POSTER PRESENTATIONS –November 22, 2019 – 12.20 pm–1.20 pm

1. STEROIDS VERSUS PLACEBO IN INFECTION-RELATED GLOMERULONEPHRITIS IN ADULTS: A DOUBLE-BLIND, RANDOMIZED CONTROLLED TRIAL

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BACKGROUND: Postinfectious glomerulonephritis (PIGN) is immune-mediated GN. Since infection is usually ongoing at the time GN is diagnosed, the term infection-related glomerulonephritis (IRGN) has been proposed. The role of steroids in adult IRGN has not been clearly defined. This study will be among the first prospective randomized controlled trial to evaluate the role of steroids in adult IRGN.

AIM OF THE STUDY: To study the efficacy of steroids in the treatment of IRGN in the adult population.

METHODS: Between February 2018 and December 2018, we screened 36 cases for IRGN in adults. Those who fulfilled the inclusion criteria were randomized in a double-blinded fashion to receive either steroids or placebo. Seventeen patients were randomized to receive prednisolone 1 mg/kg/day for 6 weeks and then tapered off in the next 6 weeks. The other group (N = 16) received matched placebo for the same duration. In both groups, serum creatinine, urine routine/microscopic examination, and 24-h urinary protein were done fortnightly for the first 3 months and then monthly for a total period of 6 months. The primary outcome of the study was the number of patients attaining complete remission or having persistent renal dysfunction or a decline in estimated glomerular filtration rate (eGFR) by 50%. The secondary outcome was the change in proteinuria, serum creatinine, and eGFR at the completion of therapy and follow-up.

RESULTS: At the end of 6-month follow-up, 14 out of 17 patients (82.3%) in the steroid group and 13 out of 16 patients (81.2%) in the placebo group achieved complete remission (P = 0.934). Three patients in both groups had persistent renal dysfunction. None of the patients in either group had 50% decline in eGFR or reached end-stage renal disease at the end of observation period. At 6th month, 24-h urine protein reduced from 2658.18 to 378 mg ($P < 0.001$) in the steroid group and from 2679.8 to 385.19 mg ($P < 0.001$) in the placebo group. The eGFR (MDRD) increased from 26 to 96.24 ml/min/1.73 m^2 ($P < 0.001$) in the steroid group and from 29.56 to 83.19 ml/min/1.73 m^2 ($P < 0.001$) in the placebo group. At the end of 6 months, when we compared both groups, there was no statistical significant difference in terms of 24-h urine protein (P = 0.48) and eGFR (P = 0.18).

CONCLUSIONS: Our data indicate that overall prognosis of adult IRGN is guarded. About a fifth of patients will have persistent renal dysfunction. When compared to placebo, steroid provides no significant difference in terms of achieving remission, proteinuria reduction, or improvement in eGFR.

2. EPIDEMIOLOGY OF CHRONIC KIDNEY DISEASE OF UNKNOWN ETIOLOGY IN NARSINGHPUR, CUTTACK, ODISHA, INDIA

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BACKGROUND: Chronic kidney disease (CKD) is one of the major public health challenges in India. In Odisha, Cuttack district is considered as hotspots for CKD of unknown etiology (CKDu), where relatively younger people are dying of end-stage kidney failure, however; there is paucity of information on exact epidemiology of CKDu.

AIM OF THE STUDY: This study presented the epidemiology of CKDu in Narsinghpur, Cuttack, Odisha.

METHODS: A cross-sectional study was conducted among 20–60 years population using multistage cluster sampling. A total of 24 villages were randomly selected for community screening. Relevant epidemiological data including source of water were collected. Blood samples were tested for blood sugar to exclude diabetes and serum creatinine to know renal function. Urine was tested by dipstick method to know proteinuria estimated glomerular filtration rate was calculated using the standard protocols (MDRD formula).

RESULTS: Of 2978 screened individuals, 14.3% are found to be suffering from CKD, out of which 10.8% are CKDu. One-third of villages screened have a prevalence of CKDu in the range of 20%. The prevalence of CKDu was more common among men (57%) than women (43%); The prevalence of CKD was 54% in population below 50 years of age. The lower economic status more is the prevalence of CKDu (70%). It is more common among farmers and agricultural laborers (48%). The groundwater such as tubewell (49%) and well (41%) was the main drinking water source among CKDu patients.

CONCLUSIONS: This study indicates that there is an urgent need to develop CKDu detection and prevention programs in India. Early recognition through community screening, awareness among community members, and educating the health workers on identifying risk populations are essential to prevent end-stage kidney disease.

3. A STUDY COMPARING MAINTENANCE THERAPIES IN PROLIFERATIVE LUPUS NEPHRITIS: MULTITARGET REGIMEN VERSUS AZATHIOPRINE

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BACKGROUND: Systemic lupus erythematosus (SLE) is a multiorgan disease and renal involvement due to its results in end-stage renal disease (ESRD) and death. At present, both induction and maintenance therapies for lupus nephritis are not fully efficacious and safe. Relapses and drug-related adverse events during maintenance therapy determine the long-term prognosis. Pathogenesis of SLE involves multiple pathways, and hence, a multitarget therapy may be the preferred option. Previous studies have shown the efficacy of calcineurin inhibitors in this regard.

AIM OF THE STUDY: To compare the safety and efficacy of a multitarget regimen of tacrolimus, azathioprine, and steroid with only azathioprine and steroid as maintenance therapy of proliferative lupus nephritis.

METHODS: This single-center study was conducted in the nephrology department of our institution from January 2018 to June 2019. In this study, proliferative lupus nephritis (class III, IV, III + V, and IV + V) patients of age 18–65 years who achieved remission (complete or partial) with either cyclophosphamide (6 monthly doses of 500–1000 mg/m^2 of BSA) and prednisolone or multitarget regimen of tacrolimus (0.075 mg/kg body weight daily with target trough level of 5–8 ng/ml); azathioprine (2 mg/kg body weight daily; maximum 100 mg) and prednisolone were included. They were followed up for 1 year while on maintenance therapy with azathioprine (1–2 mg/kg body weight daily; maximum 100 mg) and prednisolone (5–10 mg/day) following the cyclophosphamide induction or with multitarget regimen of tacrolimus (target trough level of 3–5 ng/ml); azathioprine and prednisolone as extension of the induction therapy. Primary outcomes were rates of renal relapse and remission at the end of 1 year. Adverse events were noted in both arms.

RESULTS: A total of 40 patients (22 in multitarget arm and 18 in azathioprine arm) who achieved remission at end of induction were recruited and started on respective maintenance therapies and followed up for 1 year. Baseline characteristics of all the patients were comparable at the start of both induction and maintenance. $P < 0.05$ was taken to be statistically significant. The difference in rates of renal relapse at the end of 1 year between multitarget arm (23.1%) and azathioprine arm (22.2%) was not significant ($P = 0.73$). All the patients in both arms are in remission at 1 year though the proportion of complete remission was higher in azathioprine arm (94.4%) than the multitarget arm (54.5%), and it was significant ($P = 0.014$). Adverse events occurred significantly ($P = 0.03$) less frequently in multitarget arm (13.6%) than azathioprine arm (50%).

CONCLUSIONS: Multitarget regimen comprising tacrolimus, azathioprine, and prednisolone as maintenance therapy in proliferative lupus nephritis has similar rates of renal relapse and remission but less adverse events than azathioprine and prednisolone, and thus, it is a safe and effective therapy.

4. A NOVEL COMPLEMENT FACTOR B GENE MUTATION IN ADULT-ONSET ATYPICAL HEMOLYTIC–UREMIC SYNDROME

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BACKGROUND: Approximately 10% of all hemolytic–uremic syndrome (HUS) is due to atypical HUS (aHUS). Prognosis is poor in aHUS, and mortality can go up to 25%. In half of the patients, progression to end-stage kidney disease occurred. Complement factor B (CFB) gene is one essential component for the activation of alternate pathway. Mutations in the CFB gene are rarest among all the complement mutations, occurring in only 1%–2% of all aHUS patients. We describe a novel CFB gene mutation.

AIM OF THE STUDY: This was a case study to see the response of plasma therapy in CFB gene mutation-associated aHUS.

METHODS: Laboratory parameters revealed hemoglobin – 8.5 g/dl; total leukocyte count – 11,500/μL; platelet – 83,000/μL; serum creatinine – 7.4 mg/dl; serum LDH – 1565 U/L; peripheral blood film showed schistocytes; slightly raised total and indirect bilirubin; normal kidney sizes on ultrasonography; no active urinary sediments; complement C3 level was low and ANA was negative; no evidence of G6PD deficiency and tests for malaria, dengue, and typhoid were negative. The patient was given five sessions of plasma exchanges along with three sessions of hemodialysis initially, following which he achieved hematological remission and became dialysis independent. Renal biopsy was done which revealed evidence of thrombotic microangiopathy (TMA). Anti-factor H level was not sent and complement mutation analysis revealed novel CFB gene mutation. The mutation analysis in our case was done at Medgenome Labs Ltd., Bangalore.

RESULTS: The patient achieved hematological remission and became dialysis independent. He had adequate urine output and serum creatinine came down from 7.4 to 3.8 mg/dl on the last follow-up.

CONCLUSIONS: We describe a novel heterozygous missense mutation of complement factor B gene (c.1106C>T; p.Pro369 Leu) that was associated with aHUS. Early diagnosis and plasma therapy can be lifesaving. Reporting more similar CFB gene mutation is necessary to know the pathogenicity of the mutation.

5. MYCOPHENOLATE AS A STEROID-SPARING TREATMENT IN NEPHROTIC SYNDROME

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BACKGROUND: A significant proportion of idiopathic nephrotic syndrome may be steroids-dependant or frequently relapsing and do require steroid-sparing treatments. We studied the role of mycophenolate mofetil (MMF) in such patients.

AIM OF THE STUDY: To assess the efficacy of MMF in reducing the relapse-frequency and to assess the efficacy of MMF in having prolonged relapse-free remission period.

METHODS: This retrospective study involved an outpatient chart review of nephrotic patients who received MMF from January 2005 to April 2019. MMF was started after achievement of remission with steroids, and then, steroids were tapered and withdrawn. Baseline demographic, disease-related, and

treatment-related data were noted. Outcome parameters studied were ability to withdraw steroids, time-to-first relapse, steroid-free remission period, number of relapses per year; sustained remission (%) at 6 and 12 months, and adverse events. MMF was used for 26 treatment courses in 21 patients (12 males) with a mean age 19.3 (±13.4) years. Biopsy was done in 19 (minimal change disease in 12; mesangial hypercellularity variant in 6; and focal segmental glomerulosclerosis in 1). Majority (18/21) were steroid-dependent nephrotic syndrome, two were frequent relapse nephrotic syndrome, and one was steroid-resistant nephrotic syndrome.

RESULTS: Median duration of MMF treatment was 45.6 months (interquartile range [IQR] = 25.8–65.4). Three patients stopped treatment before 3 months; four had treatment failure. Thirteen (13) patients (19 episodes) were able to stop steroids. Two courses were interrupted by noncompliance, seven were taking MMF treatment at the last follow-up, and ten had completed the course of MMF. Of the ten patients, four had early (<6 months) and two had late relapses (>2 years) and needed re-treatment with MMF or other immunosuppression. MMF use was associated with a significant reduction in relapses per-year ($P < 0.0001$ for pre vs. post). Median time to first relapse was 34.8 months (IQR = 18.1–63.6). Median steroid-free remission period was 24 months (IQR = 4.5–52.1). Sustained remission at 6 months was seen in 20/26 and in 14/26 at 1 year. Only one patient had transient leucopenia and none reported gastrointestinal intolerance or serious infection.

CONCLUSIONS: MMF is an effective steroid-sparing treatment for nephrotic syndrome with good steroid-free remission period and acceptable safety profile.

6. A STUDY ON EPIDEMIOLOGY, CLINICAL, AND LABORATORY PROFILE OF BIOPSY-PROVEN ADULT INFECTION-RELATED GLOMERULONEPHRITIS FROM SOUTH INDIA

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BACKGROUND: Over the past three decades, there has been a significant shift in epidemiology, clinical presentations, and outcomes of infection-related glomerulonephritis (IRGN). Unlike in children, IRGN has varied presentations and courses in adults. The disease is more likely to be secondary to non-streptococcal infections, particularly staphylococcal. In contrast to the favorable course in children, a significant proportion of adults with IRGN, especially the elderly and diabetics, do not recover normal renal function.

AIM OF THE STUDY: To study the epidemiological, clinical, and laboratory profile of IRGN in adults, to assess the role of serological assays and outcome of adult IRGN and also the prevalence of IgA-dominant IRGN.

METHODS: A retrospective and noninterventional study was done between July 2015 and July 2018 in our hospital to study about IRGN of all the biopsies taken during the period. All cases of biopsy-proven IRGN were taken for study. History and clinical parameters were noted. All patients underwent baseline investigations (urine analysis, complete blood count, blood sugar, blood urea, serum creatinine, serum electrolytes, liver function test, ultrasound abdomen, ECHO). Serological parameters such as complements (C3 and C4) and anti-streptolysin O (ASO) were analyzed. Urine culture, chest X-ray, ear-nose-throat, and bone and skin examination were done to rule out occult infection. Renal biopsy samples were analyzed by light microscopy and immunofluorescence (IgG, IgA, IgM, C3, and C1q). All the patients were followed at 6 months and 1 year after biopsy. Complete recovery was defined as normal urine analysis, normal serum creatinine, and partial recovery as declining proteinuria and creatinine without normalization at 1 year of follow-up.

RESULTS: Total biopsies during the study period were 550 and IRGN is present in 82 (14.9%). Male to female ratio was 48:34. The mean age was 43.4 years. The clinical presentations were nephrotic syndrome seen in 44 (53.6%); acute nephritic syndrome 30 (36.5%), acute kidney injury 4 (4.8%), and rapidly progressive glomerulonephritis 4 (4.8%). Hypertension was noted in 54 (65.8%) patients. 34 (41.4%) patients had hematuria. Diabetes was present in 10 (12.1%) patients. Mean serum creatinine was 2.1 mg/dl. Hypocomplementenemia was seen in 53 (63.4%) cases. ASO titer was elevated in 23 (28.0%) cases. In biopsy, crescents were seen in 26 (31.7%) cases. In immunofluorescence, there was no IgA-dominant IRGN. 64 (78.0%) patients had associated acute tubular necrosis. Associated infections are skin lesions in 30 (36.5%), throat infections in 4 (4.8%), urinary tract infection in 3 (3.65%), pneumonia in 3 (3.6%), and infective endocarditis in 2 (2.4%). Complete and partial recovery was noted in 56 (68.2%) and 25 (30.4%) cases, respectively. One patient is dialysis dependent.

CONCLUSIONS: Nephrotic syndrome followed by acute nephritic syndrome is common in adult IRGN. Hematuria and hypertension are less common in adults. Serological assays are often unsupportive. Recovery is often partial, and renal replacement therapy was also required. Source of infection is often undetected.

7. RITUXIMAB IN MEMBRANOUS NEPHROPATHY: A SINGLE-CENTER EXPERIENCE

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BACKGROUND: Primary membranous nephropathy (MN) is one of the common causes of adult-onset nephrotic syndrome. It is a B cell-mediated disease, and rituximab, an anti-CD20 monoclonal antibody, has emerged as a promising treatment option. Current treatment options including corticosteroid, alkylating agents, and Calcineurin Inhibitor (CNI) are associated with adverse effects. Hence, we did a case–control study to compare the efficacy of rituximab with historical control of modified Ponticelli regimen.

AIM OF THE STUDY: To compare the safety and efficacy of rituximab in the management of primary MN with historical control group treated with modified Ponticelli regimen.

METHODS: Since February 2018, we treated 11 biopsy-proven primary MN patients with 4 weekly doses of intravenous

rituximab (375 mg/m^2) along with other antiproteinuric measures such as angiotensinconverting enzyme (ACE)/ angiotensin-receptor blockers (ARBs)/spironolactone. 24-h urine protein, serum creatinine, serum albumin, and lipid profile were performed at baseline and 6th and 12th month. Anti-Phospholipase 2 receptor(PLA2R) antibody was tested for all patients at baseline. CD 19 flow cytometry was done at 6th month. Among them, seven patients who completed 12 months of follow-up were compared to historical control group of 12 patients who were treated with modified Ponticelli regimen. The primary outcome of the study was cumulative number of patients who experienced both partial and complete remission (CR/PR). The secondary outcomes were change in 24-h proteinuria; serum albumin; serum creatinine, and adverse effects.

RESULTS: Two out of 7 (28%) patients on rituximab attained CR at 6 months, while 6 out of 12 (50%) patients in the control group attained CR at 6 months. Three out of 7 (42%) attained PR in rituximab group, while 3 out of 12 (25%) patients attained PR in the control group. Five out of 7 patients (71%) attained CR at 12 months in the rituximab group, while nine out of 12 patients (75%) in the control group attained CR. No response in proteinuria was noted in one patient in the rituximab group while three in the control group had no response. Anti-PLA2R was positive in all the patients in rituximab group while in eight patients in the control group. CD19 assay done showed suppressed B-cell activity in all patients at 6 months. No significant adverse effects noted in rituximab group. In the control arm, four patients had lower respiratory tract infection requiring parenteral antibiotics and one patient had pancytopenia which improved.

CONCLUSIONS: Rituximab is noninferior to modified Ponticelli regimen at 1 year of treatment in primary MN in terms of CR and has superiority in terms of adverse effects.

8. TUBERCULOSIS IN INDIAN RENAL-TRANSPLANT RECIPIENTS: CLINICAL PROFILE, RISK FACTORS, AND OUTCOME

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BACKGROUND: Renal allograft recipients are more prone to get tuberculosis (TB) than the general population. Clinical presentation in immunocompromised individuals, including transplant recipients, is often atypical and diverse, often causing delay in the diagnosis.

AIM OF THE STUDY: To study the clinical presentation, diagnostic modalities, therapies, and outcome of TB in renal allograft recipients.

METHODS: We retrospectively analyzed records of all consecutive renal-transplant recipients who have been diagnosed to have TB after transplant and treated for the same from 2000 to 2018. We collected information regarding demographic records (name, age, and sex), history of TB, dialysis vintage, donor, immunosuppression, acute rejection episodes, how they were treated, other comorbidities, baseline graft function, interval between transplant and TB infection, clinical presentation, radiology, confirmation test, localization, duration of TB treatment, sensitivity pattern, course throughout treatment, recurrence present or not, duration of resumption anti-TB treatment, and their outcomes.

RESULTS: 60 developed TB:; 55 (91.3%) males and 6(9.96%) females. Mean age was 33.5 years. Immunosuppression used was azathioprine (AZA) + prednisone (Predni) in 25 (41.6%); tacrolimus (TAC) + mycophenolate mofetil (MMF) + Predni in 14 (23.2%); cyclosporine A (CSA) + AZA + Predni in 11 (18.26%); TAC + AZA + Predni in 4 (6.64%); and CSA + Predni in 1 (1.66%); and CSA + MMF + Predni in 1 (1.66%). 12 (20%) had a history of TB. 23 patients had 40 episodes of Acute Rejection (AR). Of these, 27 (67.5%) were treated with Methylprednisolone (MPS); 11 (27.5%) with dexamethasone; 1 (2.5%) with MPS + anti-thymocyte globulin (ATG). 8 (13.28%), 5 (8.3%), 3 (5%), and 1 had hepatitis C, hepatitis B, CMV, and HIV, respectively. 7 (11.62%) developed New-onset diabetes after transplant (NODAT). Mean duration at the time of development of TB posttransplant was 40 months. 41 (68.3%), 7 (11.6%), 5 (8.3%), and 3 (5%) had pleuropulmonary, bone, Lupus nephritis (LN) and central nervous system (CNS) involvement, respectively. 2 (3.3%) had gastrointestinal involvement; 1 had pericardial involvement; and 1 had TB pyelonephritis. A total of 42 (69.72%) survived of which 3 developed graft failure, and later on, 7 (11.62%) expired and 11 (17.82%) were lost to follow-up.

CONCLUSIONS: TB in the allograft recipient is common can have varied presentations and requires high index of suspicion and timely treatment to avoid morbidity and mortality.

9. PROFILE OF CARDIOVASCULAR BIOMARKERS AND ECHOCARDIOGRAPHIC CHANGES IN NONDIALYTIC CHRONIC KIDNEY DISEASE PATIENTS AND ASSOCIATION WITH CAROTID INTIMA-MEDIA THICKNESS FOR ESTIMATION OF CARDIOVASCULAR RISK

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BACKGROUND: 40% of chronic kidney disease (CKD) patients have cardiovascular (CV) disease even before they reach end-stage renal disease. An ideal biomarker to estimate this risk has been elusive. Biomarkers including cardiac troponin T and NT-Pro BNP have been shown to predict CV outcomes in patients with CKD. Carotid intima-media thickness (CIMT) is noninvasive, sensitive, and specific quantitative measure of subclinical coronary atherosclerosis. This study attempts to assess the biomarkers profile in predialysis CKD patients and compare them with CIMT.

AIM OF THE STUDY: (1) To study the CV biomarker profile in predialysis CKD patients – troponin T, NT-Pro BNP, CIMT, spot urine PCR, and Echo. (2) To study the correlation of cardiovascular biomarker profile with CIMT.

METHODS: We performed a cross-sectional study of 76 adults with CKD Stages 3, 4, and 5. Sampling was consecutive based on predefined inclusion and exclusion criteria. Serum NT-pro BNP, cardiac troponin T, hsCRP, and spot urine PCR were

measured. Ultrasonographic (USG) examination of carotid artery was done with 7.5 MHz linear probe in B mode USG and CIMT was measured by a single experienced radiologist at multiple sites (posterior aspect of common carotid artery, bifurcation, anterior wall of internal carotid). Echocardiography was done by a cardiologist blinded to other study parameters. SPSS software for Windows was used. Strength of correlation of the individual biomarkers to carotid intimal thickness was assessed by statistical analysis using Pearson's and Spearman's correlation coefficient. Receiver operating characteristic curve analysis was done.

RESULTS: 76 patients were enrolled. CKD Stage 3 (36%); CKD Stage 4 (32%); and CKD Stage 5 (32%) were represented. Mean values of cardiac biomarkers were 585.68 ± 514.84 pg/ml (NT-Pro BNP); 5.96 ± 2.52 mg/L (hsCRP); 719.37 ± 411.36 mg/g creatinine (spot urine PCR); and 0.78 ± 0.15 mm (CIMT). Values were obtained in each CKD stage and mean for each was calculated. Serum cardiac troponin was elevated in 40% of predialysis CKD patients. Among all biomarkers, NT-ProBNP had the maximum correlation with CIMT followed by cardiac troponin ($P < 0.0001$). NT-Pro BNP showed increasing elevation with advancing stages of CKD. CIMT was significantly high in CKD Stage 4 (0.76 mm) and Stage 5 (0.87 mm) (normal value – 0.75 mm). Echo assessment revealed that CKD Stages 4 and 5 are associated with a higher left ventricular mass index. Limitation is small sample size due to cost factors.

CONCLUSIONS: Biomarkers such as troponin T, NT-Pro BNP, and Spot PCR show variation across CKD stages and correlate variably with CIMT. left ventricular mass index (LVMI), diastolic dysfunction, NT-Pro BNP, and CIMT worsen with advancing CKD stages. Long-term follow-up of this cohort will be useful to assess correlation with clinical outcomes.

10. BIOMARKERS SIGNIFICANT ROLE IN ACUTE KIDNEY INJURY IN CRITICAL CARE PATIENT

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BACKGROUND: Intravenous administration of radiocontrast media is referred to as contrast-induced kidney injury (CI-AKI). CI-AKI is described as the third most common cause of new AKI in hospitalized patients. The occurrence of CI-AKI is reported up to 55% in these high-risk patients: Neutrophil gelatinase-associated lipocalin (NGAL) and cystatin C have been found early and sensitive marker of AKI.

AIM OF THE STUDY: To evaluate biomarkers in plasma (P) and urine (U) after intravenous contrast in adult intensive care unit (ICU) patients.

METHODS: A total of 36 patients recruited as per the inclusion criteria. ICU patients who were >18 years with radiographic contrast for diagnostic or interventional computed tomography (CT) scan were included. After ethical approval, samples of 5 ml blood and 5 ml urine were collected before contrast exposure and at 4 h, 24 h, and 48 h after contrast exposure. NGAL and cystatin C assay were done by ELISA, and urinary levels were normalized as per urine creatinine (UCr) values for each sample. In the present study, CI-AKI is defined as a rise in serum creatinine (SCr) of ≥0.3 mg/dl within 48 h. Data presented in a mean or median analysis performed.

RESULTS: In this study, 30 CT scan episodes requiring intravenous contrast in 25 ICU patients were included. Median age was 36 years and 13 (43%) were male. On day of inclusion, the median SOFA score was 3; 16%. In patients having CI-AKI, the mean values changes from precontrast to at 4 h, 24 h, and 48 h after contrast are presented. Kinetics of plasma (P) and urine (U) NGAL and cystatin C levels (mean ± standard deviation) with *P* value among patients having CI-AKI P NGAL (ng/ml). Before contrast (BC) (708.5 ± 201.76); 04 hrC (851.5 ± 332.05; $P = 0.07$); 24 h C (1093.25 ± 225.03; $P = 0.02$); 48 h C (788 ± 323.4; $P = 0.21$); UNGAL (ng/mg of U Cr) BC (67.63 ± 48.09); 04 h C (39.69 ± 19.79; $P = 0.07$); 24 h C (101.97 ± 90; $P = 0.12$); 48 h C (59.87 ± 56.85; $P = 0.73$); P Cystatin C (ng/ml) BC (4698.85 ± 574.71); 04 h C (4704.57 ± 1144.87; $P = 0.02$); 24 h C (4428.85 ± 1135.73; $P = 0.03$); 48 h C (4288.85 ± 435.8; $P = 0.17$); U Cystatin C (ng/mg of UCr) BC (3 46.06 ± 224.7); 04 h C (219.66 ± 72.18; $P = 0.91$); 24 h C (470.21 ± 536.28; $P = 0.99$); 48 h C (633.61 ± 811.77; $P = 0.23$).

CONCLUSIONS: Receiver operating characteristic curve analysis during precontrast exposure: NGAL; and Cystatin C; both plasma and urine level area under the curve (AUC) was significantly higher in patients who develop CI-AKI, and postcontrast exposure, plasma levels AUC significantly was higher than urine levels.

11. OBSERVATIONAL STUDY COMPARING RITUXIMAB AND TACROLIMUS IN TREATMENT OF IDIOPATHIC MEMBRANOUS NEPHROPATHY

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BACKGROUND: Primary membranous nephropathy (MN) is one of the most common causes of adult-onset nephrotic syndrome. It is B cell-mediated disease, and rituximab, an anti-CD20 monoclonal antibody, has emerged as a promising treatment option. Calcineurin Inhibitor (CNI) are effective and preferred treatment for MN in the United States and Canada. However, these agents are associated with a high incidence of relapse after discontinuation. Hence, we have designed this study to compare the efficacy of rituximab with tacrolimus.

AIM OF THE STUDY: To compare the safety and efficacy of intravenous rituximab with tacrolimus in the management of idiopathic MN.

METHODS: Since February 2018, we treated 18 biopsy-proven primary MN with four weekly doses of intravenous (i.v.) rituximab (375 mg/m^2). 100 mg i.v. methyl prednisolone was given before the first dose. 24-h urine protein, serum creatinine, and albumin and lipid profile were performed at baseline and 6th and 12th month. Patients who completed 12 months of follow-up were compared to 18 primary MN treated with tacrolimus. The primary outcome of this study was cumulative number of

patients who experienced both partial and complete remission (PR/CR). The secondary outcome was change in 24-h urine protein, serum albumin, estimated glomerular filtration rate (eGFR), and adverse effects. Definitions of PR/CR, relapse, treatment failure, and inclusion criteria were followed according to the KDIGO guideline. Exclusion criteria were patients with active infection/tuberculosis, diabetes mellitus, Hepatitis B virus (HBV)/Hepatitis C virus (HCV)/human immunodeficiency virus (HIV), neoplasia, pregnancy, membranous lupus nephritis, previous therapy with prednisolone, mycophenolate mofetil; CNIs within 4 months and alkylating agents within 6 months.

RESULTS: At 12th month, 9 of 18 patients (50%) achieved primary end point (CR 2 and PR 7) in rituximab group and 12 of 18 patients (66.6%) (CR 4 and PR 8) in tacrolimus group ($P = 0.31$). At 12th month, 24-h urine protein reduced from 6.96 to 1.37 ($P = 0.14$) in rituximab group and 6.8 to 1.1 ($P = 0.1$) in tacrolimus group. At the end when compared both groups, there was no significant difference in change in 24-h urine protein, serum albumin, or eGFR. In tacrolimus group, serious adverse events occurred in three patients; whereas it was two in rituximab group.

CONCLUSIONS: Rituximab appears to be effective in achieving CR/PR of proteinuria in 50%, but there was no significant change in GFR. When we compared with tacrolimus, there was no significant difference in remission rate, proteinuria reduction, or GFR changes.

12. COMPARISON OF EFFICACY AND SAFETY BETWEEN RABBIT ANTITHYMOCYTE GLOBULIN AND ANTI-T-LYMPHOCYTE GLOBULIN IN KIDNEY-ONLY TRANSPLANTATION: A RETROSPECTIVE STUDY

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BACKGROUND: Polyclonal immunoglobulins are frequently used in renal-transplant recipients as induction therapy. The two commonly used formulations rabbit antithymocyte globulin (ATG) and anti-T-lymphocyte globulin (ATLG) have slightly different antibody concentration and antigen profile. Scanty studies are available including no Indian data for comparing the efficacy, safety, and differential impact on immune response of these two formulations

AIM OF THE STUDY: To compare the incidence of infections, rejections, mortality, graft survival, and lymphocyte profile of ATG and ATLG in renal-transplant recipients at 1 year.

METHODS: These retrospective data of 127 consecutive kidney alone transplant recipients with induction as 2 mg/kg of ATG ($n = 58$) or 4 mg/kg single dose of ATLG ($n = 69$) done from 2014 to 2019 were analyzed. Clinical and laboratory data including demographics, native renal disease, donor profile and type (live = or deceased), basic phenotype of circulating lymphocytes assessed by flow-cytometry post 48 h of transplant, the discharge nadir creatinine, biopsy-proven rejections (antibody-mediated and/or cell-mediated), infections, 1-year graft survival, and mortality were compiled. The statistical analysis using logistic regression, Chi-square test, and odds ratio was done.

RESULTS: Median age was 44 years. There were 78% (99) males. Diabetic chronic kidney disease (CKD) was 32% (40). No significant differences were observed between the groups with respect to age, gender, etiology of CKD, DSA, and nature of transplant. ATG group had 36 (62%) deceased and 22 (38%) live donors, while ATLG group had 24 (36%) deceased and 45 (64%) live donors with no impact on outcome. 25 (43%) had infections in ATG group and 21 (30%) had infections in ATLG group. The probability of infections was 41.1% in ATG group versus 27.6% in ATLG group ($P = 0.07$). 14 (24.89%) ATG patients and 20 (28.48%) ATLG patients developed biopsy-proven rejection ($P = 0.128$). Sepsis-related mortality in the ATG group was 10.34% ($n = 6$) and ATLG group was 4.44% ($n = 3$) ($P = 0.155$). One-year graft survival was 87.5% for ATG and 92.7% for ATLG. Death-censored graft survival in both groups at 1 year was 99%. The single point mean CD3 level on the 3rd day in ATG (211.3 ± 243.8) versus ATLG (163.2 ± 156.0) ($P = 0.328$) did not show statistical significance.

CONCLUSIONS: ATLG is comparable to ATG in terms of rejections, graft loss, immune response within the 1st year of transplant. ATLG-treated patients have lower infection risk compared to ATG. Low-dose ATLG is a viable option in our setting especially with a heightened risk of posttransplant infections.

13. INCIDENCE, CLINICAL PROFILE, AND OUTCOME OF TRANSPLANT RENAL ARTERY STENOSIS: A SINGLE-CENTER EXPERIENCE

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BACKGROUND: Transplant renal artery stenosis (TRAS) is a recognized, potentially curable cause of posttransplant systemic hypertension, allograft dysfunction, and graft loss. It usually occurs 3 months to 2 years after transplantation, but early or later presentations are not uncommon. The prevalence ranges widely from 1% to 23% in different series. Doppler sonography is commonly used as a screening tool. TRAS is potentially treatable; timely diagnosis and intervention favor a good prognosis.

AIM OF THE STUDY: To study the incidence, clinical profile, and outcome of TRAS in renal allograft recipients.

METHODS: This is a retrospective study done at the Institute of Nephrology Madras Medical College from January 2009 to June 2019. Demographic data, type of renal donor, posttransplant evaluation including acute rejection, Cytomegalovirus (CMV) status, blood pressure profile, and graft function were studied. Laboratory and investigation data including serum potassium, lipid profile, Doppler of transplant renal artery, and angiogram were analyzed.

RESULTS: Of 724 allograft recipients, 17 patients had TRAS. 15 (88.2%) were cadaver recipients. 14 (82.4%) presented with allograft dysfunction; 12 (70.6%) presented with refractory hypertension; 3 (17.6%) presented with anuria; 2 (11.7%)

presented with flash pulmonary edema; 4 (23.5%) presented with new-onset hypertension; and 2 (11.8%) had renal artery thrombosis. Analysis revealed mean donor age of 39 years; mean recipient age of 40 years; mean cold ischemic time of 10 h. Five (29.4%) had rejection and 3 (17.6%) had received antiretroviral therapy (ART) before TRAS. Only 1 had CMV infection. 7 (41.2%) had diabetes mellitus. Mean serum creatinine decreased from preprocedure value of 2.6 mg/dl to 1.7 mg/dl at 4 weeks. The mean number of antihypertensive drug reduced from 4 to 2 drugs, 4 weeks postprocedure. Intervention attempted in 16 (94.1%) and planned in 1 patient. Ten underwent angioplasty with stenting and only plasty done in 5. Recurrent TRAS was seen in 2 (11.8%). 9 (57%) had normal graft function; 5 (31%) had chronic growth differentiation factor-15 (GDF); and 3 (18.6%) had graft loss. Two patients underwent graft nephrectomy after intervention.

CONCLUSIONS: ((1) Incidence of TRAS was 2.25% (2) 88.2% patients were cadaver recipients. (3) Time-line of TRAS was 8 days to 10 years (median 16.2 months) posttransplant. (4) 13 (81.25%) patients had successful outcome with return of serum creatinine to baseline and blood pressure well controlled. (5) 2 (11.8%) patients had recurrent TRAS.

14. SAFETY AND EFFICACY OF ACUTE CENTRAL VENOUS CATHETERS FOR HEMODIALYSIS WITH SODIUM BICARBONATE VERSUS ANTIBIOTIC CATHETER LOCK SOLUTION

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BACKGROUND: (1) There is no ideal lock solution that prevents hemodialysis catheter loss due to catheter-related bloodstream infection (CRBSI) and catheter dysfunction (CD). (2) Catheter loss is associated with increased hospitalization and high inpatient costs. (3) The objective of the study is to determine the safety and efficacy of acute central venous catheters (CVC) using sodium bicarbonate lock solution (SBCLS) versus antibiotic catheter lock solution (ACLS).

AIM OF THE STUDY: To determine the safety and efficacy of acute CVC using SBCLS versus ACLS.

METHODS: (1) Inclusion criteria: patients aged >18 years on hemodialysis initiated through internal jugular nontunneled CVC. (2) Safety was assessed by comparing catheter loss due to CD and CRBSI in two study groups: SBCLS group (using 7.5% sodium bicarbonate) and ACLS (using antibiotic + heparin). (3) Efficacy was assessed by adequacy of blood flow (>250 ml/min). (4) Catheter loss was studied over 4 months.

RESULTS: (1) A total of 160 patients were included: 80 with SBCLS and 80 with ACLS. (2) There were no statistical significant differences in clinical demography between groups. (3) Average duration of catheters *in situ* was ACLS (23 days) and SBCLS (22 days). (4) In ACLS group, 4/80 lost catheters due to CD; 2/80 due to CRBSI; and 5/80 due to other malfunctions. Adequate blood flow was achieved in 71/80. (5) In SBCLS group, 3/80 lost catheters due to CD; 3/80 due to CRBSI; and 4/12 due to other malfunctions. Adequate blood flow was achieved in 73/80. (6) No significant difference between two groups was observed for catheter loss due to CRBSI (P = 0.648); CD (P = 0.699); malfunction (P = 0.731); and blood flow (P = 0.598).

CONCLUSIONS: Safety and efficacy of nontunneled CVC, with sodium bicarbonate as catheter lock solution, is similar and noninferior to using antibiotic + heparin lock solution.

15. FACTORS AFFECTING MORTALITY IN DIABETIC PERITONEAL DIALYSIS PATIENTS IN INDIA

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BACKGROUND: Diabetes mellitus (DM) is the most common cause of end-stage renal diseases (ESRD). Malnutrition is a major cause of morbidity and mortality in ESRD patients on peritoneal dialysis (PD). Survival of the diabetic PD patients is inferior to nondiabetic PD patients probably because of higher prevalence of cardiovascular diseases (CVD) and high prevalence of malnutrition associated with diabetes.

AIM OF THE STUDY: We undertook this study to evaluate the impact of CVD and other risk factors individually or in combination on mortality in diabetic PD patients.

METHODS: 342 PD patients (179 diabetics; 250 male; age 51 14 years) were followed for 22 14 months. All patients underwent assessment of nutritional status, adequacy of dialysis, residual renal function (RRF), peritoneal transport characteristics, and comorbid diseases (Davies comorbidity index).

RESULTS: 87 (25.44%) had normal nutritional status; 229 (66.96%) had mild-moderate malnutrition; and 26 (6.7%) had severe malnutrition based on Subjective Global Assessment (SGA). On Davies index, 45.6% patients had low risk; 49.1% patients had medium risk; and 5.3% had high risk. On Kaplan–Meier analysis, patient survival was significantly lower in female DM patients compared to other groups. Estimated patient survival (patient months) in diabetic female (27.2) was significantly lower compared to diabetic male (40); nondiabetic female (49); and nondiabetic male (59) (P < 0.001). Hazard ratio (HR) for risk of mortality in diabetic female PD patients was significantly higher (HR 3.8 [CI 0.71–3.12; P = 0.001]) than diabetic male (HR 2.7 [CI 1.5–4.9]; P = 0.001) and nondiabetic female (HR 1.5 [95% CI 0.71–3.1] P = 0.293) compared to nondiabetic male. On multivariate Cox hazard analysis, malnutrition, CVD, and glomerular filtration rate were significant factors predicting survival not diabetes. In DM patients, low RRF was independent predictor of mortality.

CONCLUSIONS: DM *per se* was not a risk factor for mortality in this group of PD patients. The higher mortality rate in diabetic PD patients, in particular among female, was mainly because of concurrent morbidity such as CVD and Protein-energy wasting (PEW), together with low RRF.

16. ROLE OF T17 AND T17.1 CELLS IN PREECLAMPSIA PATIENTS ASSOCIATED WITH RENAL COMPLICATION

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BACKGROUND: Preeclampsia (PE) is a multisystem disorder of pregnancy with hypertension and proteinuria which leads to renal failure. Previous studies had reported that renal failure is mainly mediated by T17 and Th17.1 cell imbalance. Hence, in this study, we had evaluated the role of T-cells subsets in PE as well as associated renal complications.

AIM OF THE STUDY: To evaluate the role of T17 and T17.1 cells in PE patients associated with renal complication.

METHODS: In our study, we had recruited five patients of severe PE (mean age 25.56 ± 8.50) who had prolonged history of hypertension during pregnancy and healthy control who had normal pregnancy (mean age 26.06 ± 6.84) were recruited. Their peripheral blood was collected in heparinized vial and stimulated with phorbol 12-myristate 13-acetate (PMA) and ionomycin and monensin for the 6 h. Pathogenic Th-17 (CD4+IL-17+IFN-γ) population was analyzed using flow cytometry.

RESULTS: Frequency of Th-17 cell higher in PE compared to normal pregnancy (1.5% ± 0.68% vs. 0.6% ± 0.24%; $P = 0.036$). Frequency of pathogenic Th17 cell was relatively significant in PE condition compared to healthy control (0.55% ± 0.24% vs. 0.14 %± 0.09%; $P = 0.004$).

CONCLUSIONS: PE patients had higher Th-17 and Th-17.1 population, which may be responsible for pathogenesis of renal failure in PE patients.

17. ETIOLOGICAL FACTORS OF THROMBOTIC MICROANGIOPATHY IN POSTRENAL-TRANSPLANT PATIENTS

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BACKGROUND: Thrombotic microangiopathy (TMA) is a serious complication of renal transplantation. It is a morphological expression of various etiological factors. In a renal allograft, TMA can occur *de novo* or be recurrent disease.

AIM OF THE STUDY: The aim of this study was to analyze the etiological factors and observe the changing trends of TMA with respect to emerging new etiological factors.

METHODS: We evaluated 400 graft biopsies over 7 years (2013–2019). All the renal biopsies were formalin-fixed; paraffin-embedded. Twenty serial sections were studied. Stains routinely used were hematoxylin and eosin, periodic acid–Schiff, Masson's trichrome, and silver methenamine stains. C4d by immunohistochemical method was done on all graft biopsies.

RESULTS: Incidence of TMA in our series was 12%. Of the 30 cases, 25 were associated with calcineurin inhibitor toxicity, three were diagnosed as acute antibody-mediated rejection, and two were recurrent hemolytic–uremic syndrome. One patient was cytomegalovirus positive and on treatment with ganciclovir developed hemolytic–uremic syndrome during the treatment course.

CONCLUSIONS: This study describes a spectrum of etiological factors for TMA ranging from common cause such as calcineurin inhibitor toxicity to rare cause like ganciclovir-induced TMA.

18. SHOULD MYCOPHENOLATE MOFETIL BE CONSIDERED AS FIRST-LINE THERAPY FOR FREQUENT-RELAPSING NEPHROTIC SYNDROME?

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BACKGROUND: In childhood-onset idiopathic nephrotic syndrome (NS), more than 80% are steroid-sensitive but concern for frequent-relapses NS (FRNS) and steroid-dependent NS (SDNS) course is there in almost 50%. This results in frequent hospital visits, missing school, steroids side effects, and even psychological disturbances for family. Treatment guidelines recommend either of immunosuppressive agents, and choices of drug vary with individual factors and on independent units with own protocols.

AIM OF THE STUDY: To compare clinical course of frequent-relapsing nephrotic children on mycophenolate mofetil (MMF) versus levamisole therapy.

METHODS: We analyzed 5 years of data of children with FRNS/SDNS course retrospectively. More than 150 children with diagnosis of NS followed in pediatric nephrology clinic. 50% of them had FR/SD course. Forty-five nephrotic children were included and compared with clinical course on MMF versus levamisole therapy. Erratic and less than 1-year follow-up and compliance issues were excluded. Statistical methods such as Chi-squared and Mann–Whitney test were applied to compare efficacy of one drug over the other.

RESULTS: Median duration of follow-up in MMF versus levamisole was 30.5 and 29.5 months, respectively. Groups MMF ($n=22$) recieved 750–1200 mg/m2 of MMF and Group Levamisole($n=26$) recieved 2–2.5 mg/kg. Median age (maximum; minimum)(min at presentation) 45.8 (142; 20) 53.4 (109; 18) Male: Female 16:6 17: 9 0.58 Weight median (max; min) 22.8 (45;14.5) 21 (52; 14.5) 0.21 Height 124 (150; 85) 117.5 (145; 85)0.24 BMI 16.1 (24.7; 12.9) 15.3 (24.7; 12.9) 0.73 Sustained remission 13 (59.09)% 7 (26.9%) 0.03 (1.8) Infrequent relapses4 (18.18)% 7 (26.9%) 0.23 (-0.7) Frequent relapses 5 (22.7) %12 (46.15%) 0.01 (-2.1) Adverse event 0 1 had vasculitis rash.

CONCLUSIONS: MMF is superior to levamisole and safe enough as first-line therapy for FR/SD NS course in helping to avoid steroid toxicity and repeated hospital visits. Prospective randomized studies should be considered further.

19. FRUSEMIDE STRESS TEST TO PREDICT ACUTE KIDNEY INJURY PROGRESSION AND DIALYSIS REQUIREMENT: A PROSPECTIVE STUDY

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BACKGROUND: Chawla *et al*.* showed that frusemide stress test (FST) is a dependable test to predict progression of acute kidney injury (AKI) in their seminal study. Burns *et al*. showed that urine potassium excretion correlated to creatinine clearance and predicted AKI Indian studies and data are sparse in this regard.

AIM OF THE STUDY: To assess utility of FST to predict (1) AKI progression to severe stages and dialysis requirement. (2) To assess the utility of urine potassium/creatinine ratio to predict AKI progression.

METHODS: Study period: September 2017–February 2019. Settings: Intensive care unit (ICU), SRM Medical College. Patients in AKI stage I or II as per AKIN criteria were identified and were given a standardized dose of frusemide (1 mg/kg) as per the protocol described by Chawla *et al*. Response to FST was assessed by urine output (UOP) at 2 h. Study patients divided into two groups: UOP >200 ml and UOP <200 ml. Spot urine potassium/creatinine ratio was assessed before FST. Correlation coefficient between peak creatinine and urine potassium/creatinine ratio was estimated. Inclusion criteria: (1) ICU patients more than 18 years, (2) AKIN Stage I or II, (3) Patients on Foley's catheter. Exclusion criteria: (1) Prior diuretic administration, (2) Obstructive cause of AKI, (3) AKIN Stage 3 AKI, (4) clinical evidence of volume depletion/hypotension at the time of furosemide administration. The secondary outcomes studied were (1) precipitating factors of AKI and associated comorbidities, (2) in-hospital mortality, and (3) duration of hospital stay.

RESULTS: A total of 62 patients have undergone FST as per the inclusion criteria. Comorbidities: diabetes mellitus 67%; hypertension 27%; CAD 9.7%; ICH 3.2%; alcoholic liver disease 3.2%; and DCM 1.6%. Etiology: Sepsis was most common and noted in 50% cases followed by cardiorenal syndrome (19.4%) and others. FST and progression of AKI: 18 patients out of 62 patients had UOP <200 ml, and of these 18 patients, 12 patients progressed to AKIN Stage III (66%); 44 had UOP >200 ml, and of these, only 2 progressed to AKIN Stage III (4.54%). RRT requirement: 10 out of 18 patients with UOP <200 ml required hemodialysis and 2 out of 44 with UOP >200 ml required hemodialysis (*P* value of 0.0001). FST and in-hospital mortality: 3 deaths in the group with UOP >200 ml and 6 deaths in the group with <200 ml ($P = 0.014$). Length of ICU stay: The duration of stay was more in UOP <200 ml group compared to UOP >200 ml group ($P < 0.0001$). Correlation coefficient between urine spot potassium/creatinine ratio and peak creatinine – r value 0.26 ($P = 0.041$).

CONCLUSIONS: FST may be a reliable predictor of progression of AKI to severe stages, requirement for hemodialysis, and increased in-hospital mortality and length of ICU stay. FST was highly predictive of progression to severe stages of AKI than spot urine potassium/creatinine ratio.

20. TWO-YEAR OUTCOME OF THE FIRST SOUTH ASIAN PROSPECTIVE LONGITUDINAL COHORT INVESTIGATING THE CLINICAL COURSE AND RISK PROFILE OF IGA NEPHROPATHY: GRACE IGANI COHORT

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BACKGROUND: IgA nephropathy (IgAN) is the most common primary GN and an important cause of end-stage kidney disease (ESKD). The 10-year renal survival in South Asia is approximately 35% as reported from retrospective registries. These observations cannot be entirely attributed to a lack of uniform screening protocols or late referral and attest to the probability that IgAN may not be the same disease in different parts of the world.

AIM OF THE STUDY: We hypothesize that the natural history and risk of renal progression in Indian patients with IgAN differ from that widely reported for Caucasian and East Asian patients.

METHODS: We will prospectively recruit 200 patients with IgAN (Glomerular Research And Clinical Experiments-IgAN in Indians—cohort) and stratify them into low and high risk of progression based on published absolute renal risk scores. We will test the validity of this risk score in an unselected Indian IgAN population over a 5-year follow-up period. The recruitment period was from March 2015 to September 2017. 201 IgAN patients; 415 disease controls (non-IgAN GNs) and 103 healthy controls were enrolled prospectively. Rapid progression (RP) is defined as fall of estimated glomerular filtration rate (eGFR) by CKD-EPI >5 ml/min/m^2 per year. The end of study composite outcome (EOS) is defined as at least 50% decline in eGFR and ESKD (eGFR < 15 ml/min/1.73 m^2), Renal replacement therapy (RRT), or death. The cohort is registered with WHO: trial ID ISRCTN368341593. The protocol is published at https://doi.org/10.12688/wellcomeopenres. This study is funded by the Early Career Fellowship (Clinical) of the Wellcome DBT India Alliance.

