

## Improvised Peritoneal Dialysis on a G-6-PD Deficient Child with Acute Kidney Injury: Maiden Experience in Umuahia, South Eastern Nigeria

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### ABSTRACT

**Background:** Management of acute kidney injury (AKI) has remained a daunting challenge with significant mortality, especially in the developing countries where facilities for renal replacement therapy (RRT) are limited and usually not affordable. We present this case of AKI managed with improvised peritoneal dialysis with a successful outcome as the first peritoneal dialysis in our facility, Federal Medical Centre, Umuahia.

**Case summary:** A 2-year-old G-6-PD deficient male was referred to us with hemoglobinuria, pallor and jaundice which he developed following treatment with an antimalarial drug (amodiaquine). He subsequently developed features of AKI with body swelling, hypertension, serum creatinine level of 5.6mg/dl and serum urea of 159.5mg/dl. Urine flow rate ranged from 0.4-1.2mls/kg/hour. Bedside urinalysis showed protein (2+) and blood (2+). The patient had 14 cycles of intermittent peritoneal dialysis (IPD) administered manually over 4 days with significant clinical and biochemical improvement.

**Conclusion:** In settings where standard materials for peritoneal dialysis are not available as is common in resource-poor countries, improvised peritoneal dialysis can be offered to children with AKI.

### INTRODUCTION

Acute kidney injury (AKI) is a major cause of childhood morbidity and mortality worldwide, especially in developing countries.<sup>1,2</sup> The incidence has been reported to be 33.7% globally with a mortality rate of 13.8%.<sup>3</sup> In Nigeria, the prevalence of AKI ranges from 1.0% to 56%, with a mortality rate of 15.8-40.5%, depending on the population studied.<sup>4</sup> The common causes of AKI reported in children in developing countries include gastroenteritis, septicaemia, severe malaria, primary kidney diseases (acute glomerulonephritis and nephrotic syndrome) and haemolytic uraemic syndrome.<sup>4,5</sup>

The unacceptably high mortality caused by AKI in children in developing countries is attributed to several factors, including unavailability of facilities for renal replacement therapy (RRT) as well as their high cost when available.<sup>1,8</sup> Sophisticated modalities of RRT such as haemofiltration, haemodiafiltration and intermittent haemodialysis are readily available to young children with AKI in high-income countries and has led to a decline in the use of peritoneal dialysis (PD) in these regions.<sup>9,10</sup> In contrast, facilities for the various RRT modalities including peritoneal dialysis are very limited in resource-poor countries, and usually unaffordable.<sup>8</sup>

Peritoneal dialysis has been shown to be as effective as haemodialysis in the management of AKI, and has remained the modality of choice among

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children with AKI in the developing countries as well as in haemodynamically unstable patients.<sup>11-14</sup> It does not require sophisticated technology and expensive consumables as in haemodialysis, and thus offers extra benefits to patients in resource-poor settings.<sup>1,15</sup> Despite the fact that PD has been in use as a form of RRT over the past six decades, non-availability, as well as high cost of PD fluid and standard PD catheters, has remained a challenge to paediatric nephrologists in Nigeria.<sup>1,4,8</sup> This has led to the use of self-constituted fluids using readily available commercial solutions as improvised PD fluid to save young children with AKI who require dialysis. Interestingly, chest tubes, nasogastric tubes and urethral catheters have been used in place of standard PD catheters to successfully deliver PD in various centres in Nigeria.<sup>9,10,15</sup>

We report our maiden experience with peritoneal dialysis using improvised PD fluid in the management of AKI in glucose-6-phosphate dehydrogenase (G-6-PD) deficient male with a successful outcome in our facility (Federal Medical Centre, Umuahia), a tertiary health institution in South-Eastern Nigeria. Prior to this time, older children with AKI in our centre were offered hemodialysis through the help of adult nephrologists while the younger children were referred to paediatric renal units of other hospitals outside the state.

### **CASE REPORT**

A 2-year-old male was referred to us from a private hospital on account of fever of two weeks, cough of one week, cola-coloured urine and paleness of the body of four days duration. Before the onset of cola-coloured urine, he had received oral medications including amodiaquine from the referring hospital. His G6PD status, assayed at the referring hospital was reported as deficient using qualitative assay method. Hb genotype was AA; blood group was B Rh D positive.

On presentation, he was severely pale, jaundiced and tachypneic with hepatosplenomegaly. Urine dipstick showed blood (2+), proteinuria (2+), positive nitrite and leucocyte. Initial creatinine level was 0.9mg/dl, urea was 31mg/dl, with an eGFR of 56.2mls/min/1.73m<sup>2</sup>. Full blood count showed leukocytosis of 22.5x10<sup>9</sup>/L with Neutrophil of 57% and Lymphocyte of 33%. Haemoglobin level was 5.6g/dl and platelet count was 128x10<sup>9</sup>/L. Blood film

showed ring forms of plasmodium falciparum (2+), nucleated red cells, burr cells, anisopoikilocytosis, and horn cells. Initial diagnoses made were severe malaria and sepsis with haemolytic anaemia from G6PD deficiency. He received blood transfusion, intravenous artesunate, ceftriaxone and infusion 5% D/S.

About 72 hours later, he developed facial puffiness, bilateral pedal oedema, oliguria (UO=0.4mls/kg/day) and hypertension (BP=120/70mmHg). His weight increased from 13 to 15kg. Repeat serum urea and creatinine were 134mg/dl and 3.3mg/dl respectively with eGFR of 15.3ml/min/1.73m<sup>2</sup>. Renal ultrasound scan showed bilateral raised parenchymal echogenicity with some distortion of corticomedullary differentiation. The retroviral screening was negative.

A diagnosis of acute kidney injury secondary to haemoglobinuria in a child with G-6-PD deficiency was made. He was placed on IV furosemide, oral amlodipine, 10% dextrose/saline infusion with fluid restriction. Due to non-improvement with conservative management and rising serum urea and creatinine, worsening oliguria, severe hypertension, and fluid overload he was commenced on intermittent peritoneal dialysis using improvised self reconstituted intravenous fluids. At the start of PD, serum urea was 159.5mg/dl, Cr 5.6mg/dl; Na 110.1mmol/l; Cl 105mmol/l; K 3.6 mmol/l HCO<sub>3</sub> 29.7mmol/l. PD was commenced with a double lumen haemodialysis catheter as a temporary measure until a size 12F rigid straight peritoneal catheter was made available after the first four cycles. Due to non-availability of standard PD fluid in our centre and inability of the caregivers to procure any due to financial constraint, we decided to use an improvised fluid.

