vascular endothelium and visceral

tissues results in progressive damage to the kidneys, heart and cerebrovascular system.

Patients present with a number of signs or symptoms of varying degrees, such as pain, heat intolerance, skin lesions, gastrointestinal complaints, hearing loss, ocular problems, or even cardiovascular or renal dysfunction. Fabry disease not only impairs patients' quality of life, but also substantially reduces life expectancy in both genders.

Management of symptoms, both through medical treatment and coping strategies, plays an important role in helping patients to deal with the individual symptoms of Fabry disease and improve their quality of life. Although no cure has yet been discovered for Fabry disease, the development of enzyme replacement therapy has provided a means to address the enzyme deficiency of this disorder, and symptomatic treatment can help to manage specific aspects of the disease.

The aim of this case study is to highlight the importance of early recognition, intervention and timely enzyme replacement therapy.

VISUAL TOOLS TO IMPROVE RENAL DIET COMPLIANCE

Cecile Verseput

Introduction: Compliance with a renal diet is an integral part of patient care. The renal dietitian is faced with many challenges when educating a newly diagnosed CKD patient. It is of utmost importance to tailor education to specific patient needs and to adapt the diet prescription to the patient's literacy level, culture, socio-economic circumstances and eating habits.

Objective: To simplify dietary education of a newly diagnosed CKD patient with limited literacy level, on RRT, by (1) explaining CKD and food-related symptoms experienced through illustrations, (2) translating a highly technical renal diet prescription into understandable picture format.

In session one: the damaged kidney is portrayed as a sieve with very fine mesh that does not allow normal functions. This is explained by an illustration. Once the patient understands that his uraemic symptoms are related to diet and damaged kidneys, he is willing to change his old eating habits. Haemodialysis and making correct food choices are then explained.

In session two: a diet prescription is calculated according to NKF-DOQI 2005 and the South African Renal Guidelines 2007. In order to explain this technical prescription in an understandable way, a visual tool called 'the renal plate' was developed. This is based on adjusting the three basic food groups by making use of the South African renal exchange lists. Foods unsuitable for diabetics will be crossed out.

In session three: foods to avoid due to high sodium, phosphate and potassium are presented in an illustrated manual.

In session four: portion sizes are addressed through visuals since 'the renal plate' only focuses on foods allowed and foods to avoid, not on how much of each food group should be eaten.

Conclusion: If education is started as soon as the patient is diagnosed, there is much better future diet compliance.

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