RESULTS: A total of 201 IgAN patients were in the study at a median follow-up time of 23 (IQR 12–34) months. The median absolute renal risk (ARR) score was 19 (103 patients in the low-risk [LR] and 98 patients in the high-risk [HR] cohort). 65 LR and 83 h patients with urinary protein excretion >1 g/day and with/without renal dysfunction were treated with oral steroids along maximally tolerated inhibition of the renin-angiotensin system (RAS). The remaining 38 LR and 15 h patients were treated conservatively. RP was present in 17/36 (47.2%) LR-no steroid group versus 22/60 (36.7%) LR-steroid group versus 30/80 (37.5%) HR-steroid group versus 6/15 (40%) HR-no steroid group at follow-up. The EOS was present in 1/36 (2.8%) LR-no steroid group versus 7/61 (11.5%) LR-steroid group versus 39/82 (47.6%) HR-steroid group versus 10/14 (71.4%) HR-no steroid group at follow-up. The receiver operating characteristic of the ARR score did not have a good performance in predicting RP or EOS in our cohort.

CONCLUSIONS: The South Asian renal biopsy-proven IgAN has faster progression than reported from the Caucasians and East Asian patients in all-risk groups. There is an urgent need to develop renal risk score and define the subgroup that will best benefit from immunosuppression.

21. EVALUATION OF SERUM PROLACTIN LEVEL AS A TOOL FOR PREDICTION OF ANOREXIA IN STAGE IV AND V CHRONIC KIDNEY DISEASE PATIENTS

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BACKGROUND: It is seen that malnutrition-inflammation complex syndrome is an outcome predictor in survival of chronic kidney disease (CKD) patients and it is related to anorexia. Prolactin level increases in anorexia nervosa and plays an important role in pathophysiology. In CKD patients, prolactin level remains elevated. Hence, in CKD patients, as there is high prevalence of anorexia and high prolactin level, correlation between them has been searched in any previous studies. Hence, the correlation has been searched in this study.

AIM OF THE STUDY: To see the correlation of prolactin level and nutritional status with anorexia in CKD Stage IV and V patients.

METHODS: In this hospital-based observational study, 152 CKD Stage IV and V patients were taken from Nephrology Outpatient Department, Indoor and Dialysis Unit, Institute of Post Graduate Medical Education and Research, Kolkata. MDRD formula was used for the calculation of eGFR. Anorexia/Cachexia Subscale of the Functional Assessment of Anorexia/Cachexia Therapy Scale (FAACT-A/CS) was used for anorexia grading. It included 12 questions with score of 0–4 for each question. Patients taking any drugs that can affect prolactin level were excluded or stopped for 2 weeks before sample collection. For nutritional assessment, body mass index (BMI) and serum albumin levels were considered. To rule out other causes of anorexia, CRP, eGFR, TSH, FT4, LFT, and CBC were done. Hypothyroid patients and patients who are pregnant or breastfeeding were excluded from the study. Patients' magnetic resonance imaging brain was done in patients with prolactin level >200 ng/ml. Correlation between serum prolactin level, albumin, and BMI with FAACT-AC/S Score for anorexia was calculated. Then, it was calculated with regression of confounding factors.

RESULTS: A total of 152 patients were taken for the study. 66 patients were CKV Stage IV patients, 37 were CKD Stage V nondialysis dependent, and 49 were in CKV Stage V on maintenance hemodialysis. Eighty-four patients were male and 68 were female. Correlation between FAACT-AC/S, anorexia score, and serum prolactin level was significant ($P < 0.05$). Correlation between them remained significant ($P < 0.05$) after regression analysis with eGFR, CRP, TSH, and FT4. Correlation between nutritional markers, BMI, and albumin was also found significant ($P < 0.05$).

CONCLUSIONS: It appears that anorexia correlates with serum prolactin level. Nutritional markers, BMI, and albumin also correlate with Prolactin.

22. INCREASING INCIDENCE OF EXTENSIVE DRUG-RESISTANT GRAM-NEGATIVE UROPATHOGENS AMONG RENAL-TRANSPLANT RECIPIENTS IN NORTH INDIA

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BACKGROUND: Urinary tract infection (UTI) is the most common infectious complication, with 79% prevalence after renal transplant. The prevalence of extensive drug resistance (XDR) UTI has been increasing over the past few years, particular in community-acquired infections and healthcare settings. This has led to increased incidence of graft loss and healthcare costs in these patients. XDR Gram-negative bacteria (GNB) are a threat to transplant populations and have not been well-studied in kidney recipients.

AIM OF THE STUDY: To observe the incidence and prevalence of XDR-GNB in renal-transplant recipients over the past 4 years at our center.

METHODS: This is a retrospective and prospective single-center cohort study performed by the Department of Nephrology at our center. Data were collected from medical records of patients and on follow-up for those who underwent kidney transplant during January 2015–July 2018; received induction agent (antithymocyte globulin or basiliximab) and triple immunosuppression – tacrolimus, mycophenolate mofetil, and steroids (Hospital Kidney Transplant Protocol). Pneumocystis prophylaxis was given for 6 months to all the patients. Cases were defined as those with symptomatic urinary infection with midstream urine sample culture showing significant monomicrobial growth using Vitek2 Compact System. XDR was defined as resistance to all classes of beta-lactams (including 1st-, 2nd-, 3rd-, and 4th-generation cephalosporins), fluoroquinolones, aminoglycosides, and carbapenems. Statistical analysis was done using MS Excel Spreadsheet and SPSS version 21.0. Categorical variables presented in number, percentage, and continuous variables.

RESULTS: A total of 211 renal-transplant recipients (median age 43 years) were followed for 4 years (median follow-up 22.1 months) and 91 events (84 GNB; 87%) of UTI were reported, out of which 24 events (26% overall) of XDR-GNB were detected. The prevalence was 13% in 2015, increased to 17.6% in 2016, and increased to 28.5% in 2017. However, in 2018, it was observed that the prevalence increased to 40%. Incidence rate of XDR-GNB increased from 6% to 11% over 4 years of the study period. All these cases were sensitive to colistin only (except 2 cases; which were resistant to colistin as well). Most common culprit in these patients was *Pseudomonas* (50% cases) followed by *Klebsiella* (34%) and *Escherichia coli* (19%). 60% cases of infection occurred within 1 month of transplant (99% being the first episode of infection in these cases) followed by 20% cases which occurred in the next 2 months. Gender analysis revealed that 97% of cases were males and 33% were below 30 years of age, whereas 24% in 30–40 years of age group.

CONCLUSIONS: This study shows that majority of patients with XDR-GNB infection consisted of younger males, within 1 month of kidney transplant as their first urine infection. This rapidly increasing incidence poses a challenge for healthcare providers and guides the need for local antibiotic policy.

23. A NEW LOOK AT LIPID DISORDERS IN HEMODIALYSIS-DEPENDENT PATIENTS

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BACKGROUND: Atherosclerotic cardiovascular disease is a major cause of mortality and morbidity in dialysis patients. Compared to general population, dialysis patients have lower lipid levels and higher vascular events. This paradox is popularly known as reverse epidemiology. The present study is an attempt to understand reasons for low lipids in dialysis patients.

AIM OF THE STUDY: (1) To study reasons for low lipid levels in hemodialysis-dependent patients. (2) To study effect of dialysis on lipid profiles.

METHODS: This is a prospective observation multicenter study involving three phases across six dialysis units with Care Hospitals, Hyderabad. 140 maintenance hemodialysis patients are studied with fasting lipid profiles (total cholesterol [TC]; LDL-c; HDL-c and TG); predialysis blood lipids; postdialysis blood lipids; and effluent water lipid profiles. Other parameters studied are vintage dialysis, presence of diabetes, coronary artery disease, use of statins, interdialytic weight gain, and ultrafiltration. All patients had uniform dialysis protocols regarding filter used and dialysis duration.

RESULTS: We observe significant rise in postdialysis (TC), LDL, and HDL ($P < 0.01$) and likewise fall in lipids during the interdialytic period ($P < 0.01$) just before the next dialysis. Lipids are least filtered across the membrane except HDL, which is found in effluent water for more than 60% of patients. Reuse of dialyzer is associated with higher rise in lipids postdialysis as well as HDL getting filtered in effluent ($P = 0.24$). Reuse is also associated with lower body mass index (BMI). Hemoglobin ($P = 0.04$) and serum albumin ($P = 0.92$) show increasing trend with increasing dialysis vintage. Rosuvastatin associated with lower lipid values ($P = 0.08$) and BMI ($P = 0.19$).

CONCLUSIONS: Low lipid levels in dialysis patients are due to dilution of plasma. These spuriously low lipid levels are due to dilutional hypolipidemia and needs correction with an equation proposed in the present study. Corrected lipids should be used for risk stratification and deploying treatment.

24. REGIONAL CITRATE ANTICOAGULATION: EXPERIENCE WITH NEWER FLUID FORMULATIONS FOR CONTINUOUS RENAL REPLACEMENT THERAPY/CONTINUOUS VENOVENOUS HEMODIAFILTRATION

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BACKGROUND: Acute kidney injury (AKI) is a major contributor to morbidity and mortality in critically ill patients. Renal replacement therapy is required for more than 10% of patients with AKI. Continuous renal replacement therapy (CRRT) provides better solute and fluid management. Success of CRRT is determined by circuit patency and filter life. Regional citrate anticoagulation has better filter life and circuit patency. Citrate delivery to CRRT circuit has recently changed with replacement fluids containing citrate.

AIM OF THE STUDY: To study newer fluid formulations having citrate containing replacement solution and calcium-free and phosphate containing dialysate for their efficacy, safety, and operational ease in continuous venovenous hemodiafiltration (CVVHDF)/CRRT.

METHODS: This is a series of 13 patients undergoing CRRT/CVVHDF for conventional indications of fluid overload, academia, hyperkalemia, and oliguria. During September 2018 till March 2019, these patients were treated with CRRT using premixed bags with citrate containing replacement and calcium-free dialysate. Patients were monitored with postfilter and systemic ionized calcium, arterial blood gas, and electrolytes measurements. Solute clearance quantified with sieving coefficient for urea and convective clearance with effluent dose in ml/kg/h. Patients followed till discharge from the hospital.

RESULTS: For 13 consecutive patients, the mean filter life was 3.13 days (73.12 h). Mean postfilter ionic calcium was 0.32 mmol/L for a mean citrate dose of 2.81 mmol/L and corresponding citrate accumulation index was 1.92. Systemic ionized calcium (mean) was 1.07 for a mean calcium gluconate infusion rate of 16.9 ml/h. Convective clearance required to meet metabolic demands was 32.77 ml/kg/h and urea clearance achieved was 27.04 ml/min with mean sieving coefficient of 0.82. Arterial blood gases remained fairly normal with mean pH 7.32 and corresponding bicarbonate of 18.06. 44.4% patients survived till hospital discharge not requiring dialysis. 33.3% patients died on therapy and remaining discharged with continued need for dialysis. We observed mean serum phosphate of 3.95, with 0.7 mmol/L being the lowest.

CONCLUSIONS: Newer replacement solution with trisodium citrate (18/0) and calcium-free, bicarbonate-buffered, and phosphate-containing dialysate showed adequate filter life and metabolic control with negligible adverse events such as hypocalcemia, hypophosphatemia, and metabolic alkalosis.

25. STUDY OF CLINICAL PROFILE AND OUTCOME OF STROKE IN CHRONIC KIDNEY DISEASE PATIENTS AT A SOUTH INDIAN TERTIARY CARE CENTER

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BACKGROUND: Chronic kidney disease (CKD) is associated with a high risk for stroke. Stroke may manifest as infarction, hemorrhage, and sometimes in combination with these two. Infarcts were found to arise due to involvement of carotid or vertebrobasilar arteries. In hemorrhagic strokes, the bleed was common in thalamic and basal ganglia regions. Stroke in chronic dialysis patients is associated with high mortality.

AIM OF THE STUDY: To assess the clinical profile and outcome of cerebrovascular accidents in CKD patients.

METHODS: Type of study: Observational study. Inclusion criteria: All patients of CKD admitted with stroke. Exclusion criteria: Patients not willing to give consent. Setting: Department of Nephrology, Gandhi Medical College, Secunderabad. Duration of study: Two years between August 2018 and August 2019. The diagnosis of stroke was made on the basis of history, physical examination, and computed tomography brain. Magnetic resonance imaging brain was done depending on the clinical need. The causes of stroke were broadly subdivided into ischemic and hemorrhagic categories depending on radiological appearance. Patients were carefully assessed for their risk factor status. Management was according to the standard protocol of the institution, and the outcome status was assessed.

RESULTS: Total 80 patients out of which 60 were Male and 20 female. Mean age (Years) 52.2±1.18(Male) and 45.4±1.12(Female); SBP was 157.5±3.87 mmHg for male and 152±3.82mmHg for Female. DBP was 94.1±2.16 mmHg for Male and 91±1.10 for female. Mean Ckd duration (Months) was 9.6±1.55 for Male and 12.9±1.63for Female. Risk Factors were Hypertension 25(Male) 12(Female); DM 15(Male) 1(Female); Anemia 20(Male) 7(Female); Type Of CVA Ischemic 45(M) 14(F); Hemorrhagic CVA 15(M) 6(F); Mean s.creatinine(mg/dl) was 8.9±2.31(M) and 6.39±3.07(F). Mean MHD duration (Months) 8.9±2.31(M) and 10.1±1.49(F).

CONCLUSIONS: (1) Males are more affected with stroke in CKD than females. (2) Hypertension and anemia combined are major risk factors in stroke in CKD in our study. (3) Ischemic stroke (56%) is more common than hemorrhagic stroke. (4) Lower diastolic blood pressure at admission is associated with recovery.

26. DOES EPIGENETIC REGULATION PLAY A ROLE IN STEROID NONRESPONSIVENESS IN NEPHROTIC SYNDROME PATIENTS

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BACKGROUND: Steroid resistant is one of the most common challenges for clinicians to manage nephrotic syndrome (NS) patients. Other than genetic effects, P-glycoprotein (P-gp) has been linked with steroid resistance, HDAC2 has been reported to be reciprocally related with P-gp, and reduced HDAC2 may upregulate the expression of P-gp which might result in steroid nonresponsiveness.

AIM OF THE STUDY: To evaluate the gene expression of P-gp and HDAC2 on peripheral blood mononuclear cells (PBMCs) of steroid-sensitive nephrotic syndrome (SSNS) and steroid-resistant nephrotic syndrome (SRNS).

METHODS: 41 patients were recruited at baseline (before initiating steroid therapy). After 6 weeks of steroid therapy, 31 patients responded to steroids and achieved remission (SSNS; $n = 31$; 7.54 ± 3.5 years) whereas 10 patients did not respond to steroids (SRNS; $n = 10$; 8.43 ± 3.8 years). Human PBMCs were isolated as per the manufacturers' protocol. mRNA expression was analyzed in PBMC) in SRNS and SSNS patients. qPCR was performed using SYBER green technology with SYBER primex relative gene expression level were calculated and normalized to the corresponding level of GAPDH (housekeeping) gene. P-gp expression (percentage) and function were measured by flow cytometry of total mononuclear blood cells using commercially available kit (EFLUXX-ID® Green multidrug resistance assay kit).

RESULTS: Expression of P-gp mRNA was significantly lower in subjects ($n = 31$) who achieved remission at 6-weeks of steroid therapy as compared to baseline and those who were resistant ($n = 10$) to steroid ($P < 0.005$). Of 10 steroid-resistant patients, seven achieved complete remission following tacrolimus therapy and their P-gp expression and activity were reduced whereas HDAC2 expression was increased ($P < 0.005$). Of the 31 patients who achieved remission after 6-week steroid therapy, 10 relapsed and P-gp mRNA expression and activity were increased whereas expression of HDAC2 was decreased. Expression of HDAC2 mRNA was significantly higher at baseline and at remission following 6 weeks of steroid therapy; HDAC2 expression was significantly decreased in SRNS patients as compared to that of SSNS group ($P < 0.005$). Functionality of P-gp was significantly reduced in patients who achieved remission after 6-weeks of steroid therapy as compared to baseline and those who were resistant to steroid therapy ($P < 0.005$).

CONCLUSIONS: Reduced HDAC2 gene expression may increase expression of P-gp which might promote steroid nonresponsiveness.

27. URINARY NEUTROPHIL GELATINASE-ASSOCIATED LIPOCALIN AS BIOMARKER OF PROGRESSION OF CHRONIC KIDNEY DISEASE

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BACKGROUND: Chronic kidney disease (CKD) is a global public health concern with a steady increase in the prevalence of patients reaching end-stage and requiring renal replacement therapy (RRT). It is well accepted that traditional cardiovascular risk factors alone, such as hypertension or proteinuria, are not sufficient to fully explain pathophysiology and predict the progression of CKD of different stages. In this respect, various tubular injury markers are investigated to predict progression of CKD and urinary neutrophil gelatinase-associated lipocalin (uNGAL) is one of them.

AIM OF THE STUDY: To evaluate the role of uNGAL in predicting the progression of CKD Stage III patients and to compare predictive ability of uNGAL with other known predictors of CKD progression.

METHODS: A total of 95 patients of CKD Stage III visiting the Outpatient Department of Nephrology Apollo Hospital, Chennai, were recruited, of which 85 completed the study duration of 12 months. Patient's history was carefully recorded with common blood biochemical parameters. The uNGAL was measured using commercial available chemiluminescence (and expressed as nanograms/ml).

RESULTS: Patients with decline of estimated glomerular filtration rate (eGFR) >25% (rapid progressor) and <25% (non-rapid progressor) over 1 year. There were 19 (22.89%) patients are rapid progressor and 64 (77.11%) patients were in nonrapid progressor groups. In unadjusted analysis, uNGAL was the only variable significantly ($P = 0.016$) associated with rapid progressor group. After multiple regression analysis, considering >25% decline in eGFR, age, baseline GFR, hypertension, proteinuria, and uNGAL were found to be significant independent variables associated with rapid decline in eGFR.

CONCLUSIONS: uNGAL was an independent and strong predictor of rapid decline in eGFR (>25%) in multiple regression analysis. Our results indicate that uNGAL may be a suitable clinical biomarker to predict a rapid decline in eGFR in patients with CKD. However, a larger population with longer duration studies required.

28. OUTCOMES OF RENAL TRANSPLANTATION IN ELDERLY TRANSPLANT RECIPIENTS

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BACKGROUND: There are no long-term studies of outcomes of renal transplantation among elderly renal-transplant recipients from India. The graft survival rates, rates of rejection, and rates of complications are likely to be different in the elderly renal-transplant recipients.

AIM OF THE STUDY: To study graft and patient outcomes among renal-transplant recipients aged 55 years or more.

METHODS: A review of charts of patients aged 55 years or more who underwent renal transplantation in 10 years from 2008 to 2017 in Christian Medical College, Vellore, was conducted. Their baseline data, patient and graft survival rates, and posttransplant events were recorded. Data are presented as mean ± standard deviation unless otherwise specified. Cox proportional hazard univariate analysis was done to analyze the variables for graft and patient survival. The confidence interval was 95%. Continuous variables were studied using one-way ANOVA and categorical analysis were done using Chi-square test. $P < 0.05$ was used for statistical significance. Kaplan–Meier and Cox regression log ranks were used for survival analysis.

RESULTS: 54 patients (6.4% of all patients in this time period) with a mean age of 58.5 years were studied. The main cause of end-stage renal disease was diabetic nephropathy in 46.3% of patients; and chronic glomerulonephritis was seen in 14.8%. Native kidney disease was unknown in 33.3%. 74% of cases were live-related transplants and remaining were deceased donor. The 1- and 5-year graft survival rates were 90.7% and 79.6%, respectively. Biopsy-proven acute rejections were seen in 20.4% of patients. Leucopenia was the most common side effect seen in 44.4% of patients, diarrhea occurred in 29.63%, and NODAT was seen in 20.4% of patients. CMV disease was noted in 9.3% of patients. Ischemic heart disease (IHD) was present in 25.9% of these patients before transplant. Symptomatic cardiovascular disease developed in 7.4% of patients after transplant with only one death due to the same. Infections accounted for 75% of all deaths. Four patients developed malignancy posttransplant.

CONCLUSIONS: Elderly recipients represent a small fraction of all renal-transplant recipients in an Indian setup. Renal transplantation is associated with good 1- and 5-year graft survival. Despite the high prevalence of IHD pretransplant, infections still account for the majority of deaths in this group.

29. HEAVY METALS AND CHRONIC KIDNEY DISEASE: DOES DRINKING WATER MATTER?

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BACKGROUND: Chronic kidney disease (CKD) is a global public health problem. Diabetes and hypertension are the leading causes of CKD. However, many cases of CKD remain idiopathic for which no specific etiological diagnosis can be reached (CKDu). Some of these could be due to exposure to environmental toxins like heavy metals. Nephrotoxicity of the heavy metals is well known. Drinking water is one of the important sources of exposure to these heavy metals considering the rampant pollution of soil and groundwater.

AIM OF THE STUDY: (1) To measure blood levels of different heavy metals in CKD patients. (2) To record drinking water sources patients were using. (3) To find any difference between groups.

METHODS: We measured the blood levels of heavy metals using Inductively Coupled Plasma-Mass Spectrometry technique. All samples were processed by Thyrocare™ Labs. Values were expressed in units of "μg/L." We asked the patients about their drinking water source and based on this we classified the water source as (1) groundwater, (2) supply water, and (3) purified water. We measured the mean levels of different heavy metals in CKD patients consuming water from these three sources. We later did a sensitivity analysis using Kruskal–Wallis test to see differences between the patients consuming water from different sources with respect to the heavy metal levels.

RESULTS: The mean mercury levels were highest in patients consuming groundwater (93.57 μg/L) and lowest in those consuming purified water (0.57 μg/L) ($P = 0.006$). The mean chromium levels were highest in those consuming supply water (2.93 μg/L) and lowest in those consuming purified water (0.99 μg/L) ($P = 0.004$). The mean lead levels were highest in patients consuming groundwater and lowest in patient consuming purified water. However, these data were not significant statistically ($P = 0.94$).

CONCLUSIONS: CKD patients consuming purified water (e.g., RO waterand bottled water) had much lesser levels of mercury and chromium in their blood. Thus, for CKD patients, purified water is better than groundwater or supply water in terms of heavy metal toxicity.

30. CLINICAL PROFILE, RENAL BIOPSY FINDINGS, AND OUTCOMES IN PATIENTS WITH INFECTION-RELATED GLOMERULONEPHRITIS

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BACKGROUND: Infection-related glomerulonephritis (IRGN) is an important entity that is increasingly associated with a malignant presentation and adverse long-term outcome. At our center, IRGN accounts for nearly 24% of all native kidney biopsies in the period August 2017 to July 2019. Despite its common occurrence in clinical practice, data from India are limited to a few centers. We wish to highlight varied clinical presentation, histopathology, and outcomes in our cohort of patients with IRGN.

AIM OF THE STUDY: To determine the clinical profile of patients presenting with IRGN, to study the histopathological patterns and outcomes associated with IRGN, and to determine the risk of progression of chronic kidney disease (CKD).

METHODS: A prospective analysis and follow-up of all patients consistent with a diagnosis of IRGN between August 2017 and July 2019 was performed. Clinical characteristics, laboratory data, renal biopsy reports, and follow-up data were analyzed. At presentation, patients were subjected to clinical examination, urine and blood cultures, ASO titers, stool analysis, chest radiography, ultrasound abdomen, ear-nose-throat, dental evaluation, echocardiography, and other focused evaluation to determine a focus of infection. All patients who could be contacted at the end of the study period were reviewed, and current clinical status, renal parameters, and urinalysis were performed. Long-term data on outcomes were also obtained. Long-term outcomes (risk of progression to CKD, hypertension, and mortality) were assessed, and its correlation with the syndrome of presentation, clinical manifestations, complement levels, and histopathology was investigated.

RESULTS: A total of 60 cases of IRGN were diagnosed. The mean age was 39 ± 18 years. 70% of patients presented with acute nephritis while 30% had a rapidly progressive GN. 31% of patients had gross hematuria; pedal edema was in 82%, while hypertension was in 80% of the patients. 80% of patients had renal failure by predefined criteria. The mean creatinine at presentation was 4.0 ± 3.8 mg/dl. 79% had low C3 levels; 14% had low C4 levels; all of whom also had low C3 levels. 72% were subjected to a renal biopsy. Endocapillary proliferation was the most common finding (93%), neutrophilic infiltration (72%), and glomerulomegaly (62%) also were seen. 41% of biopsies demonstrated at least one crescent; 14% had >20% crescent; 10% had >50% crescent. Infection source was identified in 54%. Correlation of outcome with presentation, histopath, complement levels, and creatinine was done. Renal replacement therapy (RRT) requirement and CKD progression were analyzed with risk factors. The strongest predictor of adverse outcome was presenting syndrome.

CONCLUSIONS: IRGN is of common occurrence with a nonbenign outcome. 20% of patients may require RRT and progress to CKD. Infectious focus may be elusive in 50% of patients. Serum complement may be normal in as high as 27% of patients. A high proportion present as RPGN and their outcomes are poor.

31. POSTRENAL-TRANSPLANT COLLAPSING GLOMERULOPATHY AND ITS OUTCOME IN A TERTIARY CARE CENTER

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BACKGROUND: To study the presenting features; clinical, biochemical, and pathological characteristics; and outcome of patients with postrenal-transplant collapsing glomerulopathy (CG).

AIM OF THE STUDY: To study the presenting features; clinical, biochemical, and pathological characteristics; and outcome of patients with postrenal-transplant CG.

METHODS: A retrospective analysis of patients who presented with biopsy-proven CG disease from January 2015 to October 2018 was done. Their records were reviewed for duration of symptoms before presentation; clinical features; and biochemical, pathology, and virology reports. Follow-up details were noted.

RESULTS: The number of glomeruli studied was 13.14 ± 5.6. All the biopsies had one or more (20.18%) glomeruli showing a segmental collapse of the tuft with swollen hypercellular podocytes overlying the collapsed tuft. Interstitial fibrosis, accompanying tubular atrophy, was seen in six cases (30.3%). Mild to marked arteriolar hyalinosis was noted in four cases (57.14%). Of the seven biopsies, one showed coexisting chronic active cellular rejection. None of the cases showed viral cytopathic effects or histological features suggestive of CNI toxicity. No specific alterations in the therapeutic regimen were done in all patients. The follow-up details were in seven patients at a mean duration of 7 months (1–20 months). At the end of the follow-up period, three patients (42.8%) had graft failure (serum creatinine > 5 mg/dl or return to dialysis) while the other four patients had functioning grafts with serum creatinine ranging between 1.5 and 4.2 mg/dl.

CONCLUSIONS: CG must be recognized as a cause of graft dysfunction, especially in patients with proteinuria. All such patients should be investigated for known associations, such as viral infections, drug toxicities, and vascular injury.

32. EFFECTIVENESS OF EXERCISE REGIMEN ON SLEEP QUALITY IN PATIENTS WITH END-STAGE RENAL DISEASE ON MAINTENANCE HEMODIALYSIS

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BACKGROUND: Sleep rhythm alterations are common in patients with end-stage renal disease (ESRD) on maintenance

hemodialysis. Exercise tires the person and improves the circulation in the body, which leads to induction of sleep.

AIM OF THE STUDY: To evaluate the effectiveness of exercise regimen on quality of sleep in patients with ESRD on maintenance hemodialysis.

METHODS: A prospective trial was done on patients with ESRD on maintenance hemodialysis at Dialysis Unit of tertiary hospital. Patients who consented to participate in the study with duration on being on hemodialysis more than 3 months and those who were able to perform intervention were included in the study. Patients with active infections, those who on any drug that induces sleep, and those who were already doing some exercise were excluded. Pittsburgh sleep quality index (PSQI) was utilized to assess the sleep quality of patients' pre- and postintervention administration. Intervention included 25–30 min of walk for 5 days in a week for 2 weeks. Patients were followed up every day for 2 weeks by telephone and on the day of hemodialysis. At the end of 2 weeks, PSQI was repeated to know the effectiveness of intervention. Primary outcome of the study was reduction in global PSQI score.

RESULTS: Thirty patients (male:female = 1.14) with mean age of 62 ± 9.8 years were included in the study. 63.3% of the patients had diabetes; 30% had hypertension; and none had coronary artery disease. There was a significant reduction in postintervention global PSQI score (7.60 ± 2.175) from preintervention score (9.766 ± 1.887) ($P < 0.001$, 2.17, [1.42–2.91]). There was a significant reduction in five of the seven components of PQSI: subjective sleep quality (preintervention: 1.53 + 0.571; postintervention: 1.13 + 0.346) ($P = 0.001$); sleep latency (preintervention: 2.17 + 0.648; postintervention: 1.73 + 0.691) ($P = 0.001$); sleep duration (preintervention: 1.83 + 0.592; postintervention: 1.33 + 0.547) ($P = 0.001$); habitual sleep efficiency (preintervention:1.40 + 0.932; postintervention:0.97 + 0.928) ($P = 0.03$); and sleep disturbance (preintervention: 1.37 + 0.490; postintervention: 1.13 + 0.346) ($P = 0.006$). There was a positive correlation of pretest score with platelets ($P = 0.024$) and calcium ($P = 0.023$).

CONCLUSIONS: Quality of sleep in patients with ESRD on maintenance hemodialysis is considerably impaired. Exercise regimen is an effective nonpharmacological and economic way of improving quality of sleep in this population.

33. OUTCOMES IN LIVE RENAL ALLOGRAFT TRANSPLANTS: A COMPARATIVE STUDY WITH DIFFERENT MODALITIES OF INDUCTION

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BACKGROUND: Renal transplantation remains the treatment of choice for end-stage renal disease as it leads to longer survival and superior quality of life. Acute rejection is one of its major complications. The greatest source of intraprogram variability in immunosuppressive regimens is the choice of induction therapy and patient selection for the same. Currently, lymphocyte-depleting agents (mostly rATG) or interleukin-2 receptor antagonist (basiliximab) are being used in most of the transplantation units.

AIM OF THE STUDY: To compare incidence of acute rejection, patient survival, and graft survival in live renal allograft recipients receiving different modalities of induction therapies

METHODS: This is a hospital-based study where 148 patients who have undergone live renal allograft transplantation at SCB Medical College and Hospital from March 2012 to February 2019 were included. All cases included were cross-match negative, ABO-compatible live renal allograft transplantations. All patients received tacrolimus or cyclosporine, mycophenolate sodium, and steroids. Induction therapy varied depending upon immunological risk and changes in protocol over time. Basiliximab, ATG, and rATG were given in 56, 21, and 21 patients, respectively, and no induction therapy in 50 patients. All patients with an acute rise in serum creatinine and without an obvious cause of graft dysfunction were subjected to renal biopsy. The incidence of acute rejection, patient survival, and graft survival were calculated and compared among patients receiving different induction therapies.

RESULTS: Overall incidence of acute rejection was 27.7%. When all patients irrespective of immunological risk were considered, the incidence of acute rejection was 19.04%, 23.8%, 33.92%, and 26% for induction with rATG, ATG, basiliximab, and no induction, respectively. In high-risk group, the incidence of acute rejection was 16.66%, 20%, and 28.2% in induction with rATG, ATG, and basiliximab, respectively. The absolute risk reduction when induced with rATG and ATG in high-risk group was 11.5% and 8.2%, respectively, when compared with basiliximab. The patient survival at 1 year irrespective of immunological risk was 77.77%, 76.19%, 83.92%, and 82% in induction with rATG, ATG, basiliximab, and patients with no induction, respectively. The graft survival at 2 years was 100%, 95.2%, 92.5%, and 90% in induction with rATG, ATG, basiliximab, and patients with no induction, respectively.

CONCLUSIONS: Induction with rATG or ATG in patients irrespective of immunological risk as well as in high-risk group in addition to triple immunosuppressants reduces the risk of acute rejection, improves graft survival, but reduces patient survival in live renal allograft recipients when compared to basiliximab.

34. MATERNAL AND FETAL OUTCOMES AND THEIR PREDICTORS IN RENAL DYSFUNCTION IN PREGNANCY

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BACKGROUND: Pregnancy in women with acute kidney injury (AKI) or chronic kidney disease (CKD) is considered high risk. Diseased kidneys may be unable to adapt to the normal physiologic changes of pregnancy, leading to perinatal complications. Through this study, we have presented the epidemiology and outcomes of PrAKI and CKD in pregnancy at our tertiary care center.

AIM OF THE STUDY: To study the etiology, clinical profile, predisposing factors, and maternal and fetal outcome of renal disorders – both AKI and CKD in pregnant females.

METHODS: A prospective longitudinal observational study was done. Inclusion criteria: Pregnant females including up to 6 weeks postpartum diagnosed as AKI and CKD (defined as per the KDIGO criteria). Exclusion criteria: Age <18 years.

RESULTS: Of total 70 cases, 55 were AKI, 10 were AKI on CKD, and 5 were CKD. Demography (mean): age – 27.5 ± 5.4 years; gestational age – 28.6 ± 8.2 weeks; systolic blood pressure (BP) – 136 ± 35.8 mmHg; diastolic BP – 84.1 ± 21.4 mmHg; serum creatinine – 3.07 ± 2.09 mg%; Hb – 9.2 ± 2.8 gm%; total leukocyte count – 15480.7 ± 11.073.3/mm^3; uric acid – 6.7 ± 2.3 mg%. Sepsis was the most common cause of AKI (26/65 cases) followed by preeclampsia (21/65). Maternal outcome: 48/70 recovered completely, 10/70 expired, 10 progressed to CKD of which 4 became dialysis-dependent, and two were already on maintenance hemodialysis. Fetal outcome: 28/70 were normal, 7 were MTP, and 35/70 expired. Fetal outcome-28/70 were normal; 7 had MTP and 35/70 expired. 20/68cases required initiation of hemodialysis of which 9 recovered completely; 1 progressed to CKD; 4 became dialysis dependent; and 6 expired. Anemia, serum creatinine at presentation, metabolic acidosis, raised uric acid, sepsis, and requirement of hemodialysis were the risk factors associated with higher morbidity and mortality in mother and fetus; however, only hemodialysis requirement showed statistical significance.

CONCLUSIONS: AKI and CKD in pregnancy are associated with higher morbidity and mortality in both mother and fetus; hence, focus must be on prevention with regular antenatal checkups.

35. CUMULATIVE FLUID BALANCE AND MORTALITY IN CRITICALLY ILL ACUTE KIDNEY INJURY PATIENTS REQUIRING RENAL REPLACEMENT THERAPY: A PILOT STUDY

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BACKGROUND: Cumulative fluid balance (FB) is important to guide ultrafiltration (UF) in critically ill acute kidney injury (AKI) patients. Although higher cumulative FB is associated with mortality, very few studies have reported that achieving negative FB while on renal replacement therapy (RRT) is associated with lower mortality.

AIM OF THE STUDY: (1) To test the association of FB at the start of RRT or at day 3 with 7-day mortality. (2) To know the factors that additionally need to be considered during final study.

METHODS: In this pilot study, critically ill adult patients with AKI requiring RRT were included. Baseline demographic parameters, APACHE-II scores, and cumulative FB were noted at the initiation of RRT and daily thereafter. Associations of day 0 and day 3 FB with 7-day mortality were tested in univariate and multivariate analyses.

RESULTS: Twenty-nine patients (18 men) of median age 62 (interquartile range [IQR] = 45–65) years were included. Twelve had diabetes, while CKD disease was known in 8. Median APACHE-II score at initiation of RRT was 26 (IQR = 21–29) and 24 had sepsis. Eleven patients had 7-day mortality. Day-0 FB was significantly higher in nonsurvivors compared to survivors (median [IQR] = 3145 [1034–135,07] vs. 750 [0–1516] ml, respectively, $P = 0.02$). Furthermore, day-3 FB was higher in nonsurvivors (7102 [3846–18,569] vs. 1842 [-257–5262] ml, respectively, $P = 0.001$). However, neither day-0 nor day-3 FB affected 7-day mortality in multiple regression analysis (considering age, gender, diabetes, CKD, sepsis, and APACHE-II score). Achievement of negative FB after 3 days of RRT was also not associated with lower 7-day mortality. Due to small sample size, this pilot study was not sufficiently powered.

CONCLUSIONS: In this pilot study, day-0 or day-3 FB did not affect 7-day mortality. A larger study with sufficient number of patients would be required. Furthermore, FB adjusted to body weight would be a better parameter.

36. AN AUDIT ON INFECTION CONTROL PRACTICES IN A DIALYSIS UNIT IN A TERTIARY LEVEL HOSPITAL IN SOUTH INDIA

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BACKGROUND: Central line-associated bloodstream infection (CLABSI) is associated with significant morbidity and mortality. Bloodstream infection extends the duration of hospitalization by up to 24 days. Infection is the second most common cause of mortality among hemodialysis (HD) patients. The CDC has established guidelines for central line insertion practice and handling of central lines. There is a paucity of data on infection control practices in dialysis centers in India. This study aims to fill that lacuna.

AIM OF THE STUDY: To evaluate catheter-related bloodstream infection (CRBSI) rates among incenter HD patients and infection control practices in a tertiary level hospital in South India.

METHODS: An audit on CLABSI was conducted between June 5, 2019, and July 5, 2019. Inclusion criteria: All patients who were undergoing dialysis in the outpatient dialysis facility with central venous catheters were included. Exclusion criteria: All patients with alternate access other than nontunneled dialysis catheters. Study procedure: Eligible patients were identified. A pro forma on adherence to infection control practices as generated by the CDC was adapted to this dialysis center and filled by senior staff and dialysis therapists during each dialysis session and catheter insertion. The person entering the data was different from the person handling the catheter or performing the catheter insertion. The collected data were entered and analyzed to identify infection control practices and CLABSI rate during the 1-month period.

RESULTS: CLABSI rate was found to be 1.03 per 1000 catheter-days. A total of 52 patients on central venous catheters were identified which represented 20% of the dialysis population. Adherence to infection control practice with regard to catheter handling in the dialysis unit was found to be 96.1% with regard to use of sterile barrier precaution, use of hand hygiene

principles, and cleaning of catheter hub. Of note, up to 66% of dressings for catheter were noted to be soiled at arrival to the dialysis center with regard to catheter insertion practice infection control practices with respected to hand hygiene; skin preparation and sterile barriers were followed in 100% of the patients. Breach of protocol was found with regard to unsterile dressing use in one patient.

CONCLUSIONS: Rates of CLABSI found in this center were in keeping with those that are found in other centers in the world. Compliance was 96.1% with existing guidelines with regard to line handling and measures to reach 100% compliance by addressing the lacunae in this dialysis unit.

37. POSTRENAL-TRANSPLANT THROMBOTIC MICROANGIOPATHY: A SINGLE-CENTER EXPERIENCE

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BACKGROUND: Thrombotic microangiopathy (TMA) is a well-recognized and a serious complication of renal transplantation, affecting 3%–14% of patients.

AIM OF THE STUDY: The objective of this study is to identify the etiology of postrenal-transplant TMA and its long-term impact on graft survival.

METHODS: We retrospectively reviewed the records of 212 patients who underwent renal-transplant surgery in our center from January 2013 to December 2017. We found 17 cases with biopsy from the allograft showing features of TMA. The patients were divided into two groups: Patients with systemic features of TMA (hemolysis, low platelet count, and increased LDH) and patients with allograft limited TMA (localized TMA). Their basic information, transplant details, induction/immunosuppression details, details regarding posttransplant infections, and renal dysfunction were analyzed. The episode of TMA was analyzed in detail. The patient and the graft status after 1 year of the TMA episode were recorded. The clinical course, treatment, and prognosis of patients in both groups were compared. Appropriate statistical methods were used.

RESULTS: Incidence of TMA among postrenal-transplant recipients was 8%. On presentation, the majority had TMA limited to allograft (64.7%; $n = 11$) whereas 35.3% ($n = 6$) had systemic features of TMA. The most common cause for postrenal-transplant TMA was acute antibody-mediated rejection ($n = 6$; 35.3%) followed by tacrolimus toxicity ($n = 4$; 23.5%). Tuberculosis and cytomegaloviral infection were considered as etiology of TMA in single case each. All patients (100%; $n = 6$) with systemic TMA were treated with plasma exchange, whereas only 9% ($n = 1$) with allograft limited TMA underwent plasma exchange. The 1-year graft survival was poor in patients with systemic TMA when compared with that in allograft limited TMA (50% vs. 72.7%) and this difference was statistically significant ($P = 0.003$). The mortality was high in patients with systemic manifestations of TMA ($n = 2$; 33.3%).

CONCLUSIONS: Classifying patients with postrenal-transplantation TMA into those with localized and systemic disease is clinically useful. In analysis, the graft loss was higher in recipients with systemic TMA. In any patient with TMA, diligent search for infection as etiology should be made.

38. THYROID FUNCTION STATUS IN PATIENTS WITH IDIOPATHIC NEPHROTIC SYNDROME

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BACKGROUND: Nephrotic syndrome (NS) is characterized by heavy proteinuria, hypoalbuminemia, hyperlipidemia, and edema. Albumin is the major protein excreted in urine although many other low molecular weight proteins, including some binding proteins, are also excreted in urine. Thyroid hormone and its binding globulins are also excreted in urine in excess in NS. Hence, it has been postulated that patients of NS may show hypothyroidism (HT): subclinical or overt.

AIM OF THE STUDY: The primary aim was to study the thyroid function status of patients of idiopathic NS during active phase of disease and also in remission.

METHODS: This cross-sectional observational study was conducted in the Nephrology and Pediatrics Department of this hospital. Permission was taken from ethical committee. Twenty cases of first episode NS; 20 frequent relapses NS (FRNS)/steroid-dependent NS (SDNS); and 20 steroid-resistant NS (SRNS) patients were taken of age group 1–40 years of both gender. Secondary NS and prediagnosed thyroid disease were excluded from the study. T3, T4, and TSH along with basic investigations were done at entry and again at 12 weeks or at remission whichever is earlier. Renal biopsy and other special tests were done as required. Proper written consent was taken from patient/attendant.

RESULTS: A total 12 (20%) cases were found to have HT among 60 enrolled patients. Three had overt (all SRNS), while and 9 had subclinical HT. There were three children and six adult subclinical HT cases. Most subclinical HT cases were also from SRNS group (4), 3 from FRNS/SDNS group, and 1 was from first episode of idiopathic NS (FENS) group. Four were male and eight were female in total 12 HT cases. Five patients had minimal change disease and 7 had focal segmental glomerulosclerosis. Mean TSH among FENS cases was 3.94 ± 0.44; in FRNS/SDNS group was 4.20 ± 0.36; and in SRNS group was 5.9 ± 0.38 mIU/L.

CONCLUSIONS: Subclinical or overt HT is common among NS patients, specially FRNS subgroup. Hence, routine screening is recommended in all nephrotic children and adult, especially in SRNS cases. Treatment of HT should also be started wherever necessary.

39. EMERGENCE OF BLANDM AND MCR-1 POSITIVE MULTI- AND PAN-DRUG RESISTANT BACTERIAL INFECTIONS IN PATIENTS WITH RENAL DISEASES

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BACKGROUND: Infectious diseases are common cause of morbidity and the second cause of mortality among chronic kidney disease (CKD) patients. Antibiotic-resistant bacterial infections are potentially life-threatening in renal-transplant recipients. With increase in antibiotic resistance in bacteria, there are either limited or sometimes no options available for treatment, especially in renal-transplant recipients who are often more vulnerable.

AIM OF THE STUDY: To screen the bacterial pathogens and their antimicrobial drug resistance profiling in patients suffering from renal diseases admitted in the nephrology ward of a tertiary care referral hospital.

METHODS: A total of 100 urine samples from patients suffering from renal diseases admitted in the nephrology ward and kidney transplant unit of SGPGIMS were screened. The patients selected were suffering from CKD; mostly diabetic nephropathy and some with incompatible renal transplantation. The bacterial cultures were isolated using the standard microbiological techniques. The antibiotic sensitivity screening was performed by disc diffusion method. The minimum inhibitory concentrations of antibiotics were determined by E-test strips. The antibiotic resistance genes were screened by PCR and Sanger sequencing.

RESULTS: Of the total 100 urine samples that were screened, 20 (20%; 20/100) were culture positive. Of these culture-positive samples, five samples (25%; 5/20) were found to be infected with Gram-positive bacteria while 14 samples (70%; 14/20) with Gram-negative bacteria. One sample (5%; 1/20) had both Gram-positive and negative bacterial infection. Among the Gram-positive, *Enterococcus* sp. and coagulase-negative *Staphylococcus* were dominant, while among the Gram-negative, the dominant species were *Enterobacter cloacae*, *Escherichia coli*, *Klebsiella pneumoniae*, *Providencia rettgeri*, *Morganella morganii*, and *Pseudomonas aeruginosa*. The antibiotic sensitivity screening revealed that all the above bacteria were multidrug resistant. Two isolates were pan-drug resistant, while one isolate was extremely-drug resistant. The pan-drug resistant isolates harbored the blaNDM gene while MCR-1 gene was observed in extremely drug-resistant isolates.

CONCLUSIONS: The emergence of pan-drug and extremely drug-resistant bacteria in patients suffering from renal diseases, especially the renal-transplant recipients, indicates a grim situation where no therapeutic options will be available for treatment of infections caused by deadly bacterial pathogens.

40. EFFECT OF DIETARY PHOSPHOROUS RESTRICTION ON FIBROBLAST GROWTH FACTOR-23 AND KLOTHO IN CHRONIC KIDNEY DISEASE PATIENTS

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BACKGROUND: Hyperphosphatemia in chronic kidney disease (CKD) is associated with worsening kidney function; as glomerular filtration rate (GFR) declines; serum klotho declines; intact parathyroid hormone (iPTH) and fibroblast growth factor-23 (FGF-23) levels increase which becomes maladaptive. However, therapeutic strategies mainly restriction of dietary phosphorus intake may help lower the levels of FGF-23 and serum phosphorous up to a certain extent, which can be an effective way of delaying progression of CKD.

AIM OF THE STUDY: To assess if dietary phosphorous restriction would reduce the levels of FGF-23, Klotho, iPTH, and serum phosphorus in CKD patients (Stage 1 and Stage 2) not on phosphate binders at 6 and 12 months.

METHODS: This is a longitudinal study approved by Ethics Committee of the institute. A total of 98 study subjects were recruited from the Outpatient Department of Nephrology and Endocrinology, SGPGIMS. After taking informed consent, 30 are healthy controls and 68 CKD patients of which 34 are of Stage 1 and 34 are of Stage 2. GFR was calculated with the help of MDRD's formula, and study subjects were categorized into healthy controls, CKD Stage 1, and CKD Stage 2. Biochemical parameters of study subjects were evaluated at baseline and 6 and 12 months along with the 3 days dietary recall to evaluate energy, protein, and phosphorus intake. CKD patients whose dietary phosphorus intake was more than 1000 mg/day were given intense dietary counseling and prescribed dietary modifications by restricting phosphorous up to 800 mg/day for a 1 year intervention period, i.e., from baseline to 12 months.

RESULTS: The mean age of controls and patients are 39.10 ± 11.48 and 39.61 ± 12.00. There was significant difference among controls and the study groups in hemoglobin ($P < 0.001$), estimated GFR (eGFR, $P < 0.001$), serum FGF-23 ($P < 0.001$), klotho ($P < 0.001$), and nephron index ($P < 0.001$). The mean energy per day intake ($P = 0.001$) and dietary phosphorus intake ($P < 0.001$) of the CKD patients decreased significantly with the decline in the renal function. On applying Pearson's correlation, eGFR correlated negatively with FGF-23 (−0.819, 0.000) and iPTH (−0.900, 0.000) and positively with klotho (0.872, 0.000). FGF-23 correlated negatively with klotho (−0.801, 0.000). Only urinary phosphorus was found to be positively correlated with dietary phosphorus (0.957, 0.000). Nephron index revealed a positive correlation with eGFR (0.529; 0.000). At 6 and 12 months, repeated ANOVA analysis showed a statistically significant difference in serum creatinine ($P = 0.000$), serum phosphorus ($P = 0.000$), FGF-23 ($P = 0.000$), and klotho ($P = 0.000$).

CONCLUSIONS: Elevated levels of FGF-23 and decreased Klotho levels, with the moderate declining renal function, were observed but improved with the restricted phosphorous diet at 6 and 12 months, emphasizing the importance of dietary interventions for phosphorus restriction at an early stage.