Peritoneal dialysis fluid was improvised by mixing together 440ml of intravenous (IV) 10% D/W, 60ml of IV 8.4% sodium bicarbonate, and 1L of IV normal (0.9%) saline in a new sterile urine bag to achieve a 2.9% 1.5-litre solution (Table 1). Injection vancomycin 30mg/L, ceftazidime 100mg/L and heparin 500IU were added to the solution. IV 10% calcium gluconate was also added into the solution at the dose of 1ml (0.23mmol of calcium) per kilogram body weight per 1.5-litre solution not to exceed 10 mmol daily. Our patient weighed 13kg necessitating the addition of 13mls (2.99mmol of calcium) to every 1.5 liter of the solution giving 1.99mmol per litre of the solution. IV KCl 4mmol/L was added to the

solution after the first litre of exchange. Each cycle of dialysis was carried out by filling in 20ml/Kg of the warm solution for the first cycle and 30ml/kg for subsequent cycles over 5-10 minutes. This was allowed to dwell for 60 minutes, and then drained over 15- 20 minutes into a urine bag controlled by a clamp which served as a stop cock. IV 50% magnesium sulphate 0.1ml/kg was given to the patient intravenously daily until the end of dialysis, as calcium is known to form precipitates in sulphate ion-containing solutions.<sup>16</sup> He developed hypokalemia after 8 cycles of dialysis, which resolved following treatment with Slow k (oral potassium chloride) while withholding furosemide and magnesium sulphate. The patient could not do a requested electrocardiogram. Further complication experienced was slow and difficult drainage. Complications such as fever, peritonitis or leakage from the catheter insertion site

did not occur. He had a total of 14 cycles of PD over 4 days (average of 4 cycles per day) with an intradialysis blood transfusion. He made a significant clinical and biochemical improvement. Dialysis was discontinued at urea and creatinine levels of 62.01 mg/dl and 1.7 mg/dl respectively. He continued to improve until he was discharged at serum creatinine and urea of 0.7mg/dl and 34.1mg/dl respectively, eGFR 72ml/min/1.73m<sup>2</sup> and urine output 2.4ml/kg/hr. The blood pressure was 110/70mmHg and he was continued on antihypertensive. On the first follow-up visit 10 days after discharge, blood pressure had normalized to 90/60mmHg and urine dipstick showed normal findings.

Table 1 shows a comparison of the components of the improvised 2.9% PD fluid and standard 2.5% PD fluid. Table 2 shows the

**Table 1: Comparison of components of the improvised 2.9% PD fluid and standard 2.5% PD fluid**

Components	Units	Concentration	
		Improved 2.9% PD Fluid	Standard 2.5% PD Fluid
Sodium	mmol/L	143	134
Chloride	mmol/L	103	96
Potassium	mmol/L	-	-
Bicarbonate	mmol/L	40	39
Calcium	mmol/L	1.99	1.25
Magnesium*	mmol/L	-	0.25
Glucose	g/L	2.63	2.27
Osmolarity	mOsm/L	432	395

\* IV 50% Magnesium sulphate 0.1ml/kg was given daily till the end of dialysis.

**Table 2: Biochemical parameters of the patient pre-, intra-, and post-dialysis**

DAYS	Na <sup>+</sup> (mmol/l)	Cl <sup>-</sup> (mmol/l)	K <sup>+</sup> (mmol/l)	HCO <sub>3</sub> <sup>+</sup> (mmol/l)	Urea (mg/dl)	Creatinine (mg/dl)
On presentation	135.0	98.0	4.8	24.0	31.0	0.9
3 <sup>rd</sup> DOA	144.0	102.0	3.6	26.0	134.0	3.3
6 <sup>th</sup> DOA/PD Day 1	110.1	105.0	3.6	29.7	159.5	5.6
PD Day2*	-	-	-	-	133.0	3.3
PD Day3	143.4	109.1	2.81	26.9	93.0	1.8
PD Day4*	-	-	-	-	62.01	1.7
Post-PD Day 3	134.6	114.5	3.59	24.6	57.0	1.2
Post-PD Day6 /discharge	144.3	106.5	4.58	20.3	34.13	0.7

\*Days that caregivers could not do serum electrolytes due to financial constraint. DOA= day on admission; PD = Peritoneal dialysis



**Figure I: The 2-year-old male on improvised peritoneal dialysis**

biochemical parameters of the patient before, during, and after PD.

#### **DISCUSSION**

AKI is increasingly common in children, and the consequences could be devastating without proper and timely intervention.<sup>16,17</sup> Improvised PD has drastically reduced the cost of PD while yielding a lot of successes in the history of renal replacement therapy (RRT) in resource-poor countries.<sup>1,6,9,10,15</sup> This maiden case of improvised PD in a child with AKI in our centre, a tertiary health facility in Umuahia, southeast Nigeria, highlights the success that is achievable in PD when left with limited resources to work with.

In our patient, peritoneal dialysis could not be commenced when it became necessary until 3 days after prescription, due to a combination of factors including financial constraint and unavailability of standard materials for PD. This delay is also the experience in other centres in the country.<sup>1,10,18</sup>

Our patient was dialyzed over 4 days with significant improvement in renal function using a 2.9% PD fluid with an osmolarity of 432mOsm/L by mixing 10% DW, 8.4% sodium bicarbonate and normal saline as described above. Though this fluid does not directly mirror the standard commercially available

2.5% PD solutions with a lower osmolarity of 395 mOsm/L, it is still appropriate for rapid removal of macromolecules, as well as in fluid overload.<sup>19</sup> In other centres, other types of fluids have been used to reconstitute improvised PD fluid at the bedside. In Kano northern Nigeria, improvised PD fluid with an osmolarity of 403 mOsm/L was used to provide PD on a child with AKI over 16 days with the recovery of renal function.<sup>20</sup> This was achieved by mixing lactated Ringers, 50% Dextrose and 8.4% sodium bicarbonate. This solution was similarly used in Lagos for 3 out of 17 cases of AKI that received peritoneal dialysis. Their mean duration of PD was 7.31 days with the recovery of renal function.<sup>6</sup> However, the majority of the patients in their series had PD using standard commercial fluid. The mortalities documented in the Lagos study were attributed to the delayed presentation as well as severity and aetiology of AKI. Okoronkwo and colleagues<sup>1</sup> in Aba also used similar improvised PD fluid with good outcome after 5 days of PD. Fredrick and colleague in Tanzania<sup>21</sup>, as well as Antwi in Ghana<sup>22</sup>, used improvised PD fluid similar to ours (though with different concentrations of the components) over a duration of 7 days and 31 days respectively with the recovery of renal function. They, however, did not state the osmolarity of their PD fluids. It, therefore,

becomes necessary that these fluids when available should be improvised for acute PD in our environment as they could be life-saving.

Though there were recognizable variations in the duration of PD before recovery of renal function at the different centres even when similar fluids were used, these differences may not be unrelated to the differences in aetiology and severity of AKI. Though we did not do a renal biopsy on our patient due to unavailability of adequate facilities, we believe the cause of AKI in our patient was pigment nephropathy from haemoglobinuria secondary to glucose-6-phosphate dehydrogenase deficiency. Severe malarial nephropathy and sepsis may have also contributed. Severe malaria and hemoglobinuria are known to be among the leading causes of AKI in the west African subregion.<sup>15,22,23</sup> In Kano the cause of AKI was haemolytic uraemic syndrome while in Lagos the causes were majorly sepsis and primary kidney diseases.<sup>6,20</sup> Okoronkwo in their report noted sepsis and severe malaria as the cause of AKI. In Tanzania, the cause of AKI was severe acute malnutrition,<sup>21</sup> while the cause of AKI in Ghana<sup>22</sup> was not stated.

At the commencement of PD, we used a size 12F double lumen haemodialysis catheter, which made drainage difficult owing to repeated catheter blockage despite several manipulations. This was not experienced by Okoronkwo NC et al<sup>1</sup> in Aba, and Antwi<sup>22</sup> in Ghana, where a similar improvisation was done. However, blockage is a common problem associated with improvised PD catheters.<sup>9,10</sup> We believe that creating more fenestrations on the haemodialysis catheter would have improved its performance. Other authors in Nigeria experienced some other complications such as catheter leakages and peritonitis.<sup>10,20</sup> We used intra-peritoneal antibiotics as practised in some centres.<sup>1,22</sup> This, in addition to adherence to strict asepsis, may have helped to prevent complications like peritonitis and catheter tunnel infection in our case. However low incidence of peritonitis has been reported even by authors that did not use intra-peritoneal antibiotics.<sup>10,20</sup> This gives credence to ensuring strict asepsis from the start till the end of the PD.