41. METFORMIN REDUCES P-GLYCOPROTEIN EXPRESSION AND POTENTIATES ANTI-INFLAMMATORY ACTION OF CORTICOSTEROIDS

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BACKGROUND: Metformin activates AMP kinase and alters transcription of multiple cytokines. P-glycoprotein (P-gp) expression is linked to drug resistance and has been shown to be associated with higher disease activity in lupus. Metformin inhibits expression of P-gp in cancer cells. There are scarce data on the effect of metformin on P-gp expression and its impact on cytokine secretion by peripheral blood mononuclear cells (PBMC) in lupus.

AIM OF THE STUDY: To evaluate the effect of metformin on P-gp expression and corticosteroid responsiveness.

METHODS: PBMC of nine lupus patients (mean age 30 years; all females) were cultured using RPMA medium and then stimulated with PMA/ionomycin, with or without increasing dose of metformin (0.01, 0.1, 1, and 10 mMol/L) for 24 h. Cytokines IL-1beta, IL-6, IFN-gamma, and IL-10 were analyzed by ELISA in culture supernatant. Cell viability with metformin was assessed by MTT assay. P-gp expression was measured by flow cytometry. In another experiment, PBMCs from four patients were cultured with metformin 0.1 mMol, prednisolone 0.3 μMol, and metformin + prednisolone and the concentrations of IL-1, IFN-gamma, and IL-10 were measured in culture supernatant.

RESULTS: In MTT assay, viability of cells was maintained across all concentrations of metformin used. Metformin decreased expression of P-gp in PBMC in dose-dependent manner (P = 0.003). In the PBMC cultures with PMA and metformin, there was dose-dependent decrease in concentration of IL-1 beta (P = 0.001), IL-6 (P = 0.007), and IFN-gamma ($P < 0.001$) and increase in that of IL-10 (P = 0.014) and TGF-beta (P = 0.005) at lowest concentration of metformin. PBMC culture with combination of metformin and prednisolone had lower concentration of IL-1, IFN-gamma, and higher concentration of IL-10 than with prednisolone or metformin alone.

CONCLUSIONS: Metformin reduces P-gp expression, decreases pro-inflammatory cytokines, increases anti-inflammatory cytokines, and potentiates effect of corticosteroids.

42. TO STUDY THE EFFECTIVITY OF TACROLIMUS AND AZATHIOPRINE COMBINATION DURING INDUCTION PHASE OF LUPUS NEPHRITIS: A SINGLE-CENTER PROSPECTIVE STUDY

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BACKGROUND: Intravenous (IV) cyclophosphamide and mycophenolate mofetil (MMF) are being used as induction therapy in lupus nephritis (LN) used. MMF has now become preferred initial choice. Its high cost and infection rate limit its use in Indian setting. As LN is more in young female, ovarian failure due to cyclophosphamide is concerned. Hence, we decided to do study on combination of tacrolimus and azathioprine treatment during induction phase of LN.

AIM OF THE STUDY: To study the effectivity of tacrolimus and azathioprine in treatment during induction phase of LN in comparison to IV cyclophosphamide and MMF.

METHODS: This prospective comparative study was done in the Department of Nephrology at Ramkrishna Care Hospital from April 2014 to May 2018. Patients with serum creatinine above 2.5 mg, cresentric and pure Class V (membranous), pancreatitis, gastrointestinal hemorrhage or active peptic ulcer, HIV infection, bone marrow insufficiency with cytopenia not attributable to SLE were excluded. Fifty-six patients on the basis of treatment received were randomized into three groups: Group A – 18 (IV cyclophosphamide), Group B – 22 (MMF), and Group C – 16 (tacrolimus and azathioprine). Patients were followed monthly for 6 months. On each visit, clinical examination, laboratory investigation, and adverse effects of therapy were noted. SLEDAI scores were analyzed at the beginning and at 6 months. Response of treatment was analyzed as complete or partial remission and treatment failure.

RESULTS: Forty-nine completed the study. Baseline serum creatinine, estimated glomerular filtration rate, serum albumin, WBC count, and serum complement levels were similar in three groups At 3 months, proteinuria improvement was more in Group C. Complete remission was seen in 9 of 16 patients (56.3%) in Group A; 9 of 18 patients (50%) in Group B; and 8 of 15 patients (53.34%) in Group C. There was no statistically significant difference among three groups for complete remission (P = 0.93). Partial remission was achieved in 5 patients (31.25%) in Group A; 6 patients (33.34%) on Group B, and 4 patients (26.67%) in Group C, respectively. There was no statistically significant difference between three groups in terms of response to treatment (P = 0.97). SLEDIA score was 45 ± 1.2 in Group A; 5.4 ± 1.4 in Group B, and 5.2 ± 1.1 in Group C, respectively. Gastrointestinal symptoms were more observed in Group A. Infection rate was less in Group C in comparison to Group A and B. Tremors were observed only in Group C, which was being corrected after adjusting tacrolimus dose.

CONCLUSIONS: Tacrolimus and azathioprine are as effective as IV cyclophosphamide and MMF in induction phase of mild-to-moderate LN in Indian patient. Although good compliance and less infection rate are seen in tacrolimus and azathioprine group, further studies are needed to establish the facts.

43. REGULATORY T-CELL LEVELS IN RENAL-TRANSPLANT RECIPIENTS: A COMPARISON BETWEEN TACROLIMUS-BASED REGIMEN AND SIROLIMUS-BASED REGIMEN

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BACKGROUND: Renal-transplant recipients are administered on an immunosuppressive regimen to prevent allograft rejection. In our institution, they are either on tacrolimus-based regimen or sirolimus-based regimen. Regulatory T-cells (Tregs) have the property of inducing immunological tolerance. If there is immunological tolerance, the dosage and duration of immunosuppressive therapy can be reduced. Sirolimus has the property of elevating the peripheral blood levels of Tregs compared with tacrolimus.

AIM OF THE STUDY: To evaluate the varied effect of calcineurin inhibitors and mTOR inhibitors on peripheral blood Treg cell count and to find the varied effects of these drugs on renal allograft function.

METHODS: This was a cross-sectional study that included 58 study subjects, 21 of whom were on tacrolimus-based regimen and 15 were on sirolimus-based regimen. Twenty-two healthy controls were also included for obtaining the normal levels of Tregs in population. Sampling methods included consecutive patients who come to renal-transplant outpatient department for follow-up. The controls were healthy blood donors. Immunophenotyping with flow cytometry was done on peripheral blood collected from the study subjects, and their Tregs levels were ascertained. The estimated glomerular filtration rate (eGFR) of the patients were also calculated using the CKD-EPI formula. Statistical analysis was done using SPSS 18.0 statistical software. The qualitative variables were analyzed by Pearson's Chi-square test. The quantitative variables were expressed as mean ± standard deviation and their statistical significance was analyzed using ANOVA test. $P < 0.05$ was considered statistically significant.

RESULTS: A total of 58 individuals were included in the study. There was no statistically significant difference between the three groups for the mean percentage of Tregs with a $P = 0.75$. The mean percentage of Tregs in the healthy control population was 11.9% ± 5.4%. The mean eGFR of patients on tacrolimus was found to be 57.7 ± 22.4 and 39.5 ± 28.3 for sirolimus group, and their difference was statistically significant with a $P = 0.03$.

CONCLUSIONS: The mean percentage of Tregs in the healthy control population was 11.9% ± 5.4% of the CD4 lymphocytes. No statistically significant difference between levels of Tregs between the two drug regimens studied was noted. The renal allograft function was better in tacrolimus group compared to sirolimus group.

44. PERITONEAL DIALYSIS DROPOUT: OUR EXPERIENCE

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BACKGROUND: Prevalence of peritoneal dialysis (PD) as renal replacement therapy among patients with chronic kidney disease (CKD) Stage 5D remains low in spite of survival comparable with that on hemodialysis (HD), advances in PD techniques over the last few years, and lower healthcare costs. An important reason for the low PD prevalence is patient dropouts, that is, transfer to HD. There is a paucity of data on PD drop out from our country.

AIM OF THE STUDY: To estimate the incidence and analyze the causes of PD dropout in our center, a tertiary care center for Nephrology Urology services in Bengaluru.

METHODS: Patients with CKD 5D undergoing PD and who were under follow-up at our hospital. Study period: April 2014 till July 31, 2018. Methods: Retrospective data collection from medical records of the above subjects. Data collected included age at dialysis initiation, sex, comorbid conditions (diabetes mellitus [DM], vascular ailments), date of dialysis initiation and date of last visit, or removal of catheter or death whichever happened first. If there was PD dropout, the cause for the same was also be analyzed

RESULTS: Patient characteristics: The total number of patients under follow-up during the study period was 51. 19 of them were prevalent patients with a follow-up period of 29.53 patient-years before the study period. 34 catheter insertions (2 reinsertions in prevalent patients) were done during the study period with a total period of follow-up of 28.72 patient-years among this incident group. 29 (56.8%) were males. The mean age (in years) was 60.4; range 23–86. 37 (72.5%) had DM; 23 patients died; 6 left follow-up; and 2 had undergone transplant. 15 (28.3%) dropped out of PD with a follow-up period of 15.99 patient-years before dropout. 10 of them were females and 10 had DM. 6 switched over to HD within the first 2 months and 7 beyond 1 year of PD. Dropout rate was 0.24 per patient-year. Causes of dropout: Refractory and worsening peritonitis in 5; poor returns and change in preference in 3 each; nonfunctional catheters in 2; and switch over followed an episode of peritonitis in 7.

CONCLUSIONS: (1) Dropout with switch over to HD occurred in 28.3% of patients on PD during the study period. (2) Dropout rate was 0.24 per patient-year. (3) Timing of drop out varied from 5 to 793 days after catheter insertion. (4) There was associated peritonitis in approximately 50% of dropouts.

45. PAUCI-IMMUNE VASCULITIS: CLINICOPATHOLOGICAL PROFILE OF PATIENTS FROM SINGLE CENTER IN INDIA

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BACKGROUND: Vasculitis is inflammatory necrosis of predominantly small blood vessels characterized by the presence of circulating antineutrophil cytoplasmic antibodies (ANCAs), pauci-immune or absence of immune complex deposition on histology, and response to steroid and antibody depleting strategies such as plasmapheresis, cyclophosphamide, and rituximab. The major causes of death are infection, cardiovascular events, and malignancy. Poor prognostic factors are advanced age, chronic kidney disease 5 stage, high BVAS score.

AIM OF THE STUDY: To study the outcome of pauci-immune vasculitis with renal involvement in patients at our center and to analyze whether plasmapheresis influenced outcomes in patients with pauci-immune vasculitis.

METHODS: It was a prospective observational study with patient duration from 2010 to 2016. Inclusion criteria: Histopathological criteria – necrotizing and crescentic glomerulonephritis (GN) consistent with a diagnosis of pauci-immune renal vasculitis or anti-GBM disease and serological criteria – ANCA vasculitis (anti-MPO and/or anti-PR3 antibody present)/anti-GBM disease (anti-GBM antibody present). Exclusion criteria: Immune complex-mediated vasculitis; patients without renal involvement. Primary outcomes: Death: all-cause and cardiovascular end-stage renal disease: DDRD: Dialysis dependent > 3 months. NDDRD: Dialysis not required/<3 months. Secondary outcomes: Association with MPO/PR3/anti-GBM/both; plasmapheresis.

RESULTS: The mean age of patients was 40.3 ± 18.43 years, 72% being males. Fifty-two patients had renal-limited

vasculitis while 68 patients had severe vasculitis. The mean serum creatinine at baseline was 6.9 ± 4.8 mg/dl. 82% patients were put on prednisolone, while 57% were given intravenous/oral cyclophosphamide. Overall, 5-year patient survival for nondialysis-dependent renal failure (NDDRF) was 92.31% versus 66.18% for DDRF ($P = 0.0001$). Renal-limited vasculitis patients had overall 5-year survival of 77.31% which was better than those with systemic vasculitis (70.7%) and severe vasculitis (65.8%). Those who had dual positivity (ANCA + anti-GBM) had worst 5-year survival (57.1%), while those with only anti-GBM had survival of 65%; however, pure ANCA positives had 76.09% with no significant difference between MPO and PR3. Plasmapheresis was initiated in those with pulmonary hemorrhage and/or those with RPRF (cresentric GN). However, only those who had NDDRF showed improvement of renal function while DDRF did not improve.

CONCLUSIONS: DDRF vasculitis has poorer renal and overall survival. Only anti-GBM and dual positivity are also associated with worse outcomes as compared to those with pure ANCA vasculitis.

46. EVALUATION OF CLINICAL AND HISTOPATHOLOGICAL SPECTRUM OF ADULT-ONSET NEPHROTIC SYNDROME

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BACKGROUND: Spectrum of diseases causing nephrotic syndrome is changing globally in last several decades. Various studies from India have shown that focal segmental glomerulosclerosis (FSGS) was the most common cause of primary nephrotic syndrome while membranous nephropathy as the second most common cause of primary nephrotic syndrome. Among secondary causes, most studies showed lupus nephritis as the most common cause. Hence, this study was conducted at Medanta-The Medicity Hospital, Gurugram, to know spectrum of adult-onset nephrotic syndrome.

AIM OF THE STUDY: To study the spectrum of adult-onset nephrotic syndrome.

METHODS: It was a prospective observational study. All adult (>18 years) patients who presented with nephrotic syndrome and underwent renal biopsy were included in the study. Nephrotic range proteinuria was defined as proteinuria >3.5 g/day or >40 mg/kg/day or spot UPCR >3.5. Proteinuria between 3 and 3.5 g/day but associated with serum albumin < 2.5 g/dl was also classified as nephrotic range. After obtaining informed written consent, their demographic details, clinical features, and blood investigation were recorded. All patients underwent an ultrasound evaluation of the kidneys followed by renal biopsy. The biopsy material was subjected to histopathology, immunofluorescence, and electron microscopic examination (whenever possible). Renal dysfunction was defined as patients who were having serum creatinine ≥1.5 mg/dl, and renal failure was defined as patients who were dialysis dependent.

RESULTS: The present study was conducted at Medanta-the Medicity Hospital, Gurugram, Haryana. A total of 107 cases of adult-onset nephrotic syndrome were included in this study. 58% of the patients were in age group of 31–60 years. The mean age of the patients was 46 ± 14.3 (range: 18–76) years. The study showed male predominance (67.3%) as compared to female (32.7%). The most common primary causes of adult-onset nephrotic syndrome found in the study were membranous nephropathy in 31.8% followed by minimal change disease in 19.6%, FSGS in 13.1%, IgA nephropathy in 11.2%, and 0.9% in C3 glomerulonephritis and crescentic glomerulonephritis each. Among secondary causes of nephrotic syndrome, diabetic nephropathy leads seen in 10.3%, amyloidosis in 6.5%, lupus nephritis in 3.7%, chronic thrombotic microangiopathy in 0.9%, and heavy chain deposition disease in 0.9% of total nephrotic patients.

CONCLUSIONS: In the study, the most common cause of adult-onset nephrotic syndrome was membranous nephropathy followed by minimal change disease. FSGS was the third most common disease reported. Among secondary causes, diabetic nephropathy leads followed by amyloidosis and lupus nephritis.

47. STUDY OF INTRADIALYTIC HYPERTENSION AT A TERTIARY CARE HOSPITAL

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BACKGROUND: Hypertension is perhaps one of the most common problems of patients with end-stage renal disease (ESRD). Hypertension is highly prevalent ESRD in patients on maintenance hemodialysis (HD). Intradialytic hypertension (IDH) is one such complication responsible for increased morbidity and mortality in chronic kidney disease (CKD) patients undergoing hemodialysis. In India, there are limited data available in the literature for the incidence of IDH in CKD patients on HD.

AIM OF THE STUDY: To study the prevalence of IDH in patient undergoing regular HD and factors responsible for IDH.

METHODS: The study was a randomized prospective single-center study. It included all the patients of CKD undergoing maintenance hemodialysis 2 or 3 times a week. Serial blood pressure (SBP) recordings were taken on monitor at the beginning of HD session; at the end of hemodialysis session and at 1 h during the session; for 2 HD sessions. IDH was defined as rise in SBP during the HD session more than or equal to 10 mm of Hg from predialysis BP two out of three consecutive HD sessions.

RESULTS: During this study, it was found that mean age of all subjects was 42.26 ± 14.69 years. 95 (95%) had history of hypertension, 28% had history of diabetes mellitus, and 12% had history of ischemic heart disease. 31% of patients were found to have IDH. Regression analysis was performed to find out independent risk factors for IDH. It was found that pre-HD, SBP was an independent risk factor for IDH after adjusting for gender, diabetes mellitus, HD vintage, cholesterol, intradialytic weight gain (IDWG), frequency of HD, and types of antihypertensive drugs.

CONCLUSIONS: IDWG and cholesterol are modifiable risk factors. Pre-HD SBP was an independent risk factor for IDH. Patients with overall higher BP burden likely to develop IDH.

48. OPEN-LEBEL RANDOMIZED CONTROLLED STUDY TO EVALUATE THE ROLE OF METFORMIN TO RETARD THE PROGRESSION OF AUTOSOMAL POLYCYSTIC KIDNEY DISEASE AND FOLLOW-UP WITH MAGNETIC RESONANCE IMAGING

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BACKGROUND: Autosomal dominant polycystic kidney disease (ADPKD) is the most common of the inherited cystic renal disease. It occurs worldwide and in all races with prevalence estimated between 1:400 and 1:1000. A better understanding of pathophysiology has facilitated development of preclinical trials and identification of promising drugs such as metformin. It has been already proved that magnetic resonance imaging (MRI) is one of the best tools to assess the total kidney volume and cyst volume and to assess the progression of the disease.

AIM OF THE STUDY: The aim of the study is to evaluate the effect of metformin therapy on change in progression of autosomal polycystic kidney disease by measuring the total kidney volume with MRI.

METHODS: Since February 2018 till June 2019, thirty patients were randomized in 1:1 fashion to receive either metformin or placebo. All the patients of ADPKD defined as per modified Revine criteria with exclusion of patients having diabetics, liver disease, and congestive heart failure. The parameters used in this study were kidney volume measured by MRI (Planimetry method), estimated glomerular filtration rate as per MDRD formula, renal function test, liver function test, and 24:00-h urine protein. Total kidney volume was measured at baseline and 1 year later. Tablet metformin was started at dose of 500 mg/bd and gradually increased as per tolerance. On each follow-up, blood pressure was measured along with enquiry regarding pain abdomen; gastrointestinal side effects related to Metformin were done.

RESULTS: At 12 months, the percentage change of kidney volume as measured by Paired *t*-test in the intervention group was significantly lower than the control group ($P = 0.0008$). The proteinuria reduction was also significantly better in the intervention arm. The blood pressure control in both arms was comparable. The flank pain events were lower in the intervention arm.

CONCLUSIONS: Metformin is a safe and well-tolerated cheap drug which can be effectively used among ADPKD patients to retard the progression of the kidney volume and that is an indirect marker of disease progression.

49. A STUDY TO FIND BARRIERS FOR PHYSICAL ACTIVITY AMONG CHRONIC KIDNEY DISEASE PATIENTS

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BACKGROUND: Worldwide, chronic kidney disease (CKD) has become a serious health issue and has drawn much attention due to its increasing prevalence. End-stage renal disease (ESRD) is one of the chronic diseases resulting in a high level of disability in different domains of the patients' lives regardless of age. Physical inactivity is a strong predictor of mortality in patients with ESRD.

AIM OF THE STUDY: This study aims to find such barriers for physical activity in CKD patients.

METHODS: This is an observational study conducted in dialysis unit of Sri Ramachandra Medical Center with 104 both female and male patients of age group 40–60 years undergoing hemodialysis (HD) at least for the past 6 months. Patients with recent myocardial infraction, stroke, and physical impairment were excluded. Consented patients participated. Human Activity Profile Questionnaire (HAP) was used to assess the patient's physical activity level, and patient-related perceived barriers for physical activity were enquired through an interview session.

RESULTS: Among 104 patients, male–female ratio was 62:42; mean age was 54.56 years; mean dialysis vintage was 27.85 months (range 6–120 months). Hypertension (91.3%) and diabetes (53.8%) were the most frequent chronic comorbidities. According to MAS and AAS of HAP, 55.8%, 43.3%, and 1% patients were, respectively, impaired, moderately active, and active. The most frequently reported barriers were fatigue or tiredness (54.8%), shortness of breath (51.9%) ($P = 0.03$), fear of getting hurt (22.1%), and body pain (21.2%). Other reported barriers are joint pain, family protection, lower limb swelling, foot ulcer, chest pain, less self-confidence, anxiety, overstressed, and depression. Shortness of breath (SOB) is the most influential barrier and statistically significant ($P = 0.04$).

CONCLUSIONS: A number of patient-related perceived barriers for physical activity were identified and among that fatigue and SOB were found to be influential factors.

50. MELIOIDOSIS: AN EMERGING INFECTION IN PATIENTS WITH CHRONIC KIDNEY DISEASE

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BACKGROUND: In spite of being an endemic disease, melioidosis cases are uncommon in the subcontinent, including Bangladesh. Reported cases are mostly diagnosed among inhabitants of central and north-east zone of Bangladesh and most having diabetes. Chronic kidney disease (CKD) is also a recognized risk factor for melioidosis. We report four cases of melioidosis occurring among patients with CKD and from not well-known endemic areas of the country.

AIM OF THE STUDY: To disseminate the message that melioidosis can occur in nonendemic areas and patients with CKD.

METHODS: Patients' sociodemographic, clinical, and laboratory parameters; treatment; and outcome were recorded in semi-structured case record forms.

RESULTS: Four male patients, aged between 36 and 65 years, all being diagnosed with CKD and three being diabetic; presented with fever, anorexia, and weight loss were included in the study. They were from the districts of Sirajgonj, Rajshahi, Chattogram, and Munshigonj, not known to be endemic for melioidosis. All patients had septicemic melioidosis with evidence of visceral abscesses in three cases; one had prostatic abscess and two had splenic abscess. The patient with prostatic abscess died before receiving blood culture report. Other patients were treated initially with ceftazidime (2) and meropenem (1) and in maintenance phage co-amoxiclav or co-trimoxazole and doxycycline. One patient cured with no recurrence of symptoms and other two patients were improving at the time of their last follow-up.

CONCLUSIONS: Although melioidosis cases are clustered in certain zones of Bangladesh, we emphasize that cases can occur anywhere within the country and even in nondiabetic patients with CKD. Physicians should have high index of suspicion, and melioidosis should be suspected in appropriate clinical scenario.

51. VARIABILITY IN ESTIMATED GLOMERULAR FILTRATION RATE AFTER CORONARY PROCEDURES IN PATIENTS WITH CHRONIC KIDNEY DISEASE

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BACKGROUND: The prevalence of cardiovascular disease (CVD) increases as the renal function declines. CVD is the major cause of death in patients with chronic kidney disease (CKD). In patients with CKD who present with acute coronary syndromes, angiographic procedures are underused because of the fear of risk for contrast-induced acute kidney injury (CI-AKI). The risk of AKI due to contrast material is overestimated and preventive measures can reduce the incidence of CI-AKI.

AIM OF THE STUDY: To assess the change in estimated glomerular filtration rate (eGFR) over 30 days following coronary procedures in patients with CKD Stage 3 and 4 and to assess the incidence of CI-AKI and study associated risk factors.

METHODS: This is a prospective observational study of patients with an eGFR <60 ml/min/1.73 m^2 undergoing elective coronary procedures at Aster Medcity. Patients excluded from the study were those undergoing primary percutaneous coronary intervention, CKD on dialysis, patients who underwent coronary artery bypass grafting within 1 month of coronary procedures, history of contrast material exposure within 72 h of coronary contrast procedure, and history of nephrotoxic drugs within 7 days. eGFR was calculated using the CKD-EPI equation before the coronary procedure and after the procedure at 24 h, 48 h, 72 h, and 30 days. All patients were given prophylaxis for CI-AKI as per the KDIGO guidelines, with intravenous normal saline and oral N-acetyl cysteine. Primary outcomes were variability of eGFR in 30 days and incidence of CI-AKI (diagnosed using the KDIGO criteria). Statistical analysis was performed using IBM SPSS Statistics 20 version.

RESULTS: The total number of patients studied was 282 (68.1% were diabetics). The mean age of the population was 66.86 ± 9.08 years. Mean eGFR was 42.91 ± 10.51 ml/min/1.73 m^2; mean hemoglobin was 12.08 ± 1.51 g/dl. Coronary angiogram (CAG) was done in 174 patients and percutaneous transluminal coronary angioplasty (PTCA) was done in 108 patients. The mean contrast volume used was 55.17 ± 34.45 ml in CAG and 156.94 ± 47.99 ml in PTCA. CI-AKI was seen in 66 (23.4%) patients; AKI stage 1 was seen in 55 (18.01%); stage 2 in 12 (4.26%) and stage 3 in 3 (1.1%) patients respectively. Dialysis was required in 3 patients, and they were off dialysis within 1 month of CI-AKI. The incidence on CI-AKI increased with severity of chronic kidney disease. The variability of eGFR at 1 month after coronary procedures showed no statistical significant change from baseline, even in patients who developed CI-AKI.

CONCLUSIONS: Coronary procedures carry a risk for CI-AKI. However, CI-AKI is self-limiting and has no major detrimental effects on eGFR at 1 month after contrast exposure. The benefits of invasive coronary procedures in acute coronary syndromes should not be denied to patients with CKD.

52. UNILATERAL RENAL CYSTIC DISEASE: A RARE PRESENTATION OF A RARE CASE

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BACKGROUND: Unilateral renal cystic disease (URCD) is a rare disorder, which is characterized by replacement of one kidney with multiple cysts with normal contralateral kidney. The presentation is similar to autosomal polycystic kidney disease. Hypertension is a rare initial presentation of this disorder.

AIM OF THE STUDY: We present a case of a young girl who presented with hypertension and later diagnosed with URCD.

METHODS: A 12-year-old female presented with headache and on evaluation was found to have hypertension (blood pressure 144/96 mm Hg). She lost to follow-up and presented back after 2 months with pain abdomen and one episode of hematuria. There was no family history of renal disorder. On clinical examination, a ballotable mass was palpable in the left loin area. No other abnormality was detected.

RESULTS: Laboratory evaluation revealed anemia (hemoglobin 8.8 g%) and microscopic hematuria (80–90 RBCs per high power field). Renal function and serum electrolyte levels were within normal limits. On radiological evaluation, ultrasonography showed unilateral (left) polycystic kidney disease. She was further evaluated and magnetic resonance urography was performed [Figure 1] which revealed enlarged left kidney (14.8 cm × 12.2 cm × 8.9 cm) with well-defined well-marginated variable-sized cysts.

CONCLUSIONS: URCD is usually conservatively managed and does not require nephrectomy unless malignancy is suspected. These cases should be regularly followed up for increase in size of involved kidney and renoparenchymal hypertension.

53. ENDOTHELIAL NITRIC OXIDE SYNTHASE GENE POLYMORPHISM IN MALARIA-ASSOCIATED ACUTE KIDNEY INJURY

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BACKGROUND: In endemic areas like Odisha, the incidence of acute kidney injury (AKI) may be >4% of malaria cases. The endothelial nitric oxide synthase (ENOS)-derived NO mediates vasodilation, inhibits platelet aggregation, and modulates expression of cell adhesion molecules. We hypothesize that functionally important variants of ENOS could influence individual susceptibility to malaria by altering the amount of NO generated by the endothelium plasma levels of NO will help in predicting malarial AKI.

AIM OF THE STUDY: To study ENOS gene polymorphism and levels of plasma NO in patients admitted with malaria-associated AKI in the department of nephrology.

METHODS: The study was conducted between December 2018 and July 2019. All consecutive patients with AKI will be included in the study. Clinically suspected malaria patients were screened for *Plasmodium falciparum* infection using rapid diagnostic test and thick and thin-film method and confirmed by species-specific PCR diagnosis. Venous blood will be collected in EDTA-containing vials after informed consent was obtained from all enrolled patients (for analysis of ENOS gene polymorphism and plasma nitric oxide level) and immediately centrifuged for 3 min. AKI will be staged into three stages based on severity according to the KDIGO criteria. ENOS gene polymorphism, plasma NO level, and endothelial microparticle will be measured in malaria-associated AKI patients and will be compared with other groups of AKI. Patients will be followed for monthly basis to determine the course of the disease and progression of renal failure.

RESULTS: A total of 108 patients with febrile illness associated with AKI were enrolled in the study. Around 26 were malarial AKI. Seventeen of them were Stage 3 AKI. Fifteen of hem undergone hemodialysis. Eight had undergone intermittent hemodialysis more than 2 weeks. One patient expired. Of 14 patients who were followed up to 3 months, none developed CKD. We genotyped three commonly defined polymorphic loci of ENOS; Glu298->Asp; intron 4 variable number of tandem repeat region; and T-7863C; in these patients. The median plasma NO was found to be increased in individuals with the Glu298->Asp substitution and was significantly mild malarial AKI ($P < 0.0001$), but the increase was not significant in Stage 3 malaria AKI. When the genotype and allele frequencies for the three polymorphic sites of the ENOS gene (Glu298->Asp; intron 4 VNTR; and T-786->C) were compared for the groups of patients with mild and severe malaria, a significant difference was observed only for Glu2983Asp polymorphism.

CONCLUSIONS: Our findings suggest that the ENOS Glu298->Asp substitution has protective effects against malarial AKI. Median plasma NO level was significantly not increased in patients with Stage 3 malarial AKI compared to other stages of AKI.

54. ROLE OF CONTINUOUS GLUCOSE MONITORING AMONG MAINTENANCE HEMODIALYSIS PATIENTS

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BACKGROUND: The limitations in the use of a traditional approach for glucose determination during dialysis are (1) consumables are required; if the measurement is done several times during the dialysis session; (2) the measurement is discontinuous; thus, rapid glucose changes may not be revealed promptly; (3) for every measure; operator is required; this affects cost of the dialysis session. In patients on dialysis, continuous glucose monitoring (CGM) improves glycemic control and decreases hypoglycemic events.

AIM OF THE STUDY: To explore the utility of CGM to better manage diabetes in patients on hemodialysis.

METHODS: We enrolled 25 end-stage renal disease patients on maintenance hemodialysis, of which 19 were diabetic and six were nondiabetic. The CGM machine was implanted in all patients for 7 days, and every 5 min readings were recorded, which included dialysis and nondialysis days. Timing and the doses of medication administration were recorded.

RESULTS: Ten out of 19 diabetic patients (52.63%) developed recurrent hypoglycemia on hemodialysis, with three of them needing hospitalization for the same. Two patients in this group were hospitalized for hyperglycemia. The mean fasting blood sugar level (BSL) was 161 ± 53 mg/dl and 123 mg/dl among diabetics and nondiabetics, respectively. The mean post-lunch BSL was 199.8 ± 53.75 mg/dl and 145 mg/dl among diabetics and nondiabetics, respectively. The mean glycosylated hemoglobin values were >8 in the diabetic group. 64.6% ± 23.3% of all the recorded glucose values were above the target of 150 mg%. Episodes of silent hypoglycemia were observed among 42% of diabetic patients. The maximum target organ damage risk was for IHD (37%) followed by diabetic foot (15.7%), sepsis (10.5%), and stroke (5.26%).

CONCLUSIONS: Hemodialysis treatment can cause major fluctuations in blood sugars. For diabetic patients on hemodialysis, CGM is a useful tool to identify patients with silent hypoglycemia and help implementing therapeutic decisions aimed at optimizing glucose level.

55. CENTER-LEVEL FACTORS INDEPENDENTLY AFFECT SURVIVAL IN HEMODIALYSIS PATIENTS: FINDINGS FROM A MULTICENTER COHORT IN INDIA

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BACKGROUND: Mortality of patients on dialysis in India is higher than that reported from western countries. Clinical and

socioeconomic factors play an important role in determining survival of these patients, as they do differences between dialysis centers.

AIM OF THE STUDY: To examine differences in survival across dialysis centers in a large Indian dialysis network, accounting for patients' individual characteristics.

METHODS: We analyze data from 12,640 patients who received dialysis at 129 centers managed by NephroPlus, India's largest dialysis provider, between January 2014 and December 2017. The outcome is the time since the patient comes to the dialysis center until death or end of follow-up. We use a mixed-effects Cox proportional hazard model to examine the differences in mortality between dialysis centers, after accounting for the patient profile and clinical characteristics. The 129 dialysis centers were distributed across cities in urban (33%), semi-urban (26%), and rural (41%) areas. 64% were set up under Public-Private Partnership programs. About 54% were visited by a nephrologist at least once a week.

RESULTS: Of the 12,640 patients, 24% died during the follow-up period (0–1470 days; median of 342 days). 32% of patients were lost to follow-up. The overall unadjusted mortality rate was 21.3 per 100 patient-years. The individual-level variables that were associated with the outcome were age, having temporary dialysis catheter, history of heart attack or heart failure, and lower-income and less education. There was substantial variation in mortality between dialysis centers after accounting for the individual-level variables – with center effects ranging between less than half to over 2.26 times the average risk – and an estimated variance of 0.18. Dialysis centers with high patient volume performed better than low-volume centers. Furthermore, dialysis centers in rural areas fared worse than the ones in urban areas.

CONCLUSIONS: There exist differences in survival between dialysis centers that are not explained by patients' background and clinical characteristics. Future research should explore other possible explanations for observed variation in patient survival across dialysis centers.

56. THE SIGNIFICANT OTHERS IN SNAKE VENOM-INDUCED ACUTE KIDNEY INJURY

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BACKGROUND: Snake envenomation is one of the common clinical emergencies in tropical countries, and acute kidney injury (AKI) is the major secondary complication observed among the vasculotoxic snakebite victims. Despite this, the involvement of contributing and regulating factors, other than the venom components, in etiology and remission of kidney injury is the least studied in snakebite-induced AKI (SAKI).

AIM OF THE STUDY: In the present study, we aim to evaluate the pathophysiological importance of immune cell and alterations in their population in SAKI patients and venom-induced experimental murine model of SAKI.

METHODS: Hematological profiling and immunophenotyping of peripheral blood mononuclear cell of SAKI patients were carried out and compared with that of normal healthy control individuals. Neutrophil-to-lymphocyte ratio (NLR) and platelet-to-lymphocyte ratio (PLR), two derived measures of acute inflammation, were also calculated from the respective absolute counts. Based on a dose and time kinetic study, intramuscular injection dose of 30 μg RVV/100 g bodyweight of mice and incubation period between 60 h was selected for induction of SAKI in experimental animals. Urinary, plasma, and histological parameters were assessed at the selected time point to confirm kidney injury. Hematological analysis and immunophenotyping of splenocyte and thymocyte and peripheral blood mononuclear cells were carried out. Unpaired *t*-test was performed to check any statistical difference between the parameters of the studied groups. A two-tail $P < 0.05$ was considered statistically significant.

RESULTS: Neutrophilic leukocytosis associated with lymphocytopenia and mild-to-moderate thrombocytopenia was noted in SAKI patients compared to control group. NLR and PLR were also found to be significantly altered among SAKI patients. Immunophenotypic characterization of peripheral lymphocyte shows significantly elevated regulatory T-cells and cytotoxic T-cell associated with significant reduced CD4+/CD8+ ratio. Similar alterations in hematological parameters and peripheral blood cells subsets were noted in case of murine model of SAKI. Splenic, thymic, and peripheral lymphocyte shows similar polarization toward regulatory and cytotoxic T-cells. Further analysis revealed a significant increase of splenic regulatory (CD25+FoxP3+IL10+) helper and cytoxic T-cells. Immunohistochemical analysis showed a remarkable increase in tissue infiltration by TCR-α+ and FoxP3+ cells into the renal interstitial space.

CONCLUSIONS: Taken together, the results of the present study clearly indicated codominance of acute inflammation and T-cell polarization toward regulatory subset in both human and murine SAKI.

57. A PROSPECTIVE STUDY OF PREVALENCE OF NONDIABETIC RENAL DISEASE IN PATIENTS OF TYPE 2 DIABETES MELLITUS WITH RENAL DYSFUNCTION AT A TERTIARY CARE HOSPITAL

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BACKGROUND: Various nondiabetic renal disease (NDRD) occur either in isolation or along with changes of diabetic nephropathy (DN), i.e., mixed nephropathy (MxN) in patients with diabetes mellitus, aside from pure DN. There are no clear clinical or laboratory parameters which can predict the type of kidney lesion that a diabetic with renal dysfunction can have.

AIM OF THE STUDY: To study the prevalence of NDRD in patients of type 2 diabetes mellitus with renal dysfunction.

METHODS: We subjected all patients of type 2 diabetes mellitus presenting with proteinuria more than 500 mg/day, active urinary sediment, or serum creatinine >1.5 mg/dL, to renal biopsy. Patients were excluded from the study if they had any of the contraindications of renal biopsy or they were detected to

have type 2 diabetes after developing CKD. Of the 102 patients screened, 56 patients could be subjected to renal biopsy.

RESULTS: DN was found in 46.4%, MxN in 23.2%, and NDRD in 30.4% patients. CIN was the most common nondiabetic lesion found in 53% NDRD and 38% of MxN patients (5 out of 13), followed by FGGS in 11.76% NDRD and in 23.07% MxN patients. Other findings were AIN, MIDD, FSGS, GPA, IgAN, MPGN, CGN, MN, amyloidosis, lupus nephritis, and nonspecific podocytopathy. Some patients had more than one NDRD lesion. Duration of diabetes, creatinine clearance, proteinuria, active urinary sediment, glycemic control, vasculitis profile, or hypertensive changes in biopsy did not predict the type of lesion. Diabetic retinopathy (DR) (found in 90.62% patients), requirement of insulin, 30%–70% foot process effacement (95% had DN), and GBM thickness >460 nm (present in 81.82% patients of DN) strongly correlated with the presence of DN. The presence of any two out of the following three – nephrotic range proteinuria, DR, and duration of diabetes > 10 years – had a strong correlation with DN.

CONCLUSIONS: NDRD is a prominent cause of renal dysfunction in patients with type 2 diabetes. DR, nephrotic range proteinuria, insulin requirement, and duration of diabetes >10 years may suggest the possibility of DN. However, there are still no parameters to predict DN or NDRD and preclude a renal biopsy.

58. RELATIONSHIP BETWEEN SERUM PHOSPHATE LEVELS AND CAROTID INTIMA MEDIA THICKNESS IN HEMODIALYSIS PATIENTS

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BACKGROUND: The main cause of death in chronic kidney disease patients is cardiovascular death events. Increased phosphate levels in the blood in chronic kidney patients may trigger changes in the vascular, causing vascular calcification. Carotid intima-media thickness (cIMT) is a good and fairly easy noninvasive cardiovascular examination modality.

AIM OF THE STUDY: This study aims to determine the relationship between phosphate levels in blood with cIMT in hemodialysis patients.

METHODS: This study was conducted with a cross-sectional technique in hemodialysis patients in a Mohammad Hoesin Hospital in Palembang. After the patient was tested for phosphate levels in the blood, cIMT measurements using echocardiography were carried out. Statistical tests were performed using independent *t*-test.

RESULTS: Thirty hemodialysis patients in Mohammad Hoesin Hospital patients in Palembang, Indonesia, were examined for phosphate levels in the blood and cIMT measurements. There were 20 patients with unthickened cIMT and 10 patients with thickened cIMT (cIMT > 0.9 mm). The mean serum phosphate level in patients with unthickened cIMT was 3.5 ± 0.99 mg/dL, and the mean serum phosphate level in patients with thickened cIMT was 5.2 ± 2.3 mg/dL. There was a statistically significant relationship between serum phosphate levels with cIMT ($P = 0.007$).

CONCLUSIONS: There is a relationship between serum phosphate levels and cIMT in hemodialysis patients.

59. BEDSIDE PERCUTANEOUS CHANGE OF PERITONEAL DIALYSIS CATHETER ACCIDENTALLY CUT BY PATIENT USING A NOVEL TECHNIQUE

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BACKGROUND: Older patients and patients with psychiatry disorders are particularly prone to accidently injuring or inadvertently pulling the peritoneal dialysis (PD) catheter. This is a risk factor for peritonitis and technique failure. To prevent these complications,, the PD catheter needs to be removed and replaced with a new PD catheter.

AIM OF THE STUDY: We describe change of PD catheter using a novel technique by blind bedside percutaneous method.

METHODS: We describe the case of a 65-year-old woman with end-stage renal disease who underwent bedside PD catheter insertion nearly 6 years ago. She has been on three exchanges per day with good clinical status. Unfortunately, she accidently cut the external part of the PD catheter 2 weeks before presenting to us. In her local hospital, the titanium adaptor was placed under aseptic conditions, but the connection was loose and was at a high risk of contamination and peritonitis. She requested that the new catheter be placed percutaneously as the initial one had been 6 years previously.

RESULTS: After meticulously scrubbing and cleaning the abdomen, the PD catheter distal to the exit site was meticulously cleaned; the titanium adaptor and transfer set removed. A guidewire is passed through catheter into the peritoneal cavity. After infiltrating skin over the previous healed incision site with local anesthetic, a 5-mm incision was made. The soft tissue was dissected until the deep cuff was visible. With blunt dissection, the cuff was gently separated from the subcutaneous tissue where it had become anchored. Similarly, the superficial cuff was also dissected out and separated from the fascia. Taking care to retain guide wire's position inside the peritoneum, the intraperitoneal part of the PD catheter was removed and the catheter was removed leaving the guidewire in intraperitoneal position. A new PD catheter was placed along guidewire and the deep cuff was located at the level of the linea alba and the catheter was exteriorized with a new exit site.

CONCLUSIONS: Using this novel technique, the patient escaped peritonitis and also did not require open surgical PD catheter placement requiring surgical support, dedicated operating room time, reduced hospital stay, avoidance of hemodialysis, decrease cost, and avoidance of technique failure.

60. NEUTROPHILLIC CD64 EXPRESSION DIFFERENTIATES INFECTION FROM NONINFECTION STATE: AN EXPERIENCE FROM ROUTINE CLINICAL PRACTICE

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BACKGROUND: Bacterial and opportunistic infections are major cause of mortality. Such patients may present initially with signs and symptoms of nonspecific inflammatory process. Fc receptor (FcγR1 or CD64) expression on neutrophils and procalcitonin are potential biomarkers of bacterial infections, and their expression rapidly increases as physiological response to microbial components, complement products, and cytokines; this occurs within 4-6 h.

AIM OF THE STUDY: To compare CD64 expression on neutrophils with procalcitonin to differentiate infection from non-infection state in end-stage renal disease (ESRD) patients.

METHODS: In this observational study, we had recruited 42 ESRD patients from our institute and categorized them into two different groups: Group I – Without infection; Group II – With infection. Diagnostic performance of CD64 on neutrophil and procalcitonin has been evaluated using flow cytometry and serum ELISA, respectively. Mean fluorescence intensity (MFI) that indicated positive staining for corresponding CD64 marker was identified by comparison of dual-parameter histograms to the corresponding negative control. The diagnostic performance of CD64 and procalcitonin measures, including the sensitivity, specificity, and area under the receiver operating characteristic curve, was examined.

RESULTS: Out of 42 patients recruited, 28 (66.7% were male; average age 42 [32–58]) and 14 (33.3% were female average age 36 (27–52)). Among 42 adult patients included, 27 (64.3%) were diagnosed with infection. Percentage of neutrophil with nCD64 expression and their MFI in patients with infection (79.52 ± 12.79; 335.97 ± 96.72) were significantly higher as compared to those without infection (15.35 ± 10.69; 149.94 ± 37.72 $P < 0.001$). nCD64 cutoff value on neutrophils to diagnose bacterial infection (using a cutoff value of 30%) identified with a sensitivity of 92.81% and specificity of 88.87% was 28; whereas the sensitivity and specificity of procalcitonin was 73% and 68%, respectively, and cut-off value of 1.13 ng/ml. The area under the curve of nCD64 and procalcitonin was 0.94 and 0.78, respectively.

CONCLUSIONS: Neutrophilic CD64 expression may be a better and early diagnostics tool with cutoff level of 28 for the detection of active bacterial infection.

61. PERIPHERAL BLOOD MONONUCLEAR CELL CYTOKINE RESPONSE IN CHRONIC KIDNEY DISEASE 5ND AND PERITONEAL DIALYSIS PATIENTS

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BACKGROUND: Infection remains leading complication in patients undergoing peritoneal dialysis (PD). Peripheral blood mononuclear cells (PBMCs) provide first-line defense against invading pathogens and cytokines are involved in modulating PBMC-mediated inflammatory response. We hypothesized that PBMC cytokine expression after inflammatory stimulation might be impaired in PD patients making them prone to infectious complications. No study has systematically looked at PBMCs cytokine expression among chronic kidney disease (CKD) stage 5 and PD patients.

AIM OF THE STUDY: To evaluate cytokine expression of PBMCs stimulated with PHA (potent T and B cell mitogen) in patients on PD and patients having CKD 5ND and compare it with those of healthy controls (30 patients each).

METHODS: PBMCs were isolated as per standard procedure and were seeded in tissue culture plates in a concentration of 1×10^6 cells/well. They were stimulated with PHA and ELISA evaluated cytokine production.

RESULTS: Cytokine immune response of PBMCs in PD, CKD 5ND, and healthy controls post-PHA stimulation was as follows: For pro-inflammatory Th1 cytokines (TNF-α [52.50 ± 6.89; 101.66 ± 11.50; 284.51 ± 33.42], IFN-g [79.43 ± 7.7; 205.44 ± 15.92; 307.34 ± 26.73], IL-1 β [122.53 ± 9.81; 196.44 ± 28.43; 350.52 ± 34.11]; $P < 0.001$ for all) and anti-inflammatory Th2 cytokines (IL-4 [2.24 ± 0.91; 4.53 ± 1.85; 49.58 ± 10.53] and IL-10 [1.15 ± 0.36; 8.45 ± 3.68; 262.77 ± 71.69]; $P < 0.001$ for all). They were also significantly lower in CKD 5ND patients as compared to controls.

CONCLUSIONS: We in this study document impaired cytokine immune response of PBMCs in patients with CKD 5 ND and PD, which might contribute to their relative immunosuppressed state and propensity for infections. Larger prospective studies are needed to confirm these findings and to establish its cause.

62. PREVALENCE OF OBESITY, DIABETES, AND HYPERTENSION IN URBAN AND RURAL POPULATION

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BACKGROUND: The incidence and prevalence of CKD have been increasing. This is largely due to increasing incidence and prevalence of obesity, diabetes, and hypertension.

AIM OF THE STUDY: To study the prevalence of obesity, diabetes, and hypertension in urban and rural population.

METHODS: A total of 4095 were screened – 2919 in urban areas and 1176 in rural areas. Body mass index (BMI, weight in kg/height in square meters), blood pressure (BP, mmHg), and random blood sugar were checked in these subjects. Diagnosis of overweight and obesity was made if BMI exceeded 23 kg/m^2. Diabetes was diagnosed if random blood sugar was >200 mg/dl. Hypertension was diagnosed if systolic BP exceeded 140 mmHg, and diastolic BP exceeded 90 mm Hg.

RESULTS: Of 2919 subjects screened in urban areas, 1847 (63%) were overweight or obese, 1199 (41%) were hypertensive, and 566 (20%) were diabetic. Among 1199 hypertensive subjects, 721 (60%) were detected for the first time. Out of 478 known hypertensive subjects, only 47% were controlled, while 53% were uncontrolled. Among 566 diabetic subjects, 116 (20%) were detected for the first time. Out of 450 known diabetic, 321 (71%) were controlled and 129 (29%) were uncontrolled. Of 1176 subjects screened in rural areas, 548 (46%) were overweight and obese, 471 (40%) were hypertensive, and 165 (14%) were diabetic. Among 471 hypertensive subjects, 358 (76%) were detected for the first time. Out of 113 known hypertensive subjects, 48% were controlled and 52% were uncontrolled. Of 165 diabetic subjects, 84 (51%) were detected for the first time. Of 81 known diabetics, 54 (67%) were controlled and 27 (33%) were uncontrolled.

CONCLUSIONS: A high prevalence of obesity, diabetes, and hypertension in both urban and rural population is responsible for high incidence and prevalence of CKD in our country.

63. LUPUS NEPHRITIS PROFILE IN A TERTIARY CARE CENTER FROM SOUTHERN INDIA

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BACKGROUND: Lupus nephritis is a life-threatening illness in patients with SLE, with 50% having renal involvement at the time of diagnosis of SLE. There are six different classes of lupus nephritis, with each having their own prognosis. The spectrum of clinical manifestations of SLE and response to immunosuppressive protocols differs from person to person, which has to be studied upon.

AIM OF THE STUDY: To determine the epidemiological profile, clinical features, biochemical and pathological characteristics, and outcomes in patients with lupus nephritis from a single center in Southern India.

METHODS: A retrospective analysis of 26 patients with biopsy-proven lupus nephritis from January 2017 to October 2018 was done. Data regarding clinical features and biochemical, pathological, and serological reports were collected. Follow-up details were also noted. The diagnosis of SLE was made based on the SLICC criteria. Active lupus nephritis was defined by urine dipstick positive for RBCs, proteinuria of more than 0.5 g/day, and biopsy-proven renal disease. Renal biopsies were categorized according to ISN/RPS classification. Patients with Class III/IV received induction therapy with intravenous pulse methylprednisolone 500 mg once daily for 3 days followed by oral prednisolone 1 mg/kg/day. Injection cyclophosphamide or tablet mycophenolate mofetil (MMF) was used as induction agents. Tablet azathioprine or MMF was used for maintenance therapy.

RESULTS: Lupus nephritis contributed to 13.2% of all native kidney biopsies. Female to male ratio was 25:1. 73% had microscopic hematuria and 46% had nephrotic range proteinuria. The median creatinine at the time of diagnosis was 0.9 mg/dL. The mean serum C3 and C4 levels were 49.9 ± 28.7 and 7.44 ± 3.9 mg/dL, respectively. 50% tested positive for direct Coomb's test, 84.61% for ANA, and 76.9% for dsDNA. 34.6% experienced abortions and fetal losses. 57.6% had hypertension at the time of diagnosis. Peripheral edema was seen in 65.3%, oliguria 50%, rashes 42.3%, serositis 38.4%, arthritis 50%, fever 53.8%, and ulcers 15.3%. Class IV lupus was the most common histological class (34.6%) followed by Class V (30.7%). IgG and C3 deposits were seen in all patients. Full house pattern was present in 42.3%. 14 patients had completed the induction phase of treatment; 7 had attained completed response and 7 achieved partial response. Three patients experienced adverse outcome.

CONCLUSIONS: (1) Lupus nephritis must be considered in females with nephrotic syndrome or fetal loss in reproductive age group. (2) Fifty percent of patients who had completed induction therapy attained complete response. (3) The presence of TMA and presentation as crescentic glomerulonephritis have poor outcome.

64. INCIDENCE, ETIOLOGIC PROFILE, AND OUTCOMES OF POSTPARTUM ACUTE KIDNEY INJURY IN CHHATTISGARH: A SINGLE-CENTER RETROSPECTIVE STUDY

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BACKGROUND: Pregnancy-related acute kidney injury (AKI) poses a challenge to clinicians taking care of these patients. AKI resulting from late obstetrical complications is well described in literature from the developed countries. Recently reported incidence of postpartum acute kidney injury (PP-AKI) is 10.55%. However, there are sparse data of PP-AKI from the state of Chhattisgarh in India.

AIM OF THE STUDY: To study incidence, etiology, and outcomes of AKI in the postpartum period.

METHODS: This retrospective study was done in the Department of Nephrology at Ramkrishna Care Hospital, Raipur, from May 2011 to May 2017. The data of women developing renal injury in the postpartum period admitted in our hospital over 6 years were collected and analyzed. Patients with known history of renal disease, hypertension, and diabetes were excluded. Patients history, demographic data, clinical data, and required hematological, biochemical, and microbiological reports were noted. The delivery characteristics, operative intervention, type of complication, treatment undertaken, and duration of stay in hospitals were also analyzed. Need for dialysis was also noted. Renal biopsy records were retrieved. Maternal PP-AKI outcomes were noted as complete or partial recovery, dialysis-dependent, and death. Fetal outcomes were noted as live birth and neonatal death. Patients were grouped into two groups: Group I (who underwent hemodialysis) and Group II (managed conservatively).

RESULTS: A total of 107 patients had PP-AKI with an incidence of 3.26%. The mean age patients were 27.3 ± 4.77 years. Mean gestational age 35.531 ± .89 weeks. Multipara constituted 45.8% patients and primipara were 54.2%. The most common clinical presentation was oliguria (91.58%). Most cause of AKI was

multifactorial in 57 (53.27%), followed by puerperal sepsis 35 (32.7%). The most common cause of puerperal sepsis was urinary tract infection (22, 62.85%). Dialysis-requiring AKI was seen in 73 (68.22%) patients. Maternal mortality was 20.56% (N = 22). Of the 85 (79.4%) surviving patients, 75 (88.2%) had complete recovery of renal function, 6 (7.05%) patients had partial recovery, and 4 (4.7%) patients requiring dialysis on a long-term basis. 7 (6.54%) patients underwent renal biopsy. Live births were 92 (85.98%) and 15 (14.01%) died in the neonatal period. No statistical significant difference between Group I and Group II in etiologic profile (P > 0.55 NS), maternal mortality (P > 0.66 NS), and renal outcomes (P > 0.11 NS).

CONCLUSIONS: PP-AKI was associated with poor maternal outcomes and renal recovery. Maternal mortality and renal recovery were not affected by need for hemodialysis in our patient.

65. HEMODIALYSIS IN SHAPIRO SYNDROME WITH THERMAL DYSREGULATION: A CHALLENGE

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BACKGROUND: Shapiro syndrome is a rare disorder that is associated with recurrent episodes of perspiration and hypothermia along with corpus callosum agenesis. Chronic glomerulonephritis has not been reported in Shapiro syndrome.

AIM OF THE STUDY: We report the first case of chronic glomerulonephritis in this rare disorder and the challenges faced by us during hemodialysis of this case.

METHODS: A 48-year-old male was known case of Shapiro syndrome, diagnosed 12 years back, when he was evaluated for excess sweating associated with hypothermia and his magnetic resonance imaging brain showed corpus callosum agenesis [Figure 1]. He was managed with cyproheptadine and lost to follow-up. He presented to our hospital with altered sensorium and decreased urine output.

RESULTS: On evaluation, he was found to have hypothermia (temperature 35°C), hypotension (blood pressure 100/60 mmHg), and asterixis. Detailed evaluation revealed azotemia (serum urea 238 mg/dl and creatinine 12.6 mg/dl); anemia (hemoglobin 7.7 g/dl); thrombocytopenia (platelet count 28,000/cmm) and dyselectrolytemia (serum sodium 128 mg/dl and potassium 5.8 mg/dl). He was hemodialyzed through double-lumen femoral catheter. During hemodialysis, hypothermia was managed with dialysate temperature by 37.5°C. As patient was hypotensive and dehydrated, intravenous fluid (normal saline) was infused in dialysis, and ultrafiltrate was kept 300 ml. Patient's condition improved after three sessions of daily hemodialysis. Thereafter, he was maintained on thrice-weekly hemodialysis. At present, the patient is stable hemodynamically on regular follow-up and hypothermic spells have decreased in frequency, with rise in baseline platelet count to 6800 per cumm.

CONCLUSIONS: We hereby report the first case of chronic kidney disease in Shapiro syndrome. Our case was admitted with uremic encephalopathy which improved with hemodialysis. Furthermore, we were able to control hypothermia by increasing dialysate temperature.

66. EVALUATION OF SNAKEBITE PATIENTS AND LONG-TERM OUTCOMES

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BACKGROUND: Snakebite is a common health hazard with high death rate. Snake venom-induced acute kidney injury (AKI) is one of the major causes of high mortality. Clinicopathological data on the long-term outcomes of AKI from snake-envenomed patients are very rare.

AIM OF THE STUDY: The aim of the study is to investigate the clinicopathological spectrum of snakebite patient in a long-term follow-up to assess the risk.

METHODS: A prospective longitudinal follow-up study and clinical investigations were done to assess whether snakebite-induced AKI (SAKI) leads to chronic kidney disease. A total 56 snakebite patients were included for this study admitted to the NRS Medical College from July 2018 to May 2019. Moreover, they were recalled for 1st, 3rd, and 6th month follow-up after discharge.

RESULTS: The male to female ratio = 3:1. Mean age 36.96 ± 2.39 years. Among the total patients, 62.5% developed AKI and required hemodialysis (HD). These patients were grouped as SAKI group, and the rest 21 patients were grouped as non-SAKI group. Most of the cases were Russel viper (89.28%). Oliguria and bleeding manifestation were the common presentations. Severe inflammation was found in 63.2% patients. The most common indication of HD was oliguria and rising plasma creatinine. Average bite to needle time was 3.315 ± 1.29 h. Average of 18.12 ± 1.13 vials antisnake venom was administered during treatment. Six patients died due to severity of snake venom-induced AKI as well as multi-organ failure. At a different time point of follow-up, 37.14% patients showed urinary blood. 60%, 75%, and 82.35% patient showed the presence of urinary protein at 1, 3, and 6 months of follow-up, respectively. 28.57%, 29.16%, and 44.4% patients showed lower glomerular filtration rate (<90 ml/min/1.73 m^2) at 1, 3, and 6 months of follow-up respectively.

CONCLUSIONS: It can be concluded that snake venom-induced AKI has long term consequences.

67. FINDINGS OF ACUTE KIDNEY INJURY IN SWINE-FLU PATIENTS

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BACKGROUND: Acute kidney injury (AKI), formerly called acute renal failure, is commonly defined as an abrupt decline in

renal function. Patients who got severely affected with pandemic swine flu virus (influenza H1N1) often developed acute kidney injury during their stay in intensive care unit (ICU), which also contributed to worsening their illness.

AIM OF THE STUDY: The aim of this study was to identify all the possible factors linked with AKI in swine flu patients.

METHODS: This was a study conducted on 30 critically ill patients with H1N1 infection. Swine flu was confirmed with reverse-transcriptase polymerase chain reaction. The conclusion measures were AKI (as defined by the Risk; Injury; Failure; Loss of function; and End-stage renal disease [RIFLE] criteria) and in-hospital death.

RESULTS: AKI was observed in 13 (43%) of the 30 H1N1-infected patients. AKI was associated with the exercise of assisted ventilation, vasopressor drugs, and severe acidosis with increased C-reactive protein and lactic dehydrogenase values during ICU stay. Nephrology consultation was sent for 17 patients (64%) and 6 (20%) of them required dialysis. Of the 13 patients, 3 (23%) died, all having AKI. Mortality was linked to prolonged use of positive pressure ventilation, dialysis, vasopressor drugs, low RIFLE scores, and high bilirubin levels.

CONCLUSIONS: The occurrence of AKI is high in critically ill swine-flu-infected patients. Further, AKI is chiefly imputable to septic shock in them.

68. EFFECT OF DIALYSIS VINTAGE IN RENAL-TRANSPLANT PATIENTS

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BACKGROUND: Process of transplantation, induction, immunosuppression, and transplanting mismatched kidneys has undergone substantial changes over a period. Recent reports have shown better survival in transplant patients with dialysis exposure to 10 years. These aspects prompted this study to be undertaken with the aim to compare the effect of dialysis vintage on the outcome of transplantation.

AIM OF THE STUDY: To study the effect of dialysis vintage on outcome of transplant and to study the effect of dialysis vintage on posttransplant creatinine levels.

METHODS: At the Army Hospital Research and Referral (AHRR), renal transplantations are performed with cadaveric kidneys as well as the live donors. Live donors were generally first-degree relatives, i. e., father, mother, brother, sister, son, daughter, or spouse. This study is based on 837 renal transplants performed at the AHRR between August 2004 and March 2019. The data were collected on all patients from files stored at the nephrology department. During the process, it was noted that data on many characteristics and variables were not recorded in a uniform pattern. During the initial years starting 1991, the records were maintained as handwritten summaries, and during later years, records were in a digital format entered in the form of pretransplant instructions and discharge summaries.

RESULTS: The study was conducted on the kidney transplant records at the AHRR, Delhi Cantonment, India. Kidney transplantation was performed with cadaveric and live-related donors. Majority (95.28%) of the recipient-donors were blood group compatible. Of the total kidney transplantation cases during the study period, the outcome was that 76% were alive; 2% were graft loss; 15% were lost to follow-up; and 7% died. Among all transplant cases, 7% were followed for a period of less than 12 months; 37% for 12–60 months; 36% for 60–120 months; and 20% for more than 120 months. Outcome of the kidney transplant was independent of pretransplant blood group compatibility, donor type, months on dialysis as well as number of dialyses. However, outcome was significantly associated with type of induction, indicating that survival rate was comparatively low when no induction was given.

CONCLUSIONS: Patient survival was as high as 80% for 6–12 months dialysis, 81% for 12–24 months of dialysis, 78% for >24 months of dialysis. The rate of graft survival was even more encouraging, with 98% survival for 6–12 months, 12–24 months, and 100% for >24 months of dialysis.

69. KARYOMEGALIC TUBULOINTERSTITIAL NEPHRITIS WITH PRIMARY FOCAL SEGMENTAL GLOMERULOSCLEROSIS IN A YOUNG FEMALE: A RARE FORM OF STEROID NONRESPONSIVE NEPHROTIC SYNDROME

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BACKGROUND: Karyomegalic interstitial nephropathy (KIN) is a rare form of chronic tubulointerstitial nephritis initially described as familial nephropathy in adults. We present a case of KIN with focal segmental glomerulosclerosis (FSGS) in a 15-year-old young female who became late nonresponder and resistant to steroid therapy. To our knowledge, only one case has been reported in literature.

AIM OF THE STUDY: In steroid nonresponsive nephrotic syndrome, KIN is a very rare kidney biopsy finding.

METHODS: NA.

RESULTS: A 15-year-old female girl presented with a history of generalized body swelling and facial puffiness. Her baseline investigations were normal; 24-h urinary protein was 5.5 g; urine showed 4+ protein; C3 and C4 levels were normal; ANA and viral markers were negative. She was diagnosed as nephritic syndrome and started on steroid therapy. The patient achieved partial remission in 8 weeks of full dose of steroid but relapsed on tapering the dose of steroid with heavy proteinuria, hypoalbuminemia, pleural effusion, and diuretic-resistant edema. Even after giving two cycles of steroid, she did not respond and her renal function started deteriorating. Kidney biopsy was performed showed cytomegalic tubular epithelial cells with diffuse podocytopathy, suggestive of primary FSGS. Switch to tacrolimus and minimum dose of steroid, proteinuria decreased after 10 days of starting tacrolimus come to be 7 g/24 h. The patient is stable at present and in close follow-up.

CONCLUSIONS: KIN in association with primary FSGS is a rare entity, not described in literature. There is no clear

treatment available for this disorder. The patient responded well to tacrolimus and improved clinically. It suggests that CNI may help in treating such cases.

70. SHOULD URINARY TRACT INFECTION DUE TO EXTENDED-SPECTRUM BETA-LACTAMASE PRODUCING ORGANISMS BE CONSIDERED AS A RISK FACTOR FOR BACTEREMIA AMONG PATIENTS WITH TYPE 2 DIABETES MELLITUS?

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BACKGROUND: Urinary tract infection (UTI) is common among patients with diabetes mellitus, and the etiological agents are often extended-spectrum beta-lactamase (ESBL) producing bacteria. Diabetic patients with UTI are sometimes complicated by bacteremia.

AIM OF THE STUDY: This study was designed to evaluate whether UTI due to ESBL-positive organisms is a risk factor for bacteremia among patients with type 2 diabetes mellitus.

METHODS: This case–control study was done in BIRDEM General Hospital, Dhaka, Bangladesh, from January to April 2016. Adult (≥18 years) type 2 diabetic subjects of either sex with culture-proven UTI were evaluated in this study. Patients with UTI complicated by bacteremia were cases and those not complicated by bacteremia were controls. ESBL positivity of the infective organisms was evaluated as a possible risk factor for bacteremia.

RESULTS: The total study participants were 145 including 119 (82%) females. The mean age and mean duration of diabetes of the study participants were 56.4 ± 14.8 and 9.4 ± 5.3 years, respectively. Overall glycemic control was poor; glycated hemoglobin was 9.0% ± 1.6%. *Escherichia coli* (112, 77.2%) was the most common etiological agent followed by *Klebsiella pneumoniae* (28, 19.3%). Two-fifths (45/112, 40.2%) of *E. coli* and one-third (9/28, 32.1%) of *Klebsiella* were ESBL-positive. A total of 54 (37.2%) patients had UTI due to ESBL-positive organisms. Ten (6.9%) patients were complicated by bacteremia (cases) (7 [7/54; 13%] among patients with UTI due to ESBL-positive organisms and 3 [3/91; 3.3%] among patients with UTI due to non-ESBL organisms). UTI due to ESBL-positive organisms appeared as a significant risk factor for bacteremia (odds ratio 4.37; 95% confidence interval 1.08–17.68; $P = 0.03$).

CONCLUSIONS: Nearly 7% of UTI cases were complicated by bacteremia in this study, and ESBL positivity of the causative organisms was a significant risk factor for bacteremia among type 2 diabetic subjects.

71. SPECTRUM OF RENAL CORTICAL NECROSIS IN A TERTIARY CARE CENTER IN NORTHERN INDIA

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BACKGROUND: Renal cortical necrosis (RCN) is a severe and an uncommon cause of renal failure. The incidence of RCN in developing countries is decreasing. RCN constituted 8.3% of pregnancy-related acute kidney injury (AKI) cases in our institution. We report here our single-center experience on 114 cases of antemortem biopsy-proven RCN of obstetric, nonobstetric, and renal-transplant patients.

AIM OF THE STUDY: To analyze the cause of RCN and incidence and outcome of RCN in obstetric, nonobstetric, and renal-transplant recipients.

METHODS: This is a retrospective analysis of patients with antemortem biopsy-proven cortical necrosis from 2000 to 2018. Detailed history, records from referring hospital, investigations, and outcomes were analyzed. Results were analyzed in three groups – obstetric, nonobstetric, and postrenal-transplant group. Postrenal-transplant group was analyzed in two study periods: 2000–2010 and 2011–2018. Statistical analysis was done using SPSS21.

RESULTS: Of 114 patients, 51% had obstetric cause and 49% had nonobstetric cause. In nonobstetric group, 37%were renal-transplant recipients. Remaining cases were due to septicemia (5.6%), d−hemolytic-uremic syndrome (4.4%), tropical AKI (2.7%), and acute pancreatitis (1.8%). Among the obstetric group, majority had puerperal sepsis (58%) and postpartum hemorrhage (37%). Thrombotic microangiopathy was noted in 20.7% and abortal sepsis in 12%. 98% of deliveries were conducted in the hospital, with majority being lower segment cesarean section (67%). Dialysis dependency at presentation was 95% and partial recovery noted in 9%. 60% had diffuse cortical necrosis (DCN) and 40% had patchy cortical necrosis (PCN). No significant difference in terms of recovery between DCN and PCN. The mortality rate was 3.4%. In renal-transplant recipients, the incidence of RCN has decreased from 2.7% (35/1218) in 2000–2010 to 0.2% (2/974) in 2011–2018. Vascular rejection was the cause in 73%; mixed rejection in 10.8%; and graft thrombosis in 5.4%.

CONCLUSIONS: We observed a significant decrease in RCN in the postrenal-transplant patients after 2010 with modern immunosuppression, but obstetric cause still remains as a predominant etiology for RCN despite institutional care.

72. CLINICAL PROFILE OF PEDIATRIC PATIENTS WITH LUPUS NEPHRITIS

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BACKGROUND: Childhood-onset systemic lupus nephritis (LN) is a rare but severe autoimmune disease with multisystem involvement. Renal disease occurs in 50%–75% of all childhood systemic lupus erythematosus mostly within first 2 years of

diagnosis and is a major cause of increased mortality and morbidity. Renal manifestations might range from mild proteinuria and microscopic hematuria to renal insufficiency and acute renal failure.

AIM OF THE STUDY: (1) To study the clinical profile of pediatric patients with LN. (2) To correlate the histopathological findings with clinical presentation and to evaluate short-term outcomes.

METHODS: A total of 70 children up to the age of 18 years who presented to the department of nephrology with biopsy-proven LN were included for the study. Clinical data regarding the presentation of the symptoms and correlation with biopsy findings and serology were done; treatment response was evaluated at the end of 6 months. These data were compared with the adult data in with respect to treatment outcomes and clinical presentation.

RESULTS: Of 70 cases, four children were under 5 years of age; five were between 5 and 10 years of age; and 61 children were between 10 and 18 years of age. Among children of <10 years of age, majority had Class 3 LN. Among children of >10 years of age, majority had class 4. Among children with Class 4 and 5 LN, proteinuria and hematuria were present in 41.2% and 44.44% patients, respectively. Overall remission rates achieved at 6 months of follow-up were 80% in NIH group versus 68% in MMF group.

CONCLUSIONS: Pediatric LN is rare though an important clinical entity, especially in adolescent age group presenting with nephrotic syndrome. They respond well to intravenous cyclophosphamide with reasonably good response to oral MMF too, similar to the response by adult population.

73. EFFECT OF VITAMIN D SUPPLEMENTATION ON SERUM HEPCIDIN LEVELS IN CHRONIC KIDNEY DISEASE

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BACKGROUND: Vitamin D has been shown to be a regulator of hepcidin–ferroportin axis. Vitamin D deficiency is common in chronic kidney disease (CKD). Whether native vitamin D supplementation favorably affects serum hepcidin in CKD is not known.

AIM OF THE STUDY: We investigated the effect of cholecalciferol supplementation on serum hepcidin levels in nondiabetic patients with CKD Stage 3–4.

METHODS: In this secondary analysis of our previously published randomized, double-blind, placebo-controlled trial (https://jasn.asnjournals.org/content/28/10/3100), stable patients of either sex, aged 18–70 years, with nondiabetic CKD Stage 3–4 and Vitamin D deficiency (serum 25-hydroxyvitamin D ≤20 ng/ml) were randomized to receive either two directly observed oral doses of cholecalciferol (300,000 IU) or matching placebo at baseline and 8 weeks. The primary outcome was change in FMD at 16 weeks. Changes in serum hepcidin levels between groups over 16 weeks were compared.

RESULTS: A total of 120 patients were enrolled. Baseline characteristics showed no differences between groups with respect to demographic details and causes of CKD. Supplementation with cholecalciferol led to significant improvement in FMD. Serum 25(OH)D levels were similar in both groups at baseline (13.21 ± 4.78 ng/ml and 13.40 ± 4.42 ng/ml; $P = 0.88$). At 16 weeks, the serum 25(OH)D levels increased in the cholecalciferol group but not in the placebo group (between-group difference in mean change: 23.40 ng/ml, 95% confidence interval 19.76–27.06, $P < 0.001$, 1.69 mg/dl; $P = 0.947$), and there were no significant changes at 16 weeks in either group (between-group difference 0.21 [−0.22–0.63]; $P = 0.34$). Serum hepcidin levels were similar at baseline (median [interquartile range (IQR)]: 33.6 [8.6–77.8] ng/ml vs. 24.6 [9.3–70.7] ng/ml; $P = 0.903$) and did not vary between groups at 16 week (median [IQR]: 41.5 [10.9–75.0] ng/ml vs. 34.8 [12.3–63.75] ng/ml; $P = 0.703$). Blood levels of hemoglobin were similar at baseline.

CONCLUSIONS: There were no effects of high-dose oral cholecalciferol on serum hepcidin levels in subjects with nondiabetic CKD stage 3–4.

74. INVESTIGATIONS ON THE CELLULAR MECHANISM OF MICRORNA-155-5P IN HUMAN KIDNEY PROXIMAL TUBULAR CELLS UNDER HIGH GLUCOSE

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BACKGROUND: Diabetic nephropathy (DN) is the high-risk factor for end-stage renal disease. Tubules may be a key player in the development of DN as certain studies have proposed that the changes in tubules may precede the glomeruli. MicroRNA (miRNA) regulates gene expression by inhibiting the translation process and/or degrading mRNA. These miRNAs are packaged into nanosized vesicles called exosomes. miRNA from human kidney proximal tubular cells (HK-2) derived exosomes was further explored in HK-2 cells.

AIM OF THE STUDY: To investigate the underlying cellular mechanism of hsa-miR-155-5p *in vitro* in HK-2 cells.

METHODS: HK-2 cells were cultured under low and high glucose. Exosomes were isolated from these cells by filtration and ultracentrifugation. Based on the differential miRNA expression profile of HK-2 derived exosomes performed earlier by us, we selected hsa-miR-155-5p based on the fold change for our further study. Total RNA was isolated from these cells and/or exosomes and subjected for Real-Time PCR for hsa-

miR-155-5p. Targets of the miRNA were identified by at least three bioinformatics tools, viz., MIRDIP 4.1, mirWalk 3.0, miRTarbase 7.0, and/or Tarbase v8. Luciferase activity was measured in 293T cells to confirm the target of the miRNA and overexpression/inhibition studies carried out to verify the functionality of hsa-miR-155-5p.

RESULTS: Flow cytometry showed about 95% positive CD81 (exosomal marker) vesicles and transmission electron microscopy microphotographs showed the expected range of exosomes to be within 30–100 nm. Real-Time PCR results showed significant increased expression of hsa-miRNA-155-5p in HK-2 derived exosomes under diabetic conditions, which was consistent with miRNA expression profiling data. Similar overexpression was mirrored in the parent HK-2 cells. SMAD2 as target gene was selected bioinformatically to study luciferase activity for hsa-miR-155-5p. Luciferase activity was significantly downregulated to that of control in the presence of hsa-miR-155-5p mimic and significantly increased on the introduction of hsa-miR-155-5p inhibitor when compared to hsa-miR-155-5p mimics. Overexpression studies demonstrated hsa-miR-155-5p transfection suppressed SMAD2 protein expression.

CONCLUSIONS: It is the first study to compare hsa-miR-155-5p expression in HK-2 derived exosomes and its parent cells under high-glucose condition. hsa-miR-155-5p directly regulated SMAD2 in these cells which hints at the regulation of epithelial–myofibroblast transition observed during DN in these cells.

75. HEMODIALYSIS CATHETER-RELATED BLOODSTREAM INFECTIONS

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BACKGROUND: Hemodialysis catheter-related bloodstream infection (CRBSI) is a common cause for sepsis in hemodialysis patients with high morbidity and mortality. It has to be diagnosed promptly for early treatment to avoid serious complications, including catheter removal. As there is paucity of data regarding CRBSI, hence the study was undertaken.

AIM OF THE STUDY: The study was undertaken to validate use of cultures drawn from different sites for diagnosis and management of hemodialysis CRBSI.

METHODS: All hemodialysis patients with CRBSI between October 2016 and October 2017 were included. Variables such as different catheter position, blood cultures collected from peripheral vein, both catheter hubs, catheter exit site swab, and catheter tip cultures were analyzed with respect to time to culture positivity; microbes and its management were analyzed.

RESULTS: The mean duration of hemodialysis catheter inside patient was 24 days; the most common risk factor for CRBSI was diabetes mellitus (58%) followed by surgery (50%) and previous dialysis catheterization within preceding 2 months (33%). 30% of patients had history of guidewire exchange of catheters previously; most had temporary catheter (88%); the most common site of catheter was right internal jugular vein (58%). Cultures showed Gram-positive organisms in 63%. It was found that same monomicrobial growth was noted in most cultures stating less chances of contamination. Exit site, catheter tip samples, and blood sample from catheter's venous hub yielded early result. It was found that same monomicrobial growth was noted in most cultures stating less chances of contamination. Among complications, 8% had endocarditis and 61% had catheter removal. The average hospital stay was 9 days. Defervescence was noted upon antibiotic therapy and catheter removal in most cases. Death was noted in 8% due to sepsis.

CONCLUSIONS: Exit site, catheter tip samples, and blood sample from catheter's venous hub yielded early result. Peripheral blood sampling for culture diagnosing was unnecessary. Most require 2–6 weeks systemic antibiotics and catheter removal, especially if persistent fever and systemic complications are present.

76. SERUM LEVELS OF ANTI-C1Q, ANTI-DSDNA, C3, AND C4 IN RELATION WITH HISTOLOGICAL AND CLINICAL ACTIVITY OF LUPUS NEPHRITIS

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BACKGROUND: Although more than 160 autoantibodies were reported in systemic lupus erythematosus (SLE), whether these are associated with renal clinical and pathological activity is controversial. This study plans to investigate the diagnostic value of anti-dsDNA, anti-C1q, C3, and C4 levels with respect to renal disease activity so that we can use these parameters as noninvasive markers for renal activity were biopsy contraindicated such as bleeding diathesis or unwillingness for invasive procedures.

AIM OF THE STUDY: (1) To study the correlation and predictive accuracy of anti-C1q antibody, anti-dsDNA, C3, and C4 with histopathlogical activity of lupus nephritis (LN). (2) To study correlation of these with clinical activity lupus.

METHODS: This was a descriptive cross-sectional study. The study period was 1.5 years. The study population was SLE patients satisfying SLICC criteria and undergoing renal biopsy. Pregnant patients and repeat biopsy cases excluded. The sample size was 50. For assessing clinical activity, SLEDAI scoring is used. Renal biopsy findings were based on ISN RPS classification. Anti-C1q antibody and anti-dsDNA will be estimated by quantitative ELISA. Serum C3 and C4 concentrations were measured by immunoturbidimetric method. The relationship between anti-dsDNA antibody titer, anti-C1q antibody titer, C3, and C4 with activity index and SLEDAI score in LN will be assessed using Spearman's correlation Coefficient. The cutoff values of C3, C4, anti-C1q, and anti-dsDNA to predict histological activity index >10 is calculated using receiver operating characteristic. A $P < 0.05$ was considered as statistically significant.

RESULTS: Histological activity index is correlated with anti-C1q (correlation coefficient R + 0.5), serum C3 (R-0.48), anti-dsDNA (R + 0.42), and C4 (R-0.29) in statistically significant manner. To predict histological activity >10 anti-C1q levels >30 has sensitivity of 61% and specificity of 78% with predictive accuracy of 72%. Positive predictive value for active lupus is

maximum with anti-C1q levels (61%). Anti-dsDNA levels >80 predicts severe active LN with sensitivity of 89%, specificity of 50%, and accuracy of 64%. Negative predictive value for active lupus is maximum with anti-dsDNA levels (88.9%). C3 levels <40 predict active LN with sensitivity of 61%, specificity of 75%, and accuracy of 70%. C4 levels <8 predicts active nephritis with sensitivity of 50%, specificity of 71%, and accuracy of 64%.SLEDAI score correlated to levels of anti-dsDNA (R + 0.46), anti-C1q(R + 0.37), C3 (R-0.40), and C4(R-0.19) in a statistically significant manner.

CONCLUSIONS: Anti-C1q level is a better predictor of histological activity of LN than C3>anti-dsDNA>C4 levels. SLEDAI score is better correlated with anti-dsDNA titer. In difficult situations where biopsy is not possible, we can use these noninvasive markers to predict active nephritis and to optimize treatment.

77. SHORT-TERM OUTCOME OF ABO-INCOMPATIBLE KIDNEY TRANSPLANT IN THOSE WITH HIGH (>1:128) AND LOW ISOHEMAGGLUTININ TITERS (<1:128) AT BASELINE

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BACKGROUND: ABO-incompatible kidney transplant (ABOi KT) has become a valuable option for patients with end-stage renal disease who do not have an ABO-compatible donor. However, one is worried when the baseline anti-blood group antibody titers are high. The impact of high baseline anti-A/B antibody titer has not been established.

AIM OF THE STUDY: To compare short-term (3 months) outcome of ABOi KT in those with high (>1:128) and low isohemagglutinin titers (<1:128) at baseline.

METHODS: The study included 60 patients who underwent ABOi KT. Patients with a baseline anti-ABO antibody titer of equal to or higher than 1:128 were regarded as the high-titer group, and patients with a baseline titer of less than 1:128 were classified as the low-titer group. The anti-A and anti-B antibody titers (IgG and IgM) were estimated by column agglutination technology using Automated Ortho BioVue System. Desensitization was done with rituximab and plasmapheresis in both groups. In high titer group, immunoadsorption was used additionally in those with very high titers (>1:512). Transplant was performed once titer dropped to <1:32. Titers were monitored after transplant.

RESULTS: There were 31 patients in high titer group and 29 in low titer group. Characteristics of patients were similar in both groups as regards age, sex, etiology (diabetic vs. nondiabetic) of end-stage renal disease, donor characteristics, and HLA mismatch (3.35 [1.83] in high titer group and 3.65 [1.73] in low titer group). The median (range) baseline antibody titer was 256 (128–2048) and 64 (2–64) in high and low titer group, respectively. There was no difference in outcome as regards graft function, rejection rate, and survival. Bleeding and infectious complications were also similar in both groups.

CONCLUSIONS: Short term outcome of ABO-incompatible transplants is similar in those with high and low agglutinin titers. In most patients, titers do not rebound (>1:32) after transplant and posttransplant plasmapheresis is not required.

78. OUTCOME OF MODIFIED PONTICELLI REGIMEN IN ADULTS WITH IDIOPATHIC MEMBRANOUS NEPHROPATHY

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BACKGROUND: Idiopathic membranous nephropathy (IMN) is one of the most common causes of adult-onset nephrotic syndrome. The response to therapy is classified by changes in proteinuria (complete remission, partial remission, and no remission). A relapse after remission is common and complicates the ability to interpret long-term benefits. Although clinical trials have spanned more than two decades, universal consensus regarding modality of therapy to decrease proteinuria and halt progression of disease does not exist.

AIM OF THE STUDY: To calculate the remission rates (complete and partial) and relapse rates after attaining remission in patients with nephrotic syndrome due to IMN after receiving modified Ponticelli regimen.

METHODS: This is a hospital-based study conducted from January 2016 to June 2019 where 21 patients presenting to the Department of Nephrology, SCB Medical College and Hospital, with nephrotic syndrome due to IMN (renal biopsy-proven) who received or were scheduled to receive treatment with modified Ponticelli regimen were included. Kidney Disease Improving Global Outcomes recommendations were followed for treatment of the same. The patients were followed up monthly and evaluated clinically and biochemically to see if the patient was going into remission. The number of patients attaining remission was noted. The number of patients who relapsed after attaining remission was also recorded. The patients were also evaluated for the occurrence of disease-related and treatment-related side effects during the follow-up period.

RESULTS: A total of 52.3% patients attained complete remission and 19.04% patients attained partial remission within 6 months after completion of modified Ponticelli regimen. 28.57% patients did not achieve remission even after 6 months of completion of modified Ponticelli regimen. Among the patients who achieved remission, 36.3% patients relapsed. Among all patients who relapsed, 25% relapsed within the 1st year of attaining remission and the rest 75% relapsed after 2 years and within 4 years of attaining remission.

CONCLUSIONS: Among all patients of IMN, modified Ponticelli regimen induced remission in high proportion of patients. Once remission was attained, it was maintained for more than 2 years in most patients. Thus, it decreases proteinuria and retards progression of disease in a high proportion of patients of IMN.

79. ANTIGLOMERULAR BASEMENT MEMBRANE ANTIBODY DISEASE AND ITS OUTCOME IN A TERTIARY CARE CENTER

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BACKGROUND: To study the incidence; presenting features; clinical, biochemical, and pathological characteristics; and outcome of patients with anti-glomerular basement membrane (anti-GBM) antibody disease.

AIM OF THE STUDY: To study the incidence; presenting features; clinical, biochemical, and pathological characteristics; and outcome of patients with anti-GBM antibody disease.

METHODS: This was a retrospective analysis of patients who presented with biopsy-proven anti-GBM disease or those who had anti-GBM antibody-positive from January 2013 to October 2017. Their records were reviewed for duration of symptoms before presentation, clinical features, and biochemical, pathology, and immunology reports. Follow-up details were noted.

RESULTS: Kidney biopsy showed evidence of 100% crescents in 3 (30%). Mean crescents per biopsy specimen – 71% (median: 90%). One patient had IgA nephropathy and one had MPLA2R-positive membranous nephropathy. One patient biopsy was not done presented with bilateral contracted kidneys but anti-GBM antibody was positive and P-ANCA was positive. All patients received pulse methyl prednisolone. Four received pulse cyclophosphamide. Plasmapheresis was done in five patients. Two patients (20%) died after a mean duration of 3.8 years + 1.3 days after the biopsy. Three were lost to follow-up after 6 months of therapy. One underwent live-related renal transplantation. Two patients presented with mild renal failure; did not respond to therapy; and progressed to end-stage renal failure. None of the patients recovered.

CONCLUSIONS: Anti-GBM disease constituted 10.30% of rapidly progressive glomerulonephritis. Males and females were equally affected.

80. ANALYSIS OF ACUTE KIDNEY INJURY IN A TERTIARY CARE CENTER OF SOUTH INDIA

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BACKGROUND: Acute kidney injury (AKI) is defined by KDIGO as increase in serum creatinine by ≥0.3 mg/dl <48 h or increase in serum creatinine to ≥1.5 times baseline, which is known or presumed to have occurred <7 days, or urine volume <0.5 ml/kg/h for 6 h. Although AKI patients seem to have made an apparent recovery, 50% of these patients were found to have subclinical defects in one or more of the functional nephron domains and were also found to have tubulointerstitial scarring on biopsy.

AIM OF THE STUDY: To study the etiology, clinical, biochemical, and pathological characteristics; severity; and treatment outcomes of AKI patients attending nephrology department in a tertiary care center of South India.

METHODS: Patients satisfying KDIGO AKI criteria were stratified into KDIGO Stages I, II, or III and data regarding etiology, clinical features, biochemical parameters, histopathology, treatment provided, and renal replacement therapy were collected. Outcomes were assessed at discharge, 1 month, and 3 months. The study period was January 2018 to August 2018.

RESULTS: The total number of patients was 138. Sepsis due to various causes was the leading cause in all stages. All Stage I patients (n = 27) made complete renal recovery. In Stage II (n = 32), at discharge, two patients had renal dysfunction (excluding deaths, n = 10); at 1 month (n = 22), all patients recovered renal function (excluding death, n = 1; lost to follow-up, n = 3); and at 3 months (n = 18), no patient had persisting renal dysfunction (excluding lost to follow-up n = 7). In Stage III (n = 79), at discharge, 23 patients had renal dysfunction and 4 were dialysis dependent (excluding deaths, n = 29); at 1 month (n = 50), 14 had persisting renal dysfunction with 4 remaining dialysis dependent (excluding deaths, n = 3; lost to follow-up, n = 6); and at 3 months (n = 41), 10 patients continued to have renal dysfunction with 3 remaining dialysis dependent (excluding lost to follow-up, n = 3). Thirty-five patients required hemodialysis (average of 19.61 h/patient). Nine patients had intermittent peritoneal dialysis (average of 29.56 h/patient).

CONCLUSIONS: With increasing severity of AKI, morbidity and mortality increase. Sepsis still leads the list of AKI etiologies, inviting attention to prevention, early diagnosis, and aggressive management of the same. Anuric AKI requires obstruction to be ruled out first, given the potential for rapid recovery.

81. PERITONEAL EQUILIBRATION TEST: EXPERIENCE FROM A SINGLE CENTER IN EASTERN INDIA

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BACKGROUND: The use of peritoneal dialysis (PD) has become widespread since the first introduction of continuous ambulatory PD more than two decades ago; many advances have been made, and PD is an attractive alternate to hemodialysis, with comparable survival, lower cost, and improved quality of life. Peritoneal equilibration test (PET) is used to find out whether toxins/solutes pass quickly or slowly across the peritoneal membrane into dialysis fluid.

AIM OF THE STUDY: To determine the peritoneal membrane characteristics in our patient population.

METHODS: This was a single-center retrospective analysis of 27 chronic kidney disease (CKD) Stage 5 patients in our center. All the patients initiated on CAPD between January 2013 and September 2018 are included in this analysis. Of these, 21 patients underwent the standard PET test as described by Twardowski between January 2018 and April 2019. It was performed by a PD coordinator.

RESULTS: Most of the patients were females (57%). The mean age was 49.33 (±18.26) years. The PET revealed high transporter in 7 (33%) patients; high-average transporters in 8 patients (38%); low average transporters in 5 patients (24%); and low transporter in 1 patient (5%). Kt/v was <1.7 in 24%

of high and high average transporters whereas only 1 low average transporter had a Kt/v <1.7. A combination of PET and Kt/v values prompted a change in prescription from dianeal to extraneal or increase in intensity of exchange.

CONCLUSIONS: Inclusion of PET in routine XAPD practice helps in optimizing therapy in CKD-5 patients.

82. PERCUTANEOUS RE-POSITIONING OF PERITONEAL DIALYSIS CATHETER ACCIDENTALLY PLACED IN PREPERITONEAL SUBCUTANEOUS SPACE LEAVING TUNNEL AND EXIT-SITE INTACT: A NOVEL IDEA

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BACKGROUND: Percutaneously placed peritoneal dialysis (PD) catheters may be accidentally be left behind in the pre-peritoneal subcutaneous space if the introducer needle does not pierce the peritoneal membrane in the initial part of the procedure. If this happens, the catheter insertion has to be redone either percutaneously or surgically. The catheter often has to be replaced as part of it has been externalized and is unsterile.

AIM OF THE STUDY: A 70-year-old man with end-stage renal disease underwent bedside PD catheter insertion which was accidentally placed in the preperitoneal subcutaneous space and was percutaneously repositioned.

METHODS: The problem was identified on computed tomographic scan and PD catheter re-insertion was planned. A week later, a novel technique was attempted in which the exit site and tunnel were untouched. The skin and subcutaneous sutures over the original catheter insertion site were undone, the deep cuff of the catheter was dissected, and the intra-abdominal part of the catheter was exteriorized.

RESULTS: A Veress needle was advanced till it reached the peritoneal space; the position of which was confirmed using a guidewire. The track was dilated using a peel-away sheath-dilator assembly. The dilator was removed and the intra-abdominal portion of the catheter was slid in. The wound was closed in layers after ensuring good inflow and outflow. Peritoneal dialysis exchanges were begun the same day.

CONCLUSIONS: Compared to using a new PD catheter and tunnel, this novel technique allows for a simple bedside repositioning technique, saving time, operating room time, reducing hospital stay, and possibly avoiding unnecessary hemodialysis.

83. A COMPARISON OF ANTIHYPERTENSIVE EFFICACY OF METHYLDOPA VERSUS LABETALOL IN THE TREATMENT OF PREGNANCY-INDUCED HYPERTENSION

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BACKGROUND: Hypertensive disorders complicating pregnancy are one of the common causes of maternal morbidity and mortality.

AIM OF THE STUDY: (1) To compare the efficacy of methyldopa versus labetalol in women with pregnancy-induced hypertension (PIH). (2) To compare maternal and fetal outcome in pregnant patients with PIH receiving methyldopa or labetalol.

METHODS: One hundred patients presenting with PIH were taken up for study. In singleton pregnancy, systolic blood pressure and diastolic BP was ≥150 mmHg and ≥95 mmHg respectly and the gestational age was >20 weeks. Patients with a history of metabolic disorders, diabetes, cardiovascular disease, respiratory disease, collagen disorders, etc., were not included in this study. After informed consent, eligible patients were randomly divided into two groups. Group I comprised 50 patients on methyldopa and Group II comprised 50 patients. Methyldopa was begun at dosage of 750 mg per day (250 mg thrice daily) whereas labetalol was started at a dosage of 300 mg per day (100 mg thrice daily). The aim was to reduce and maintain blood pressure below 140/90 mm Hg and these patients were considered responders. The gestational age at delivery, type of delivery, whether spontaneous or induced, route of delivery, birth weight of baby, and Apgar score at 1 and 5 min were recorded as well as the need for admission of baby to neonatal special care units.

RESULTS: Labetalol caused significantly more reduction in mean systolic and diastolic BP than methyldopa. Labetalol showed complete response in significantly less time as compared to methyldopa ($P = 0.001$).

CONCLUSIONS: Labetalol has been found to be more advantageous than methyldopa in terms of better and quicker control of BP and minimal side effects.

84. OUTCOMES OF RENAL RETRANSPLANT: SINGLE-CENTER EXPERIENCE OVER A DECADE

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BACKGROUND: The best approach to treat most patients of renal allograft failure is to do a kidney retransplant. However, these transplants are challenging, both medically and surgically. These patients are usually sensitized, have high risk of acute and chronic rejection (ACR), and need good immunological evaluation before transplant.

AIM OF THE STUDY: To study the renal retransplant recipients with respect to pretransplant workup and posttransplant patient and graft outcome.

METHODS: All repeat kidney transplant recipients ($2^{nd}/3^{rd}$) from 2010 till May 2019 were included. Their pre- and post-transplant data were collected retrospectively from the hospital's eHIS system and other relevant records and were analyzed. Flow cytometric cross-match (FXM) became available in our institute in 2012. The patients transplanted before 2012 underwent only complement-dependent cytotoxicity (CDC) cross-match pretransplant. All patients after that had CDC + FXM tests

available. Luminex single-antigen bead testing (LSA) was done after 2014 as required.

RESULTS: Of 1953 transplants, 42 (2.1%) were retransplant (40 - 2nd; 2 - 3rd). The mean recipient age was 41.6 years (M:F = 36:6). The median follow-up was 31 months. Causes of previous graft loss were known in 30/42 patients: 17 – biopsy-proven rejection (BPR); 6 – disease recurrence; 2 – vascular thrombosis; and 5 – chronic allograft nephropathy on biopsy. Only CDC was done in 6; CDC + FXM in 25; and CDC + FXM + LSA in 11. All patients were CDC negative; 4 had positive FXM; LSA was done in two of them but no DSA found. Of all the patients with LSA, two had DSA. 37/42 patients received induction pretransplant; 30 - thymoglobulin and 7 - basiliximab. BPR was seen in 9 (21.4%), of which 2/6 (33.3%) were in CDC group and 6/25 (24%) in CDC + FXM group; 1/11 (9%) in LSA group. 3/5(60%) no induction and 2/7 (28.5%) basiliximab induction patients had ACR; 4/30(13.3%) ATG induction patients had rejection (1 ACR and 3 chronic ABMR). Infections occurred in 15/42 (35.71%). The mean creatinine on follow-up is 1.56 mg/dl. Two patients had graft loss (1 chronic ABMR; 1 TMA); one died.

CONCLUSIONS: Although the rejection rates in retransplant were high, graft (95%) and patient survival (97.6%) seems satisfactory. Doing good pretransplant immunological workup with full repertoire of CDC, FXM, and LSA testing and using ATG induction help in improving outcome of these patients.

85. PREDICTING THE RISK OF DIALYSIS INITIATION IN IGA NEPHROPATHY - BASED ON COMBINATION OF CLINICAL AND HISTOLOGICAL SCORING

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BACKGROUND: Histological classification is essential in the clinical management of immunoglobulin A nephropathy (IgAN). However, there are limitations in predicting the prognosis of IgAN based on histological information alone. Therefore, we combined both clinical and histological grading in predicting disease progression of IgAN.

AIM OF THE STUDY: Factors predicting progression to end-stage renal disease (ESRD) in IgAN patients followed up from the date of renal biopsy.

METHODS: Patients with proven IgAN from January 2014 to June 2019 were included. Independent pathological variables such as mesangial hypercellularity (m), endocapillary proliferation (e), segmental and global sclerosis (s&g), interstitial fibrosis, tubular atrophy (t), crescents (c), and vascular lesions (v) – intimal hyalinosis, luminal narrowing, and endothelial prominence were taken into account and divided into four histological grades (HG). 24-h urinary protein excretion (UPE) values and estimated glomerular filtration rate (eGFR) were applied to a prognostic-predictive equation (threshold score [−1.86] =0.722 + 0.364 × UPE − 0.046 × eGFR) for clinical grading (CG). In addition to above, serum uric acid, hypertension at the time of biopsy, and hematuria were also compared for their effect on progression to ESRD.

RESULTS: Sixty-nine IgAN patients were included in the study with a mean age of 33.83 ± 11.05 years and eGFR of 54.85 ml/min per 1.73 m^2, with majority being males (60.9%). Mean proteinuria was 4.26 ± 2.86 g/day of which 37 (53.6%) were in nephrotic range; of which 19 (51.4%) progressed to ESRD. Only 21.7% (n = 15) received steroids and 62.3% (n = 43) received renin-angiotensin system inhibitors, of which 6.7% (n = 1) and 2.3% (n = 1) progressed to ESRD, respectively. Among pathological variables, global glomerulosclerosis (P = 0.003; odds ratio [OR] = 4.4) and vascular lesions (P = 0.002; OR = 3.25) had significant association with ESRD progression. Vascular lesions were seen in 33.3% patients who had 3.25 times risk of progressing to ESRD. Most of our patients belonged to CG3 (42%) or CG4 (38%). 30.4% patients who developed ESRD were in CG4 at presentation. Renal biopsy findings classified patients into HG1 (15.9%), HG2 (13%), and HG3 and HG4 (71%). 16 patients in HG3 and HG4 progressed to ESRD as compared to 4 (19%) in HG2 and 1 (4.8%) in HG1.

CONCLUSIONS: Considering the fact that UPE and eGFR were significant predictors, our population needs different predictive prognostic equation derived from multicenter study along with wider spectrum of histopathological lesions to predict risk groups for ESRD progression.