The symptomatic hypokalaemia our patient developed after the 8<sup>th</sup> session of dialysis was understood to be a result of failure to add KCl into the dialysate after one litre of exchange in a eukalaemic child as contained in our protocol. This was understandably compounded by the intravenous

furosemide which our patient was being given. Hypokalaemia has been documented as a complication of PD.<sup>23,24</sup> This could result from cellular uptake, bowel loss and the loss of potassium in the dialysate.<sup>23</sup>

Our patient had multiple indications for PD such as fluid overload, uremia, hypertension and oliguria. Other authors have reported some of these findings as the indications for PD in their series.<sup>6,10,25</sup>

## CONCLUSIONS

In resource-poor settings, ingenious improvisation of PD can reduce mortality rates among children with AKI needing RRT. This report is to serve as an encouragement to centres that have been overwhelmed by challenges of offering peritoneal dialysis due to limited resources especially in the African sub-region.

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## Abstracts Presented at the Nigerian Association of Nephrology Conference, 2019

### 1. Abs/NAN2019/Paed/002

#### PAEDIATRIC HAEMODIALYSIS AT THE UNIVERSITY COLLEGE HOSPITAL IBADAN NIGERIA: AN UPDATE

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**Introduction:** Haemodialysis is potentially life saving in the management of children with acute kidney injury (AKI) or end-stage renal disease (ESRD). However, in many parts of sub-Saharan Africa paediatric renal replacement therapy (RRT) is not readily accessible. Haemodialysis may however have a role in paediatric RRT in low resource settings. We reviewed haemodialysis in our centre to provide an update on the role of paediatric haemodialysis

**Methods:** We reviewed the haemodialysis register and the paediatric nephrology unit database for persons who were aged 19 years and below who received haemodialysis from January 2011 – December 2017 in terms of demography, diagnosis and in-hospital mortality.

**Results:** A total of 144 children were recruited, aged 2-19 ( $10.6 \pm 4.4$ ) years, and 62.5% males. 100 participants (69.4%) had AKI, while the others had ESRD. The patients with AKI and ESRD were aged  $9.7 \pm 4.5$  years (58 %, males);  $12.4 \pm 3.6$  years (72.7%, males) respectively. The main causes of AKI were sepsis (16%), malaria (16%), intravascular haemolysis of unknown cause(14%) and nephrotic syndrome (10%), while the main causes of ESRD were chronic glomerulonephritis in 34 (77.3%) and posterior urethral valves in 5 (11.4%). In-hospital mortality data was available in 117 patients and mortality occurred in 8 of 84 patients (9.5%) with AKI and 3 of 33 patients (9.1%) with ESRD.

**Conclusions:** Haemodialysis is remains useful in the management of children with AKI or ESRD in low resource settings.

**Keywords:** *Haemodialysis, Acute kidney injury, End stage renal disease, Sub-Saharan Africa*

### 2. Abs/NAN2019/Misc/001

#### BURDEN, PSYCHOLOGICAL WELL-BEING AND QUALITY OF LIFE OF CAREGIVERS OF END STAGE RENAL DISEASE PATIENTS.

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**Background:** Caregivers of chronic kidney disease (CKD) patients play important role in the management of the patients. Their psychological needs are often overlooked and unmet by the managing team. This study

assessed the psychosocial well-being and quality of life (QoL) of caregivers of CKD patients in two hospitals in Southern Nigeria.

**Methods:** Burden of care giving, QoL, depression and anxiety were assessed using standardized instruments; modified Zarit questionnaire, modified SF-12 questionnaire and Hospital Anxiety and Depression Scale (HADS) respectively among caregivers of CKD patients on maintenance hemodialysis and controls.

**Results:** Fifty-seven CKD patients caregivers and aged and sex matched controls participated in the study. Anxiety was significantly higher in caregivers compared to control (31.6% vs 5.3%,  $p=0.004$ ). Also, depression was significantly higher in caregivers (31.6% vs 3.5%,  $p<0.001$ ). Twenty-eight (49.1%) of the caregivers had mild to moderate burden and 19 (33.3%) had high burden. The mean Zarit burden score was higher in female caregivers compared to male CGs ( $18.30\pm 8.11$  vs  $14.83\pm 8.11$ ,  $p=0.09$ ). The mean anxiety score was higher in the females CGs compared to male CGs ( $8.58\pm 3.83$  vs  $6.75\pm 3.80$ ,  $p=0.08$ ). There was significant positive correlation between Zarit burden and hospital anxiety score ( $r=0.539$ ,  $p<0.001$ ) and depression score ( $r=0.472$ ,  $p=0.005$ ).

**Conclusion:** Depression, anxiety and burden were common amongst caregivers of CKD patients especially females compared to controls. Supportive interventions for these caregivers should be included in treatment guidelines in order to improve overall patients' outcomes

**Keywords:** Caregiver, chronic kidney disease, burden, anxiety, depression

3. **Abs/NAN2019/CKD/001**  
**PREVALENCE AND PATTERN OF RISK FACTORS FOR CHRONIC KIDNEY DISEASE AMONG HEALTH WORKERS IN A TERTIARY INSTITUTION IN SOUTH EAST NIGERIA**

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**Background:** Chronic kidney disease (CKD) is one of the leading causes of death globally. In Nigeria, there is a rising prevalence of risk factors associated with CKD. Early recognition and treatment of risk factors can slow down disease progression; hence the objective of this study was to determine the prevalence of chronic kidney disease and its risk factors among health workers at Federal Teaching Hospital, Abakaliki.

**Methods:** This was a cross-sectional study. Consecutive volunteers were screened. Their bio-data, anthropometric data and blood pressures were obtained. Blood glucose was determined by glucometer, urine sample was collected for urinalysis and blood sample was taken for serum creatinine. Estimation of glomerular filtration rate was done using MDRD formular.

**Results:** 390 members of staff were screened. There were 152 (39%) males and 238 (61%) females. Mean age was 38.3 years. 7(2%) had diabetes mellitus. 144(37%) had over weight while 124(32%) were obese. 59(15%) had hypertension and 42(11%) had proteinuria. 94(24.1%) had CKD (eGFR <60 ml/min). eGFR correlated negatively with age, BP and BMI.

**Conclusion:** Risk factors for chronic kidney disease were prevalent among the participants. Health workers should be encouraged to do regular screening for risk factors for CKD.



4. Abs/NAN2019/Misc/002

**KNOWLEDGE, ATTITUDE AND PRACTICES OF FARMERS TOWARD KIDNEY DISEASE AND ITS PREVENTION IN SELECTED RURAL COMMUNITIES: PRELIMINARY REPORT**

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**Background:** Chronic kidney disease burden among farming communities is increasingly being recognized. This is associated with multiple non-traditional risk factors linked to farming practices. In addition, background knowledge is a key to understanding and preventing major non-communicable diseases, including chronic kidney disease. Primary prevention can be strengthened through proper knowledge and good practices. Most of our screening activities have been done in urban and semi-urban communities and the level of awareness has not been well documented among rural, especially farming communities.

**Objectives:** This study was therefore carried out in a predominantly farming rural community to determine the knowledge, attitude and practices of farmers toward kidney disease and its prevention in selected rural communities.