86. UTILITY OF PANEL REACTIVE ANTIBODY SCREENING IN KIDNEY TRANSPLANT

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BACKGROUND: Testing for HLA antibodies pretransplant serves to identify transplant candidates with preexisting HLA antibodies acquired through pregnancy, transfusion, or prior transplant. Panel reactive antibody (PRA) screening is a cost-effective way of identifying HLA antibodies.

AIM OF THE STUDY: To study the utility of PRA screening in kidney transplant patients.

METHODS: The study included 66 primary living donor kidney transplant patients who were complement-dependent cytotoxicity cross-match negative. PRA screening was done just before kidney transplant to determine presence of preexisting HLA antibodies and 3–6 months after kidney transplant to determine development of *de novo* HLA antibodies. PRA screening was done using X-Map technology by Luminex in which the microbeads coated with HLA molecules bind to antibodies present in the test sample. In those with HLA mismatch and positive PRA on screening, Luminex single-antigen bead (SAB) testing was done (particularly in those with history of sensitization) to determine if HLA antibodies are donor-specific.

RESULTS: There were 51 males and 15 females. The mean (standard deviation) age of the subjects was 47 (12) years. PRA was positive in only 4 out of 66 (6%) cases pretransplant. This was only to Class 2 antigens. Of the remaining 62 cases whose PRA screen was negative, two were lost to follow-up, one patient lost graft, and one patient died in the first 6 months. Of the remaining 58 cases, only 1 (1.7%) developed PRA positivity posttransplant. This was also to Class 2 antigens.

CONCLUSIONS: Our study shows that there is low prevalence (6%) of PRA positivity pretransplant. Posttransplant, only 1.7% developed *de novo* antibody. This may be due to the fact that majority were living-related donor transplants with good HLA match.

87. ALTERED SENSORIUM IN AN ELDERLY PERITONEAL DIALYSIS PATIENT-SUSPECT AN OLD CULPRIT WITH NEW WILES

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BACKGROUND: In peritoneal dialysis (PD) patients, peritonitis accounting for 30%–40% of permanent transfer to hemodialysis (HD) and contributes to mortality. Two of three criteria – abdominal pain and/or cloudy effluent, fluid leukocyte count >100/μL, with >50% neutrophils, and positive PD fluid culture – are needed for a diagnosis of PD peritonitis. In the absence of abdominal pain or cloudy effluent, the latter two criteria (which are based on laboratory investigations) may be delayed or not looked for at all.

AIM OF THE STUDY: We report a 71-year-old male with diabetes and end-stage renal disease on APD who presented with altered sensorium for a day with inability to recognize his family members and drowsiness.

METHODS: There was also slightly reduced ultrafiltration on APD for 10 days resulting in a small positive balance but without shortness of breath or significant edema. There was neither abdominal pain or fever nor any other localizing symptom. As there was no localizing neurological deficit and hypoglycemia, a clinical suspicion of peritonitis was entertained despite absence of symptoms and the fluid was sent for counts and culture. The fluid was minimally hazy and the leukocyte count was 1170/μL with 84% polymorphonuclear leukocytes. The culture subsequently grew coagulase-negative staphylococci that were oxacillin resistant. He responded to appropriate antibiotics.

RESULTS: In elderly patients, peritonitis may present with only subtle changes. Common symptoms of abdominal pain, cloudy PD fluid, fever, nausea, diarrhea, etc., may all be absent in the elderly. The worldwide occurrence of symptoms are abdominal pain in about 80%–90%, fever in about 30%–50%, nausea/vomiting also in about 30%–50%, and cloudy effluent in about 85%. Less than 20% have hypotension. All these underscore that symptoms are not invariable in PD peritonitis, and the opportunity for early and successful intervention may be lost if this important diagnosis is not also considered. In this patient, an abrupt decrease in the ultrafiltration was a clue to the altered membrane characteristic in keeping with PD peritonitis.

CONCLUSIONS: In elderly patients, PD peritonitis may manifest only as altered mentation without any of the usual tell-tale symptoms and signs. A high index of suspicion of peritonitis must always be harbored when dealing with any new symptom, especially in the elderly.

88. ACUTE KIDNEY INJURY IN PREGNANCY: AN OBSERVATIONAL STUDY FROM A TERTIARY CARE HOSPITAL IN SOUTH INDIA

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BACKGROUND: Pregnancy-related acute kidney injury (PRAKI) is a heterogeneous disease entity that occurs due to a multitude of underlying etiologies. Although encouraging news of dramatic decrease in PRAKI is being reported, there is a paucity of data to irrefutably support it. This study was taken up with intention to study the incidence and clinical spectrum of AKI in pregnancy in recent times.

AIM OF THE STUDY: Primary: To study clinical spectrum and outcome of AKI in pregnancy. Secondary: To study the neonatal outcome in mothers with PRAKI.

METHODS: All patients with clinical features of AKI in pregnancy and early postpartum period (up to 7 days post-partum) were included in the study. Women with preexisting chronic kidney disease were excluded from the study. All pregnant women admitted in the Department of Obstetrics and Gynecology/Nephrology and those admitted for safe confinement/referred for management of obstetrical complications during the study period were screened for AKI. Patients were clinically assessed and severity of AKI was graded using urine output, duration of oligoanuria, uremic symptoms, and level of urea and creatinine at the time of admission. Dialysis support was provided as per the standard indications of dialysis. The clinical outcome in terms of general health of the patient and renal outcome (recovery/partial recovery/dialysis dependency) was assessed. The data were analyzed using IBM SPSS statistics for Windows; Version 24.0.

RESULTS: Among the 2733 women screened, 23 women were diagnosed AKI during pregnancy between the period of January 2018 and June 2019 and were treated as inpatients at St John's Medical College and Hospital. Third trimester was the most common time of presentation (82.6%) followed by postpartum and second trimester. Severe preeclampsia was the leading cause of AKI (65.2%); ATN secondary to antepartum and postpartum hemorrhage (26.08%), AFLP (0.04%), and sepsis (0.04%) were the other causes observed. Six patients required renal replacement therapy and two were hemodialysis dependent at the end of 3 months. Two patients expired due to pregnancy-related complications. Lower segment cesarean section was the common mode of delivery. Fetal survival was 34.7% and all required neonatal intensive care unit care for either prematurity/low birth weight.

CONCLUSIONS: Pregnancy in AKI poses a specific challenge and is associated with high morbidity. Preeclampsia continues to be the leading cause and early diagnosis portends a favorable outcome.

89. TACROLIMUS PLUS LOW-DOSE PREDNISOLONE THERAPY IS MORE EFFECTIVE IN PLA2R-NEGATIVE MEMBRANOUS GLOMERULONEPHRITIS PATIENTS

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BACKGROUND: Idiopathic membranous nephropathy (IMN), an autoimmune concomitant nephrotic syndrome of the adult, is mainly associated with PLA2R antibody expressed on podocytes. The lack of exact mechanisms involved in the pathogenesis of IMN is transmitted to its therapeutic management. There is no standard therapy for patients with frequent relapsing or steroid-dependent IMN.

AIM OF THE STUDY: We propose the efficacy of low-dose tacrolimus (Tac) plus prednisolone and associated changes in anti-PLA2R in adult IMN.

METHODS: A total of 101 membranous nephropathy patients were treated with a combination of prednisolone 1 mg/kg alt-day) and Tac 0.1 mg/kg/day (trough 6–10 ng/ml first 6 months and 4–6 ng/ml for next 3 months) and then both taper by 1/3 every month up to 12 months. Of 101 patients, 15 diabetic, 7 lupus, 1 HBV, and 1 ankylosing spondylitis patients were excluded. Finally, 77 patients were followed and evaluated for the anti-PLA2R level at baseline; 3, 6, 12 months; and end of follow-up (17–61; median 38 months). CR, PR, relapse, and side effects were recorded. Of the 77 patients, at 3 months, 60 (77.92%; CR - 37; PR - 23); at 6 months, 61 (79.22%; CR - 53; PR - 8); at 12 months, 53 (68.86%; CR - 47; PR - 6) achieved remission. Eight (10.38%) relapsed and 16 (20.77%) showed no response at 12 months. At the end of follow-up, of 54 responsive patients, 37 (68.51%; CR - 36; PR - 1) remained in remission and 17 (31.48%) patients relapsed.

RESULTS: Of 77 patients, 51 (66.3%) were anti-PLA2R positive. Remission rate was significantly low in PLA2R-positive than PLA2R-negative (36/51 vs. 24/26; $P = 0.03$) at 3 months; (36/51 vs. 25/26; $P = 0.009$) at 6 months; and (31/51 vs. 22/26; $P = 0.03$) at 12 months. PLA2R level was decreased by 60.38% and 77.56% at 3 and 6 months, respectively. There were significant correlations between PLA2R level and 24 h proteinuria at baseline, 3 months, and 6 months. During therapy, four patients developed cutaneous tenia; one developed osteonecrosis of the femur head; one developed corpus tunnel syndrome; four developed onset diabetes; three developed tremor; and fourteen patients experienced gastrointestinal symptoms. The estimated glomerular filtration rate (eGFR) was decreased significantly ($P = 0.003$) by 26.5% at the end of therapy and was normalized after stopping Tac; and five nonresponsive patients had doubling of serum creatinine and progressively deteriorated eGFR. To note, four females had pregnancy and successful delivery in our cohort of patients.

CONCLUSIONS: PLA2R-positive patients showed poor response compare to PLA2R-negative patients. Remission with Tac and prednisolone therapy is comparable to historical Ponticelli regimen. Successful pregnancy was observed on Tac-based regimen.

90. 24-H AMBULATORY BLOOD PRESSURE MONITORING CHARACTERISTICS AND CORRELATION WITH HEMODILYSIS BLOOD PRESSURES MEASURES

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BACKGROUND: Interdialytic 24-h ambulatory blood pressure monitoring (ABPM) is considered as a gold standard method to assess hypertension (HTN) in dialysis population; however; practical challenges preclude from obtaining meaningful information. ABPM is particularly useful for chronic kidney disease (CKD) progression, predicting cardiovascular (CV) risks and end-stage renal disease. ABPM has been found to be superior to CBP to diagnose HTN and to monitor adequacy of treatment.

AIM OF THE STUDY: To study the role of ABPM in the management of HTN in patients with CKD on maintenance hemodialysis and to study the correlation between intradialytic blood pressure with ABPM.

METHODS: This was an observational study of CKD patients undergoing hemodialysis with ambulatory blood pressure monitoring. A total of 100 patients were included in study. It included all patients of CKD) undergoing hemodialysis: (a) age more than 18 years; (b) hemodialysis (HD) vintage >30 days; (c) ability to consent; (d) patients who had achieved stable dry weight for at least 2 weeks. Continuous variables were described as mean ± standard deviation or median ± interquartile. Pearson correlation coefficient was used to determine correlation between predialysis blood pressure, postdialysis blood pressure, mean day time blood pressure, mean nocturnal blood pressure, and 24-h average blood pressure. Cohen's Kappa agreement was done to determine agreement between ABPM and pre-dialysis blood pressure to define HTN.

RESULTS: During this study, it was found that the mean age of all subjects was 42.26 ± 14.69 years. 31(31%) patients were found to have intradialytic HTN (IDH). Prehemodialysis systolic blood pressure (SBP) correlated with 24-h mean SBP; active period SBP and passive period SBP ($P < 0.0001$). Association between HTN as pre-HD blood pressure and HTN as ambulatory blood pressure showed poor agreement (Cohen Kappa agreement $K = 0.2229$). Interdialytic weight gain and cholesterol are modifiable risk factors with appropriate measures.

CONCLUSIONS: Association between HTN as ABPM and IDH showed statistically significant correlation. Interdialytic weight gain and cholesterol are modifiable risk factors. Pre-HD SBP and 24-h mean SBP were independent risk factors for IDH.

91. TO EVALUATE VASCULAR ACCESS USING CLINICO-RADIOLOGICAL METHOD AND ASSESS VASCULAR ACCESS OUTCOMES

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BACKGROUND: Routine vascular access surveillance may help in early identification of complications and may help in early intervention which may improve arteriovenous fistula (AVF) access outcomes. Data on vascular access complications are scarce in India; this study was designed to focus on vascular access complications and its outcomes in Indian hemodialysis patients.

AIM OF THE STUDY: To assess various parameters associated with vascular access and to compare with outcomes.

METHODS: This was a single-center, prospective observational study. All patients in maintenance hemodialysis unit labeled as chronic kidney disease stage 5. Patients having AVF. Patient being dialyzed for AKI; RPRF are excluded from study. AVF is studied by clinical examination and ultrasound imaging; the sample size is 130; ethical committee approval was taken.

RESULTS: Doppler measured findings such as flow rate less than 600 ml/min seen in 18 (13.85%); between 600 and 1500 ml/min seen in 74 (56%); more than 1500 ml/min in 38 (29.3%). Mean flow rates showed no difference among various types of fistula. The caliber of fistula less than 4 mm was seen in 56 (43%); 4–6 mm in 66 (50%); above 6 mm in 6.15% as measured by Doppler ultrasound; the rule of 6 was satisfied in only in 11 patients. Complications such as stenosis were seen in 13 (10%), complete thrombosis in 8 (6.1%), and partial thrombosis in 18 (13%). On correlating with adequacy with Doppler flow rate, there was significant difference between kt/v between groups ($P < 0.05$) and significant difference ($P < 0.05$) in kt/v between patients who had pseudoaneurysm versus no aneurysm. Statistical correlation was seen between caliber and flow rate between <4 mm and 4–6 mm but not between 4–6 mm and 6 mm by Tukey HSD result.

CONCLUSIONS: AVF has lesser complications rate versus catheter. Routine vascular access surveillance including clinical examination may help in early identification of complications and may help in early intervention which may improve AVF access outcomes.

92. CLINICAL AND LABORATORY PROFILE OF PATIENTS WITH END-STAGE RENAL DISEASE ON MAINTENANCE HEMODIALYSIS: EXPERIENCE FROM A TERTIARY CARE CENTER OF BANGLADESH

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BACKGROUND: Hemodialysis has become increasingly safe and well-tolerated therapy for patients with end-stage renal disease (ESRD).

AIM OF THE STUDY: This study aimed to evaluate the clinical and laboratory profile of ESRD patients undergoing maintenance hemodialysis.

METHODS: This cross-sectional study was carried out in the Department of Nephrology and Dialysis of a tertiary diabetic hospital, Dhaka, Bangladesh, from November to December 2015. After taking informed consent from the patients, clinical data were taken from history and physical examination and laboratory data were collected from record books of the patients.

RESULTS: The total number of patients was 107; there were 78 males and 29 females. The mean age was 57.3 ± 11.4 years. Mean duration of chronic kidney disease (CKD) was 5.7 ± 4.2 years. Diabetic nephropathy was the most common (43%) cause of CKD. The maximum duration of dialysis was 6.5 years. Over two-thirds (68.2%) of the patients were on thrice-weekly dialysis and rest (31.2%) were on twice-weekly dialysis. In the majority (91.6%) of the patients, dialysis was initiated through a temporary catheter. Eighty-five percent of the patients were on anti-hypertensive medications. Mean hemoglobin was 9.01 g/dl; mean ferritin was 947.6 μg/dL. Sixty-five percent of patients were on treatment for anemia. Eighty-five percent of patients had been vaccinated against hepatitis B virus. The mean serum calcium, phosphate, and parathyroid hormone were 8.87 mg/dL, 5.69 mg/dL, and 245.2 pg/mL, respectively. Twenty-three percent of patients had planned for renal transplantation.

CONCLUSIONS: Diabetic nephropathy was the most common cause of ESRD. A temporary dialysis catheter was the most common initial vascular access. Arteriovenous fistula was the most common current vascular access. Our patients were mildly anemic and had a mild mineral abnormality.

93. CORONARY SUBCLAVIAN STEAL FROM A LEFT INTERNAL MAMMARY ARTERY CORONARY BYPASS GRAFT DUE TO IPSILATERAL SUBCLAVIAN ARTERY STENOSIS AND AN ARTERIOVENOUS FISTULA

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BACKGROUND: It is possible to have a flow steal from the internal mammary artery (IMA) grafts by ipsilateral upper extremity arteriovenous fistula (AVF) in hemodialysis patient who underwent coronary artery bypass graft. Because both the bypass conduit and AVF arise from the same vascular structure (the subclavian artery), hemodynamic interference between the fistula and the IMA graft during dialysis is conceivable.

AIM OF THE STUDY: We report a patient of a coronary subclavian steal from the IMA graft due to the ipsilateral subclavian artery stenosis proximal to the origin of the IMA.

METHODS: Not applicable.

RESULTS: Not applicable.

CONCLUSIONS: Our patient had a coronary steal due reduced flow secondary to the ipsilateral subclavian artery stenosis. We successfully managed the patient with percutaneous stenting of the left subclavian artery and minimised the use of AV.

94. POSTTRANSPLANT CYTOMEGALOVIRUS INFECTION: A PROSPECTIVE COHORT STUDY

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BACKGROUND: Cytomegalovirus (CMV) infection is a common posttransplant infection and is associated with several complications some of which may be life-threatening.

AIM OF THE STUDY: Consecutive posttransplant kidney transplant recipients during a 3-year post-transplant period were followed up to look for occurrence of posttransplant CMV infection.

METHODS: Data from consecutive renal-transplant recipients were used to look for occurrence of CMV infection and its associations.

RESULTS: There were 221 kidney transplant recipients during the 3-year observation period, of which 31 (14%) developed CMV infection and 21 of whom were male. All patients received 3 months of valganciclovir prophylaxis. The mean time of occurrence of CMV infection was 7.61 (±9.25) months with the earliest occurrence being in the 1st month posttransplant and the latest being at 48 months. The CMV infection was picked up on routine screening as PCR is done at 6, 9, and 12 months. Fever was the clinical presentation in 9% and 4% each had leukopenia and transaminitis. The mean viral load was 13,954 (±24,784) copies per ml. Barring two who responded with very low titers and responded to decreasing immunosuppression, most patients were treated with oral valganciclovir for 3 weeks followed by prophylaxis. A child with CMV infection was treated with intravenous ganciclovir. All patients cleared their infection with treatment. There was late recurrence of CMV infection in four patients who required a second 3 weeks of intensive treatment with oral valganciclovir after which their blood remained negative for CMV infection. There were no deaths due to CMV infection. CMV infection was significantly associated with new-onset diabetes after transplantation (NODAT) (P = 0.05). There were neither statistically significant associations with leukopenic episodes nor with infections such as BK virus, varicella zoster, tuberculosis, or urinary tract infections. Two patients had BK virus infection in addition to CMV infection.

CONCLUSIONS: CMV is a common posttransplant infection and usually presented in the latter half of the first posttransplant year. However, it may present in the early period despite valganciclovir prophylaxis. All patients responded to conventional treatment though reinfection did occur in some. CMV infection was associated with NODAT.

95. BK VIRUS INFECTION IN RENAL-ALLOGRAFT RECIPIENTS: A PROSPECTIVE COHORT STUDY

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BACKGROUND: BK virus infection in renal allograft recipients is a consequence of immunosuppressive therapy and may lead to graft dysfunction and graft loss.

AIM OF THE STUDY: Consecutive posttransplant kidney transplant recipients during a 3-year post-transplant period were followed up to look for occurrence of BK viremia as it usually precedes BK virus nephropathy.

METHODS: Data from consecutive renal-transplant recipients were used to look for occurrence of BK viremia and its sequalae. BK virus PCR was done in the blood of recipients 3, 6, and 12 months after transplantation routinely or more frequently if clinically indicated.

RESULTS: There were 221 kidney-transplant recipients during the 3-year observation period of which 12 (5.9%) developed BK viremia; all of whom were male. The mean time of occurrence of BK viremia was 10 (±12.11) months with the earliest occurrence being at 3 months and the latest at 42 months. Eight patients (63%) were treated with reduction of immunosuppression and addition of leflunominde; two (17%) were treated with reduction of immunosuppression alone while one patient had resistant infection that was treated with cidofovir and intravenous immunoglobulin. All except one patient responded to treatment and their blood was negative for BK virus on their last follow-up. There were no graft losses. BK viremia was more common than in those who had leukopenic episodes (P = 0.02). There were no statistically significant associations with other infections such as cytomegalovirus (CMV), varicella zoster, tuberculosis, or urinary tract infections although two patients also had CMV infection.

CONCLUSIONS: BK viremia presented in the latter half of the 1st year in most patients. Most of them responded to reduction of immunosuppression alone or with addition of leflunomide.

96. CLINICAL STUDY OF ROLE OF RENAL REPLACEMENT THERAPY IN PARAQUIT POISONING WITH ACUTE KIDNEY INJURY IN A TERTIARY CARE CENTER, SOUTH INDIA

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BACKGROUND: Agrochemicals are chemicals used in agriculture to maintain the ecosystem. Among the commonly used ones, paraquat holds an important position and most of these patients go for acute kidney injury (AKI) requiring renal replacement therapy (RRT).

AIM OF THE STUDY: To study the outcome of patients with AKI following paraquat poisoning and role of RRT in patients with AKI.

METHODS: A total of 45 cases of paraquat poisoning with acute renal failure over a duration of the past 2 years admitted in Gandhi Medical College, Secunderabad, were included in our study. Analysis was done regarding demographic parameters, initial presentation, need for ventillator support; indication, duration and outcomes of RRT, duration of hospital stay, and outcomes and cause of death.

RESULTS: Of 45patients, there were 28 males and 17 females. Oliguric AKI was present among 26 (57.78%) patients and anuria in one (2.22%) patient. Of the 45 patients, 12 (26.67%) required ventillator. Among the patients, 38 (84.45%) underwent hemodialysis (HD), 2 (4.44%) patients were managed with both HD and peritoneal dialysis (PD), and 3 (6.67%) patients were managed with PD. No RRT was required in 2 (4.44%) patients. Among the patients who underwent HD, 7 (18.42%) patients had full recovery and 2 (5.26%) patients had partial recovery. Among the patients who underwent both HD

and PD, no one survived. Among the patients who underwent only PD, one (33.33%) made full recovery and other patients made partial recovery. 15 (33.33%) patients had multiple organ dysfunction syndrome (MODS) during hospital stay and 28 (62.22%) patients expired. A total of 13 (28.89%) patients had partial or full recovery at discharge12 out of 28 patients (42.86%) who died; oliguria at presentation and MODS was found to be associated.

CONCLUSIONS: Paraquat poisoning with AKI constitutes 0.75% of all patients presenting with AKI in our center. Of all cases of poisoning with AKI, paraquat poisoning with AKI constitutes 56.4% in our center. MODS constitutes 33.3% of patients with paraquat poisoning with a mortality rate of 62.22%.

97. ACUTE KIDNEY INJURY IN POSTFLOOD LEPTOSPIROSIS EPIDEMIC IN KERALA 2018: A CLINICOEPIDEMIOLOGICAL STUDY AND LONG-TERM FOLLOW-UP

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BACKGROUND: From August 8, 2018, severe floods affected Kerala. The Indian government had declared it a Level 3 Calamity; or "calamity of a severe nature." About a million people were evacuated; over 483 people died. Postflood period, there was a leptospirosis epidemic. Number of leptospirosis cases admitted in Government Medical College, Kozhikode, during floods in August and September was 145 and 164, respectively. Majority of patients had acute kidney injury (AKI).

AIM OF THE STUDY: (1) To analyze clinicoepidemiological aspects of patients with AKI in postflood leptospirosis. (2) To compare risk factors and outcome in dialysis requiring and nonrequiring at presentation and follow-up.

METHODS: Leptospirosis patients with AKI admitted in Government Medical College, Kozhikode, between August 15 and September 15 were studied. Patients were divided in to dialysis requiring and nondialysis requiring groups. Clinical and epidemiological data compared between them. These patients were followed up for 1 year.

RESULTS: A total of 242 leptospirosis cases reported during 1 month of postflood period; 186 had AKI; 52 had undergone dialysis. Of 186 cases, 118 gave a history of direct contact with floodwater; 37 took doxycycline prophylaxis. IgM lepto was positive in 70% cases. Number of dialysis requirement per patient ranges from 1 to 9 sessions. Mortality was around 45 in 242 leptospirosis patients; 20 out of 186 those who had AKI expired. Risk factors for severity of AKI/dialysis requirement were direct contact with flood water, oliguria, hypotension, hypervolemia, serum bilirubin, and thrombocytopenia at admission. Doxycycline prophylaxis was associated with less severe AKI. Most common cause of death was myocarditis. At 3 months, 45% in dialysis group and 78% in nondialysis group completely recovered and no significant difference in mean serum creatinine was found. At 1 year, renal dysfunction persisted in 17%; majority of them had at least 1 comorbidity.

CONCLUSIONS: Seventy-five percent of leptospirosis cases had AKI. Doxycycline prophylaxis decreased severity of AKI. Risk factors for severe AKI were direct contact with flood water, oliguria, serum bilirubin, and thrombocytopenia. At 3 months, 45% in dialysis group and 78% other group recovered. At 1 year, 17% had renal impairment.

98. EXPLORING LACLM GENE ENCODING FOR HETERODIMERIC β-D-GALACTOSIDASE ENZYME FROM LACTOBACILLUS PLANTARUM BACTERIAL STRAIN FOR THE PRODUCTION OF PROBIOTICS TO OVERCOME GASTROINTESTINAL COMPLICATIONS IN RENAL DISEASE

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BACKGROUND: *Lactobacillus plantarum* expresses β-D-galactosidase gene (LacLM) which has a vital role in lactose metabolism. Renal-transplantation patients, on account of immunosuppression, can suffer from gastrointestinal disorders, for which they are prescribed probiotics. Focus is to enhance the efficacy of probiotics by introducing new and potent bacterial strains for the treatment of various gastrointestinal disorders with no or minimal side effect.

AIM OF THE STUDY: *In vitro* over expression of β-D-galactosidase gene from *L. plantarum* using expression cloning and standardization of its efficiency in various lactic acid bacterial strains.

METHODS: Fermented product obtained from the local market was used as sample broth and was cultured on MRS agar plates. The suspected *Lactobacillus* species were subcultured. Obtained pure culture was confirmed morphologically and biochemically as per Bergey's Manual. Genetic confirmation was done using the 16S rRNA sequence comparison. Sequences of closely related matches were retrieved and aligned using CLUSTALW program manually. LacLM gene was isolated from the genomic DNA of the confirmed species of *L. plantarum* using gene-specific primers and was sent for sequencing. The conformed LacLM gene sequence was cloned in the pSIP expression vector using Infusion Cloning Kit and the established construct will be tested in various *Lactobacillus* strains for probiotic production.

RESULTS: The biochemical tests and 16S rRNA sequence BLAST confirmed the presence of *L. plantarum* species. After species identification, the LacLM gene was isolated successfully using gene-specific primers. The obtained amplified gene product of 2.8 Kb was sent for sequencing and confirmed by sequence comparison using multiple sequence BLAST. The obtained gene was then introduced in a high expression vector which will be tested in a wide variety of host range.

CONCLUSIONS: β-D-galactosidase metabolizes lactose to glucose and galactose. The strategy is to clone and enhance the expression of LacLM using pSIP expression system and to validate its expression in wide host range for probiotic production against lactose intolerance and gastrointestinal complications.

99. COMPARISON OF MORTALITY BASED ON VIRAL STATUS IN A LARGE, NATIONAL, HEMODIALYSIS COHORT

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BACKGROUND: The incidence of viral seroconversions (hepatitis C virus, hepatitis B virus, and HIV) is fairly high in Indian dialysis centers. This causes an additional burden on the patient and results in poorer outcomes compared to patients who are virus-free.

AIM OF THE STUDY: To compare mortality rates of patients infected with the hepatitis C virus, hepatitis B virus, or HIV with virus-free patients.

METHODS: Data from a cohort of 24,194 subjects receiving HD between April 2014 and May 2019 at 176 centers of NephroPlus, India's largest dialysis center network, were analyzed retrospectively. We retrieved baseline characteristics, viral status for each of hepatitis C, hepatitis B, and HIV from patient records being maintained online. For those who died, the date of death was obtained and the mortality rates were calculated in each of the groups.

RESULTS: The mean age of the patients was 54 ± 14 years (range 11–90 years). The patients were predominantly male (71%). 47% of them were located in rural locations, 26% in semi-urban locations, and the rest (27%) in urban cities. 72% of them were covered by a government scheme, 20% by a private insurance policy, while the rest (8%) paid for their medical expenses out-of-pocket. 89% of the patients were virus-free. 8% were infected with hepatitis C virus, 2.3% were infected with hepatitis B virus, while less than 1% were carriers of HIV. Those infected with more than one virus were negligible in number and were excluded from the study. The 3-year and 5-year mortality rate of the patients who were not carriers of any virus was 32% and 39%, respectively. Patients infected with the hepatitis B virus had the highest mortality. Their 3-year and 5-year mortality rates were 46% and 57%, respectively. HCV carriers had 3-year and 5-year mortality rates of 40% and 52% while HIV carriers had 36% and 41%, respectively.

CONCLUSIONS: Viral seroconversion has a significant adverse impact on mortality of hemodialysis patients. Hepatitis B-positive patients have highest mortality followed by hepatitis C-positive and HIV-positive patients. Measures must be taken to prevent seroconversions among dialysis patients to improve survival.

100. BLIND BEDSIDE PERCUTANEOUS PERITONEAL DIALYSIS CATHETER PLACEMENT IN A PATIENT WITH A PERMANENT SUPRAPUBIC BLADDER CATHETER IN SITU: A NOVEL IDEA

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BACKGROUND: Patients with obstructive uropathy and end-stage kidney disease (ESKD) with a permanent suprapubic catheter *in situ* are not often considered candidates for chronic peritoneal dialysis (PD). In the previously documented case series where PD was done in patients with chronic suprapubic catheter bladder drainage, PD catheter was inserted either percutaneously using fluoroscopy or using laparoscopy.

AIM OF THE STUDY: We report a case of a 50-year-old man with urethral stricture and ESKD who required suprapubic bladder drainage. He preferred PD as the modality of renal replacement therapy.

METHODS: Rather than recommending hemodialysis (HD), we counseled him and proceeded to do blind percutaneous PD catheterization which is the technique of choice at our center as reported previously.

RESULTS: After instilling 1 g of intravenous vancomycin as antibiotic prophylaxis, using 2% lignocaine for local anesthesia, we performed the blind, bedside percutaneous technique maintaining strict asepsis. Seldinger technique was used, and the procedure was done in the dialysis unit in the designated procedure room. There was no leak through the incision site, through the exit site, or in the bladder catheter. We flushed the catheter the next day and began low-volume supine exchanges. The patient underwent urethroplasty a year later and continues on PD for nearly 2 years now. There were no episodes of peritonitis or leak at any time.

CONCLUSIONS: We suggest that the blind, percutaneous PD catheter insertion be the default technique for initiating PD in patients with permanent suprapubic bladder catheter *in situ* as it is a safe procedure in these patients.

101. EMERGING ROLE OF MALDI TOF IN POSTRENAL-TRANSPLANT NOCARDIOSIS

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BACKGROUND: Nocardiosis is a localized or disseminated bacterial infection caused by aerobic *Actinomyces* that commonly affects immunocompromised hosts.

AIM OF THE STUDY: To retrospectively review the clinical course and outcome of nocardiosis in renal-transplant recipients at our center.

METHODS: Sixteen cases of nocardiosis were identified in a series of more than 1800 consecutive renal transplants performed at Sir Ganga Ram Hospital from 2010 to 2019.

RESULTS: Thirteen out of 16 patients (81.25%) developed nocardiosis within 1 year of renal transplant. The diabetic population constituted 37.5%. Pleuropulmonary nocardiosis was the most common form of infection (68.75%). Primary cutaneous nocardiosis was identified in one patient. Cerebral nocardiosis and disseminated nocardiosis were diagnosed in two patients each. In the last 3 years, the introduction of MALDI-TOF at Sir Ganga Ram Hospital led to the possibility of classification of the subspecies of *Nocardia*. In the last 3 years, six patients were diagnosed with nocardiosis, in which

four were infected with *Nocardia farcinica*, one patient with *Nocardia asiatica*, and one with *Nocardia cyrigeorgica*. *N. farcinica* was resistant to cotrimoxazole. With the help of proper antibiotic susceptibility, five out of six patients could be treated.

CONCLUSIONS: Nocardiosis is a rare, difficult-to-diagnose-and-treat infection following kidney transplantation. The use of MALDI-TOF for subspecies identification and modification of the plan of management according to antibiotic sensitivity results in improved outcomes.

102. CYP3A5* GENETIC POLYMORPHISM IN TACROLIMUS-TREATED RENAL TRANSPLANTATION IN NORTH INDIA: A TERTIARY CARE CENTER EXPERIENCE

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BACKGROUND: Tacrolimus is the backbone of renal transplantation because of its potent immunosuppression. It has a very narrow therapeutic index along with marked inter/intra-individual variability in pharmacokinetics due to CYP3A5* genetic polymorphism, which may lead to either graft rejection or drug toxicity. Hence, its dosage should be tailored on individual basis. Genetic polymorphism in CYP3A5 leads to differences in the outcomes of renal transplantation, such as acute rejection and graft survival.

AIM OF THE STUDY: To evaluate the outcome of polymorphism in CYP3A5* gene on pharmacokinetics of tacrolimus and graft outcome in renal-transplant patients in Northern India.

METHODS: This was an observational study which was conducted in Sir Ganga Ram Hospital in New Delhi from 2018 to 2019. Detailed history, physical examination, and routine investigations were done. Thirty-seven kidney transplant patients receiving tacrolimus were enrolled in this study. All patients were on a standard protocol triple drug immunosuppression of tacrolimus (0.1 mg/kg/day), mycophenolate mofetil (35 mg/kg/day), and steroids (20 mg/day). CYP3A5 genotyping was carried out by targeted gene sequencing.

RESULTS: The CYP3A5*1/*1, *1/*3, and *3/*3 genotypes were detected in 10 (27%), 21 (57%), and 6 (16%) out of 37 transplant patients, respectively. A significant association was found between tacrolimus dosage and CYP3A5 gene polymorphism in this study. Requirement of approximately 1.5–2-fold higher tacrolimus dosage was observed to achieve therapeutic trough levels among CYP3A5 expressors, compared to nonexpressors. Furthermore, graft dysfunction was more commonly observed in in CYP3A5*1 homozygotes compared to patients with CYP3A5*1/*3 and CYP3A5*3/*3 genotypes.

CONCLUSIONS: There is significant association of CYP3A5* genetic polymorphism on tacrolimus pharmacokinetics. Individuals with CYP3A5*1/1 genotype are at a high risk of graft dysfunction. Genotyping may predict tacrolimus dosage in the future to achieve therapeutic trough levels.

103. EFFICACY AND SAFETY OF GLP-1 ANALOG IN DIABETIC KIDNEY-TRANSPLANT PATIENTS

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BACKGROUND: GLP-1 analogs work by increasing insulin release from the pancreas and decreasing excessive glucagon release. They have been shown to improve glucose control while reducing body weight. This property could be useful in diabetic kidney-transplant patients with a tendency to gain weight.

AIM OF THE STUDY: To study the efficacy and safety of GLP-1 analogs in kidney-transplant patients with diabetes and with a tendency to gain weight.

METHODS: This retrospective study included 17 kidney-transplant patients who were diabetic and gaining weight after transplant. They were on triple immunosuppression consisting of CNI, MMF/azathioprine, and prednisolone. Twelve were diabetic before transplant and five had developed new-onset diabetes after transplant (NODAT). Fourteen patients received dulaglutide (dose 1.5 mg weekly) and 3 received liraglutide (dose 1.2 mg daily). Two patients discontinued within a short period of starting due to gastrointestinal side effects (nausea and abdominal fullness). Remaining 15 patients were followed for at least 6 months. This study is an analysis of these 15 patients. Weight, HBA1c, tacrolimus level, and creatinine before and after 6 months of GLP-1 analog treatment were compared. Safety was assessed by adverse event (AE) reports.

RESULTS: Of the 15 patients who completed at least 6 months, 12 were males and 3 females. The mean ± 1 standard deviation (SD) age at start of GLP-1 analog was 52.4 ± 8.5 years. The median duration after transplant was 38.7 months (range 6–194 months) at the time of introducing GLP-1 analog. The mean ± 1SD weight before starting GLP-1 analog was 86.6 ± 10.6 kg. Six months after therapy, it was 84.6 ± 11.3 ($P < 0.05$). While there was no significant change in HBA1c (7.3 before and 7.7 after), other hypoglycemic agents could be reduced in all. Tacrolimus level was 7.3 ± 2.8 before and 7.5 ± 1.7 after 6 months of therapy despite reduction in mean dose. Serum creatinine was 1.1 ± 0.4 before and 1.1 ± 0.3 after 6 months of therapy. There was significant AE except abdominal discomfort and nausea.

CONCLUSIONS: In diabetic kidney-transplant patients, GLP-1 analog therapy was effective in decreasing weight and maintaining glucose control without affecting CNI level or graft function. At the same time, there was no significant AE.

104. DIARRHEA IN RENAL-TRANSPLANT RECIPIENT

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BACKGROUND: To study the clinical profile and etiology of diarrhea in renal-transplant recipients.

AIM OF THE STUDY: To study the clinical profile and etiology of diarrhea in renal-transplant recipients.

METHODS: This was a cross-sectional study of renal-transplant recipients with diarrhea from November 2017 to October 2018. Diarrhea was defined as passage of ≥3 loose or liquid stools/day of ≥5 days. Acute abdominal symptoms that required intervention within 48 h were excluded. Patients underwent stool analysis, modified AFB smear (stool), stool culture. Quantitative PCR for cytomegalovirus (CMV) and colonoscopy was done for selected patients.

RESULTS: In this study, 46 patients were included of which 36 were males (78.2%). The mean age was 37.1 ± 1.30 years. Living-related renal-transplant recipient (LRRTR) -33; deceased donor renal-transplant recipient (DDRTR)-13. Of 46 patients, 15 had posttransplant diabetes mellitus. Mycophenolate mofetil was identified as the cause of diarrhea in 8 (17.3%) patients (5 LRRTR and 3 DDRTR). Infective causes of diarrhea were seen in 6 patients (13%). Cryptosporidiosis was the most common (3 DDRTR and 1 LRRTR) followed by CMV infection in 2 (1 DDRTR and 1 LRRTR). Patients with chronic diarrhea (>3 weeks duration) were 7 (15.2%) and all of them were subjected to colonoscopy and biopsy samples were taken. Out of them, four were diagnosed with nonspecific colitis. Significant risk factors for diarrhea included were deceased donor renal transplantation ($P = 0.000764$) and use of induction agent ($P = 0.004631$). In 18 (39.1%) patients, no specific cause could be made out and diarrhea was treated symptomatically.

CONCLUSIONS: Drug-induced and infective causes were the majority. Diarrhea was common in more than 1 year of posttransplant period. Among infective causes, cryptosporidiosis was the most common. Significant risk factors for diarrhea included deceased donor renal transplantation and use of induction agent.

105. COMPARISON OF MORTALITY AND OTHER CLINICAL OUTCOMES BASED ON FREQUENCY OF HEMODIALYSIS IN A LARGE, NATIONAL, DIALYSIS COHORT

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BACKGROUND: Dialysis in India is associated with relatively high mortality and poor clinical outcomes. Due to poor access to quality dialysis programs and lack of affordability to pay for dialysis and associated treatment, most patients opt for twice-weekly and even once-weekly dialysis which results in poor outcomes.

AIM OF THE STUDY: To compare mortality rates and other clinical outcomes in dialysis patients based on hemodialysis (HD) frequency.

METHODS: Data from a cohort of 19,455 patients receiving HD between April 2014 and April 2019 at 173 centers of NephroPlus, India's largest dialysis center network, were analyzed retrospectively. We retrieved baseline characteristics, dialysis frequency, and investigations from patient records being maintained online. For those who died, the date of death was obtained and the mortality rates were calculated. The mean age of the subjects was 52 ± 14 years (range 10–87 years). Subjects were predominantly male (70%). 40% of them were based in rural locations while 30% each were from urban and semi-urban locations. 67% of the patients were covered by a government subsidy scheme. 21% were covered by private insurance and the rest (12%) paid out of pocket. 57% of them were undergoing dialysis twice weekly while only 15% underwent dialysis thrice weekly. The rest (28%) underwent only one session per week.

RESULTS: A total of 4920 deaths occurred among the patients during the study period. The 6-month mortality of once-, twice-, and thrice-weekly patients was 18%, 14%, and 10%, respectively. The corresponding 1-year mortality figures were 26%, 21%, and 16%, while the 2-year mortality figures were 31%, 28%, and 22%. The markers of anemia, nutrition, and bone health were also analyzed. Those who were undergoing thrice-weekly dialysis had more patients meeting the target range for hemoglobin (50%), albumin (57%), calcium (55%), and phosphorus (47%) compared to those getting twice-weekly HD sessions whose numbers were 45%, 54%, 48%, and 40%, respectively. Those doing one session a week had the worst outcomes with the corresponding numbers at 39%, 38%, 43%, and 33%.

CONCLUSIONS: Patients on thrice-weekly dialysis have the best outcomes compared to twice-weekly and once-weekly dialysis. Efforts need to be made to improve patient compliance with their prescribed dialysis regimen.

106. RELATIONSHIP BETWEEN ANEMIA AND BIOCHEMICAL PARAMETERS OF METABOLIC BONE DISEASE IN CHRONIC KIDNEY DISEASE STAGES 3–5 PREDIALYSIS PATIENTS

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BACKGROUND: Anemia and metabolic bone disease accompany with chronic kidney disease (CKD) and worsen as CKD progresses. Different biochemical parameters of CKD-mineral bone disorders (CKD-MBD) have been associated with anemia of CKD but are less well evaluated in low-resource settings.

AIM OF THE STUDY: To evaluate the relation of anemia with biochemical parameters of CKD-MBD in CKD nondialysis patients.

METHODS: This cross-sectional study recruited 115 patients with CKD who attended outpatient department (OPD) of Nephrology in BIRDEM General Hospital between January 2019 and June 2019. Patients' demographics and clinical and biochemical parameters were recorded. Associations between anemia and serum levels of calcium (corrected), phosphorus, parathyroid hormone (PTH), 25-hydroxy-Vitamin D (25[OH] D), and alkaline phosphatase were evaluated.

RESULTS: Total patients were 115 including 71 (61.7%) females. Mean age was 57.8 years. Most patients were in CKD Stage 4 (43; 37.4%) and Stage 5 (45; 39.1%). Mean duration of diabetes and hypertension was 12.7 and 7.2 years, respectively. Mean serum creatinine (mg/dL), hemoglobin (g/dL), calcium (mg/dL), albumin (g/L), phosphate (mg/dL),

alkaline phosphatase (U/L), PTH (pg/mL), and 25(OH)D (ng/mL) were 3.1, 10.5, 8.7, 37.9, 4.0, 119.1, 211.1, and 15.1, respectively. Hemoglobin was positively correlated with calcium ($r = 0.152$; $P = 0.346$) and 25(OH)D ($r = 0.287$; $P = 0.988$) and negatively correlated with phosphate ($r = -0.220$; $P = 0.312$), alkaline phosphatase ($r = -0.352$; $P = 0.001$), and PTH ($r = -0.268$; $P = 0.945$).

CONCLUSIONS: Hemoglobin in CKD Stage 3–5 predialysis patients had positive correlation with calcium and 25(OH)D and negative correlation with phosphate, alkaline phosphatase, and PTH. Among these parameters of CKD-MBD, the correlation with alkaline phosphatase was significant.

107. ASSESSMENT OF PREVALENCE OF RESTLESS LEG SYNDROME IN CHRONIC KIDNEY DISEASE PATIENTS ON MAINTENANCE HEMODIALYSIS AT SOUTH INDIAN TERTIARY CARE CENTER

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BACKGROUND: Restless legs syndrome (RLS) is a neurological disorder characterized by an irresistible urge to move the legs, especially at rest. Symptoms worsen in the evening and at night and improve with activity such as walking. RLS may be secondary to or exacerbated by a number of conditions that include iron deficiency, pregnancy, end-stage renal disease (ESRD), diabetes, and rheumatoid arthritis or with neurological disorders such as peripheral neuropathy.

AIM OF THE STUDY: To assess the prevalence of RLS in patients on maintenance hemodialysis and correlation the outcome with mortality.

METHODS: (1) Type of study: An institutional-based, single-center, prospective study. (2) Study period: January 2016 to January 2018. (3) Study population: Patients undergoing maintenance hemodialysis (MHD) at Gandhi Hospital, Secunderabad, during the time period 2016–2018. (4) Sample size: 200. (5) Inclusion criteria: (a).Those patients on MHD between 18 and 60 years (b) Those patients who have given consent. (6) Exclusion criteria: (a) Patients who are <18 and >60 years, (b) those patients who are having history of RLS before the development of chronic kidney disease, (c) patients with diabetic neuropathy.

RESULTS: A total of 200 number of patients undergoing maintenance are included in this study 133 (66.5%) were males and 65 (33.5%) females. The mean age of study group is 43.3 ± 12.23 years. The mean vintage of dialysis is 33.7 ± 24.7 months. The most common cause of ESRD in the present study is presumed chronic interstitial nephritis in contrast to other studies where diabetes mellitus (DM) is the leading cause of ESRD. In the present study, most of the patients with DM suspected of having diabetic neuropathy are excluded; out of 200 patients, 29 are satisfied IRLSSG criteria. Patients are divided in to RLS-positive and RLS-negative groups and baseline characteristics of two groups are compared. *P* value was calculated using Chi-square test and *t*-test. Significant *P* value was taken as <0.05.

CONCLUSIONS: The prevalence of RLS in MHD patients was found to be 14.5%. Factors associated with RLS in dialysis patients are increasing age, increasing duration of dialysis, and serum iron.

108. USE OF FLASH GLUCOSE MONITOR TO STUDY HYPOGLYCEMIA IN HEMODIALYSIS PATIENTS

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BACKGROUND: Hypoglycemia is a common complication during hemodialysis, and if unattended, it can lead to coma and death. In fact, hypoglycemic events increase with intensive treatment, and in the presence of cardiovascular diseases, it can cause fatal dysrhythmia. Hence, the determination of glucose levels during dialysis treatment is clinically important.

AIM OF THE STUDY: The main aim was to study hypoglycemia using flash glucose (FG) monitor and capillary glucose (CG) monitor and to study the level of difference between FG monitor and CG monitor.

METHODS: FG monitoring (Abbott Free Style Libre Pro) was initiated predialysis on the first session of week. It was continued for 14 days. Episodes of level 1 (<70 mg/dl) and level 2 (<54 mg/dl) hypoglycemia were recorded. CG was monitored pre and postdialysis. Difference between FG and CG was compared and reported.

RESULTS: Of 16 patients, nine were males. All the patients were on thrice a week dialysis with dextrose free dialysate. 14-day average level 1 hypoglycemia through FG was 197 ± 157 episodes and level 2 hypoglycemia was 116 ± 113 episodes. Predialysis level 1 hypoglycemia through FG was 27 and that through CG was 3 episodes. Postdialysis level 1 hypoglycemia through FG was 22 and that through CG was 2 episodes. Predialysis level 2 hypoglycemia through FG was 13 and that through CG was 0 episodes. Postdialysis level 2 hypoglycemia through FG was 17 and that through CG was 0 episodes. The average predialysis FG was 125.4 ± 78.6 mg/dl and CG was 225.43 ± 105.9 mg/dl whereas postdialysis FG was 109.9 ± 51.0 mg/dl and CG was 158.6 ± 49.7 mg/dl. No symptomatic hypoglycemia was observed during the study. The difference between FG and CG was 100 mg/dl in predialysis sessions and 49.2 mg/dl in postdialysis sessions.

CONCLUSIONS: FG monitor overestimates hypoglycemia as compared to CG monitor. We recommend the use of CG monitors in routine for estimation of hypoglycemia in dialysis patients.

109. UTILITY OF PROCALCITONIN AS A BIOMARKER TO DIFFERENTIATE INFECTION AND GRAFT REJECTION IN LIVE DONOR RENAL-TRANSPLANT RECIPIENTS

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BACKGROUND: Procalcitonin (PCT) is being increasingly used as a biomarker of bacterial infection and its levels help to differentiate bacterial infection from the nonbacterial illness. Despite the increased use of PCT, data in patients with solid organ transplants are limited in renal-transplant recipient. PCT may be a useful adjunctive biomarker that may improve early identification and guide appropriate treatment of infection or rejection, with the potential to further improve clinical outcomes

AIM OF THE STUDY: To investigate the diagnostic efficiency of PCT in differentiating infection from rejection in live donor renal-transplant recipients.

METHODS: In this observational study, diagnostic performance of PCT has been evaluated using sensitivity and specificity method in 210 renal-transplant recipients by dividing them into four different groups: Group I (NRNI): No acute rejection (AR); no infection (NI); Group II ORNI: Only AR; no infection; Group III (OINR): Bacterial infections and no AR; Group IV (BRI): Both AR and bacterial infections. Kaplan–Meier survival analysis was performed for graft survival in patients with acute rejection.

RESULTS: PCT levels significantly vary between the Groups I and II ($P < 0.0001$); Groups I and III ($P < 0.001$); and Groups I and IV ($P < 0.001$). The highest mean PCT value of 25.86 ± 25.81 ng/ml was observed in Group IV. On the postoperative day 1, the PCT cutoff value 3.21 ng/ml was found to be significant with 89.58% specificity. Similarly, on day 3, the PCT cutoff value of 0.56 ng/ml significantly differentiates infection from graft rejection. However, on day 7, PCT level greater than 0.36 ng/ml indicates patients having an infection with 60% specificity. Kaplan–Meier analysis revealed that there is a significant decrease in the survival rate of patients having a bacterial infection when compared to transplant recipients who only developed graft rejection.

CONCLUSIONS: This may be concluded that, at cutoff level of 3.21 ng/ml, PCT can differentiate infection from graft rejection; further, PCT can act as a biomarker in predicting graft failure.

110. SUCCESSFUL MANAGEMENT OF A RARE COMPLICATION AFTER PERCUTANEOUS TRANSPLANTED KIDNEY BIOPSY

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BACKGROUND: Renal hematoma is the most commonly reported complication after percutaneous renal biopsies; however, fortunately, these are self-limited in most of cases with no need for active intervention. Other complications such as arteriovenous fistula, colonic injury, infections, or pneumothorax are much less frequent life-threatening and stated to occur in less than 0.1% of cases.

AIM OF THE STUDY: We describe a case in which percutaneous renal biopsy is complicated by subcapsular hematoma due to tamponade following which patient underwent surgical intervention.

METHODS: A 45-year-old man postrenal allograft recipient from live-related donor with father as donor (HLA 3/6) was on triple immunosuppressant. On the day of renal biopsy, patient developed pain at biopsy site followed by vomiting and decreased urine output. A ultrasonography showed a peripheral echogenic fluid collection in the transplanted biopsied kidney with indentation of renal parenchyma consistent with a subcapsular hematoma and a high resistance arterial waveform in the interlobar arteries with reversed flow in diastole and increased RI of 1.48.

RESULTS: The patient was taken for immediate surgical intervention and evacuation of subcapsular hematoma which was causing compression on the renal allograft. The patients' urine output gradually improved over next few hours with improvement in blood flow on color Doppler and RI decreased to 0.71.

CONCLUSIONS: Although uncommon in the present era, maybe, a fatal complication and early intervention are required to save the graft kidney.

November 23, 2019 – 12.35 pm–1.35 pm

111. STUDY OF CORRELATION OF SERUM PHOSPHORUS WITH CAROTID INTIMA-MEDIA THICKNESS IN CHRONIC KIDNEY DISEASE

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BACKGROUND: Serum phosphorus is a significant risk factor for raised carotid intima-media thickness (CIMT) with conventional risk factors. Kidney dysfunction may also affect the clearance of phosphorus, which could be responsible for the calcification of major arteries.

AIM OF THE STUDY: To correlate serum phosphorus with CIMT in chronic kidney disease.

METHODS: In this prospective observational study, 190 cases of chronic kidney disease were studied for CIMT. CIMT was measured using by B-mode ultrasonography using a 5 MHz transducer. Three measurements were taken 0.5, 1, and 2 cm below carotid bifurcation of common carotid artery on each side. IMT of both sides was calculated and average of those two values was used for statistical analysis.

RESULTS: When serum phosphorous was correlated with CIMT in all four stages of CKD, it was found to have no statistical significance (p value 0.503). However, when compared in each group, serum phosphorous was found to be lowest in stage Vd (4.5±1.18mg/dl) and highest in stage III (4.5±1.18mg/dl).

CONCLUSIONS: CIMT showed significantly positive correlation with serum phosphorous in the complete cohort. Correction of hyperphosphatemia may be emphasized for the prevention of progression of arteriosclerosis and vascular calcification in CKD.

112. PREDICTORS OF MORTALITY BY APACHE AND SOFA SCORING IN ACUTE RENAL CARE UNIT OF A TERTIARY CARE HOSPITAL

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BACKGROUND: Clinical assessment of severity of illness among patients admitted into intensive care unit and predicting mortality at admission helps in clinical decision-making, thus enhancing quality of care.

AIM OF THE STUDY: To predict mortality rates based on APACHE2 and SOFA scoring at the time of admission among patients admitted to the ARCU.

METHODS: A descriptive study including 69 patients admitted into ARCU in tertiary care hospital, Nizam's Institute of Medical Sciences, Hyderabad, was performed between January 2019 and July 2019. APACHE2 score for the first 24 h after admission and SOFA scores were calculated.

RESULTS: The actual mortality rate was 33.3% in patients admitted into ARCU; whereas the average APACHE2 score at admission was 21.5 and average SOFA score at admission was 9.942, respectively, predicting mortality of around 40% by APACHE2 and 30%–40% by SOFA scores. Correlation between age, sex, and APACHE2 and SOFA scores were calculated.

CONCLUSIONS: APACHE2 scoring system and SOFA scores have been successful in predicting the mortality of critically ill patients admitted into ARCU.

113. SPECTRUM OF NONDIABETIC RENAL DISEASE IN TYPE 2 DIABETES MELLITUS

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BACKGROUND: Diabetes mellitus is a major cause of kidney disease-associated morbidity and mortality throughout the world. Diabetic nephropathy (DN) develops in one-third of patients with diabetes and contributes to up to one-third of all cases of end-stage renal disease. Although DN constitutes majority of patients of kidney disease in diabetics, nondiabetic kidney disease (NDKD) is also responsible for sizeable number of cases.

AIM OF THE STUDY: The aim of this study was to evaluate the renal biopsies performed on diabetic patients for suspicion of NDRD and to correlate pathological and clinical findings.

METHODS: A retrospective review of 180 biopsies performed in diabetics between 2014 and 2018 was done. Lesions were classified as isolated DN; isolated NDRD; and NDRD superimposed on DN. Biopsy indications were the presence of renal dysfunction defined as nephritic/nephrotic proteinuria or raised serum creatinine. Data examined included patient's demographic data, clinical presentation, and presence/absence of retinopathy. Risk factors for NDKD were analyzed.

RESULTS: Renal biopsy findings showed that 75% patients had isolated DN; 22.77% had isolated NDKD; 2.22% had NDRD superimposed on top of DN. Females outnumbered males in those with NDRD. 55.55% ($N = 25$) were females and 44.44% ($n = 20$) were males. 53.3% ($n = 24$) patients were in age group between 30 and 60 years; 17.77% ($n = 8$) patients belonged to age group less than 30 years. 28.8% ($n = 13$) were greater than 60 years of age. 53.33% ($n = 24$) had diabetes of less than 6 years duration; the most common presentation in NDKD group was acute kidney disease (40%), followed by NS and RPRF with 22.2 and 17.7%, respectively. Diabetic retinopathy was seen in 26.6% in isolated NDKD and NDKD with superimposed DN group. ATIN (20%) was the most common histological diagnosis in NDKD, followed by IRGN (20%) and IgA nephropathy (IgAN, 17.77%), respectively.

CONCLUSIONS: NDKD is not an uncommon diagnosis in diabetics. NDKD was more common in younger age group and those with lesser duration of diabetes. Even in those patients with NDKD good number of patients had retinopathy, so low threshold for biopsy is suggested. Histological lesions included ATIN, IgAN, and IRGN.

114. A RARE CASE OF CEPHALEXIN-INDUCED ACUTE INTERSTITIAL NEHRITIS WITH HYPOKALEMIC PERIODIC PARALYSIS

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BACKGROUND: Cephalexin is a first-generation cephalosporin; like other cephalosporins, its bactericidal action is performed through interfering with the later stages of bacterial cell wall synthesis. It is usually well tolerated with few side effects such as neutropenia, thrombocytopenia, eosinophilia, body rashes, and deranged liver function tests. Cephalexin is also rarely known to cause interstitial nephritis. Extensive literature search did not reveal case reports with cephalexin-induced acute interstitial nehritis (AIN) presenting with hypokalemic periodic paralysis (HPP).

AIM OF THE STUDY: Case history: HPP ,an unusual complication of cephalexin. METHODS: NA.

RESULTS: A 34-year-old woman with urban background presented in the emergency room with inability to move all her limbs for the past 24 h, acute in onset, rapidly progressive. She had History of upper respiratory tract infection and had taken oral cephalexin 500 mg twice daily for the last 5 days. Patient's condition rapidly deteriorated postadmission and required mechanical ventilation. Arterial blood gas analysis revealed severe metabolic acidosis with normal kidney and liver function tests, 19,800 mm^3 total leukocyte count, and hypokalemia. She had managed conservatively and gradually over a period of 3 days the patient's general condition, hypokalemia, renal parameters improved accompanied with improvement of limb paresis, and respiratory drive. The patient was gradually weaned off from mechanical ventilation support as per the standard protocols. On 7^{th}-day postadmission, the patient showed normal laboratory parameters with full power in all four limbs.

CONCLUSIONS: Extensive literature searches revealed few cases of cephalexin-induced AIN. Literature has also reported cases of primary and secondary HPP. However, none reported a case such as this where cephalexin-induced AIN presents with secondary HPP with renal tubular acidosis.

115. C1Q NEPHROPATHY: AN UNCOMMON GLOMERULAR DISEASE

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BACKGROUND: C1q nephropathy is an uncommon glomerular disease with characteristic features of dominant and co-dominant C1q staining in immunofluorescence microscopy.

AIM OF THE STUDY: Clinicopathological correlation and outcomes of three patients with C1q nephropathy.

METHODS: An observational study was conducted in the Department of Nephrology, Nizam's Institute, Hyderabad. Clinical, laboratory, and histopathological findings were recorded.

RESULTS: The age range of our patients was 3–50 years. Two patients presented with nephrotic syndrome and one patient presented with renal dysfunction. All the patients had no evidence of systemic lupus erythematosus (SLE). On biopsy, light microscopy showed no findings. On immunofluorescence, all the three patients had dominant C1q staining with electron-dense deposits in mesangium.

CONCLUSIONS: Diagnosis of C1q nephropathy is based on immunohistological finding of intense mostly mesangial staining for C1q in patients without evidence of SLE or membranoproliferative glomerulonephritis with heterogeneous clinical presentation.

116. CLINICAL PROFILE OF INFECTION-RELATED GLOMERULONEPHRITIS AND ROLE OF STEROIDS IN INFECTION-RELATED GLOMERULONEPHRITIS IN ADULTS: A RANDOMIZED CONTROLLED TRIAL

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BACKGROUND: Infection-related glomerulonephritis (IRGN) is an immune complex-mediated acute glomerulonephritis involving both *in situ* and circulating immune complexes. The role of steroids in IRGN is controversial and present-day guidelines remain noncommittal regarding the use of steroids in IRGN.

AIM OF THE STUDY: To study the role of steroids in addition to standard therapy in IRGN.

METHODS: Study design: This was a single-center, two-arm open-label, randomized controlled trial. Setting: 32 adults with IRGN in a tertiary care referral center in South India. Intervention: Steroid plus standard therapy (Group 1) versus standard therapy alone (Group 2). Outcomes: The primary outcome was persistent renal dysfunction (PRD). The secondary outcomes were complete remission (CR), time to CR, persistent proteinuria, persistent hypertension, and estimated glomerular filtration rate (eGFR) at last follow-up.

RESULTS: Fifteen patients in Group 1 received steroids plus standard therapy and 17 patients in Group 2 received standard therapy alone. PRD occurred in 26.7% of Group 1 and in 52.9% of Group 2. CR occurred in 66.7% of Group 1 and in 41.2% of Group 2. Median time to remission was 7 weeks and 12 weeks in Groups 1 and 2, respectively. Among patients with >12 months follow-up, PRD occurred in only one (8.3%) out of 12 in Group 1 and in seven (50%) out of 14 patients in Group 2. Persistent proteinuria occurred in 13.3% of Group 1 and in 47% of Group 2. Median eGFR at last follow-up was 84 ml/min/1.73 m^2 in Group 1 and 56 ml/min/1.73 m^2 in Group 2. The lesser incidence of PRD and CR in Group 1 had a trend toward statistical significance. The lesser incidence of PRD in patients with >12 months of follow-up and the lesser incidence of persistent proteinuria in Group 1 were statistically significant.

CONCLUSIONS: Steroids in addition to standard therapy may improve renal recovery in IRGN in adults. The available evidence is not sufficient enough to recommend steroids routinely.

117. RENAL HISTOPATHOLOGY IN SNAKE ENVENOMATION: A POSTMORTEM STUDY

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BACKGROUND: There is a paucity of renal histological changes following snake envenomation in the current era of early ASV administration. This study identifies the renal histology in patient who died due to hematoxic envenomation.

AIM OF THE STUDY: To study the renal histology in patients who died due to hematoxic snake envenomation.

METHODS: Postmortem renal biopsy was done in 44 patients from January 2016 to June 2017 who succumbed to snake envenomation. The histopathology data were analyzed by two pathologists blind to the clinical data.

RESULTS: Of 420 total patients, 44 succumbed to death (10%). Among the 44 deaths, three patients (6.8%) were admitted with acute kidney injury (AKI) Stage 1, seven patients (15.9%) were in AKI Stage 2, and 34 patients (77.3%) were in Stage 3 AKI. The mean creatinine at the time of death was 3 (95% confidence interval 2.6–3.4). Fifteen subjects (33.8%) had features of capillary leak syndrome. The median time from admission till death was 3 days (interquartile range 24). Histological data of five patients were not available. Among the 39 patients with postmortem samples, 34 patients (87%) had histology consistent with acute tubular necrosis (ATN). Seventeen patients (43.5%) had glomerular congestion, 24 (61.5%) patients had vascular congestion, and 9 (23%) had interstitial congestion in addition to histological evidence of ATN. In patients with ATN, casts

were present in 7 cases (17.9%, 2-eosinophilic, 2-myoglobin, 2-neutrophilic, and 1 hemosiderin). Three (7.9%) patients had TMA and 2 (5.1%) had interstitial nephritis.

CONCLUSIONS: AKI resulting from snake envenomation is accompanied by considerable risk of mortality. ATN was the predominant biopsy finding. Half of ATN exhibited significant congestion in glomerular and vascular compartments. The other renal lesions such as AIN and TMA were seen in a minority.

118. AMBULATORY BLOOD PRESSURE MONITORING AND ITS RELATIONSHIP WITH PREDIALYSIS BLOOD PRESSURE MEASUREMENTS IN PATIENTS ON MAINTENANCE HEMODIALYSIS

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BACKGROUND: In end-stage renal disease patients, predialysis and postdialysis blood pressure (BP) readings are used when prescribing antihypertensive treatment. Several factors may lead to inaccurate predialysis and postdialysis BP readings. There is also a high frequency of nocturnal, masked, and white-coat hypertension in the dialysis population. Thus, peridialysis measurements may not reflect the actual blood pressure burden as assessed by the 44-h ambulatory blood pressure monitoring (ABPM) during the interdialytic period.

AIM OF THE STUDY: To compare predialysis BP monitoring to ABPM in detecting BP pattern in patients on maintenance hemodialysis.

METHODS: This was a single-center observational study conducted among 70 patients undergoing thrice a week maintenance hemodialysis. The first predialysis BP reading was obtained prior to the midweek session using a mean of three readings taken 5 min apart. ABPM device was applied for 44 h after the termination of the midweek dialysis session. The ABPM parameters including mean daytime interdialytic ambulatory BP, mean night interdialytic ambulatory BP, and mean average interdialytic ambulatory BP were recorded. The second predialysis BP was recorded before starting the next session of hemodialysis and after termination of the 44-h ABPM recording. Readings were obtained similarly to the first predialysis BP. The mean of the first and second predialysis BP was taken as the "predialysis BP" of the patient. Predialysis recordings were compared to the 44-h interdialytic ABPM readings using ANOVA (multiple comparisons using Fisher's LSD test).

RESULTS: Sixty-six out of 70 patients completed the study. The predialysis BP (mean ± standard deviation [SD]) was 149.70 ± 23.01/88.98 ± 13.20 mmHg. The BP (mean ± SD) of the patients during the 44-h interdialytic period measured by ABPM was 141.27 ± 22.17/81.86 ± 13.20 mmHg. There was a statistically significant difference between mean predialysis systolic and diastolic BP and mean interdialytic systolic and diastolic BP. Using receiver operating characteristic curves, predialysis BP of 140/90 mmHg was >80% specific and a predialysis BP of 140/80 mmHg was >80% sensitive for diagnosing hypertension based on interdialytic ABPM readings. Comparing predialysis readings with ABPM readings, four patients had white-coat hypertension while five patients had masked hypertension. Of 66 patients, 58 patients showed a blunted nocturnal dip. Of these 58, 16 patients demonstrated reverse dipping. Interdialytic weight gain did not act as a significant predictor of interdialytic systolic BP ($P = 0.175$) and diastolic BP ($P = 0.471$).

CONCLUSIONS: Predialysis BP of the patients was significantly higher than the interdialytic BP readings based on ABPM. Nocturnal dip was absent in a significant number of patients on hemodialysis.

119. INFORMED CONSENT PROCESS: HOW ADEQUATELY ARE OUR HEMODIALYSIS PATIENTS INFORMED?

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BACKGROUND: Often, it is observed that dialysis professionals are so highly engaged in the clinical routine that the legal documentation remains sidelined. Imparting the informed consent document (ICD) and explaining it thoroughly remains one of the key principles of good clinical practices.

AIM OF THE STUDY: The main aim of this project was to study whether the informed consent process was conducted accurately in dialysis patients.

METHODS: We interviewed 309 patients using an 8-point short questionnaire. These interviews were conducted bedside by a single trained dialysis technician.

RESULTS: Of 309 patients, 196 were males and 113 were females. The average age of the patients was 51.5 ± 13.5 years. 7.4% of patients were on dialysis for less than 6 months, and 92.6% of patients were on dialysis for more than 6 months. When interviewed about who was the consent administrator, it was found that 55% patients reported that their consent was taken by a senior staff. When enquired whether ICF was taken in language understandable by the patients, 70% reported positively. When enquired whether all the patients had read their ICF completely, 49% patients reported that they had not read it. When asked about the complications on dialysis, 77% patients reported that they were informed about it while 23% reported they were unaware of it. When asked about contact details for medical emergency management, 39% patients said that emergency contact details were not shared by the ICF administrator.

CONCLUSIONS: Average percentage of positive responses was 74%. Dialysis technologists should be imparted formal training for informed consent process as it is an extremely essential ingredient for good clinical practices.

120. CORRELATION OF PLASMA BNP LEVELS AND BLOOD PRESSURE VARIABILITY WITH ECHOCARDIOGRAPHIC FINDINGS IN NONHYPERTENSIVE PATIENTS WITH END-STAGE RENAL DISEASE

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BACKGROUND: Chronic kidney disease (CKD) is defined as abnormalities of kidney structure or function, present for >3 months, with implications for health. CKD is associated with a host of complications including electrolyte imbalances, mineral and bone disorders, anemia, dyslipidemia, and hypertension. It is well known that CKD is a risk factor for cardiovascular disease (CVD). No reported study, however, has examined plasma BNP levels in hypertensive patients in connection with the 24-h blood pressure (BP) variation pattern.

AIM OF THE STUDY: To correlate plasma BNP levels and variability using ambulatory blood pressure monitoring (ABPM) with echocardiographic findings in nonhypertensive patients with end-stage renal disease (ESRD) naive on hemodialysis.

METHODS: This was a hospital-based, cross-sectional observational study conducted in a tertiary care teaching hospital. The study comprised 86 patients of whom 80 patients were included; 6 patients were excluded as they could not complete ABPM, leading to inadequate readings. All patients were interviewed using uniform pro forma containing information. Office systolic BP and diastolic BP were recorded using mercury sphygmomanometer at admission. Ultrasound abdomen, electrocardiography, and two-dimensional echocardiography (2D ECHO) were done for all the patients. After informed consent, ABPM was done using Meditech Easy ABPM 1.1.1.0. ABPM was programmed to take BP readings once in 30 min during active phase and once in 60 min during passive phase with total duration of monitoring for 24 h. Reports of laboratory investigations were collected from hospital central online reporting, ABPM readings were collected using software Easy ABPM, and plasma BNP levels were analyzed using ELISA method.

RESULTS: The mean plasma BNP level of the study population was 32.6 ± 13.6 ng/L. Severe anemia was found in 37.5% of patients at presentation, high levels of alkaline phosphatase was found in 66.3% of patients, hypovitaminosis D was found in 92.5% of patients, and hyperuricemia was found in 31.3% of patients. Mean height, weight, and body mass index were comparable between group with and without hypertension based on office BP measurement. Serum globulin was lower; serum phosphorus and serum total cholesterol were higher in hypertension group compared to nonhypertension group. Plasma BNP level was also significantly higher in hypertension group in comparison to normotensive group. Plasma BNP level was found to have negative correlation with left ventricular ejection fraction on 2D ECHO. Plasma BNP level was not affected by dipping status on ABPM. Nether plasma BNP level nor dipping status on ABPM was found to be correlated with outcome (death).

CONCLUSIONS: Plasma BNP level has low sensitivity and specificity as a useful screening marker to assess dipping status on ABPM. Plasma BNP level or dipping status on ABPM cannot be a tool to predict outcomes (death) in ESRD patients naïve to dialysis.

121. FRAILTY IN ELDERLY PATIENTS WITH CHRONIC KIDNEY DISEASE: A CROSS-SECTIONAL STUDY IN A TERTIARY CARE CENTER

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BACKGROUND: Frailty is a common clinical syndrome in older adults. Frail patients with coexisting chronic kidney disease (CKD) may increase the risk of encountering additional health complications. It is important to identify the individuals who are at risk of frailty and also the component of frailty affecting them. This allows timely intervention and hence increases the possibility of prevention and even reversal of frailty.

AIM OF THE STUDY: To study the occurrence of frailty in elderly patients with CKD in outpatient department of a tertiary care center.

METHODS: A cross-sectional study was conducted on CKD patients attended outpatient of the hospital. Elderly patients (age 60 years and above) with CKD Stage 3 and above who are not on dialysis at enrolment with or without any comorbidities were considered in case group (n = 100). However, elderly patients with CKD Stage 1 and 2 with or without any comorbidities were considered as control group (n = 100). Patients those who had a clinical history of stroke with neurological deficit, severe Parkinson's disease, dementia or cognitive impairment, nonambulatory and those who underwent dialysis were excluded. Short physical performance battery test (SPPBT) was conducted on each participant. Handgrip strength (HGS) analysis was done using JAMAR hand dynamometer. HGS cutoffs had been defined according to body mass index and were used to classify the participants as frail and nonfrail. Qualitative variables were correlated using Chi-Square test/ Fisher's exact test. 5% probability was considered as statistically significant ($P < 0.05$).

RESULTS: A total of 100 patients were in case (male:female: 58:42; mean age of 68.8 ± 5.90 years) and 100 in control group (male:female: 51:49; 67.99 ± 5.93 years). Majority were in the age group of 60–70 years (64% and 68% in case and control). Among cases, more than half (57%) were in the CKD Stage 4, followed by 36% and 7% were in Stage 5 and Stage 3, respectively. Among case and control groups, there was no significant difference in diabetes mellitus (DM, 78% vs. 73%, p0.41); hypertension (HTN, 64% vs. 51%, p0.63); malignancy (10% vs. 10%, p1.0); CLD (5% vs. 1%, p0.097), and thyroid disorder (17% vs. 18%, p0.85), except CAD (31% vs. 16%, p0.012). After doing SPPBT, frailty was found to 78% and 62% in case and control group. 79.4% DM, 73.4% HTN, 80.6% CAD, 82.4% hypothyroid, 80% malignant, and 80% CLD were frail in the case group. In the control group, 60.3% DM, 65.4% HTN, 82.4% CAD, 50% hypothyroid, and 70% malignant were frail. using HGS method, among cases, 79.5% DM, 79.6% HTN, 80.6% CAD, 82% hypothyroid, 60% malignant, and 80% CLD cases were frail.

CONCLUSIONS: The high prevalence of frailty in elderly patients with CKD indicates a need for continued frailty assessment and tailored interventions to prevent the progression of frailty.

122. A STUDY OF TREATMENT WITH RITUXIMAB IN RESISTANT LUPUS NEPHRITIS

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BACKGROUND: Between 40% and 70% of patients with systemic lupus erythematosus (SLE) develop lupus nephritis (LN). Despite the introduction of newer immunosuppressive agents, treatment of SLE and LN remains challenging. Current standard therapeutic regimens are associated with significant side effects and cumulative toxicity. Early case reports and then case series suggested benefit in the treatment of LN.

AIM OF THE STUDY: To study the complete renal response (CRR), partial renal response (PRR), and no renal response (NRR) with rituximab in resistant LN.

METHODS: It is a single-center prospective observational study, comparing short-term (24 week) outcomes in resistant LN patients of 18–75 years of age group with weekly (total-4) dose of rituximab therapy. The study was conducted on 20 resistant LN patients admitted in our nephrology department (not responding to conventional immunosuppressive drugs like cyclophosphamide; MMF). Repeat renal biopsy was performed on these patients for disease re-classification before starting rituximab therapy. All baseline investigations were done. Injection rituximab 375 mg/m^2 weekly 0, 1, 2, and 3 weeks along with premedication treatment were given to every patient. The clinical outcome was assessed monthly posttreatment.

RESULTS: In our study, maximum patients were of Class IV (n = 18, 90%). Sustained (6 months post-treatment) CRR was achieved in 5 (25%) patients; 6 (30%) patients achieved PRR; rest 9 (45%) patients had NRR. In NRR, 2 (10%) patients had a transient response which was not sustained. Mean blood absolute CD-19 count was significantly negatively correlated with response to rituximab treatment ($P < 0.001$). Mean absolute CD-19 count was 3.36 ± 3.3/µlin CRR + PRR group and 19.6 ± 13.6/µl in NRR group. We were not able to find any newer significant side effects postrituximab.

CONCLUSIONS: In our study, we found 55% of total sustain renal response in resistant LN with rituximab treatment. Response to rituximab was significantly correlated with mean absolute blood CD-19 count. Thus, rituximab treatment is an effective and safe option for resistant LN patient.

123. DIABETIC MYONECROSIS IN END-STAGE RENAL DISEASE PATIENTS: A DEADLY BUGLE OR A WARNING SIREN?

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BACKGROUND: Diabetic muscle infarction (DMI), a clinicoradiologic entity, is a rare complication of diabetes mellitus. It refers to spontaneous aseptic necrosis of skeletal muscles commonly of lower limb without evidence of any large vessel disease. It presents as painful swollen limb without any external insult in patients with long-standing diabetes mellitus with other microvascular complications. We hereby present four cases of DMI in our patients who had end-stage renal disease who had a varied course.

AIM OF THE STUDY: Case series.

METHODS: Case series.

RESULTS: Case series

CONCLUSIONS: DMI is a rare complication seen in advanced diabetes. It has a varied presentation; however, with improved availability of diagnostic methods (MRI) and increased awareness, more cases are going to be reported. There is need of systematic studies to understand the nature of disease and possible treatment.

124. NEW-ONSET DIABETES AFTER TRANSPLANTATION: A PROSPECTIVE COHORT STUDY

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BACKGROUND: Renal allograft recipients are at an increased risk of new-onset diabetes mellitus occurring after transplantation (NODAT) by virtue of associated risk factors, certain infections, body mass index (BMI), etc. This portends a greater risk of infection in these patients.

AIM OF THE STUDY: Consecutive posttransplant kidney transplant recipients during a 3-year posttransplant period were followed up to look for occurrence of NODAT.

METHODS: Data from consecutive renal-transplant recipients were used to look for development of NODAT and its associations.

RESULTS: There were 221 kidney-transplant recipients during the 3-year observation period, of which 47 (22%) developed NODAT and 31 of whom were male. All patients had their fasting and postprandial blood sugars monitored monthly for 4 months and then at 6 months and at 9 or 12 months and thereafter at each subsequent visit. Patients with NODAT had a higher BMI ($P = 0.03$). There were no statistically significant associations with native kidney disease (those with past diabetes mellitus were excluded), family history of diabetes, duration of dialysis, and hepatitis C virus infection. They were more prone to develop cytomegalovirus (CMV) infection ($P = 0.005$).

CONCLUSIONS: NODAT occurred in 22% of renal allograft recipients. Higher BMI appeared to be a risk factor for its occurrence; NODAT seemed to portend risk of CMV infection.

125. SPECTRUM OF RENAL DISEASE IN PATIENTS WITH RETROVIRAL DISEASE AT TERTIARY CARE CENTER

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BACKGROUND: Acquired immunodeficiency syndrome is a disease of the human immune system caused by human immunodeficiency virus (HIV). Renal disease is relatively common complication in patients with HIV infection globally; the prevalence is around 5%–30%. The longevity of HIV infected patients increasing due to the highly active antiretroviral therapy (ART). HIV can affect the kidney either directly or indirectly.

AIM OF THE STUDY: To analyze the spectrum of renal disease in patients with retroviral disease. To look at the etiology of renal disease in patients with retroviral disease and their outcome.

METHODS: The study included all the patients with old and naive retroviral disease presented to Nephrology Department, Gandhi Hospital, with renal dysfunction and proteinuria with age more than 18 years between January 2017 and May 2019. Following renal disease patterns were observed: acute kidney injury (AKI), chronic kidney disease (CKD), nephrotic/nephritic syndrome, rapid progressive renal disease, and hemolytic–uremic syndrome. All patients underwent investigations such as complete blood picture, complete urine examination, serum creatinine automated Jaffey's method, urine dipstick for proteins, 24-h urinary protein, ultrasound abdomen, and CD4 count (BD). Some patients underwent renal biopsy in view of >1g 24-h proteinuria by 18G renal biopsy BARD cutting needle.

RESULTS: We observed total 76 patients with 78% (59) males and 22% (17) females. Clinical renal disease presentation such as anuria/oliguria was observed in 84.7%; pedal edema 36.9%; SOB 28.2%; and dysuria 34.78%. Comorbidities such as diabetes in 9; hypertension in eight observed. Normoalbuminuria in 56 (74%); microalbuminuria in 14 (18%); macroalbuminuria in 6 (8%). CD4 count <100 in 20(26%) patients; 100–200 in 47 (62%); 200–500 in 9 (12%). A spectrum of renal etiology in RVDAKI in 54 (72%) – obstructive uropathy 10 (19%) and nonobstructive in 44 (81%). CKD in 14 (18%), glomerular in 8 (10%). Causes of obstructive uropathy–obstructive renal calculi in 5; retroperitoneal fibrosis lymphadenopathy/fibrosis in 2; carcinoma cervix in 2 and carcinoma bladder in 1 interventions: bilateral DJ stenting-3 and PCN-2 outcome death in (18%); Complete recovery (54%); partial recovery (28%).

CONCLUSIONS: AKI remains common in HIV-infected patients despite improvements in morbidity and mortality in the ART era. Most common cause for AKI in HIV infection is sepsis. Other causes are volume depletion, liver disease, medications, and pancreatitis Obstructive causes account for 19% of AKI.

126. VITAMIN D LEVELS AND ITS CORRELATION WITH COGNITIVE IMPAIRMENT IN PATIENTS UNDERGOING MAINTENANCE HEMODIALYSIS

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BACKGROUND: Insufficiency or deficiency of 25-hydroxyvitamin D (25[OH]D) is a potential nontraditional risk factor, and several pathophysiologic reasons may explain why 25(OH)D deficiency may lead to cognitive impairment.

AIM OF THE STUDY: To assess correlation between Vitamin D levels and its correlation with cognitive impairment in patients undergoing maintenance hemodialysis (HD).

METHODS: It was a prospective study conducted in 100 patients undergoing maintenance HD in a tertiary care center in South India. Patients on thrice-weekly HD using polysulfone membrane with surface area of 1.3 msq with a total duration of HD 12 h per week per patient and with a permanent vascular access were included in our study. Serum Vitamin D levels were measured using Chemilumniscent immunoassay. Cognitive impairment is assessed by Aden Broke's cognitive examination score done within 1st h of starting dialysis for each patient. Score less than 82 was taken as cutoff value and Vitamin D levels below 20 ng/ml are taken as insufficient levels. Results were statistically assessed using ANOVA, Chi-square test, and Fisher's exact test of SPSS version 17 as required.

RESULTS: We observed that women (51.6%) had significantly higher incidence of cognitive impairment compared to males (48.4%). The mean Vitamin D was significantly lower in patients who had cognitive impairment than when compared to patients without cognitive impairment. 60% of patients with cognitive impairment had deficient Vitamin D levels compared to 28.6% who had insufficient Vitamin D levels and 17% had sufficient Vitamin D levels. Patients with higher mean duration of dialysis significantly showed deficient Vitamin D levels. At the best cutoff value of 24.6, Vitamin D could predict cognitive impairment with 81.2% sensitivity and 64.5% specificity. The diagnostic accuracy of Vitamin D in predicting the cognitive impairment with best cutoff of 24.6 was 76%.This implies that women were at 4.78 times more at risk of development of cognitive impairment. Increasing age and decreasing Vitamin D were associated with an increased likelihood of exhibiting cognitive impairment.

CONCLUSIONS: Factors associated with cognitive impairment are female gender and Vitamin D deficiency vitamin D levels showed positive correlation with cognitive impairment. A cutoff value of 24.6 ng/ml of Vitamin D could predict cognitive impairment with sensitivity of 81.2% and specificity of 64.5%.

127. ESTIMATION OF CAUSE OF DEATH DUE TO KIDNEY DISEASE AND NEED FOR STANDARDIZATION OF CAUSE OF DEATH CERTIFICATION

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BACKGROUND: Estimation of disease burden in a population provides a basis for setting up priorities in health programs. In developing countries, where four-fifth of the world's deaths occur, ascertaining mortality due to kidney failure is difficult due to insufficient coverage of vital registration and low reliability of the cause of death (COD) in the death certificate. Since precise, reliable, and up-to-date, statistics about causes of death were not available.

AIM OF THE STUDY: To estimate the contribution of acute kidney injury (AKI) in ascertaining COD among deceased patients.

METHODS: This was a preliminary pilot study and there was no existing literature available that ascertains the cause of death due to kidney disease. The COD derived from 150 deceased patients death certificates were verified with hospital records of the deceased patient to find out the actual cause of death. The priority was given to death occurred from the wards having high risk of mortality due to kidney disease such as intensive care unit, cardiac care unit, surgery unit, pulmonology, gastroenterology unit, oncology, and general medicine unit. Death record files of 150 randomly selected deceased patients were analyzed to find out the cause of death vis-a-vis hospital patient records. Patient's death summary and death certificates were analyzed along with death files.

RESULTS: Of 150 deceased, 85 were male with a mean age of 64.18 ± 15.4 years. 66% of deaths occurred among individuals aged 60 years and above. COD was selected from a restricted list derived from the ICD-10. The causes selected for inclusion in the list comprises from death certificate/summary (there was multiple COD in individual patient). As per record of death summary/certificate, disease of kidney (acute kidney injury [AKI], acute on chronic kidney disease [CKD], glomerulonephritis [GN], and nephropathy) accounted for 78 (52%). In contrast, the number of cases of kidney disease reported as per analysis of death records was found in 126 (84%) deceased patients. As per record from death certificate and summary, COD due to kidney disease was found in 60 (40%) and 52 (34.7%), respectively. In contrast, on analysis of death records, COD due to kidney disease was found in 97(64.6%) cases. All patients those who had COD due to CKD had elevated creatinine, anuric, sepsis, septic shock, and MODS and more than three-fourth had history of anemia.

CONCLUSIONS: In comparison to death certificate/summary, there were higher numbers of COD cases due to kidney disease (AKI, acute on CKD, GN, and nephropathy) on analysis of death records. In view of the growing importance of CKD, setting up of pointers for ascertaining mortality due to kidney disease should be advocated.

128. ASSOCIATION OF ANKLE BRACHIAL INDEX WITH INFLAMMATION IN CHRONIC HEMODIALYSIS PATIENTS

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BACKGROUND: Ankle brachial index (ABI) is a marker of peripheral artery disease, and a low ABI is a predictor of cardiovascular (CV) while a high ABI is a predictor of CV as well as all-cause mortality. Chronic inflammation is directly related to increased CV mortality in hemodialysis patients.

AIM OF THE STUDY: To evaluate the association between ABI and inflammation.

METHODS: ABI was assessed using handheld Doppler by a trained dialysis nurse. The ABI was calculated by the ratio of ankle systolic blood pressure (BP) divided by arm systolic BP. Subjects were divided into three categories according to their ABI values; low (ABI < 0.9), normal (ABI 0.9–1.3), and incompressible (ABI > 1.4). Systolic BP in the upper extremity was measured on brachial artery of the arm contralateral to vascular access and in thre lower extremities on posterior tibialis artery. High sensitivity C-reactive protein (hs-CRP) was estimated using nephelometry. Hs-CRP > 10 mg/L was considered positive for inflammation.

RESULTS: Of 240 subjects, 140 were males and 100 were female. The mean age of subjects was 51.2 ± 13.9 years, and the mean dialysis vintage was 4.0 ± 3.5 years. All subjects were on thrice a week hemodialysis. The mean hs-CRP was 17.0 ± 31.9 mg/L and mean ABI was 1.2 ± 0.3. Subjects with ABI < 0.9 had mean hs-CRP of 28.5 ± 40.1 mg/L. Subjects with ABI between 0.9 and 1.3 had mean hs-CRP of 14.0 ± 21.5 mg/L. Subjects with ABI > 1.3 had mean hs-CRP of 22.7 ± 48.5 mg/L.

CONCLUSIONS: Early screening of patients for ABI, especially the ones with higher levels of inflammation, is extremely necessary to avoid CV as well as all-cause mortality.

129. OUTCOME AND SURROGATE PREDICTOR OF PREGNANCY-ASSOCIATED ACUTE KIDNEY INJURY NEEDED HEMODIALYSIS IN A TERTIARY CARE HOSPITAL IN EASTERN INDIA

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BACKGROUND: Pregnancy-associated acute kidney injury (PAKI) is an infrequent, but fatal complication of pregnancy. It still comprises 25% of referrals to dialysis center in developing countries. The incidence ranges from 4.3% to 14.5% in India but in decreasing trend.

AIM OF THE STUDY: (1) To evaluate the etiology of PAKI needed hemodialysis, (2) to find out the maternal and fetal outcome, (2) to estimate the progression of CKD from PAKI, and (4) to find out the surrogate predictor of PAKI.

METHODS: Fifty-three cases with PAKI with hemodialysis, seen at N. R. S. Medical College between 2017 and 2018, were included in this observational study and analyzed in terms of maximal stage of renal injury classified as Risk Injury Failure Loss and End-stage renal disease (RIFLE) criteria. Outcomes were analyzed in terms of maternal and fetal outcome.

RESULTS: The mean age of the study population was 25 years and 52% of the patients were primigravida. 49% cases were observed in the postpartum period, followed by third trimester (26%). 90% cases were referral cases. 75.47percentage cases presented with oligoanuria with lions share. Sepsis (39%), preeclampsia, and eclampsia (30%) were the leading etiologies, while multiorgan failure (69%) was the leading cause of maternal mortality. Maternal and fetal mortality was 24% and 13%, respectively. Blood pressure, hemoglobin, total leukocyte count, serum creatinine level at admission, urine output, and serum bilirubin were determinant roles for survival of patients. 37 cases (92.5%) were dialysis independent whereas 3 cases (7.5%) were dialysis-dependent after 6 months of follow-up. Kidney biopsy was performed in three cases. Oligoanuria and sepsis are statistically significant from the model and can be determined as a surrogate predictor.

CONCLUSIONS: Standard clinical practice, regular antenatal care, and strict aseptic practice will help us to improve obstetric outcome.

130. ASSOCIATION OF PERCENTAGE INTERDIALYTIC WEIGHT GAIN WITH INFLAMMATION IN HEMODIALYSIS PATIENTS

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BACKGROUND: In hemodialysis patients, interdialytic weight gain (IDWG), high ultrafiltration rates, and shortened dialysis sessions have been associated with sudden cardiac events and poor outcomes. Excessive IDWG has been associated with left ventricular hypertrophy and intradialytic hypotension, further leading to increased morbidity and mortality.

AIM OF THE STUDY: This study aims to assess the association of percentage IDWG with inflammation in hemodialysis patients.

METHODS: Predialysis weight was recorded for 2 weeks. Dry weight of all subjects was assessed using bioelectrical impedance analysis (FMC) machine. Percentage IDWG was calculated from dry weight. High-sensitivity C-reactive protein (hs-CRP) was estimated using nephlometry. Inflammation across two groups (<3% IDWG) and (>3% IDWG) was compared using independent *t*-test.

RESULTS: Of 169 subjects, 74 were males. Their average age was 46.3 ± 13.0 years; body mass index was 26.5 ± 5.6 kg/m^2, and dialysis vintage was 4.9 ± 4.2 years. All subjects were undergoing thrice a week high flux hemodialysis. Average IDWG was 1.7 ± 1.9 kg and average percentage IDWG was 3.2 ± 3.7% of dry weight. Average albumin was 3.9 ± 0.3 g/dl and average hsCRP was 19.4 ± 37.2 mg/L. The average albumin and hsCRP of subjects with <3% IDWG was 3.9 ± 0.3 g/dl and 17.7 ± 26.2 mg/L, respectively, while that with > 3% was 3.9 ± 0.3 g/dl and 20.9 ± 44.8 mg/L (P = 0.5), respectively. When hsCRP was compared across various levels of IDWG (0%, <1.5%, 1.5%–3%, 3%–4.5%, 4.5%–6%, >6%); it was found to be higher in 4.5%–6% group as compared to other groups.

CONCLUSIONS: While hemodialysis process is itself a contributor to inflammatory state, this inflammation could not be linked to increased percentage IDWG.

131. EXPRESSION OF TOLL-LIKE RECEPTOR AND CELL ADHESION MOLECULE IN END-STAGE RENAL DISEASE PATIENTS

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BACKGROUND: Continuous ambulatory peritoneal dialysis (CAPD) is a well-established modality of treatment for patients with end-stage renal disease (ESRD). Peritonitis is a leading cause of technique failure and death in patients on CAPD. Studies on expressions of host factors such as Toll-like receptor (TLRs), cell adhesion molecules (CAMs), and their link to peritonitis and other comorbidity and functional status are lacking throughout the world. Hence, the present study has to be done to determine the expressions of TLR2 and TLR4 and CAMs in ESRD patients.

AIM OF THE STUDY: To compare the expression of TLR2, TLR4, and ICAM1 in peritonitis, CAPD, and CRF group patients.

METHODS: A total of 85 ESRD patients recruited and subdivided into three groups: Group 1 - CAPD patient (n = 25 patients); Group 2 - Peritonitis patient (30 patients); and Group 3 - patients with ESRD not on dialysis (CRF; 30 patients). mRNA expression of TLR-2 and TLR-4 was examined at gene levels by RT PCR and CAM (ICAM-1) were examined at gene and protein levels by RT PCR and ELISA, respectively, in serum. We performed microbiological culture for bacterial and fungal pathogens using automated BACTEC culture system. Cell counts were routinely done on every dialysate.

RESULTS: Of 30 samples of peritonitis group, 15 were culture positive and 15 were culture negative. We found that in peritonitis group, the mRNA expression of TLR-2 and TLR-4 was higher as compared to CRF (4.183 ± 2.857 vs. 3.633 ± 2.41, P = 0.049; 4.314 ± 2.91 vs. 4.14 ± 1.99, P = 0.015) and CAPD (4.183 ± 2.857 vs. 3.683 ± 2.85, P = 0.041; 4.314 ± 2.91 vs. 3.88 ± 1.91, P = 0.009, respectively). At gene and protein level, ICAM-1 was higher in peritonitis patient compared to CAPD (mRNA expression 4.76 ± 2.64 vs. 4.36 ± 3.48; level in sera 660 ± 201.2 vs. 514 ± 157; P = 0.003).

CONCLUSIONS: TLRs activation by bacterial molecules leads to the induction of chemokines and cytokines through the activation of NF-ķB pathway and may be responsible for atherosclerosis, morbidity, and mortality in ESRD patients. Elevated level of ICAM-1 may be responsible for chronic inflammation in PD patients.

132. A CASE OF MEMBRANOPROLIFERATIVE GLOMERULONEPHRITIS DUE TO AUTOIMMUNE ETIOLOGY, CHALLENGES IN DIAGNOSIS

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BACKGROUND: Membranoproliferative glomerulonephritis (MPGN) accounts for ~7%–10% of biopsy-confirmed GN. MPGN pattern has the most common association with autoimmune diseases such as systemic lupus erythematosus (SLE), Sjogren's syndrome, and RA and paraproteinemias. Renal manifestations of Sjogren's syndrome include TIN or glomerular diseases such as MN/MPGN.

AIM OF THE STUDY: This was a rare case report of MPGN with persistently low C4 having autoimmune association with primary Sjogren's syndrome with glomerular involvement in a 16-year-old female.

METHODS: Clinical history and physical examination after written and informed consent from the patient were observed.

Laboratory investigations and renal biopsy were also noted by Rheumatology consultation. Patients Treated with steroids, immunosuppression, and HCQ was follow-up.

RESULTS: Initially, the complements were low. ANA profile: anti-Smith and anti-dsDNA were negative. Renal biopsy: IF showed IgG 1+; IgM 1+; C3 3+; C1q 1+; negative for light chains. Light microscopy revealed MPGN pattern of glomerular injury. On follow-up, she developed bilateral palpable purpuric pruritic skin lesions over her legs and was referred to a rheumatologist. On examination, she was found to have Raynaud's and dry eyes with Schirmer's test negative. Her skin biopsy was suggestive of leukocytoclastic vasculitis. ANA profile was done which showed anti-SSA (Ro52) strongly positive. Cryoglobulin assay and viral markers were negative. She refused to undergo lip biopsy. Her repeat C3 was normal at 110 mg/dl and C4 was low 6 mg/dl; proteinuria remained stable. She was diagnosed as primary Sjogren's syndrome with MPGN with leukocytoclastic vasculitis.

CONCLUSIONS: The caveats in the diagnosis of Sjogren's and cryoglobulin are major factors in the underrepresentation of these diseases in real-world clinical setting.

133. CLINICAL RESPONSE TO BUDESONIDE IN BIOPSY-PROVEN IGA NEPHROPATHY

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BACKGROUND: Primary IgA nephropathy is the most prevalent chronic glomerular disease worldwide. IgA nephropathy is thought to be associated with mucosal immune system dysfunction, leading to renal IgA deposition and renal injury. STOP-IgAN trial has questioned the benefit of systemic immunosuppression. Moreover, significant (24%) mean urine PCR (UPCR) reduction from baseline has been concluded from NEFIGAN Study. Hence, in this study, we aimed at studying the effect of oral controlled-release budesonide in these patients.

AIM OF THE STUDY: To study the efficacy of oral budesonide in biopsy-proven IgA nephropathy.

METHODS: A total of 40 patients with biopsy-proven IgA nephropathy were included in study. All biopsy-proven IgA nephropathy patients were optimized on RAS inhibitors; fish oil (docosahexaenoic acid and eicosapentaenoic acid) and budesonide. Decision to start all drugs together was considered as isolated RAS inhibitors will not prevent immunological damage by ongoing IgA deposition. Based on histology (MEST SCORE), patients were started with 9 and 12 mg budesonide. Patients with crescents were treated with oral and intravenous cyclophosphamide and prednisone followed by budesonide. All patients were regularly followed up every 2–4 weeks to monitor vitals, renal function test, and UPCR. Our primary outcome was mean change from baseline in 24-h urine protein at the end of 3rd and 6th months. Clinical response was defined as complete responder (CR); partial responder (PR); or nonresponders (NR) according to recent definitions.

RESULTS: The mean age of population is 47 years. Of 40 patients, 14 (35%) are men and 26 (65%) are women. Of 40 patients, 19 (47%) presented with CGN; 7 (17.6%) presented with CIN; 5 (11.7%) presented with nephrotic syndrome; 5 (11.7%) presented with RPGN; 4 (10%) of them presented with hematuria. Mean baseline creatinine and 24-h proteinuria are 3.43 and 4.24 g/cr, respectively. 4 (10%) of them had worsening of glycemic control and 6 (15%) had gastrointestinal adverse events. Of 40 patients, 16 (40%) had CRR; 12 (30%) had PRR; 12 (30%) were NR.