**Materials and Method:** This was a population-based study in which questionnaires were administered to eight farming communities in Oyo State, South west Nigeria. Information regarding demography, level of awareness about causes of kidney disease, social practices, knowledge of risk factors of chronic kidney disease, and background on signs and symptoms of kidney disease was obtained.

**Results:** A total of 572 participants were interviewed. There were 225 (39.3%) males and 347 (60.7%) females, with mean age of 49.87. Most of the participants were farmers 509(89%), 232(40.6%) had no formal education, 340(59.4%) had some form of formal education. One hundred and nineteen (20.8%) used alcohol, but only 43 (7.5%) were cigarette smokers. A large number, 533(93.2%), took salt in moderate to high quantity. A large majority study participants, 526(92%) were not aware that both hypertension and diabetes could lead to chronic kidney disease, and many more still, 536(93.7%), 545(95.3%), 539(94.2%), 527(92.1%), and 546(95.5%) were not aware that HIV infection, hepatitis, herbal consumption, analgesic abuse and exposure to heavy metals could lead to chronic kidney disease. A large percentage would not recognize the symptoms and signs of chronic kidney as only 2-6% were aware that facial and leg swelling, and foaming of urine could be evidence of chronic kidney disease.

**Conclusion:** The knowledge base and attitude of farmers from the study was poor regarding chronic kidney disease. This underscores the need for a concerted effort from governments, health practitioners and the communities in prevention strategies for chronic kidney disease among rural communities which constitutes the larger population of Nigeria.

**Keywords:** *Knowledge, Practices, Chronic Kidney Diseases, Rural Communities*

5. Abs/NAN2019/AKI/001

**ACUTRE KIDNEY INJURY IN NATIONAL HOSPITAL ABUJA: AETIOLOGICAL FACTORS AND SHORT TERM OUTCOMES**

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**Aims:** The aim of this study was to identify the various aetiological factors and short term outcomes of acute kidney injury (AKI) amongst patients seen in National Hospital, Abuja, Nigeria.

**Settings and Design:** A prospective cross sectional study of all patients diagnosed with AKI in National Hospital Abuja who fulfilled the inclusion criteria. The patients were seen at admission and followed up for three months.

**Subjects and Methods:** 100 patients who fulfilled the inclusion criteria for AKI were recruited. The information required were: clinical history & examination and relevant laboratory investigations as well as nutritional markers and patients outcome. Outcome measures were determined on the following criteria:  
The recovery of renal function in patients with AKI after three months  
The non-recovery of renal function or dialysis dependence after 3 months  
Mortality from AKI.

**Statistical Analysis:** Continuous data were presented as means while categorical data were presented as proportions. The Student's *t*-test were used to compare means while Chi-square test were used to compare percentages and proportions. Multivariate logistic regression were used to adjust for confounding and selection bias so as to determine the factors that independently predicted the outcome.

**Results:** Sixty two percent of the patients were male. The mean age of the study population was 49yrs+ 16.3yrs. Sepsis was the aetiology of AKI in 36.9% of cases, nephrotoxins in 29.2% of cases and hypovolaemia in 13.8%. Overall mortality was 6.8%. Among survivors, 24.4% did not regain their renal functions, out of which 12.2% remain dialysis dependent.

Factors that showed significant association with poor recovery of AKI included; high DBP, high CRP, low Bicarbonate, Hypoalbuminemia, Sepsis, Nephrotoxins, Oedema and Obstructive uropathy. However on multivariate logistic regression, low albumin, low bicarbonate, and high CRP only were found to be independently associated with poor outcome.

**Conclusion:** The most common causes of AKI were sepsis, nephrotoxins and hypovolemia. Though majority of patients recovered, a significant number of patients have persistent renal dysfunction. Low albumin, low bicarbonate, and high CRP were independently associated with poor outcome.

**6. RESPONSES OF UREA, CREATININE AND URIC ACID TO SOFT TISSUE AND PASSIVE MOBILIZATION IN PATIENTS WITH RENAL DISEASES UNDERGOING HAEMODIALYSIS**

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**Background:** The deterioration of nephrons at an advanced stage of renal disease results to chronic dysfunction of the kidneys, which requires either dialysis treatment or renal transplant. The need to enhance the clearance of by-products of metabolism from the body during haemodialysis spurred the study.

**Purpose:** To determine Responses of Urea, Creatinine and Uric Acid to Soft Tissue and Passive Mobilization in Patients with Renal Diseases Undergoing Haemodialysis.

**Method:** This study is a randomized controlled clinical trial. The total of 33 participants (23 males and 10 females) was involved in the study. The participants were randomly and consecutively assigned into two groups as they register for haemodialysis. The treatment group (n=16) received the soft tissue and passive mobilisation prior to haemodialysis. The control group (n=17) had only haemodialysis. In each group, the pre and post-dialysis blood samples for determination of plasma concentration of urea, creatinine and uric acid were taken. Data collected were subjected to descriptive statistics, and analyzed using independent t-test. Probability value less than 0.05 was considered statistically significant. SPSS version 17 was used.

**Result:** The results showed that soft tissue and passive mobilisation clinically enhances the reduction ( $p < 0.05$ ) of the plasma concentration of creatinine and uric acid after haemodialysis in patients with renal disease. However, there was no significant reduction ( $p > 0.05$ ) in the plasma concentration of urea compare to the control, probably due to low molecular weight of urea.

**Conclusion:** Soft tissue and passive mobilization enhances fluid kinetics, dislodges metabolites, especially those of high molecular weight such as uric acid, in the interstitial spaces and mobilizes them into the blood stream for clearance.

**Implication:** Soft tissue and passive mobilization could be utilized as an adjunct to haemodialysis in the clearance of by-products of metabolism in relevant patients.

**Keywords:** *Haemodialysis, Soft Tissue and Passive Mobilisation, Renal Disease*

**7. Abs/NAN2019/RRT/002**

**CHANGES IN BODY COMPOSITION DURING HAEMODIALYSIS USING ELECTRICAL BIOIMPEDANCE AS MEASURING TOOL. REPORT OF A PILOT STUDY FROM THE UNIVERSITY COLLEGE HOSPITAL, IBADAN, NIGERIA**

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**Introduction:** Haemodialysis (HD) is a recommended modality of treatment for both acute and chronic renal failure. The procedure is associated with changes in body fluid and composition, some of these changes are associated with haemodynamic instability that complicate HD in some patients, such complications include hypotension and muscle cramps. It has also been suggested that the use of electrical bioimpedance measurement of body composition may be a better predictor of fluid removal or gain prior, during and after HD. Bioimpedance analysis (BIA), is a device that can determine the amount of fluid in the body by measuring the body's electrical properties. It is a quick and painless test that assesses body volume. This pilot study assessed the blood pressure variability and change in body composition during HD.

**Method:** A cross sectional survey of 20 patients undergoing HD at the University College Hospital for various indications. Information obtained from the participants were demographic details, indications for haemodialysis, primary disease. Anthropometric measurement taken were height, pre-and post-dialysis weights, while blood pressure were measured at the start, mid-way and end of HD. BIA was measurement were recorded prior to the commencement and at the end of HD. All patients had pre- and post- dialysis blood taken for serum creatinine and eGFR calculation. The free fat mass (FFM), fat mass (FM), total body water (TBW) were calculated using standard BIA formulae.