CONCLUSIONS: Budesonide, together with optimized RAS blockade, reduced proteinuria in patients with IgA nephropathy. Our patients probably had the advantage of blocking the intestinal access of IgA dysregulation right from onset or presentation, hence reflecting a slightly better outcome than NEFIGAN trial.

134. RETROSPECTIVE STUDY TO COMPARE EFFICACY AND SAFETY OF DAILY REGIMEN VERSUS ALTERNATE-DAY REGIMEN OF VALGANCICLOVIR FOR PREVENTION OF PRIMARY CYTOMEGALOVIRUS INFECTION IN KIDNEY-TRANSPLANT RECIPIENTS.

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BACKGROUND: Without routine preventative therapy with antiviral agents, symptomatic cytomegalovirus (CMV) infection occurs in about 20%–60% of cases, mostly within the first 3 months after transplantation. Valganciclovir is one of the recommended prophylactic drugs of choice. We evaluated the outcome of using daily versus alternate-day regimen of valganciclovir prophylaxis for the prevention of CMV infection after kidney transplant.

AIM OF THE STUDY: To study the efficacy and safety of daily regimen versus alternate-day regimen of valganciclovir for the prevention of primary CMV infection in kidney-transplant recipients.

METHODS: As there was a very low incidence of CMV infection in our unit, our protocol was changed from daily valganciclovir to alternate-day regimen. Retrospectively, we have collected the data of 41 kidney-transplant recipients which includes live and cadaver. 20 of which have received daily dose of 450 mg valganciclovir (Group 1) and 21 had received alternate-day dose of 450 mg valganciclovir (Group 2) after kidney transplant. Patients were studied for incidence of CMV disease, leukopenia episodes, opportunistic infections (urosepsis), and graft outcomes for 3 months.

RESULTS: Demographic features of Group 1 (20 patients) and Group 2 (21 patients) were comparable. All the patients received anti-lymphocyte globulin induction therapy and standard Tac and MMF as maintenance therapy without difference between the groups. CMV infection was not found in any patient from both the groups. There were more opportunistic infections in

Group 2 (33.0%) as compared to Group 1 (10.0%), but the difference was not significant ($P = 0.160$). Leucopenia episodes were found more in Group 1 (5.0%) as compared to Group 2 (4.7%), which is not significant ($P = 0.495$). 1 out of 21 in Group 2 had diarrhea whereas no one in Group 1 had diarrhea ($P = 0.970$). Compared with Group 1 (30.0%), Group 2 (43.0%) developed numerically more rejection episodes (biopsy-proven ACR and AMR) which is not significant ($P = 0.590$). Group 1 had a higher baseline serum creatinine levels than Group 2, but the difference was not statistically significant ($P = 0.279$).

CONCLUSIONS: Alternate-day dose regimen of 450 mg valganciclovir is as effective as daily dose regimen of 450 mg valganciclovir in preventing the CMV infection in kidney-transplant recipients. Furthermore, there is no significant difference in efficacy and safety between the two regimens for kidney-transplant recipients.

135. POSTRENAL-TRANSPLANT MILIARY MOTTLING: NOT ALWAYS TUBERCULOSIS

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BACKGROUND: Strongyloides hyperinfection syndrome (SHS) is a rare, fatal disease, mostly seen in immunocompromised patients, as a result of the peculiar feature of exaggerated autoinfection, involving the pulmonary and gastrointestinal systems. Any factor that suppresses these mechanisms (immunosuppressants or glucocorticoid therapy) can potentially trigger hyperinfection which could be life-threatening.

AIM OF THE STUDY: To stress the fact that diagnosis of SHS must be considered in an immunocompromised patient and parenteral ivermectin therapy proves to be lifesaving in such patients.

METHODS: A 28-year-old male, 3 years postrenal-transplant with stable graft function, presented with vomiting for 2 days. He had graft dysfunction and a graft biopsy done revealed acute cell-mediated rejection BANFF IA. After receiving glucocorticoids for rejection, he developed severe enterocolitis and impending respiratory failure. Chest X-ray and computed tomography chest revealed miliary mottling. Evaluation showed presence of filariform larvae of *Strongyloides stercoralis* in the stool and sputum. A diagnosis of SHS was made. After a prolonged course of treatment with noninvasive ventilation, broad-spectrum antimicrobials, parenteral ivermectin, and oral albendazole therapy, he eventually recovered.

RESULTS: After obtaining informed consent from the patient's family and approval from institutional ethics committee, veterinary formulation of parenteral ivermectin was procured. It was administered at a dose of 200 mcg/kg/day divided into two equal aliquots at two separate sites via subcutaneous route. The patient tolerated the therapy well. After three doses of ivermectin, tachypnea, abdominal pain, fever, and rash started subsiding gradually. Immunosuppressants were gradually reintroduced. After 7 doses of subcutaneous ivermectin; he was switched over to oral ivermectin therapy which was continued for 2 weeks after three consecutive stool specimens were negative for *Strongyloides* larvae. Repeat X-ray of the chest and abdomen were normal. The patient is doing well and is currently being monitored on outpatient basis. His graft function remains stable with a creatinine of 2.0 mg/dL.

CONCLUSIONS: KDIGO recommends pretransplant screening using serology for strongyloidiasis before transplantation. Due to the asymptomatic nature of intestinal strongyloidiasis and the risk for hyperinfection, the importance of screening before escalating immunosuppressive therapy has to be stressed upon.

136. HUB AND SPOKE CENTERS MODEL: A NEW MODEL TO DELIVER QUALITY DIALYSIS CARE TO PATIENTS IN REMOTE AREAS BY PERIPHERAL DIALYSIS CENTERS UNDER MONITORING BY NEPHROLOGIST

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BACKGROUND: Hub and spoke center model is initiated in which peripheral dialysis centers (spoke centers) are monitored by hub Center (nodal center).

AIM OF THE STUDY: Study of Gandhi Hospital Hub and Spoke Model.

METHODS: This was a study conducted from December 2018 to June 2019 under which functioning of 12 spoke centers was monitored and clinicoepidemiological profile of patients under dialysis studied, which is an indicator of functioning of the model. Monitoring the spoke centers included daily interaction with spoke center doctor, nurse, technician, patients through video calling and guiding them in patient-related problems, infrastructure, RO plant, and administrative issues. Monthly visit by a nephrologist to spoke centers and providing outpatient department services to the dialysis patients and scrutinizing the patient data registers, RO plant inspection, water quality analysis data, etc., are being done.

RESULTS: Among three hub centers, 30% of patients are being dialyzed in Gandhi hub and spoke model. Around 6770 sessions of dialysis are done per month for 687 patients registered, with 49% of patients receiving twice weekly hemodialysis. 25% of machines dedicated to HBSAg and HCV-positive patients. 66 patients still on waiting list due to less technician staff (one technician per 9 patients) indicates need for increasing the machines and staff to improve dialysis care at peripheral centers. Male patients are more than double the female patients on maintenance dialysis. Mean age of males is less when compared to females. Hypertension and diabetes are the comorbidities associated with 85% of the patients. HCV- and HBSAg-positive patients also are being dialyzed at spoke centers. Conversions are 4.1%. Half of the patients are on twice weekly dialysis, due to less technician staff, patients on waiting list all indicates the need for increasing the machines and staff.

CONCLUSIONS: Machines and staff need to be increased as maintenance hemodialysis patients increasing. As the number of maintenance dialysis patients is increasing, expansion of spoke centers is essential to deliver quality dialysis care even in remote areas. Single-use dialyzers were encouraged in our hub and spoke model.

137. THE EFFICACY OF LOW-DOSE RITUXIMAB IN ACHIEVING SUSTAINED B-CELL DEPLETION

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BACKGROUND: Idiopathic membranous nephropathy is a common cause of nephrotic syndrome in adults. Rituximab is an anti-CD20 monoclonal antibody directed against CD20 expressed on B-cells and has emerged as an important therapeutic option in idiopathic membranous nephropathy.

AIM OF THE STUDY: To access the efficacy of low-dose rituximab in achieving sustained B-cell depletion.

METHODS: Six patients of idiopathic membranous nephropathy who received two doses of 500 mg of rituximab 1 month apart were analyzed with basic laboratory parameters and lymphocyte flow cytometry subset analysis.

RESULTS: All the six patients were males and their age ranged from 18 to 65 years with a mean age of 36 years. All the patients had stable estimated glomerular filtration rate (eGFR, >90 ml/min/1.73 sq.m), except for one patient who had an eGFR of 45 ml/min/1.73sq.m. The proteinuria ranged from 3.5 g/day to 9.3 g/day with a mean proteinuria of 6.2 g/day. All the patients achieved B-cell depletion after two doses of rituximab. After 6 months, four of the six patients (66%) had sustained B-cell depletion ($P = 0.24$). At the end of 6 months, none of the patients achieved complete remission, partial remission was seen in 2 patients (33%), and no response in 4 patients (66%).

CONCLUSIONS: Low-dose rituximab did not achieve significant sustained B-cell depletion after 6 months.

138. EPIDEMIOLOGIC TREND CHANGES IN ACUTE KIDNEY INJURY OVER THE PAST FOUR DECADES: A SINGLE-CENTER EXPERIENCE

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BACKGROUND: There has been significant change in the trend in the etiology of acute kidney injury (AKI) in the last four decades.

AIM OF THE STUDY: To compare and analyze the changing trend in the etiology and outcome of AKI over the past four decades.

METHODS: AKI data analyzed at various time intervals – between 1979 and 1984; 1987 and 1991; 1995 and 2004; 2007 and 2010; 2012 and 2018 – over the past four decades were compared, and the changing trends with respect to etiology and outcome were analyzed.

RESULTS: Over the past four decades, surgical causes of AKI are on the raising trend compared to the declining trend of obstetric AKI. Among the medical causes, sepsis has replaced acute diarrheal disease (ADD) as the most common cause of AKI in the past two decades. A declining trend in ADD-, leptospirosis-, and malaria-related AKI has been observed in the last two decades and snake bite continues to be a significant cause of AKI. Other emerging etiologies noted in the current decade include scrub typhus, acute pyelonephritis, DCLD, malignancies, PLHA, pancreatitis, and rhabdomyolysis. Paraquat and rat killer poisoning are the common causes of AKI in toxicology in the current decade compared to copper sulfate poisoning earlier. Percentage requiring dialysis and overall mortality rate has reduced over the past four decades. Most common causes of mortality in the current decade are surgical, sepsis, and poisoning similar to the last decade. Mortality due to malaria, obstetric AKI, and snake has reduced.

CONCLUSIONS: A significant change in the epidemiology of AKI has been observed over the past four decades. Surgical AKI and sepsis have emerged as the leading causes of AKI. There are several new emerging etiologies in the current decade. Surgical AKI, sepsis, and paraquat/rat killer poisoning are causes of mortality.

139. OUTCOME OF ARTERIOVENOUS FISTULA: OUR EXPERIENCE

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BACKGROUND: Problems with vascular access (VA) can contribute to morbidity and mortality of patients with chronic kidney disease (CKD) 5 hemodialysis (HD). With increasing number of patients on maintenance HD in our country, it is important to focus on quality of VA. It is well known that arteriovenous fistula (AVF) is the best form of VA in these patients. There is a paucity of data on outcomes of AVF in patients with CKD from our country. It is important to have baseline data on a few quality parameters to plan improvement in these outcome measures.

AIM OF THE STUDY: To estimate primary and secondary failure rates of AVF and analyze factors associated with the same in a tertiary nephrology urology center in Bengaluru.

METHODS: Subjects: Patients with CKD who underwent AVF in our center from January 1, 2017, till March 31, 2019. Procedures were done by consultant urologists and urology trainees who were privileged to do these procedures based on their level of learning and experience. Data collection: Medical records of the above patients were collected. Data collected demographic variables, associated comorbidities (diabetes mellitus and vascular ailments), use of antiplatelet agents and statins, date of surgery, site of AVF, timing of AVF, date of first cannulation, date of failure or date of last follow-up whichever happened first, interventions to restore or improve patency, status at last visit if functioning (death before use; lost to follow-up [if no visit within the last 3 months], not yet into dialysis, on dialysis but not yet used, underuse for dialysis). Follow-up was done from January 2014 to August 14, 2019. Statistical analysis was done using Fisher's exact test for categorical variables.

RESULTS: A total of 205 procedures were done in 175 patients. Patients: There were 124 (70.8%) males. The mean age was

53.9 (range 16–80) years. 117 of them (66.8%) had diabetes mellitus. 41 (23.4%) had vascular ailments (ischemic heart disease, cerebrovascular disease, peripheral vascular disease, and other procoagulant states). 86 of them (49.1%) were on at least one antiplatelet drug and 92 (52.5%) were on statins. Procedure: Site - radiocephalic in 88; brachiocephalic in 101, and brachiobasilic in 16. Outcomewas primary failure including failure to mature in 50 (24.3%), death before use in 3, left to follow-up in 32, not yet used in 9, successful cannulation in 111 and secondary failure in 19 (17.1%) patients. Eight patients underwent 10 interventions – 9 to maintain patency (8 endovascular and 1 tributary ligation) and 1 to restore the patency – 2 of these 10 failed thereafter. Analysis: Primary and secondary failure not associated with diabetes mellitus or prior vascular ailments. There was no difference in failure rates with antiplatelet drugs and statins.

CONCLUSIONS: Primary failure was observed in one-fourth of all the procedures. Among those successfully cannulated, one-sixth failed subsequently. Use of interventions to maintain or restore patency was understandably quite less (around 9%).

140. COMPARISON OF KIDNEY INJURY MOLECULE -1 BETWEEN PLASMA AND URINE LEVEL OF CRITICALLY ILL PATIENTS PREDICTING INTRAVENOUS CONTRAST-INDUCED ACUTE KIDNEY INJURY

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BACKGROUND: Acute kidney injury (AKI) is a rapid decline in glomerular filtration rate. Blood urea nitrogen and serum creatinine are not specific or sensitive enough for the diagnosis of AKI. Kidney injury molecule-1 (KIM-1) is a type I transmembrane glycoprotein. It is undetectable in healthy kidney tissue but expressed at very high levels in proximal tubule epithelial cells in human kidneys after ischemic or toxic injury. KIM-1 has been found a sensitive biomarker of AKI.

AIM OF THE STUDY: To evaluate the role of KIM-1 in plasma and urine after intravenous contrast in adult intensive care unit (ICU) patients.

METHODS: After taking ethical approval, all adult ICU patients with normal renal function required radiographic contrast for computed tomography (CT) scan were considered for inclusion. Exclusion criteria include presence of AKI/chronic kidney disease (CKD), recent exposure to contrast within 3 days, and pregnancy. Samples of 4 ml blood and 4 ml urine were collected before contrast exposure and at 4 h, 24 h, and 48 h after contrast exposure. KIM-1 assay was done by ELISA, and urinary levels were normalized as per urine creatinine (UCr) values for each sample. Contrast-induced AKI (CI-AKI) is defined as a rise in serum creatinine of ≥0.3 mg/dl within 48 h.

RESULTS: Fourteen medical patients with 22 CT scans included. Median age was 37 years and there were 43% males. On day of inclusion, the median SOFA score was 6; 82% were on mechanical ventilation; and 35% were on vasopressor. Sites of CT scan were abdominal (68%), chest (22%), and head (12%). The incidence of CI-AKI was 22%. Mean value at procontrast, 4 h, 24 h, and 48 h after contrast for plasma (P) KIM-1 (ng/ml) was 1.29 ± 0.75, 1.63 ± 0.65, 1.65 ± 0.68, and 1.54 ± 0.60 and urine (U) KIM-1 (ng/mg of UCr) was 0.16 ± 0.19, 0.09 ± 0.08, 0.13 ± 0.11, and 0.28 ± 0.48. After contrast, P KIM-1 levels were significantly increased at 4 h, 24 h, and 48 h ($P = 0.004$, 0.002, and 0.003, respectively) and U KIM-1 levels were not increased significantly at any point of time ($P = 0.65$, 0.23, and 0.82, respectively).

CONCLUSIONS: The present study unravels in critically ill adult patients; there is a significant increase in P KIM-1 levels as early as at 4 h and continued to remain high even at 48 h after contrast exposure.

141. NOVEL APPROACHES FOR DIETARY PHOSPHORUS MANAGEMENT IN CHRONIC KIDNEY DISEASE

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BACKGROUND: Conventional approaches to alleviating hyperphosphatemia in patients with chronic kidney disease (CKD) include dietary phosphorus restriction and use of phosphate binders. These approaches are, however, not enough to control hyperphosphatemia, and hence, the need for novel nutritional approaches arises.

AIM OF THE STUDY: The main aim was to prepare food tables providing phosphate to protein ratios and at the same time assess the gut availability of foods rich in phosphorus.

METHODS: Dietary phosphorus, protein, and phytate values of some common food ingredients were obtained. Phosphate-to-protein ratio and net phosphorus absorption from the gut were reported on the basis of the phytate content of these ingredients.

RESULTS: Among some common Indian food ingredients, phosphate-to-protein ratio was high in cereals, millets, and dairy products. However, due to the presence of high amount of phytate, the net absorption of phosphate was lower from plant-based sources of phosphorus as compared to animal-based sources.

CONCLUSIONS: Phosphorus-to-protein ratio is a novel metric that helps to ensure dietary phosphorus restriction with sufficient intake of proteins. Tables providing phosphorus-to-protein ratio along with phytate and percent absorption may prove to be beneficial in achieving desired target levels of phosphorus.

142. LONG-TERM GRAFT OUTCOMES OF POSTTRANSPLANT IGA NEPHROPATHY IN LIVE DONOR RENAL TRANSPLANTATION

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BACKGROUND: Confounding data are available regarding long-term outcomes of posttransplant IgA nephropathy, with some studies showing even improved outcomes. There are sparse data from India regarding long-term graft outcomes of posttransplant IgA nephropathy.

AIM OF THE STUDY: To study the long-term graft outcomes of patients with posttransplant IgA nephropathy and to study the incidence of rejection among patients with posttransplant IgA nephropathy.

METHODS: In this retrospective study, we compared the long-term graft outcomes of 51 live donor renal-transplant recipients who had biopsy-proven posttransplant IgA nephropathy (recurrence/*de novo*) with 51 patients who had chronic glomerulonephritis as their native kidney disease but no recurrence. Indications for biopsy were acute graft dysfunction, persistent proteinuria (>500 mg/day), or persistent microscopic hematuria. All biopsies were evaluated by light microscopy and by immunofluorescence. Diagnosis of IgA recurrence was made on the basis of immunofluorescence finding of dominant or co-dominant IgA deposition. Statistical analysis was done using SPSS version 21.0. Independent *t*-test was used to evaluate difference between means. Cross-tabulated data were analyzed using Chi-square test or by Fisher's exact test when the expected count was less than 5. Patient survival, graft survival, and death-censored graft survival curves were drawn using Kaplan–Meier estimate and compared using log-rank test.

RESULTS: The mean follow-up duration was 84.2 months in the posttransplant IgA group and 83.8 months in the control group. Estimated 10-year patient survival was comparable between two groups; 75.9% in the post-transplant IgA group and 84% in the control group ($P = 0.47$). Estimated 10-year death-censored graft survival was significantly lower; 59% in the post-transplant IgA group and 79.7% in the control group ($P = 0.01$). Estimated mean death-censored graft survival was 166.6 months in the post-transplant IgA group and 183 months in the control group ($P = 0.01$). Of 51 patients in the post-transplant IgA group, biopsy changes of chronic antibody-mediated rejection (CABMR) occurred in 11 patients and in none of the patients in the control group. There was no significant difference in the death-censored graft survival in these patients who had CABMR changes along with IgA deposition compared to patients who had only IgA deposition.

CONCLUSIONS: Posttransplant IgA nephropathy emerged as a predictor of poor graft outcomes in the long term. Higher incidence of CABMR was found among patients with posttransplant IgA nephropathy, but it was not associated with poorer graft outcomes.

143. USE OF FEBUXOSTAT IN HYPERURICEMIC PATIENTS UNDERGOING DIALYSIS: TOLERABILITY AND EFFICACY IN INDIAN POPULATION

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BACKGROUND: Hyperuricemia is associated with increased vascular events in chronic kidney disease (CKD). Febuxostat is an effective alternative treatment in this subset, but there is a scarcity of data on its use in patients undergoing dialysis.

AIM OF THE STUDY: The aim of our study was to evaluate the efficacy and safety profile of febuxostat in hyperuricemic Indian patients on dialysis.

METHODS: Fifty-four patients with CKD Stage 5D and hyperuricemia were included in the study from July 2018 to March 2019. Febuxostat was started and patients followed up over 6 months for decline in uric acid and any adverse events.

RESULTS: Of 54 cases, 30 were male (55.56%). The mean age was 51.28 ± 16.9 years. Thirty-two cases were diabetic (59.26), and all cases were on two or more antihypertensives. Nine cases were suffering from gout at the time of inclusion and mean serum creatinine in these cases was 10.47 mg/dl. Symptomatic cases responded to treatment within 2 weeks of therapy. Mean serum uric acid level at 3 months' posttreatment (4.65 ± 0.96 mg/dL) was significantly reduced compared from pretreatment level (8.34 ± 1.18 mg/dL) ($P < 0.01$). Serum uric acid level remained significantly low for 6 months without deterioration in estimated glomerular filtration rate. Blood pressure remained well controlled during therapy period, and only four cases required increment of antihypertensive medication. Of 54 cases, five stopped medication due to adverse events. Out of them, three cases were on peritoneal dialysis. Three cases developed skin rash which subsided once drug was withheld. The most common side effect was nausea (7/54) and headache (6/54).

CONCLUSIONS: Febuxostat is well tolerated and effectively reduces uric acid levels among dialysis population. Gastrointestinal side effects are the most common adverse event, and there was no higher risk of skin rash or other major adverse events.

144. LONG-TERM OUTCOMES OF POSTTRANSPLANT INFECTIONS IN ADULT RENAL-TRANSPLANT RECIPIENTS

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BACKGROUND: Infections are a major cause of morbidity in the form of graft loss and mortality in renal-transplant recipients. A number of factors in pre- and peritransplant period increase the susceptibility to posttransplant infections (PTIs) affecting the overall graft and patient survival.

AIM OF THE STUDY: The aim of this study is to analyze the epidemiology of infectious episodes and their risk factors in adult renal-transplant recipients and to evaluate their long-term graft and patient outcomes.

METHODS: This was an observational study of 644 adult renal-transplant recipients (≥18 years) between January 2010 and December 2015, followed until June 2019. Primary objective was to study epidemiology of risk factors of posttransplant infections using Chi-square and Fisher's exact test for univariate analysis and linear regression analysis for multivariate analysis. Secondary objective was to evaluate transplant outcomes and both graft and patient survival using Kaplan–Meier (KM) survival analysis.

RESULTS: PTIs were seen in 83.1%; majority (64%) occurred in the 1st year. Of all infections, 55.5% were bacterial, 18.5% viral, 10.8% parasitic, 8% fungal, and remaining 7.1% mycobacterial. Urinary tract infection (37.4%) was most common, with *Escherichia coli* (18.9%) being the most common. Relative risk with PTI for graft dysfunction was foyr times higher (95% confidence interval [CI] 3.5–6.6; $P < 0.01$); graft loss was three times higher (95% CI 1.4–6.1; $P < 0.01$); and death was three times higher (95% CI 1.3–8.1; $P = 0.01$) as compared to non-PTI. Recurrence of PTI had two times higher risk of graft dysfunction (95% CI 1.2–3.1; $P < 0.01$) and three times higher risk of graft loss (95% CI 1.9–5.0; $P = 0.00$). On multivariate analysis, the predictors of PTI were ATG induction ($P < 0.01$), pretransplant tuberculosis ($P = 0.02$), and dialysis vintage ($P = 0.02$). On KM survival analysis, graft and patient survival was inferior in PTI at 1, 5, and 9 years (graft: PTI 94.6%, 81.7%, 70.3% vs. non-PTI 98%, 92.2%, 90%; $P = 0.004$; patient: PTI 97.9%, 88.2%, 81.9% vs. non-PTI 98.3%, 95.2%, 92.9%; $P = 0.012$).

CONCLUSIONS: PTIs, fungal infections, in particular, had a significant impact on long-term graft loss and mortality in renal-transplant recipients. The predictors of PTI were ATG induction ($P < 0.01$), pretransplant tuberculosis ($P = 0.02$), and dialysis vintage ($P = 0.02$).

145. CLINICOPATHOLOGICAL PROFILE OF RENAL DISEASE IN PARAPROTEINEMIA AND MONOCLONAL GAMMOPATHY OF RENAL SIGNIFICANCE

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BACKGROUND: The spectrum of plasma cell dyscrasias-associated renal diseases include light chain deposition disease (LCDD), heavy chain deposit disease), cast nephropathy, AL amyloidosis, cryoglobulinemic glomerulonephritis, and fibrillary and immuotactoid glomerulonephritis.

AIM OF THE STUDY: To study the clinical and pathological profile of renal diseases in patients with paraproteinemia and monoclonal gammopathy of renal significance and to study the renal and patient outcome in such patients.

METHODS: We did a retrospective cum prospective observational study between March 2013 and July 2019 on the clinical profile, hematological characteristics, renal biopsy findings, and outcome among 46 patients. They had either multiple myeloma or monoclonal gammopathy of renal significance as defined by the International Myeloma Working Group.

RESULTS: The male to female ratio was 1.8:1 ($n = 46$). The mean age was 59 ± 8.03 years. Rapidly progressing renal failure (RPRF) was the most common presentation (48%) followed by nephrotic syndrome (26%). The common renal pathology was cast nephropathy (41%), amyloidosis (10%), and LCDD (6%). Of the 24 (52%) patients requiring dialysis, only 2 became dialysis independent and 15 (32%) patients died. Statistically significant factors associated with mortality were male sex, age more than 60 years, RPRF presentation, dialysis requiring renal failure, overt myeloma, cast nephropathy, and underlying diabetes mellitus.

CONCLUSIONS: The most common presentation was RPRF. Most common pathology seen was cast nephropathy. Patients with cast nephropathy had poor outcome.

146. DOES PLATELET FUNCTION AS MEASURED BY PLATELET FUNCTION ANALYZER-200 PREDICT RISK OF POSTRENAL BIOPSY BLEED IN CHRONIC KIDNEY DISEASE STAGE G 4 AND 5 PATIENTS?: A PROSPECTIVE, OBSERVATIONAL COHORT STUDY

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BACKGROUND: Our group had previously presented the interim results of a prospective study to assess the utility of the platelet function analyzer (PFA-200) in predicting the risk for postrenal biopsy bleed. We present here, for the first time, the final results of this study.

AIM OF THE STUDY: To assess whether abnormal platelet function as assessed by the PFA 200 predicts a higher risk of bleeding in chronic kidney disease (CKD) Stage G4–5 patients who undergo a renal biopsy.

METHODS: Between May 2018 and June 2019, after taking written informed consent, we recruited consecutive adult CKD Stage G4–5 patients who were to undergo an ultrasound-guided native kidney biopsy. We excluded patients who had received dialysis in the 2 weeks before the study and patients with acute kidney injury, chronic liver disease, and hemoglobin <8 g/dL despite blood transfusion and platelets <1 lakh/mm^3. After an overnight fast, 4.5 ml of whole venous blood was collected on the morning of the renal biopsy and used to measure collagen adenosine diphosphate closure time (CADPCT) by PFA 200 and perform platelet counts and morphology. At 30 min and 24 h after biopsy, patients were screened by ultrasound to look for any evidence of a hematoma. A minor bleed was defined as hematoma or gross haematuria not requiring blood transfusion. A major bleed was defined as bleeding requiring blood transfusion, angioembolization, or nephrectomy or causing hypotension, septicemia, or death.

RESULTS: A total of 175 patients (mean age 42.5 ± 12.0 years, median CKD-EPI estimated glomerular filtration rate (eGFR) 15.6 ml/min, 70.3% male, and 34.9% diabetic) were included in the study. Thirteen patients had a prolonged (≥142 s) CADPCT and 68 patients (38.9%) had a bleed, of which all but one were minor. There was no increased bleed risk in patients with CADPCT above median (44.8% vs. 33%; $P = 0.107$) or CADPCT above normal

range (53.8% vs. 35.7%; $P = 0.249$). However, patients with CADPCT in the highest quartile had a significantly higher bleed rate compared to patients in the lowest quartile (55% vs. 27.3%; $P = 0.010$). On receiver operating characteristic curve analysis, the area under the curve of CADPCT vs. bleed rate was 0.615. The only independent risk factor associated with postbiopsy bleed was diabetes ($P < 0.001$; 95% confidence interval 2.18–10.1). CADP closure time, eGFR, prebiopsy blood pressure, platelet count, cortical thickness, parenchymal grade, biopsy gun passes, biopsy core length, degree of glomerulosclerosis, interstitial fibrosis, and arteriosclerosis did not predict bleed risk.

CONCLUSIONS: CADPCT as measured by PFA-200 is normal in most patients with CKD 4–5. Factors other than uremic platelet dysfunction (e.g., diabetic milieu) play a role in increasing the risk of bleeding postbiopsy in patients with severe renal failure.

147. POSTRENAL-TRANSPLANT INFECTIONS: A TWO-DECADE EXPERIENCE

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BACKGROUND: Infections are a common cause of morbidity and mortality after transplantation, and infections rank second as the cause of death in patients with allograft function. Posttransplant infections may follow a predictable pattern with regard to timing after transplant. Improved prophylactic, diagnostic, and treatment strategies can decrease the negative effect of infection on transplant outcomes.

AIM OF THE STUDY: To study the prevalence, chronological occurrence, and spectrum of infections in renal-transplant recipients.

METHODS: We retrospectively analyzed the data of 703 patients who underwent renal transplantation in our center between January 2002 and December 2018. All the patients received calcineurin inhibitor-based triple-immunosuppression. Antithymocyte globulin (ATG) induction was used in 82 (11.6%) patients and basiliximab induction in 97 (13.7%) patients. Median follow-up period was 41 months (23–54).

RESULTS: Among 703 transplant recipients, 528 received graft from live donors and 175 from deceased donors. Male to female ratio is 4:1. Mean age of the recipients was 31 ± 9 years. 198 (28.1%) patients had graft dysfunction. 161 (22.9%) patients received antirejection therapy with pulse steroids and 8 with ATG. Total 1039 patients at median follow-up period of 40.9 months (mean)(23–54 months). 387 (55.2%) patients had at least one infection during the first 6 months. 114 patients (16.21%) had NODAT with median of 7.25 months (interquartile: 3.75–15 months). Profile of infections as follows: bacterial: 484 (46.5%); viral: 280 (39.8%); fungal: 112 (10.7%); tuberculosis: 62 (5.9%); and parasitic: 101 (9.7%). In multivariate analysis, NODAT, graft dysfunction, and leukopenia were independent risk factors for infections. Death occurred in 147 (16.0%) patients at median follow-up of 50 months (3–120).

CONCLUSIONS: The incidence of infections in renal-transplant recipients in our center was 71%. Urinary tract infection was the most common infection during the 1st month of renal transplant; with CMV and HCV being the most common in 1–6 months and more than 6 months, respectively.

148. SARCOPENIC OBESITY IN DIFFERENT STAGES OF CHRONIC KIDNEY DISEASE

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BACKGROUND: Low skeletal muscle mass (sarcopenia) is often found to be coexisting with obesity in chronic hemodialysis patients, often termed as sarcopenic obesity (SO).

AIM OF THE STUDY: Our study was aimed to study the prevalence of SO through bioelectrical impedance analysis in patients with chronic kidney disease (CKD) Stage 3, 4, 5D, and 5T.

METHODS: Body composition analysis through bioelectrical impedance was utilized to assess body fat and lean tissue index (LTI). Sarcopenia was defined as LTI <10.7 kg/m^2 in men and <6.7 kg/m^2 in women. Obesity was defined as percent body fat >25% in men and >35% in women.

RESULTS: Of 108 patients, 68 were males and 40 were females. The average age of patients was 52.7 ± 15.7 years and average body mass index was 25.1 ± 5.6 kg/m^2. Average percent body fat was 27.5% ± 12.4% and average lean tissue mass was 28.9 ± 7.7 kg. Of 13 CKD patients with Stage 3, SO was found in 2 (15.3%) subjects. Of 34 patients with CKD Stage 4, SO was found in 14 (41.1%) subjects. Of 35 patients with CKD stage 5D, SO was found in 12 (34.2%) subjects. Of 26 patients with CKD Stage 5T, SO was found in 8 (30.7%) subjects.

CONCLUSIONS: SO assessed through bioelectrical impedence analysis was found to be greater in CKD Stage 4, 5D, as well as 5T.

149. ASSESSMENT OF RISK FACTORS FOR PROGRESSION OF SNAKE VENOM-INDUCED ACUTE KIDNEY INJURY TO CHRONIC KIDNEY DISEASE

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BACKGROUND: Snakebite, an occupational health hazard, causes high mortality and morbidity in tropical developing countries. Snake venom-induced acute kidney injury (SAKI) is one of the major causes of high death rate and long-term consequences. However, the risk assessment of progression of SAKI to chronic kidney disease (CKD) is not studied well.

AIM OF THE STUDY: To investigate the clinical parameters in snakebite patients in a long-term follow-up and to evaluate the renal injury and functional markers to assess the risk for progression of SAKI to CKD.

METHODS: A prospective longitudinal follow-up study was done to assess whether snake bit-induced acute kidney injury leads to CKD. The snakebite patients were included for this study admitted to the NRS Medical College from July 2018 to May 2019. Clinical history was checked; blood and urine samples were collected from the patients after their consent. A subsequent follow-up visit was scheduled at 1 month (1MFU), 3 months (3MFU), and 6 months (6MFU) after discharge from the hospital. The patients were recalled for follow-up, and the samples were collected. Renal injury and functional markers such as plasma neutrophil gelatinase-associated lipocalin (NGAL), cystatin C, and kidney injury molecule (KIM-1) were studied with the CRP, methylglyoxal (MG), advanced oxidation protein product (AOPP), and CPK levels at every time point. Data were represented as mean ± standard error of mean. *t*-test and ANOVA were performed to check any statistical difference between the parameters of the studied groups. Pearson correlation and Chi-square tests were performed.

RESULTS: All the renal functional parameters along with NGAL, cystatin C, and KIM-1 was significantly altered in the SAKI compared to control and without kidney injury group (non-SAKI [NSAKI]). CRP, MG, and AOPP were significantly elevated in an order SAKI > NSAKI > Control. At the time of subsequent follow-up, these markers were not significantly reduced towards normal. Along with these parameters, at the end of 1st, 3rd, and 6th month follow–up, 35.7%, 30.4%, and 52.9% patients, respectively, showed moderately higher plasma creatinine value (1.2–1.5 mg/dl). 28.57%, 29.16%, and 44.4% patients showed lower glomerular filtration rate (GFR) (<90 ml/min/1.73 m^2) at 1MFU, 3MFU, and 6MFU, respectively. Plasma creatinine was found to be highly associated with inflammation, stress, and injury markers. 37.14% of patient signs of hematuria/hemoglobinuria at different follow-up time point. 60%, 75%, and 82.35% of patients showed presence of urinary protein at 1MFU, 3MFU, and 6MFU, respectively.

CONCLUSIONS: It can be concluded that there is a risk for progression of snake bite-induced acute kidney injury to CKD. The follow-up patients showed low GFR, high plasma creatinine, proteinuria, hematuria, high level of NGAL, cystatin C, and KIM-1 are prone to develop CKD.

150. CALCIUM HOMEOSTASIS IN ACUTE KIDNEY INJURY PATIENTS AND RISK OF ADVERSE OUTCOMES

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BACKGROUND: Electrolyte, mineral, and acid–base disturbances commonly occur in acute kidney injury (AKI) patients. Hypocalcemia is commonly observed in patients with AKI; the literature on dysregulated mineral metabolism in this patient population is relatively limited. Hence, the present study was designed to determine the calcium (Ca), phosphate (PO_4), 25OH Vitamin D; fibroblast growth factor-23 (FGF-23), and parathyroid hormone (PTH) levels in patients with AKI.

AIM OF THE STUDY: (1) To measure the concentration of Ca, PO_4, Vitamin D3, PTH, and FGF-23 in AKI patients and (2) to correlate the abnormal calcium homeostasis with adverse outcomes in these patients.

METHODS: A prospective observational study was carried out in patients who attended the inpatient/intensive care unit of the hospital. Patients with clinical and laboratory evidence of AKI as per the KDIGO guidelines were included. Patients with current therapy with elemental Vitamin D, history of parathyroid disease, metabolic bone disease, malabsorption, and pregnancy were excluded. Patients who were intubated, altered mental status, and chronic kidney disease (CKD) or undergoing dialysis were also excluded. In those with AKI, blood was drawn within 24 h of establishing the clinical diagnosis for serum Ca, PO_4, PTH, Vitamin D, and FGF-23, and after that, a second sample for serum Ca, PO_4, and urea/creatinine was withdrawn after 5 days or at the time of discharge. Variables were compared between groups such as duration of hospital stay, survivors and nonsurvivors in terms of mortality, and dialyzed and non-dialyzed on the basis of renal replacement therapy (RRT). Data were analyzed by Chi-square test and Student's *t*-test. 5% probability was considered as statistically significant ($P < 0.05$).

RESULTS: Of 50 patients, 70% were males with a mean age of 57.3 ± 11.4 years. Anemia (62%), hypertension (52%), diabetes mellitus (48%), and congenital heart disease (36%) were common comorbidities. Sepsis (62%) and circulatory shock (56%) were found to be the most common exposure. Serum creatinine, urea, Ca, and PO_4 were found to be 4.1 ± 2.2 mg/dl, 92.8 ± 31.2 mg/dl, 8.5 ± 0.8 mg/dl, and 2.2 ± 0.6 mg/dl, respectively. Vitamin D, PTH, and FGF-23 levels were 21.0 ± 10.44 ng/ml, 101.6 ± 50.03 pg/ml, and 81.18 ± 168.64 pg/ml. Hypocalcemia, low PO_4, low Vitamin D, and high PTH were found in 44%, 78%, 82%, and 52%, respectively. 10% had undergone RRT and 78% were discharged and mortality was 22%. Prolong hospitalization had significantly lower Ca and higher FGF-23. No significant change observed in PO_4, Vitamin D, and PTH. FGF-23 was significantly higher in the death cases while other parameters were nonsignificant. Patients who had undergone RRT had higher Ca (8.9 ± 0.53; $P < 0.21$) and higher PTH (85.3 ± 19.6; $P < 0.44$) but had not statistically significant. FGF-23 (81.7 ± 17.3; $P < 0.05$) was significantly higher in the dialyzed group.

CONCLUSIONS: Higher serum Ca, PO_4, and Vitamin D and lower PTH and FGF-23 levels might play a key role in the survival and discharge of patients with AKI; only FGF-23 was significantly different between these groups. Indicators of calcium homeostasis are dysregulated during AKI and are associated with mortality.

151. A STUDY OF INCIDENCE CAUSES AND OUTCOMES OF ACUTE KIDNEY INJURY IN PATIENTS ADMITTED TO MEDICAL INTENSIVE CARE UNIT AT SRM MEDICAL COLLEGE AND HOSPITAL

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BACKGROUND: Etiology of AKI in intensive care unit (ICU) settings is not uniform and varies from place to place and center

to center. The studies looking into various etiologies of AKI in suburban tertiary care centers are sparse.

AIM OF THE STUDY: (1) To study the incidence, causes, and outcome of acute kidney injury (AKI) in the medical ICU. (2) To assess outcome of dialysis in AKI.

METHODS: Study period: January 2017 to December 2018. The KDIGO criteria were used to diagnose and stage the AKI. The urine output criteria were not utilized in this study due to practical constraints. Patients diagnosed with AKI were assessed for the cause of AKI, stage of AKI, need for hemodialysis (HD), and outcomes. Inclusion criteria: All patients above 18 years of age admitted to the ICU with AKI and all patients who developed AKI after admission to the ICU within 48 h of admission. Exclusion criteria: Patients with preexisting renal disease and who received renal-transplant and postoperative patients.

RESULTS: Incidence of AKI among ICU cases: Of the total 1490 patients admitted in the ICU,. 403 developed AKI (27.04%). Frequency distribution of each stage of AKI: As staged by the KDIGO criteria, 45.4% were in Stage I AKI, 29.3% Stage II, and 25.3% in Stage III. Frequency of various etiologies: Sepsis (26.8%), stroke (14.4%), chronic liver disease (10.2%), congestive cardiac failure (CCF, 6.9%), postrenal causes (3.7%), drug-induced AKI (2.5%), and other causes (2.7%). Outcome of AKI cases: Of a total of 403 AKI patients, 321 (79.7%) recovered from AKI and 60 (14.9%) died. Mortality in Stage I, II, and III AKI was 1.1%, 10.2%, and 45.1%, respectively. Requirement and outcome of dialysis: 58 out of 403 AKI patients required dialysis (14.4%). Among patients requiring dialysis, 21 patients recovered from AKI, one patient left the ICU against medical advice, and 36 patients died. Thus, 62% (36 out of 58) patients requiring dialysis expired whereas 6.9% (24 out of 345) who did not require HD expired.

CONCLUSIONS: Frequency of AKI was 27.04% at our center. Sepsis (26.8%) is the most common cause followed by chronic liver disease and CCF. AKI patients requiring HD had poor prognosis compared to those who did not required HD.

152. COMPLICATIONS AND OUTCOME OF PROSTHETIC ARTERIOVENOUS GRAFTS IN HEMODIALYSIS PATIENTS: AN OBSERVATIONAL STUDY IN A TERTIARY CARE CENTER FROM SOUTH INDIA

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BACKGROUND: Prosthetic arteriovenous (AV) grafts are indicated in patients with failed AV fistula (AVF), exhausted superficial veins, or unsuitable vessels. AV graft in hemodialysis patients is prone to recurrent stenosis and thrombosis, requiring frequent interventions to optimize their long-term patency. Little is known about the factors that determine graft outcomes after intervention. In this study, we describe complications of AV grafts and their outcomes in dialysis patients at our institute.

AIM OF THE STUDY: To study indications for AV graft, risk factors and incidence of AV graft complications, choice of interventions, and its outcomes.

METHODS: We retrospectively analyzed data of hemodialysis patients with AV graft in our institute from January 2018 till June 2019. All clinical and demographic data, indications of AV graft, and complications were noted. All the AV grafts were monitored clinically every month and radiologically every 3 months.

RESULTS: Out of around 200 maintenance hemodialysis patients in our institute during the study period, 12 patients were with AV graft and one patient tried AV graft on both arms. Among AV graft patients, seven were males and five were females. The mean age of the patients was 45 ± 5 years. The most common indication was multiple access failure. Six patients developed graft thrombosis and one patient had infected pseudoaneurysm. One patient had immediate graft failure. Five patients developed thrombosis within 1 month; one patient had after 1 year. Graft thrombosis was associated with female gender and younger age. Among four mechanical thrombectomies performed, two were successful and one thrombolysis performed was also successful. Out of total 12 patients, nine patients are still continuing hemodialysis through AV graft, and three patients have graft survival >1 year.

CONCLUSIONS: AV grafts are more prone to thrombosis; however, regular monitoring and timely interventions will definitely improve graft outcomes.

153. STUDY ON HYDROPNEUMOTHORAX IN CHRONIC KIDNEY DISEASE PATIENTS ON MAINTENANCE HEMODIALYSIS

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BACKGROUND: Hydropneumothorax is the abnormal accumulation of both air and fluid in the pleural space; chronic kidney disease (CKD) patients being immunocompromised are more prone to tuberculosis which is one of the causes of hydropneumothorax.

AIM OF THE STUDY: To study etiological profile, clinical profile, and management of CKD patients with hydropneumothorax.

METHODS: CKD patients with clinical and radiological diagnosis of hydropneumothorax were included in the study; traumatic hydropneumothorax was excluded.

RESULTS: Of the 12 patients, we studied that the mean age was 52.2 (±14.3) years. Nine patients were males; breathlessness and cough were the most common presenting symptoms which were present in all patients (100%). Fever was present in eight patients (66.6%); chest pain in ten patients (83.3%); loss of weight and appetite in eight patients (66.6%); history of pulmonary tuberculosis was present in five patients; and smoking history was present in nine patients who were all males; pleural fluid analysis showed exudative picture which was lymphocyte predominant in eight patients and four patients had neutrophil. One patient had pleural fluid acid-fast Bacillus

positive. Computed tomography (CT) chest was done in all patients; eight patients showed cavitatory lesions suggestive of Kochs; other two showed air bronchogram suggestive of bacterial infections; and two patients have emphysematous changes on CT. All patients were treated with ICD placement, ATT, and antibiotics according to pleural fluid reports.

CONCLUSIONS: CKD patients being immunocompromised can develop tuberculosis which leading to hydropneumothorax has devastating complications if not detected and treated early.

154. EFFICACY OF FERRIC CITRATE OVER OTHER PHOSPHATE BINDERS IN STAGE 4 AND 5 CHRONIC KIDNEY DISEASE PATIENTS

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BACKGROUND: Hyperphosphatemia in patients with chronic kidney disease (CKD) indicates the development of secondary hyperparathyroidism and renal osteodystrophy and is independently associated with an increased risk of death among dialysis patients. Currently available phosphate binders include calcium acetate, sevelamer, lanthanum carbonate, and ferric citrate. The study was conducted to assess the advantages of ferric citrate over other phosphate binders.

AIM OF THE STUDY: (1) To compare the efficacy and safety of ferric citrate over other phosphate binders – calcium acetate and sevelamer carbonate and (2) to assess improvement in iron parameters by ferric citrate.

METHODS: In this prospective comparative study, 72 patients were grouped to receive either ferric citrate or other phosphate binders (calcium acetate or sevelamer carbonate). The efficacy was measured in terms of reduction in mean serum phosphorus values. Safety of the drugs was measured in terms of the adverse effects reported during the therapy. Improvement in iron parameters in ferric citrate group was assessed by assessing Hb, ferritin, and transferrin saturation before and after the study.

RESULTS: Reduction in the mean serum phosphorus was statistically better in ferric citrate group compared to other phosphate binders ($P < 0.05$). Adverse effects were mild and well tolerated in both groups. There was no significant improvement in iron parameters in the ferric citrate group.

CONCLUSIONS: Ferric citrate was found to be superior compared to other phosphate binders in terms of efficacy. Hence, ferric citrate is an effective and well-tolerated alternative phosphate binder to be used in Stage 4 and 5 CKD patients. However, the improvement in terms of anemia correction is not observed.

155. CLINICAL PROFILE AND OUTCOMES OF STEROID-DEPENDENT NEPHROTIC SYNDROME IN ADULTS: A SINGLE-CENTER EXPERIENCE

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BACKGROUND: Steroid-dependent nephrotic syndrome (SDNS) is a difficult-to-treat clinical entity, and various steroid-sparing therapies have been tried to avoid steroid toxicity. There are very few studies about the immunosuppressive regimens and treatment outcomes in this subpopulation of nephrotic syndrome patients in South India.

AIM OF THE STUDY: To study the clinical profile and treatment outcomes of SDNS in adults.

METHODS: Adults with SDNS were included from January 2018 to December 2018 at Madras Medical College. Patients with steroid-resistant nephrotic syndrome were excluded. Variables such as remission, relapse, treatment details, and drug-related infectious complications were analyzed.

RESULTS: Eighty-five patients were included in the study, of which 57 were male (67%). The mean age of the study population was 16.5 ± 2.3 years and mean duration of follow-up was 6.5 ± 1.6 months. The causes of nephrotic syndrome were minimal change disease ($N = 41$; 48%); focal segmental glomerulosclerosis ($N = 21$; 25%), and diffuse mesangial proliferation ($N = 10$; 12%) among the 72 patients who underwent renal biopsy. Mycophenolate mofetil (MMF), tacrolimus, cyclophosphamide, and low-dose steroids were the maintenance immunosuppressive regimens used with remission rates of 83% (35/42), 60% (6/10), 77.7% (14/18), and 82% (9/11), respectively. Relapse rates were 9% in MMF, 30% in tacrolimus, 16% in cyclophosphamide, and 27% in low-dose steroid groups. Statistically, MMF was found to be superior to tacrolimus in maintaining remission ($P = 0.04$). Infectious complications observed in 29 subjects include abscess, diarrhea, urinary tract infection, peritonitis, pulmonary tuberculosis, and herpes zoster.

CONCLUSIONS: Remission rates in SDNS with MMF, tacrolimus, cyclophosphamide, and low-dose steroids were 83%, 60%, 77.7%, and 82%, respectively. MMF was found to be superior to tacrolimus in maintaining remission.