**Results:** A total of 23 dialysis session were assessed across 20 participants with 17 (73.9%) males. The mean age, change in BIA, FFM, FM, and body weight were  $51.5 \pm 10.7$  years,  $13.1 \pm 1.7 \text{ l}$ ,  $24.1 \pm 11.5 \text{ kg}$ ,  $-4.16 \pm 0.5 \text{ kg}$  and  $3.25 \pm 1.3 \text{ kg}$  respectively. There was a direct correlation between change in the body weight and TBW ( $r = 0.82$ ) but there was no correlation between change in body weight and FFM ( $r = 0.18$ ) and FM ( $r = 0.31$ ).

**Conclusion:** This pilot study has shown a direct correlation between the change in the total body water and body weight prior and after haemodialysis. A larger study is needed to establish the utility of BIA as a tool for accurate measurement of volume change among patients undergoing haemodialysis.

8. **Abs/NAN2019/CKD/005**

**A CASE-CONTROLLED STUDY OF DETERMINANTS OF KIDNEY DYSFUNCTION IN PATIENTS WITH CONGESTIVE CARDIAC FAILURE IN PORT HARCOURT, NIGERIA**

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**Introduction/Justification of the study:** Congestive cardiac failure is a public health problem, with the prevalence increasing with increase in age. Renal function remains an underappreciated prognostic factor in heart failure and many patients with heart failure have been reported to have some form of renal impairment which has contributed to increased morbidity and mortality. However, studies of the determinants of renal impairment in patients with CCF in Nigeria are sparse.

**Objective:** This study sought to determine the prevalence of renal impairment and the determinants of renal impairment in patients with congestive cardiac failure in the University of Port Harcourt Teaching Hospital.

**Methods:** This was a case-controlled study in which 146 patients with congestive cardiac failure aged between 18-64 years were compared with 146 age- and sex-matched controls without CCF to determine factors associated with renal dysfunction over a one year period. Congestive cardiac failure was diagnosed using the modified Framingham criteria, while renal impairment was defined as eGFR of  $<90 \text{ ml/min/1.73m}^2$ .

Pearson's coefficient of correlation was used to establish association among continuous variables. Risk factors associated with renal dysfunction in CCF were identified using logistic regression analysis. The level of significance was set at  $p < 0.05$ .

**Results:** A total of 146 patients with CCF were studied, with a mean age  $55.0 \pm 6.7$  years. Males constituted 50.7% while females constituted 49.3%. Seventy percent of these cases were above 50 years of age. A total of 125 of the cases had renal function impairment, with 80% of them having grades 2 and 3 CKD. None was in grade 5.

The dominant risk factors for renal impairment in the patients with renal impairment were age  $>50$  years (OR=5.61, 95% CI=4.41-6.23), male gender (OR=1.78, 95% CI=1.23-2.31), poorly controlled hypertension (OR=5.67, 95% CI=4.32-6.21) and diabetes mellitus (OR=4.00, 95% CI=3.72-4.51). High dose loop diuretics, diastolic dysfunction and hyponatremia were not found to be significant risk factors in this study.

**Conclusion:** Findings from this study showed a high prevalence of renal function impairment in patients with CCF. The findings are similar to previous studies in other parts of Nigeria. Co-morbid hypertension and diabetes, which are also risk factors for CKD, were the dominant risk factors for renal impairment in CCF patients. There is need for the prevention and strict control of these factors to reduce the incidence of renal impairment in CCF patients.

9. **Abs/NAN2019/Misc/003**  
**CAUSE OF ANASARCA IN A 34 YEARS OLD NIGERIAN – A DIAGNOSTIC DILEMMA**

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**Background:** Anarsaca has been commonly reported in patients with diseases of the kidneys especially nephrotic/nephritic syndrome and other chronic kidney disease. It may also present though rarely in hepatic and cardiovascular diseases. It results from imbalance in hydrostatic and oncotic pressure in various compartment of the extracellular space. It is associated with significant morbidity and mortality.

We report a case of a 35 years old Nigerian man who presented with anarsaca. However physical and laboratory investigations revealed that the patient does not have diseases of the kidneys, liver or the cardiovascular system. He also had neither neoplastic nor haematological disorder. This diagnostic dilemma was later resolved by an incidental finding of infection of abdomen and subsequently responded to therapy.

10. **NEUROPSYCHIATRY MANIFESTATIONS OF PATIENTS WITH CHRONIC KIDNEY DISEASES**

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**Background:** Chronic kidney disease has been associated with various neuropsychiatric disorders. This impacts the negatively on the quality of life of the patient, affects the clinical course and mortality. The objective of the study is to evaluate the neuropsychiatric manifestations of patients with chronic kidney disease.

**Methodology:** This is a cross sectional study of patients with chronic kidney disease presenting to the renal unit of ESUT teaching hospital Parklane Enugu. Consecutive patients who consented for the study were recruited. Their biodata and clinical parameters were documented. Diagnosis of neuropsychiatric disorder was made using Diagnostic and Statistical Manual of Mental Disorder V (DSM – V). All data obtained was analysed using statistical package for social sciences Vs 22(SPSS Vs 22).

**Result:** This is a preliminary result as the study is still ongoing.

The age range of the patients was 19 to 90 years with a mean age of  $52.3 \pm 16.9$  years. The males were 66.7%, 96% were Christians, 52% had tertiary education, civil servants and businessmen were 78%. Hypertension (38%) and diabetes mellitus (19%) were the commonest cause of CKD and 60% had haemodialysis. The mean PCV, serum urea and creatinine were  $29 \pm 6.7\%$ ,  $20.4 \pm 14.7\text{mmol/l}$  and  $586.7 \pm 517.4\text{umol/l}$  respectively.

The neuropsychiatric disorders showed depression 54%, PTSD 18% panic attack, panic attack 16%, dysthymia 16%, bipolar disorder 12%, generalized anxiety disorder 10%, obsessive compulsive disorder 8%, suicidal behavior 4% and schizophrenia 2%.

**Conclusion:** The prevalence neuropsychiatric disorder is high among patients with chronic kidney disease at ESUT teaching hospital Enugu.

## 11 Abs/NAN209/Misc/004

### A GENDER PERSPECTIVE ON DISPARITIES IN THE INCIDENCE OF SYSTEMIC LUPUS ERYTHEMATOSUS (SLE)

Fajobi Abinemi

**Introduction:** Disparities in the incidence of SLE between the male and female gender are well known but the reasons for these disparities from a gender perspective have not been properly addressed. This study analyzes the incidence of SLE and its consequences from a gender based perspective using data obtained from SLE patients in Obafemi Awolowo University Teaching Hospital, Ile-Ife, over a period of 10 years.

**Materials and Methods:** This is a retrospective study in which cases of Lupus diagnosed between year 2006 to 2016 were retrieved from medical records of OAUTHC using the (ICD10 classification system). The total number of cases are 28. 20 were females and 8 were males. A purposely designed pro forma was developed to retrieve relevant information such as socio demographic data and mortality. SPSS version 21.0 was used to process the quantitative data. The data was processed into statistical tables for interpretation and discussion.

**Results:** It reveals that age 15-24-year were (32.1%), 25-34 years (28.6%) while aged > 55 years (3.6%). ( $X^2=7.357$ ,  $df=4$ ,  $p\text{-value}=0.118$ ). 85.7% were female while 14.3% were males. ( $X^2=14.286$ ,  $df=1$ ,  $p\text{-value}=0.000$ ). 60.7% are alive while 39.3% dead. Percentages of patients who died within age group 15-24 years due to the disease were more than those who survived it (56.6% vs. 44.4%). Age group 25-34 years, (62.5%) of patients who were treated died as a result of SLE compared to patients who made it (37.5%). All the patients treated in the aged above 45 years survived the disease. The surviving rates increase with age. ( $X^2=7.329$ ,  $df=4$ ,  $p\text{value}=0.120$ ). 3/4 (75.0%) of male didn't survive the disease compared with those who survive it (25.0%). Meanwhile, two-thirds (66.7%) of the female survived the ailment compared with one-third (33.3%) who didn't survive it.

**Conclusions:** Gender does matter and it may be a major factor in the occurrence of SLE incidences. This study concludes that cultural and economic based gender discrimination may be a vital reason for the high occurrence of SLE in women compared to men.

**12. Abs/NAN2019/CKD/003  
A CASE OF BILATERAL MEDULLARY NEPHROCALCINOSIS.**

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**Background:** Nephrocalcinosis refers to augmented calcium content within the kidneys. It can be medullary or cortical nephrocalcinosis.

**Method:** We report a case of bilateral medullary nephrocalcinosis.

**Case Report:** A forty year old female referred to Nephrology clinic of Federal Medical Centre (FMC), Owerri from the General Outpatient Department with abdominal ultrasound finding of bilateral medullary nephrocalcinosis. She presented with history of recurrent fever, generalized abdominal swelling and right upper abdominal quadrant pain of six months duration, index episode was two weeks prior to presentation. She had history of recurrent anaemia, no joint pains and no history of spontaneous abortions. On examination she was pale, febrile and hypotensive but no pedal edema. She had anaemia, neutrophilia, mild azotemia, hypercalcemia, hyperphosphatemia and hyperparathyroidism, pyuria and urine culture yielded growth of E.coli. Her abdominal ultrasonography and computed tomograph showed bilateral medullary nephrocalcinosis. A diagnosis of acute kidney injury 2<sup>o</sup> to sepsis ( focus Urogenital system) on a background chronic kidney disease (Nephrocalcinosis) was made. She responded to symptomatic management and is currently being seen on outpatient basis.

**Discussion:** Nephrocalcinosis can be medullary or cortical depending on the location. It is a cause of chronic kidney disease. Renal damage does not correlate with the degree of nephrocalcinosis

Medullary nephrocalcinosis is commoner than the cortical and commonly caused by conditions associated with hypercalcemia/hypercalciuria like primary hyperparathyroidism, distal Renal Tubular Acidosis, sarcoidosis and some medications

Renal damage does not correlate with the degree of nephrocalcinosis

Presentation can be asymptomatic or with symptoms of the primary cause or chronic kidney disease.

Hallmark of treatment is to prevent further calcification and to treat the primary aetiology if identified.

**13. Abs/NAN2019/Paed/003  
POSTERIOR URETHAL VALVE AT A PAEDIATRIC NEPHROLOGY UNIT IN SOUTH WESTERN NIGERIA**

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**Introduction:** Posterior urethral valve (PUV) is the most severe form of obstructive uropathy in the paediatric population occurring exclusively in boys. Management of posterior urethral valves is challenging in many parts of sub-Saharan Africa. To provide data on Posterior urethral valves in sub-Saharan Africa, we reviewed the cases of PUVs seen over a 21 month period.

**Methods:** Information was obtained from the paediatric nephrology unit data base of children admitted with a diagnosis of posterior urethral valve between March 2016 and December 2017.

**Results:** Twenty-five cases were seen during the study period. Their ages ranged from 3days to 13 years (median age 24 months).

Eight (32%) presented during the first year of life and of this number, one (12.5%) presented in neonatal period. The commonest cause of hospital admission was urosepsis, 37.5% of the urine cultures however yielded no growth, and half of the cases were due to *Pseudomonas aeruginosa*.

9(32.1%) had surgical intervention (Mohan's valve ablation or Endoscopic Valve ablation). Thirteen (%) had renal failure

Three of the subjects received dialysis and of this number, two had haemodialysis. The in-hospital mortality rate was 12.0%

**Conclusion:** PUVs are not uncommon and remain an important cause of urosepsis and renal failure in the paediatric population in sub-Saharan Africa. Efforts to further improve outcomes are needed.

**Keywords:** *Posterior urethral valves, urosepsis, chronic kidney disease*

#### 14. Abs/NAN2019/Met/001

### PATTERN OF PRESENTATION OF GOUT AMONG PREDIALYSIS CKD PATIENTS

*Olisaka Louis*

**Background:** Reduced Kidney function is a risk factor for hyperuricemia and gout, but available studies show limited information on the burden of gout in chronic kidney disease (CKD) patients. Knowledge of the pattern of gout among predialysis CKD patients may offer clues on the reduction of the burden of gout amongst these patients.

Published data on gout among CKD patients in Nigeria and Africa is scanty, hence the need for studies in this area. This study aims at looking at the prevalence and pattern of presentation of gout amongst pre-dialysis CKD patients.

**Objectives:** The objective was to determine prevalence and pattern of presentation gouty arthritis amongst pre-dialysis CKD patients.

**Methods:** This was a hospital based comparative cross-sectional study, carried out over 9 months. One hundred and ninety CKD patients, who had not undergone dialysis, were recruited from the renal clinic and the wards of University of Nigeria Teaching Hospital (UNTH), an equal number of age and sex matched



subjects were recruited as control. Control subjects were from normal subjects attending the hospital for medical examination, pre-marriage evaluation and hospital staffs without symptoms, signs and laboratory evidence suggestive of CKD.

All participants were interviewed using a structured modified gout assessment questionnaire and were physically examined. Diagnosis of gout was made using the validated ACREULAR 2015 classification criteria for gout. Blood was drawn for analysis of serum urea and creatinine amongst other test.

Data obtained were analysed using statistical package for social science (SPSS) version 21.0

**Results:** The prevalence of gouty arthritis was significantly higher amongst predialysis CKD patients than in the control subjects (24.2% vs. 2.63%,  $p < 0.001$ ). Furthermore, the prevalence of hyperuricemia was significantly higher amongst the predialysis CKD patients than in the control subjects (75.29% vs. 15.79%,  $\chi^2 = 135.50$ ,  $p < 0.001$ ).

Oligoarticular presentation was the commonest pattern of presentation with a frequency of 63%, while monoarticular pattern was 26.1% and polyarticular pattern was 10.9%. The knee was the commonest joint affected with a frequency of 35.2%. The mean duration of symptoms prior to presentation in this study was  $1.3 \pm 0.4$  years

**Conclusion:** This study documented significant higher prevalence of gouty arthritis and hyperuricemia among predialysis CKD subjects compared with control subjects.

The author suggests that screening for hyperuricemia and high index of suspicion for gouty arthritis, should be an essential part of CKD management plan.

#### 15. Abs/NAN2019/RRT/003

### MANAGEMENT OF KIDNEY TRANSPLANT RECIPIENTS IN A CENTRE WITHOUT KIDNEY TRANSPLANT FACILITY: A SINGLE CENTRE EXPERIENCE

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**Introduction:** Kidney transplant remains the gold standard for treatment of ESRD due to its cost effectiveness and significant improvement in the quality of life of recipients. The management of renal transplant recipients in Nigeria is still evolving with rudimentary pre- and post-transplant care. This presents antecedent challenges for the management of post-kidney transplant recipients. This study aims to evaluate the management of these patients in a single centre in Nigeria.

**Methods:** This was a non-randomized prospective study of patients referred for renal transplant between January 2010 and November 2018 from UDUTH, Sokoto. The biodata, pre- and post-transplant details of these patients were documented. Data was analysed using SPSS vs 23.

**Results:** A total of 16 patients were studied with a M: F of 1.7:1. The mean age was 36.81 years with a range of 15-56 years. Chronic glomerulonephritis (50%), hypertension (31.3%) were the leading aetiology of ESRD. The mean duration on dialysis before transplant was 186 days but one patient had pre-emptive transplant. The country most visited for transplant was India (62.5%) while 25% had their transplant in Nigeria and 12.5% went to Egypt. Most of the donors were living-related (81.5%). Tacrolimus,

Mycophenolate mofetil and prednisolone were the most frequently used immunosuppressive combination. The one-year graft and patient survival were 81.25% and 87.50% respectively. The most common complications were acute and chronic rejection (66.6%).

**Conclusion:** The management of kidney transplant recipients in our centre is fraught with challenges but offers good prospects compared to other modalities of renal replacement therapy.

16. **Abs/NAN2019/Paed/001**

**STERIOD RESISTANT NEPHROTIC SYNDROME IN CHILDREN: OUR EXPERIENCE WITH CYCLOSPORINE A THERAPY AT THE UNIVERSITY OF NIGERIA TEACHING HOSPITAL, ITUKU-OZALLA, ENUHU**

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**Introduction:** Steroid resistance is one of the major treatment challenges of both steroid-sensitive nephrotic syndrome (SSNS) and focal segmental glomerulosclerosis (FSGS): a common histopathologic subtype in children. Cyclosporine A is now recommended as the first-line of treatment for steroid-resistant nephrotic syndrome (SRNS)

**Objective:** This study aims to determine the rate of remission, state of renal function, and side effects seen with the use of Cyclosporine A at the Pediatric Nephrology Firm of the University of Nigeria Teaching Hospital Ituku-Ozalla, Enugu.

**Method:** Twelve children with nephrotic syndrome who failed to achieve remission despite being on appropriate dose of oral prednisolone at a dose of 2mg/kg/day for 8weeks (SRNS) and who could afford the drug and could sustain therapy for 18 months were studied. All the patients had a renal biopsy done prior to therapy. Cyclosporine was given at a dose of 3 to 5mg/kg/day 12 hourly and the trough level was maintained at 50 to 100 ng/ml throughout the period of treatment. Affected children also received 10mg alternate daily oral prednisolone. The serum electrolyte, urea and creatinine was done before the commencement of therapy, at one month after the treatment had started and at 3 monthly intervals.

**Results:** Eleven (91.7%) of the 12 patients who received cyclosporine A achieved remission at various periods. Nine (81.8%) out of the 11 children achieved remission within 2 weeks while the remaining 2 (18.2%) achieved remission at 3 months and 14 months of therapy. The only patient who failed to achieve remission developed severe hypertension and impaired renal function by the second month necessitating immediate withdrawal of the drug. The patient who achieved remission on the 3<sup>rd</sup> month of therapy received the drug for 26 months and developed multiple nodular lesions on the lower limbs suggestive of Kaposi Sarcoma.

**Conclusion:** Cyclosporine is very effective in the management of SRNS. However, there should be regular or periodic assessment of renal function. The drug should not be used beyond 18 months.

17. Abs/NAN2019/RRT/001

**HAEMODIALYSIS SESSIONS FOR PATIENTS WITH VIRAL INFECTION AND PREVENTIVE MEASURES USED AGAINST CROSS-INFECTION IN HAEMODIALYSIS CENTRE, AKTH, KANO**

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**Introduction:** Kidney disease patients may have other co-morbid conditions including viral infections. The most frequent viral infections observed among patients undergoing haemodialysis in AKTH, Kano include hepatitis B, C and HIV. Patients with AKI or CKD plus any of the viral infections may need dialysis more than other AKI and or CKD patients.

**Objectives:** Study aims to determine adequacy of precautionary measures used in AKTH, Kano in preventing cross infection in the Centre.

**Methods:** The study was a retrospective descriptive study conducted in AKTH, Kano using **113, 15** and **60** hepatitis B, C and RVD patients respectively. There were **6755** haemodialysis sessions conducted on these patients. Thence, total sessions observed in 2016, 2017 and 2018 were 2676, 2136 and 1043 respectively. In 2016, 2017 and 2018 there were **445, 485** and **729** sessions for patients with hepatitis B respectively. Sessions for patients with hepatitis C dialyzed in 2016, 2017 and 2018 were **283, 404 and 381** while there were **337, 248 and 181** sessions for patients with HIV in 2016, 2017 and 2018 respectively.

Preventive measures employed against cross infection include separation of rooms and machines, separate invasive procedure pack, adhesive plasters, as well separate bowls, bins and moppers for each of the dialysis rooms. Use of aprons and face mask were necessary in every procedure. Furthermore, a nurse managing viral infected patients is not allowed to manage other patients.

**Result:** There were two patients that contracted viral hepatitis B and C each. One infected with C was found positive after receiving dialysis in another center.

**Discussion:** Considering the number of sessions observed, the precautionary measures against cross contamination in AKTH, Kano is adequate

**Conclusion:** There should be zero tolerance to any cross infection in Haemodialysis Centers between patients and or between staff and patient/community.

18. Abs/NAN2019/Paed/004

**PRUNE BELLY SYNDROME (PBS) IN 2 CASES SEEN IN A TERTIARY MEDICAL INSTITUTION SOUTH-EAST NIGERIA**

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**Background:** Prune belly syndrome (PBS) is a rare congenital disorder occurring in 1 per 30,000-40,000 live births, affecting mostly males with 3-4% of this number being females and 4% of all cases being

products of twin pregnancies.<sup>1,2</sup> In under-developed and developing countries, this disorder is extremely rare with outcome not well known as few and isolated cases have been reported.

**Materials and Methods:** A review of 2 male neonates admitted and managed for Prune Belly Syndrome (PBS) in the neonatal unit of the Paediatric department of the Federal Teaching Hospital Abakaliki, both within the month of September 2018. This appears to be the very first of such cases to be seen at this hospital. Both Babies were delivered outside this tertiary institution and eventually referred here for proper diagnosis and management.

**Results:** Two male neonates aged 2 and 3 days old respectively admitted same month in FETHA with both presenting with a common history of pre-natal maternal febrile history, poor cry on delivery and oligohydraminous in one of them. Clinical examination showed scaphoid, lax and wrinkled abdomen with visible peristalsis and flank fullness, ballotable kidneys, distended bladder, well -formed phallus, small scrotum and absent testes. There were also musculo-skeletal abnormalities ranging from lower limb dysgenesis to clubbing of the feet.

**Conclusion:** PBS presents with a spectrum of features which present an overwhelming challenge to both the parents and the managing physician especially in most resource-poor countries.

**Keywords:** *Prune belly syndrome, Neonates, Musculo-skeletal abnormalities, Under developed countries.*

19. **Abs/NAN2019/Met/002**

**CKD-MBD IN ADULT PATIENTS WITH CKD IN THE UNIVERSITY OF PORT HARCOURT TEACHING HOSPITAL**

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**Background:** Mineral bone disease (MBD) is a common complication in patients with chronic kidney disease (CKD). Various studies reported a global prevalence between 33% and 67%. However, there is paucity of studies of CKD-MBD in Africa and in particular Nigeria.

**Justification of Study:** The paucity of information on the prevalence and characteristics of CKD-MBD in our environment may be contributing to the diagnostic difficulties and suboptimal management of this condition. It is therefore thought that a study of the prevalence and characteristics of this problem in adult patients with CKD in UPTH will enables us improve our diagnostic acumen and provide further insight into the current and emerging strategies for the medical management of patients with CKD-MBD which may culminate in improved quality of life and general outcome of these patients.

**Objective:** The objective of this study is to determine the prevalence and characteristics of CKD-MBD among adult patients with CKD in the University of Port Harcourt Teaching Hospital.

**Methodology:** This is a cross-sectional study. One hundred and fifty consecutive consenting chronic kidney disease patients who fulfilled the inclusion criteria for this study were recruited. Patients had a detailed clinical assessment, biochemical and radiological evaluations for CKD-MBD. Biochemical investigations included serum calcium, phosphate, parathyroid hormone (PTH) and alkaline phosphatase while the radiological investigations included X-ray of the skull, spine, wrist and phalanges. The reference values of PTH in CKD

stage 3-5 was 16.5-72.7pg/ml but 145-654pg/ml for CKD stage 5D(2-9times the upper limit of normal for assay)

**Results:** The age range of the patients was 22-80 years, with a mean of 45.1( $\pm$ 11.9) years. There were 90 males and 60 females with male to female ratio of 1.5:1.

The prevalence of CKD-MBD in the study population was 55.3%. Of this, sixty one (73.5%) patients had low turnover bone disease while 22 (26.5%) patients had high turnover bone disease.

Symptoms suggestive of CKD-MBD in the study population were bone pain and pruritus occurring in 29(34.9%) and 10(12.0%) of the CKD-MBD patients respectively. Other symptoms presented by these patients included leg swelling in 73(88.0%), frothiness of urine in 68(81.9%), vomiting in 64(77.1%), facial puffiness in 61(73.5%), haematuria in 7(8.4%) and chest pain in 42(50.6%) of the patients.

The mean values for serum PTH, serum calcium, serum phosphate, alkaline phosphatase and  $\text{Caxpo}_4$  product among these CKD-MBD patients were 205.06 $\pm$ 112.6 pg/ml, 2.56 $\pm$ 0.73mmol/l, 1.63 $\pm$ 0.63mmol/l, 109.26 $\pm$ 65.57IU/L and 4.07 $\pm$ 1.28mmol<sup>2</sup>/l<sup>2</sup> respectively.

Amongs these CKD-MBD patients, hypercalcaemia was found in 41(49.4%), hypocalcaemia in 19(22.9%), hypophosphataemia in 6(7.2%) and hyperphosphataemia in 23(27.7%) . High alkaline phosphatase was observed in 27(32.5%) while 6(7.2%) had low alkaline phosphatase. There was high calcium x phosphate product in 33(39.8%) of the patients.

Radiological features in keeping with CKD-MBD in this study were vascular calcification occurring in 2(2.4%), pepperpot skull in 1(1.2%) and sub-periosteal erosion in 2(2.4%) of CKD-MBD patients

Among the biochemical markers of CKD-MBD, estimated glomerular filtration rate (eGFR) showed a significant negative correlation with serum phosphate ( $r = -0.34$ ,  $p = <0.001$ ), serum PTH ( $r = -0.25$ ,  $p = 0.02$ ), and  $\text{Caxpo}_4$  product ( $r = -0.173$ ,  $p = 0.03$ ). There was no significant correlation between calcium and eGFR.

**Conclusion:** The prevalence of CKD-MBD in our environment is high and low turnover bone disease is the commonest type.

Bone pain was the commonest clinical presentation of CKD-MBD while hypercalcaemia was most common mineral abnormality of CKD-MBD. Only 6% of those with CKD-MBD had radiological feature.

**Recommendation:** The serum calcium, phosphorus, alkaline phosphatase and PTH should be checked regularly from CKD stage 3 and confirmed cases of CKD-MBD should have adequate treatment by way of early use of phosphate binder and vitamin D supplement to prevent vascular calcification

**Keywords:** *CKD-MBD, prevalence, characteristics, clinical pattern and University of PortHarcourt Teaching Hospital*

20. **Abs/NAN2019/RRT/004**

**CAUSES OF INCOMPLETE HAEMODIALYSIS AT ESUT TEACHING HOSPITAL PARKLANE ENUGU**

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**Background:** Duration of haemodialysis is usually ranges from 2 hours in the first session to 8 hours in prolonged sessions including SLED. However occasionally patients don't complete the prescribed duration because of various patient related and unrelated factors.

**Objective:** To determine the causes of incomplete haemodialysis at the renal unit of ESUTH teaching hospital Parklane Enugu.

**Method:** This is a retrospective study. All patients that had incomplete haemodialysis at the renal unit of ESUT teaching hospital Parklane Enugu during the study period - 1<sup>st</sup> January to 30<sup>th</sup> June 2018 were recruited for the study. Their biodata and clinical details were documented. The parameters were entered in a spreadsheet and analysed using Excel statistical package. The results obtained were presented as tables, frequencies and proportions.

**Results:** A total of 405 haemodialysis sessions was done during the study period in 152 patients, 89 males and 63 females. Haemodialysis were not completed in 52 dialysis sessions in 41 patients, 22 male and 19 females. The age range was 19 to 69 years with a mean of  $46.9 \pm 13.4$  years. Thirty two patients had chronic kidney disease (78%) and about 78.1% of them were in end stage kidney disease. The mean predialytic and post dialytic blood pressure were  $175/97 \pm 30/22$ mmHg and  $161/91 \pm 34/26$ mmHg respectively. Dialysate and access related complications were the commonest cause of incomplete haemodialysis occurring in 23.1% and 21.2% respectively. Other reasons for discontinuing haemodialysis in these patients were blood pressure complications, restlessness, headache, muscle cramp, blood clot etc. The duration to complete the haemodialysis ranges from 20 to 160minutes with a median of 60 minutes. Immediate post dialytic state of the patients were unstable in 34.5%.

**Conclusion:** The rate of incomplete haemodialysis session was high in this study and were mainly caused by dialysate and access related complications.

21. **Abs/NAN2019/RRT/005**

**COMPLICATIONS OF INTERNAL JUGULAR CATHETERS IN HAEMODIALYSIS PATIENTS AT A KIDNEY CARE CENTER IN SOUTHERN NIGERIA**

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Vascular access is vital in management of patients with kidney disease requiring haemodialysis. Internal jugular vein plays a pivotal role in insertion of tunneled and non tunneled central venous catheters in haemodialysis patients. Internal jugular catheters has been associated with some complications.

**Objectives:** To evaluate the complications associated with IJC used for haemodialysis in a kidney care center in southern Nigeria.

**Methodology:** The clinical details of patients who had internal jugular catheter insertion and had their haemodialysis at Hilton clinics Port Harcourt from 1<sup>st</sup> October 2011 to 30<sup>th</sup> September 2016 were documented. The data obtained was analysed using SPSS version 22. P value less than 0.05 was considered significant.

**Result:** A total 129 patients had 150 internal jugular catheter insertions. The mean age was 51.4±15.2 years with a male to female ratio of 1.5:1. All the patients had chronic kidney disease; about 80% had tunneled internal jugular catheter and 96.9% of the catheters were in right internal jugular vein. Immediated complications were recorded in 10% and late complications in 39.1% of the procedures. The immediate complications were kinking of guide wire(2%), arterial puncture(1.3%) and difficulty in locating the internal jugular vein(1.3%) or tunneling(1.3%). The commonest delayed complications were infection(12.8%), poor flow(9.2%), bleeding(5.5%) and spontaneous removal of the catheter(5.5%). There was no significant variation in both immediate and late complication with age and sex.

**Conclusion:** Internal jugular is froth with immediate and late complications howevr the rate in this study is comparative the other studies