156. ADIPOSITY IN CHRONIC KIDNEY DISEASE STAGE 3 AND 4 ASSESSED BY DUAL-ENERGY X-RAY ABSORPTIOMETRY

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BACKGROUND: Chronic kidney disease (CKD) is associated with alterations in the body composition, which appears much ahead of the conventional anthropometric and biochemical markers. Sarcopenia and obesity are common in CKD. Excess body fat is associated with adverse outcomes in CKD. Body mass index and abdominal circumference are not sensitive enough to pick up adiposity in CKD. An accurate assessment of nutritional status in predialysis CKD requires body composition analysis with dual-energy X-ray absorptiometry (DXA).

AIM OF THE STUDY: To assess the prevalence of adiposity in CKD stage 3 and 4 using a three-compartment model DXA and compare with conventional anthropometric and laboratory markers of nutrition and daily nutrient intake.

METHODS: A total number of 60 patients with CKD Stages 3 and 4; aged between 18 and 65 years; with stable kidney function were recruited. A three-compartment model DXA was done to assess body composition. The nutritional assessment was done using a 3-day diet diary and structured interview. The anthropometric data were collected as per the standard recommendations.

RESULTS: The mean body fat percentages of the study population were 24.4% (95% confidence interval [CI] 27.5–31.4). The mean lean tissue and fat tissue index were 14.32 (95% CI 13.9–14.74) and 6.76 (95% CI 5.86–7.07), respectively. Adiposity (body fat >25% in men and 30% in women by DXA) was present in 42 subjects (70%). There were no gender differences in the prevalence of adiposity (63.6% in males vs. 89.5% in females; $P \leq 0.112$). Sarcopenia was present in 44 (73.3%; 36 males and 9 females) and sarcopenic obesity was present in 31 subjects (51.6%; 23 males and 8 females). Among patients with adiposity; 29 (69%) had normal body mass index (BMI). The BMI, midarm muscle circumference, and abdominal circumference were not different between patients with and without adiposity. Serum albumin and cholesterol were also similar between two groups. Those with adiposity demonstrated a lower calorie intake compared to those without adiposity (1486 kcal/day; [interquartile range ([IQR) 1269–1841] vs. 2008 kcal/day [IQR 1490–2093]; $P = 0.009$).

CONCLUSIONS: Adiposity and sarcopenia are common in patients with CKD. The changes in body composition appear earlier than changes in BMI and abdominal circumference. Relying BMI as the sole marker of obesity might lead to misclassification of two-thirds of patients with adiposity.

157. A STUDY OF CARCINOMA CERVIX-INDUCED CHRONIC KIDNEY DISEASE: A TERTIARY CARE EXPERIENCE

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BACKGROUND: Carcinoma cervix is the most common cancer affecting women in developing world. Chronic kidney disease (CKD) due to obstructive uropathy is a serious complication of carcinoma cervix. There is a paucity of Indian studies on this subject.

AIM OF THE STUDY: We aimed to study the cause, severity, treatment, and outcome of renal failure in patients with carcinoma cervix.

METHODS: A prospective clinical observational study of cancer cervix patients with renal failure admitted to the Institute of Nephrology, Madras Medical College, between August 2014 and July 2019 was conducted. Stage of carcinoma cervix (FIGO staging) and cause and severity of renal failure were studied. Treatment of renal failure and outcome were analyzed.

RESULTS: The mean age of the study group was 52.46 years (range 35–85 years). All women belonged to low socioeconomic strata. Mean age at marriage was 18.03 years (range 12–25) and 62 patients (73.80%) were multiparous. Thirty-eight patients had undergone cervical biopsy (45.23%). Thirty-two patients (38.09%) had squamous cell carcinoma, 4 (4.76%) had adenocarcinoma, and 2 (2.38%) had carcinoma *in-situ*. Majority of the patients (90%) were in Stage II B and above. Thirty-eight patients had (45.23%) received radiotherapy, 10 patients (11.90%) had received a combination of radiotherapy and chemotherapy, and 12 (14.28%) had undergone total abdominal hysterectomy with bilateral salpingo-oophorectomy. The mean time interval between the diagnosis of carcinoma cervix and detection of renal failure was 25.65 months (range 1–154 months). Twenty patients (27.77%) underwent percutaneous nephrostomy. Ureteric stenting (DJ stent) was done in 6 patients (8.33%). Thirty-three patients (45.83%) had dialysis.

CONCLUSIONS: Twenty-six patients (36%) expired during the study period and 46 (64%) were lost to follow-up during the study period implying poor social support. Most of our patients had severe renal failure at presentation associated with high mortality.

158. GLYCEMIC VARIATIONS IN CHRONIC HEMODIALYSIS PATIENTS

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BACKGROUND: As hypoglycemia is known to have life-threatening outcomes in dialysis patients, similarly, hyperglycemia too can prove to be fatal due to its hyponatremic effect and thereby further predisposition to increased morbidity. Higher levels of glycemic variations, especially in the presence of cardiovascular diseases, can cause fatal dysrhythmia.

AIM OF THE STUDY: The main aim was to study the glycemic variations in chronic hemodialysis patients using flash glucose monitoring.

METHODS: Flash glucose monitoring (Abbott FreeStyle Libre Pro) was initiated predialysis on first session of week. It was continued for 14 days. Glycemic variations across dialysis–nondialysis days, pre and post dialysis stages, and day time–night time were compared.

RESULTS: Of 16 patients, nine were males and seven were females. All the patients were on thrice a week dialysis with dextrose free dialysate. Their average age was 62.8 ± 10.2 years and average dialysis vintage was 2.2 ± 1.4 years. The average 14-day glucose was 115.6 ± 40.4 mg/dl. Average glucose on dialysis day was 142.4 ± 87.2 mg/dl and that on nondialysis day was 124.1 ± 64.9 mg/dl ($P = 0.03$). Average predialysis glucose was 125.3 ± 29.7 mg/dl and postdialysis glucose was 109.6 ± 21.4 mg/dl ($P = 0.39$). The average blood glucose during daytime was 118.1 ± 39.3 mg/dl and nighttime was 113.3 ± 42.3 mg/dl ($P = 0.75$).

CONCLUSIONS: There was a significant difference observed in between dialysis day and nondialysis day. Continuous

monitoring of blood glucose may prove to be helpful patients presenting with large glucose variations.

159. CENTRAL VENOUS STENOSIS IN PATIENTS ON HEMODIALYSIS

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BACKGROUND: Central venous stenosis (CVS) causes considerable morbidity and mortality in hemodialysis (HD) patients. Studies in symptomatic patients have shown a prevalence of 9.2% for CVS.

AIM OF THE STUDY: To study prospectively the prevalence and outcome of CVS in HD patients.

METHODS: We also assessed outcome of arteriovenous fistula (AVF) closure. Inclusion criteria: Patients undergoing HD for more than 3 months and unilateral edema of AVF arm with or without hemifacial swelling. Exclusion criteria: Presence of local infection and lymphatic edema. Interventions: Patients who are willing were subjected to either DSA or angiography to identify the location of stenosis. We evaluated factors such as history of catheterization, radiocephalic versus brachiocephalic fistula, and duration of HD. Patients undergoing HD through AVF assessed for fistula arm swelling with high venous pressure recordings during HD. Settings: The study was carried out at a tertiary care teaching hospital. Study period: 2018–2019.

RESULTS: Two out of 17 patients with CVS died: 11.7% (intracranial hemorrhage [ICH] and sepsis). One patient has developed fistula rupture due to mycotic aneurysm and expired. One patient had undergone balloon angioplasty and subsequently developed ICH due to warfarin and expired. We observed that one patient had spontaneous resolution after treating with VEGF inhibitors for proliferative retinopathy. Seven patients with CVS had closure of AVF. Eight patients (61%) had brachiocephalic trunk stenosis and 5 patients (39%) had subclavian stenosis. Thirteen out of 17 patients underwent either DSA (5) or angiography (7). Duration of HD among patients with CVS ranged from 2 to 9 years. Nine patients had brachiocephalic fistula (52.9%) and 8 (47.1%) had radiocephalic fistula. One patient underwent preemptive AVF surgery before initiation of HD with no IJV catheterization. Ten out of 16 had ipsilateral jugular catheter prior (62.5%). Total number of patients with CVS: 17/171 (9.9%). and rupture).

CONCLUSIONS: The presence of CVS is associated with considerable morbidity (100%). The prevalence of CVS is 9.9% in our center. AVF closure has led to symptomatic improvement. mortality rate was (11.7%).

160. A NOVEL GENETIC MUTATION IN A STONE FORMER

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BACKGROUND: Adenine phosphoribosyl-transferase (APRT) enzyme deficiency is a rare autosomal recessive disorder of purine metabolism. APRT enzyme metabolizes adenine to adenosine monophosphate. In its absence, adenine is catabolized by xanthine dehydrogenase to 2,8-dihydroxyadenine (DHA). This DHA is insoluble in urine at the physiological pH, resulting in crystalluria. Presentation varies from asymptomatic state to recurrent nephrolithiasis causing chronic kidney disease (CKD).

AIM OF THE STUDY: To stress the importance of having a high index of suspicion and performing an intensive metabolic workup in young patients with recurrent nephrolithiasis to preserve their renal function.

METHODS: A 30-year-old woman with a history of passing stones since childhood associated with recurrent colicky abdominal pain presented with oliguria and pedal edema after having been started on antituberculous therapy for tuberculous lymphadenitis. Computed tomography scan showed multiple renal calculi in both the kidneys with pelvicalyceal system dilatation and thinned out cortex. She underwent bilateral ureteric stenting. Urine output improved, yet her renal failure persisted with a creatinine of 3.3 mg/dl. In view of young-onset recurrent nephrolithiasis, she underwent renal biopsy, which showed greenish-brown refractile crystals with central spicules seen within tubules and interstitium, surrounded by multinucleated foreign body type of giant cells. Crystals were birefringent under polarized light, suggesting the possibility of 2,8 DHA crystals.

RESULTS: Spectrophotometer was used to measure APRT enzyme activity in red blood cell lysates which revealed markedly decreased APRT activity, confirming the diagnosis of DHA crystalline nephropathy. Patient's family members were analyzed for APRT enzyme activity and genetic screening. Parents were found to be carriers, and the patient and her brother were diagnosed to be homozygous for the same mutation.

CONCLUSIONS: Our patient was started on oral xanthine dehydrogenase inhibitor febuxostat. Early diagnosis by means of intensive metabolic workup and initiation of appropriate therapy could have prevented her from progressing to CKD.

161. SQUAMOUS CELL CARCINOMA OF TONSILLAR FOSSA IN CHRONIC KIDNEY DISEASE-5D PATIENT: A CASE REPORT

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BACKGROUND: Chronic kidney disease (CKD) and cancers are both major and growing public health problems nationally and internationally. The link between CKD and the risk of developing cancer has not been well delineated. People with end-stage renal disease (ESRD) are at increased risk for cancer, but it is uncertain when this increased risk begins in the spectrum of CKD.

AIM OF THE STUDY: To study and report an unusual case.

METHODS: This was a case report.

RESULTS: A 53–year-old male diagnosed as a case of CKD (ESRD) 2 years back and was on regular twice-weekly IHD. After 20 months of MHD, he developed bleeding from oral cavity, cough, and blood-tinged sputum. Examination revealed swelling over the left side of neck, ulcer over the left tonsillar fossa, and enlarged, nontender, hard cervical lymph nodes. Biopsy showed squamous cell carcinoma. IHC was positive for P16 of HPV. He received 33 cycles of 70 Gy radiation therapy over 6 weeks and continued hemodialysis.

CONCLUSIONS: Major risk factors for oropharyngeal carcinoma are smoking, alcohol consumption, tobacco, and HPV. Exact incidence of oropharyngeal carcinoma and its impact on CKD population is not known and yet to be studied.

162. CLASSICAL XANTHINURIA: AN UNCOMMON CAUSE OF PEDIATRIC STONE DISEASE

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BACKGROUND: Determination of the cause is important to optimize treatment of renal stone disease. Hypercalciuria, uricosuria, hypocitraturia, and urinary tract infections alone or in combinations account for etiology of majority of renal stones. Xanthine oxidase deficiency is a rare cause of pediatric urolithiasis and classical xanthinuria. Less than 150 cases have been reported previously in the literature. We describe a child with xanthinuria and recurrent renal stone disease.

AIM OF THE STUDY: To highlight the consideration of rare etiologies and timely investigations of urolithiasis in children.

METHODS: This was a case report.

RESULTS: A 2½-year-old boy was brought to our hospital with dysuria and high-colored urine for 1 week. He was diagnosed with bilateral hydroureteronephrosis with bilateral renal and ureteric stones at the age of 1 year and underwent bilateral open pyelolithotomy. After 6 months of the initial surgery, he developed recurrent stones for which he underwent URSL. He was born out of third-degree consanguineous marriage. Physical examination was unremarkable. His complete blood picture and renal and liver function tests were normal. Urine examination was normal. X-ray KUB did not show any radiopacities. Computed tomography abdomen revealed bilateral pelviureteric and vesicoureteric junction calculi. Further tests revealed serum Ca - 10 mg%; serum P - 5 mg%; and serum uric acid - <1 mg%. Spot urine calcium to creatinine ratio was 0.17; urinary uric acid excretion rate was 0.0085 mg/dl of glomerular filtration rate. Urine xanthine test was positive. At our institute, he underwent bilateral URSL. Stone analysis revealed xanthine as major (75%) composition. He was kept on purine-free diet and advised adequate hydration. He is doing well on follow-up.

CONCLUSIONS: It is important to identify these patients as xanthinuria may precipitate renal scarring and renal failure in the long run; even in the absence of renal stones. Thus, with early diagnosis and treatment, renal damage can be prevented.

163. SPECTRUM AND OUTCOME OF INFECTIONS IN POSTRENAL-TRANSPLANT PATIENTS

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BACKGROUND: Infections remain a major cause of morbidity and mortality in transplant recipients. One-quarter of all renal-transplant recipients in the tropical countries develop a serious infection at some point in the posttransplant period that causes allograft dysfunction.

AIM OF THE STUDY: (1) To study the spectrum and time of onset of infections in renal allograft recipients. (2) To study the influence of infection on patients and graft outcome.

METHODS: This was an observational study done between January 2017 and December 2018. We included all renal allograft recipients who suffered from at least one episode of infection.

RESULTS: A total of 30 patients met the inclusion criteria. Most of them (22) were males (73.3%) and 8 (26.7%) patients were females. The mean age of study population was 38 ± 12.8 years. A total of 19 (63.3%) underwent live-related renal-transplant and 11 (36.7%) were deceased donor transplants. The total number of episodes of infection found was 55. More than one episode of infection occurred in 56.6% cases and on average every patient had suffered from ~1.9 infection episodes during posttransplantation period. The median time of onset of infection was seen at 6.5 months. Most common infections were bacterial 41 episodes, followed by viral 12 episodes and fungal 2 episodes. The most common bacterial infection was urinary tract infection (UTI) caused by *Escherichia coli* and viral was CMV. Infection causing graft dysfunction was seen in 14 (46.7%), and among them, 4 (13.3%) patients had rejection, and on follow-up, 10 (71.4%) improved and 4 (28.6%) patients died. Mortality was more in patients with multiple episodes of infections.

CONCLUSIONS: Bacterial infection was more common. UTI was the most common bacterial infection. Median time of onset of infection was 6.5 months. Overall, 46.7% of the patients had graft dysfunction, of which 71.4%of patients improved while 28.6% patients died. Mortality was more in patients with multiple episodes of infections.

164. CLINICO-PATHOLOGICAL PROFILE OF FOCAL SEGMENTAL GLOMERULOSCLEROSIS IN NATIVE KIDNEYS WITH REFERENCE TO PRIMARY AND ADAPTIVE FOCAL SEGMENTAL GLOMERULOSCLEROSIS BASED ON ELECTRON MICROSCOPY

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BACKGROUND: Focal segmental glomerulosclerosis (FSGS) is a leading cause of end-stage renal disease (ESRD) in adults.

There are significant differences in approach to primary (P) and adaptive (A) FSGS. Degree of foot process effacement (FPE) on electron microscopy (EM) is a key distinguishing feature between them. There is need of differentiation between two; short of EM as EM is not available everywhere. This study aims to compare clinicopathological features of representative cases of FSGS categorized on the basis of degree of FPE.

AIM OF THE STUDY: To study the clinicopathological characteristics and treatment response of FSGS in native kidney biopsy classified on the basis of degree of FPE on EM.

METHODS: All patients with FSGS in native kidney biopsy between 2015 and 2019 having detail EM features formed subjects for study. The baseline clinical and pathological features were analyzed. Patients were grouped in P-FSGS and A-FSGS based on diffuse (>80%; P-FSGS) and focal (<80%; A-FSGS) FPE on EM. Furthermore, patients were classified as nephrotic syndrome (NS) and nonnephrotic proteinuria based on clinical and laboratory characters. Patients were also analyzed for clinical details including body mass index (BMI), hypertension, edema, baseline renal function, proteinuria, hypoalbuminemia, percentage of sclerosed glomeruli, degree of interstitial fibrosis and tubular atrophy, and vascular changes. Patients were treated based on standard of care. At the time of treatment, EM details were not known. Patients' response to therapy and outcome were also recorded. All analysis of P-FSGS versus A-FSGS was done once EM details became available.

RESULTS: During the study period, 76 of 173 patients with FSGS in native kidney were analyzed by EM; 34 had no glomerulus; 3 sclerosed; and so 39 analyzed. Twenty-two patients had P-FSGS and 17 had A-FSGS. There was no difference in mean age, percentage of males, BMI, percentage of patients having hypertension, and baseline creatinine in P-FSGS and A-FSGS. However, mean proteinuria (5.9 vs. 1.8 g/day) and serum albumin (2.2 vs. 3.8 g/dl in P-FSGS and A-FSGS respectively) were significantly different. 21/22 in P-FSGS and 4/17 in A-FSGS had NS at presentation. Percentage of globally sclerosed glomeruli was less in P-FSGS (2.5 vs. 12.5) with no difference in INFA and arterial changes. Approximately 75% got ACEI/ARB in both groups. 90.4% of P-FSGS and 41% A-FSGS got steroids. There was no difference between steroid and CNI resistance between groups. With a mean follow-up of 16.9 months, 62% in P-FSGS and 44% in A-FSGS had remission. 23.8% in P-FSGS and 25% in A-FSGS had renal function decline while none having remission had ESRD till the last follow-up.

CONCLUSIONS: In the absence of secondary cause of FSGS, NS at presentation has very high chance of primary FSGS. These patients need immunosuppression to achieve remission. Adaptive FSGS does not need immunosuppressive therapy for remission, which can be obtained with symptomatic therapy.

165. OUTCOMES OF ACUTE KIDNEY INJURY AT A TERTIARY CARE HOSPITAL

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BACKGROUND: Acute kidney injury (AKI) is characterized by a rapid decline in the glomerular filtration rate that results in retention of metabolic waste products such as urea and creatinine; dysregulation of fluid, electrolyte, and acid–base homeostasis. It is now known that AKI is an independent factor for chronic kidney disease (CKD) and AKI may cause damage to extrarenal organs as well. Survivors of AKI may have a higher risk of an adverse cardiovascular event.

AIM OF THE STUDY: To study the outcomes of patients admitted with AKI in the nephrology department.

METHODS: This was a prospective study. Data of patients admitted and diagnosed with AKI under nephrology unit 1 were taken. Patients were followed up prospectively to analyze their outcomes.

RESULTS: Of 133 patients, 95 were males and 38 were females. Oliguria was present in 65% of the patients. Sepsis was the most common cause of AKI, present in 54% of the patients. Urinary tract infection was the most common source of sepsis. Dialysis was required by 71% of the patients. 17% of the patients died during hospital admission. 72% of the patients had complete recovery of their renal function. 5% had partial recovery and 6% had no recovery of their renal function.

CONCLUSIONS: AKI had been thought to be reversible. However, a plethora of data indicates that the role of AKI in causing CKD and ESRD may be underestimated. Factors associated with renal recovery or progression are not well understood. AKI may also cause damage to nonrenal organs.

166. SPECTRUM OF NATIVE TRADITIONAL MEDICINE-INDUCED RENAL FAILURE

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BACKGROUND: Traditional medicines even today are widely used in India for various reasons ranging from simple ailments to complex diseases. Easy accessibility, availability, and beliefs drive them to use it first before they turn to modern medicine usually in rural areas. Many of these may contain toxins, heavy metals, and substances which are deleterious to kidneys. Here, we discuss case reports of native medicine intake, resulting in renal failure.

AIM OF THE STUDY: To discuss the spectrum of renal injury occurred secondary to traditional native medication intake.

METHODS: CASE 1: A 46-year-old male patient with no comorbidities presented with high colored urine, pedal edema, and breathlessness of 2-day duration. He had history of skin rashes for which he consumed native treatment in the form of powder, following which he had developed symptoms. He had proteinuria, meth-hemoglobinemia treated with intravenous methylene blue, and acute kidney injury (AKI) requiring hemodialysis (HD) and renal biopsy poststabilization. CASE 2: A 15-year-old boy presented with pedal edema and decreased urine output for a week. He was treated with native medicines in the form of powder for fever and edema following which he

had developed these symptoms and nausea. The patient had renal failure which was treated conservatively and underwent renal biopsy. Toxicology analysis for heavy metals was done.

RESULTS: CASE 1: Patient's urine had 4+ protein, 6 red blood cells, and 4 pus cells. Urine was positive for myoglobin. The patient had AKI with peak creatinine 6.2 mg/dl. Peak CPK was 562 U/L. Meth-hemoglobinemia of 14.5%; G6PD levels were normal. Peripheral smear was suggestive of oxidative hemolysis. He underwent HD and poststabilization; renal biopsy was done which was suggestive of acute tubular injury with pigment nephropathy. He had HD alternate days for 2 weeks following which there was renal recovery and was put on HD spacing with discharge creatinine of 4.6 mg/dl. 2 weeks postfollow–up, his creatinine was 1.7 mg/dl with urine of 2.5 l/day. CASE 2: Patient had subnephrotic proteinuria and renal failure with creatinine of 3.2 mg/dl. Biopsy report was acute tubulointerstitial nephritis. He was managed with oral steroids with good renal recovery of 2 l/day urine output after 7 days. His discharge creatinine was 0.7 mg/dl. Toxicology for heavy metals showed copper, aluminum, chromium, and vanadium in the powder.

CONCLUSIONS: Traditional medicine in our study had copper, chromium, and vanadium whereas other studies had mercury-based metals. Renal injury ranged from acute tubular injury, pigment nephropathy, to acute interstitial nephritis. Awareness regarding risks of native medicine is needed to avoid preventable organ damage.

167. PATTERN AND CLINICAL PROFILE OF NONDIABETIC KIDNEY DISEASE IN DIABETIC PATIENTS

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BACKGROUND: Diabetes is the leading cause of incident end-stage renal disease (ESRD) worldwide. Diabetic kidney disease (DKD) is an important cause of proteinuria and renal failure in diabetic patients. Non-DKD (NDKD) is also common in diabetic patients which may cause renal failure and proteinuria. The exact incidence of NDKD is not known; frequency varies from 5% to 71%, primarily depending on indication of renal biopsy in these patients. There is a paucity of data on NDKD in Indian settings.

AIM OF THE STUDY: To study the pattern and clinical profile of NDKD in diabetic patients in a tertiary care center.

METHODS: This is a retrospective study conducted in the Department of Nephrology and Pathology at our institute. All diabetic patients who underwent renal biopsy at our institute between May 2006 and July 2019 were included in the study. Data were collected regarding demographic details, clinical presentation, duration of diabetes, and other coexisting features including retinopathy. The common indications for renal biopsy in these patients were rapidly progressive renal failure, absence of diabetic retinopathy, presence of hematuria, unexplained renal failure, and concomitant presence of other systemic diseases. Renal biopsy was done at our center and tissues were processed for light microscopy and immunofluorescence in all the biopsies. Statistical analysis was done using SPSS software 25

RESULTS: A total of 327 diabetic patients were included during the study period. The mean age was 49.2 ± 12.37 years (15–81) with 70.9% were males. The median duration of diabetes was 48 months; maximum exposure was 720 months. On evaluation, 75.6% of patients were hypertensive and 24.5% had diabetic retinopathy. Among 327 patients, 33.9% had DKD, 57.5% had NDKD, and 8.6% had features of both on histopathology. Among NDKD, the most common diagnosis was MGN (9.5%), followed by focal segmental glomerulosclerosis (FSGS, 9.2%), IgA nephropathy (7.6%), lupus nephritis (4.6%), nonproliferative glomerulonephritis (GN, 3.7%), pauci-immune crescentic GN (1.8%), minimal change disease (1.5%), acute tubular injury (3%), acute interstitial nephritis (2.7%), acute tubular necrosis (1.8%), and benign nephrosclerosis (1.2%); the rest included cast nephropathy, GDOD, acute cortical necrosis, amyloidosis, acute pyelonephritis, membranoproliferative GN, C3 GN, and chronic GN.

CONCLUSIONS: NDKD is an important cause of kidney disease in diabetic patients in our set-up. Pattern of kidney disease is variable depending on the indication of kidney biopsy.

168. DSA AFFECTS THE LONG-TERM OUTCOMES OF ABO-INCOMPATIBLE TRANSPLANTATION

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BACKGROUND: The significance of pretransplant anti-human leukocyte antigen antibody levels that are detectable by more sensitive platforms (including the Luminex platform) yet undetected by complement-dependent cytotoxicity (CDC) assay remains unclear. Both donor-specific anti-HLA antibody Donor Specific Antibody (DSA) and anti-ABO are the major barriers in kidney transplantation. With the newer treatment regimens and desensitization protocol, long-term outcomes of ABO-incompatible (ABO-I) transplants have significantly improved.

AIM OF THE STUDY: To determine the clinical significance of the donor-specific antibody (DSA) on short- and long-term outcomes of ABO-I renal transplantation.

METHODS: A total of 96 patients from January 2013 to March 2019 who received ABO-I live-related renal transplantation at SGPGIMS, Lucknow, were assessed retrospectively for the presence or absence of pretransplant DSA status, and outcomes of both the groups were compared in terms of patient survival, graft survival, graft function, incidence of rejections, and duration of posttransplant hospital stay. Preconditioning protocol consisted of rituximab, plasmapheresis, and intravenous immunoglobulin, and maintenance immunosuppression consisted of tacrolimus, mycophenolate sodium, and prednisolone. The target anti-ABO titers were kept at <1:8.

RESULTS: A total of 96 patients were retrospectively analyzed. The mean age of the patient was 36.9 years. In 41.7% of the

patients, induction agent used was IL-2 receptor blocker, while in 57.2% of the patients, thymoglobulin was used. 24% of the patients had high titer, with cutoff for high titer being 1/512. Of the 96 patients, statistical significant association was found between DSA positivity and biopsy-proven rejection (BPR); 33.33% (32/96) had pretransplant DSA positivity. BPR was seen in 17.7% (17/96) of the patients, of which 11 patients with BPR had DSA positivity. Thus, DSA positivity significantly predicted the risk of rejection in ABO-I live-related renal transplants.

CONCLUSIONS: Thus, DSA significantly predicted the association of rejection in ABO-I renal-transplantation patients and can significantly predict the use of effective desensitization protocols in preventing rejections and improving long-term outcomes.

169. PREVALENCE OF DEPRESSION AND ITS CORRELATION WITH SERUM IL-6 AND IL-10 LEVELS IN PATIENTS ON MAINTENANCE HEMODIALYSIS

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BACKGROUND: Depression is the most common psychiatric problem in patients with end-stage renal disease (ESRD). It interferes with normal functioning of daily life. It can be explained by the involvement of multiple factors such as loss of renal function, chronic stress due to disease burden, diminution in quality of life, and loss of role in the workplace and the family. The bidirectional link between chronic kidney disease (CKD) and depression can be explained by inflammation. Cytokines play an important role in pathogenesis of depression in CKD.

AIM OF THE STUDY: To assess the prevalence of depression and its correlation with IL-6 and IL-10 in patients on maintenance hemodialysis and to determine the mortality and its correlation between depression, IL-6, and IL-10.

METHODS: This was a hospital-based cross-sectional study conducted between January 2017 and January 2019. Eighty patients with ESRD were included. Socioeconomic class is assessed using modified updated Kuppuswamy Scale which includes occupation, education, and monthly income of the family with scoring system. Depression was assessed using Beck depression inventory scale (BDI). The BDI is a 21-item self-report rating inventory measuring symptoms of depression. Predialysis mid-week blood samples were drawn and analyzed for CRP, IL-6, and IL-10 levels on the same day of assessment of depression. Inclusion criteria: (1) Patients who gave consent and age more than 18 years and (2) Patients with ESRD who are on dialysis for more than 3 months. Exclusion criteria: (1) Patients who refused to give consent and with age less than 18 years, (2) patients with severe mental illness, history of depression, cognitive dysfunction, acute infections, and antidepressants, and (3) patients on maintenance hemodialysis less than 3 months.

RESULTS: Male were 56 (70%) and female were 24 (30%). Mean age was 44.01 ± 13.46 years. 13 (16.3%) patients were illiterate; 39 (48.8%) had primary education; 23 (28.8%) had secondary education. 63 (78%) patients were married; 6 (7.5%) were widow; and 11 (13.8%) were unmarried. Based on modified Kuppuswamy socioeconomic class score, 27 (33.8%) patients were from lower class; 37 (46.3%) were from upper-lower class; 13 (16.3%) were from lower-middle class; and 3 (3.8%) were from upper-middle class. Depression was more prevalent in illiterate and unemployed patients with statistically significant $P < 0.05$. High CRP levels and higher serum IL-6 levels ($P < 0.05$) were seen in depression group. A significant positive correlation observed between BDI and IL-6, $P < 0.05$. On multiple comparison, ANOVA showed significantly higher IL-6 level in patients with mild depression, moderate depression, and severe depression compared to no depression, $P < 0.05$. Mortality was higher in depression, $P < 0.05$.

CONCLUSIONS: The prevalence of depression was 62.5%. Factors associated with depression are low literacy rate, unemployment ($P < 0.05$), high IL-6 levels, and CRP ($P < 0.01$). Mortality was higher in depression group ($P < 0.05$), but on Kaplan–Meier survival plot did not attain statistically significant due to short follow-up.

170. SPECTRUM AND SENSITIVITY PATTERN OF ORGANISMS CAUSING PERITONITIS IN THE PATIENTS ON CONTINUOUS AMBULATORY PERITONEAL DIALYSIS IN A TERTIARY HOSPITAL IN SOUTH INDIA

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BACKGROUND: Peritoneal dialysis (PD) has many advantages over hemodialysis (HD). Peritonitis often becomes a limiting factor in continuation of PD. Peritonitis also contributes significantly to mortality and morbidity in these patients. Many institutes have empirical antibiotics protocol according to prevalent organisms and their sensitivity pattern.

AIM OF THE STUDY: We aimed to study the spectrum of organisms and sensitive antimicrobials in patients having continuous ambulatory PD (CAPD) peritonitis in a tertiary care hospital in South India.

METHODS: This was a retrospective, observational study involving 39 consecutive patients with peritonitis from the last 24 months at NIMS, Hyderabad. Patients' clinical profile and culture and sensitivity reports were noted. Analysis was done to do find the spectrum and sensitivity pattern in the study population.

RESULTS: Thirty-nine patients had peritonitis in the last 2 years. Majority were males 25 (51%). A total of 7 (18%) patients had incipient RRT as CAPD. Of native kidney disease who underwent CAPD, the most common was diabetic nephropathy (17, 43.5%), followed by CIN 9 (23%) and IgA and CGN 4 (10%). Of the study population, 16 (41%) had peritonitis and were culture-negative for bacterial and fungal. 10 (26%) had *Staphylococcus* organism growth (7 were *Staphylococcus epidermidis*). 5 (13%) had *Pseudomonas*. 4 (10%) grew *Escherichia coli*. 4 patients have one each of *Acinetobacter*, *Enterococcus fecalis*, *Zygomycetes*, and *Paceliomycetes*.

CONCLUSIONS: Most of the patients were culture-negative peritonitis which could be probably due to empirical antibiotics given before patient reaches the hospital, and samples for cultures are collected, thus interfering in proper management; thus, this study re-inforces the need of proper sample collection.

171. OSTEOPOROSIS AND RENAL OSTEODYSTROPHY IN HEMODIALYSIS PATIENTS: A DOUBLE WHAMMY

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BACKGROUND: Mineral and bone disease is integral comorbidity in patients with chronic kidney disease and leads to a diverse range of clinical manifestations, including bone pains and fractures. Despite unique pathophysiological states, both osteoporosis and renal osteodystrophy independently increase bone fragility. This presents a diagnostic and therapeutic challenge for treating nephrologists.

AIM OF THE STUDY: To study the coexistence of osteoporosis and renal osteodystrophy in symptomatic hemodialysis patients.

METHODS: Twenty-five patients were enrolled in this multicenter, observational, cross-sectional study with symptoms of intractable bone pains or fractures. All patients underwent a bone turnover panel consisting of bone-specific alkaline phosphatase, procollagen type 1 propeptide, and C terminal telopeptide (CTx), and bone densitometry was done by quantitative computed tomography. The Mann–Whitney test was used to compare two groups and the *Z* value was calculated to derive significance.

RESULTS: Patients were divided into a low- and high-value group, based on iPTH levels (<300 and >300 pg/ml). The two groups were comparable in terms of body mass index and weight but mean age was slightly higher (68.25 ± 12.49) in the first group compared to the second group (57.33 ± 3.4). Patients in both groups were at high risk for hip fracture with a mean T score > -3. However, those in the high PTH group had a significantly lower spine bone mineral density (84.045 ± 52.42), indicating a much higher risk for vertebral fracture ($P = 0.017$). Hyperparathyroidism by virtue of increased bone resorption as compared to bone formation (as evidenced by the significantly higher CTx value; $P = 0.014$) has a high predilection for weakening cancellous bone, especially in the spine.

CONCLUSIONS: Monitoring bone health in dialysis patients is a necessity. Timely diagnosis of severe osteoporosis and its treatment in context to the associated renal osteodystrophy can reduce morbidity from this condition.

172. OBSTRUCTIVE SLEEP APNEA IN THE RENAL CLINIC

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BACKGROUND: A bidirectional relationship exists between obstructive sleep apnea (OSA) and chronic kidney disease (CKD). Despite being different disease entities, both OSA and CKD share common risk factors and pathophysiological mechanisms. Risk factors include diabetes, hypertension, and obesity. OSA can result in resistant hypertension and uncontrolled diabetes and hasten the progression of the CKD disease process.

AIM OF THE STUDY: To study OSA and patient characteristics in CKD population.

METHODS: We performed a multicenter, observational, cross-sectional study enrolling total of 50 patients with CKD aged >18 years excluding patients on dialysis. Patients were screened when suspected to have OSA using the "STOP BANG" questionnaire. Patients with intermediate and high risk for OSA were analyzed in terms of patient characteristics, comorbidities, and renal function.

RESULTS: There were 25 patients each in male and female groups. Females had significantly higher body mass index compared to males (34.4 ± 4.83; 30.77 ± 5.27; $P = 0.01$) with no significant difference in age, estimated glomerular filtration rate (eGFR), and severity of OSA. Hypertension and diabetes were found in 84% and 62% patients of total patients. Diabetic patients with OSA had a significantly lower eGFR compared to nondiabetic patients with OSA (36.49 ± 19.96; 49.92 ± 25.13; $P = 0.04$) with no significant difference in severity of OSA. Hypertensive patients with OSA had a significantly lower eGFR compared to nonhypertensive patients with OSA (32.52 ± 5.18; 53.84 ± 27.08; $P = 0.0001$) with no significant difference in severity of OSA. A weak yet negative correlation was observed between severity of OSA and eGFR ($r = -0.19$ and $P = 0.41$).

CONCLUSIONS: OSA is not uncommon condition in CKD population. It is necessary to suspect OSA, particularly in the presence of diabetes and hypertension. Timely intervention to address may help to optimize blood pressure and glycemic control and perhaps reduce the slope of CKD progression.

173. CLINICAL PROFILE OF PIGMENT NEPHROPATHY

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BACKGROUND: Rhabdomyolysis and hemolysis-induced pigment nephropathy is a common cause of renal failure. We intend to study the etiology, laboratory parameters, and outcome of biopsy-proven cases of pigment nephropathy.

AIM OF THE STUDY: To study the etiology, laboratory parameters, and outcome of biopsy-proven cases of pigment nephropathy.

METHODS: A retrospective observational study was conducted in the Department of Nephrology, Nizam's Institute, Hyderabad.

Data were collected from the records of patients who had biopsy-proven pigment nephropathy from 2017 to 2019. Data were entered into Excel sheet and analyzed using SPSS version 19.

RESULTS: A total of eight patients were included in the study. Mean age was 41.75 years. Four patients (50%) had oliguria. Mean serum creatinine at presentation and peak creatinine was 5.6 mg/dl and 7.1 mg/dl, respectively. Evidence of rhabdomyolysis was noted in 4 patients (50%) and hemolysis in 4 patients (50%). Etiology of rhabdomyolysis includes mitochondrial myopathy (1), statin-induced myopathy (1), leptospirosis (1), and viral fever (1). The causes of hemolysis include paroxysmal nocturnal hemoglobinuria (2), hemolytic anemia (1), and malaria (1). On renal biopsy, all patients had pigment nephropathy; in addition, two patients had acute interstitial nephritis, and one patient had ATN. 6 (75%) of patients required hemodialysis (HD) sessions. On statistical analysis, there was no difference between acute kidney injury due to rhabdomyolysis and hemolysis except for high creatine phosphokinase in patients with rhabdomyolysis and lactate dehydrogenase level in patients with hemolysis.

CONCLUSIONS: Pigment nephropathy due to rhabdomyolysis and hemolysis is an important cause of renal failure requiring HD. The prognosis was relatively good and depended on the etiology; however, long-term studies and follow-up are needed to assess the true incidence of chronic kidney disease due to pigment nephropathy.

174. GRAFT DYSFUNCTION BIOPSIES IN POSTRENAL TRANSPLANTATION

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BACKGROUND: The success rate of renal transplantation has increased significantly due to the standardized procedure, novel immunosuppressor, and improved management of the perioperative period. It is reported that allograft biopsy played an important role in early predicting rejection and guiding treatment, which promoted the long-term survival rate of grafts.

AIM OF THE STUDY: The aim of this study is to investigate the graft dysfunction following kidney transplantation (both deceased donor and live transplantation) and to assess the etiology.

METHODS: We retrospectively analyzed a series of 130 (living + deceased donor) kidney transplantation from January 2010 to April 2019 at our center. All biopsies were evaluated and analyzed who had developed renal dysfunction following the renal transplantation. The classifications and diagnosis were performed based on clinicopathological characteristics along with the biopsy following the renal transplantation.

RESULTS: Acute rejection occurred in 20 cases (15.0%); chronic rejection occurred in 16 cases (12.3%); borderline rejection occurred in 5 cases (3.8%); and calcineurin inhibitor toxicity damage occurred in 12 cases (9.23%). Patients with antibody-mediated rejection had poor prognosis when compared with that of those with acute cellular rejection. Majority of the patients with acute tubular injury were recovered. About 10 cases (7.6%) had graft pyelonephritis. 4 (3.07%) cases had drug-induced thrombotic microangiopathy.

CONCLUSIONS: Hence, biopsy promotes the detection rate of the causes of graft dysfunction. Early and aggressive treatment could be provided to improve the prognosis.

175. DIAGNOSTIC EFFICACY OF BIOMARKERS TO EVALUATE PROGNOSIS OF CONTRAST-INDUCED ACUTE KIDNEY INJURY

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BACKGROUND: By assessing biomarkers, it has been found that the patients are at risk of developing contrast-induced nephropathy (CIN) after exposure to contrast during percutaneous coronary and peripheral intervention and CIN.

AIM OF THE STUDY: To evaluate the incidence, prognosis, and risk factor of CIN in patients undergoing coronary and peripheral interventions and to compare the biomarkers of acute kidney injury (AKI – SCr and SCysC).

METHODS: A total of 100 patients were selected for primary coronary angioplasty between February 2015 and January 2016. Of 100 patients, 95 patients were evaluated for the development of CIN. SCr value was checked on day-1 (baseline) and after 24 h (day-2) and 48 h (day-3). SCysC value was also estimated on day-1 (baseline) and after 24 h (day-2). The patients were grouped into CIN and non-CIN according to diagnostic criteria of CIN. These groups were again divided into male, female, and combination of them. Statistical analysis was done in all groups.

RESULTS: The prospective study revealed that day-1 SCr values were significantly ($P < 0.01$) higher in combined and male patients; however, in females, no significant difference was observed for the CIN group compared with non-CIN group. The significantly increased values were also observed in both combined ($P < 0.001$) and males ($P < 0.01$) for day-2 and day-3 when compared between CIN and non-CIN groups. However, for female patients, only significant difference ($P < 0.05$) was found for day-3 SCr. Another marker SCysC was also increased without statistical significant values in CIN groups after 24-h duration, when compared to day-1. However, in non-CIN groups, SCysC was found in decreasing trend with statistically significant ($P < 0.001$, $P < 0.001$, and $P < 0.05$) for all groups in comparison with day-1. For diagnostic accuracy in relation to SCr and SCysC, it was observed that 78.95%, 81.71%, and 61.54% for combined, males, and females, respectively.

CONCLUSIONS: The novel biomarker SCysC can be a suitable diagnostic tool to predict the occurrence at early stage (24-h duration) of CIN. The present results revealed that SCysC was decreased indicating renal function improvement after intravenous fluid therapy.

176. PECULIAR ACRAL MELANOSIS AFTER CYCLOPHOSPHAMIDE THERAPY IN A CASE OF MEMBRANOUS NEPHROPATHY: A RARE PRESENTATION

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BACKGROUND: Endoxan therapy as a part of modified Ponticelli regimen widely used for treating primary membranous nephropathy rarely causes cutaneous side effects like acral melanosis. We report a case of a 47–year-old female diagnosed as membranous nephropathy with tissue PLA2R(+) on modified Ponticelli regimen, who developed peculiar acral melanosis. Recognition of this type of presentation as an adverse effect of drug therapy has not been reported so far in any of the Indian studies to date.

AIM OF THE STUDY: This was a case report of an unusual adverse event of acral melanosis following modified Ponticelli regimen (endoxan therapy) in a patient of primary membranous nephropathy (PLA2R+).

METHODS: After informed written consent of the patient, her detailed clinical history was recorded and physical examination was undertaken. Laboratory investigations including urine and blood investigations were performed. Imaging (AV Doppler) to rule out evidence of thrombi/peripheral vascular disease was done. Two-dimensional ECHO was recorded. Rheumatologist opinion was sought regarding acral hyperpigmentation.

RESULTS: In our patient, a diffuse pattern of acquired acral hyperpigmentation following cyclophosphamide therapy with cytopenia in the background of membranous nephropathy; a detailed evaluation for autoimmune association or Raynaud's phenomenon was performed. However, there was no evidence of inflammatory/autoimmune features/nutritional deficiencies/gastrointestinal involvement which could be attributed to acral hyperpigmentation. Therefore, a provisional diagnosis of acral melanosis due to dose-dependent effects of endoxan therapy used as a part of modified Ponticelli regimen was considered which improved on dose reduction of endoxan on subsequent follow-up. Hence, the final diagnosis of endoxan-induced acral melanosis was established.

CONCLUSIONS: The caveats in the diagnosis of acral melanosis due to endoxan therapy are its rare occurrence. There are only 10%–20% cases of drug-induced (acquired) acral pigmentation reported worldwide; however, a case report with the use of endoxan in modified Ponticelli regimen is yet to be reported.

177. A RARE CASE OF EKBOM'S SYNDROME IN A PATIENT WITH CHRONIC KIDNEY DISEASE TREATED WITH HEMODIALYSIS AND OLANZAPINE

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BACKGROUND: Ekbom syndrome better known as delusional parasitosis (DP) is a rare psychiatric disorder that is characterized by the persistent and unshakable belief of being infested with small living organisms. It is a primary psychotic disorder or a secondary disorder induced by a wide range of very different medical conditions. This disease is seen with other psychiatry disorders such as mania and depression and other medical illnesses such as arteriosclerosis, diabetes mellitus, and occasionally renal failure.

AIM OF THE STUDY: We report a rare case of Ekbom syndrome in a patient with end-stage renal disease.

METHODS: A 42-year-old male patient known to have chronic kidney disease for 1 year, lost to follow-up, now presented with bilateral pedal edema, severe pruritis, and excoriations over the face, trunk, and extremities. He believed that his body was infested with parasites and could see them crawling and biting him. He had these complaints for 1 month for which he had consulted multiple dermatologists and was given a wide range of oral and topical medications. There was no positive history to suggest depression or other psychiatric illness. There was no history of alcohol consumption or drug abuse. His creatinine at presentation was 16 mg/dl. Hemogram, liver function tests, electrolytes, thyroid-stimulating hormone, and intact parathyroid levels were all normal. A diagnosis of end-stage renal disease with DP was made. He was counseled and started on hemodialysis (HD) and olanzapine. Following this, he made a complete recovery and is presently on intermittent HD. Skin biopsy was normal.

RESULTS: The case described above is a secondary form of Ekbom's syndrome or DP. DP is characterized by the patient's belief that their skin and other body areas are infested by small pathogens; associated with a series of abnormal body sensations. We believe the patient had these delusions secondary to uremia as he had a recurrence of these symptoms when HD was stopped even though olanzapine was continued. Furthermore, there was recovery when HD was reinitiated. Patients with DP have normal skin histology, however; secondary lesions may be evident owing to rubbing, scratching, and picking. Excessive scratching to remove these organisms can lead to lichenification, excoriations, ecthymatous changes, bruising, traumatic alopecia, contact dermatitis, and scarring. As this a skin disfiguring disease, it can lead to low self-esteem, depression, and anxiety, thus further reducing the quality of life, especially in patients with comorbid diseases like end-stage renal disease.

CONCLUSIONS: DP is a rare psychiatric disorder seen with chronic kidney disease which if missed leads to significant morbidity.

178. TO COMPARE THE OUTCOMES OF EXCHANGE OF NONTUNNELED TO TUNNELED HEMODIALYSIS CATHETERS WITH DE NOVO TUNNELED CATHETER PLACEMENT: A PROSPECTIVE STUDY

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BACKGROUND: Shifting from a temporary to a tunneled hemodialysis catheter is done either by removing the old catheter and placing a new tunneled catheter via fresh new puncture site or by replacing the old catheter with a tunneled catheter over a guidewire. *De novo* placement is the ideal technique but is often associated with loss of vein patency after removal of temporary catheters and the subsequent need to use new veins.

AIM OF THE STUDY: To compare the outcomes of exchange of temporary to tunneled hemodialysis catheters with *de novo* tunneled catheter placement: a randomized controlled study.

METHODS: A prospective observational study was conducted in AIIMS, New Delhi, in which all patients with tunneled hemodialysis catheters inserted were included over a 1-year period. They were divided into two groups – patients who had *de novo* placement of tunneled hemodialysis catheters (control group) and patients who underwent conversion of nontunneled to tunneled catheters (study group). The catheter course or the period of the catheter was observed for any complications. The initial details of catheter insertion, insertion problems, outcomes including infection, or catheter dysfunction were compared between the two groups.

RESULTS: A total of 102 tunneled hemodialysis catheters were inserted among which the control group had 58 catheters and study group had 44 catheters. The technical success rate was 55 (94.6%) in control group and 42 (95.5%) in control group. 61 (45%) insertions were in the right internal jugular; 32 (31.3%) in the left internal jugular. The most common complication encountered in both the groups was infection in 22 (21.5%) cases (2.45/1000 catheter-days), followed by catheter dysfunction in 9 (8.8%) (1.1/1000 catheter-days). Infection rates were 11 (25%) in the study group and 11 (18.9%) in the control group, which was not statistically significant. Catheter dysfunction was seen in 5 (11%) in the study group and 4 (6.8%) in the control group. Infection or complication-free survival was not statistically different between the two groups. The time spent with nontunneled catheter before conversion did not significantly alter the rates of catheter dysfunction and infection in the groups.

CONCLUSIONS: The efficacy, complications, and outcomes of exchange of nontunneled to tunneled hemodialysis catheters are comparable to *de novo* placement, with no difference in the rates of technical success, infection, or catheter dysfunction.

179. STUDY OF DYSLIPIDEMIAS IN PATIENTS ON MAINTENANCE HEMODIALYSIS AND CORRELATION WITH C-REACTIVE PROTEIN LEVELS, INTERLEUKIN-6, ATHEROSCLEROTIC CARDIOVASCULAR DISEASE RISK, AND MORTALITY

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BACKGROUND: Dyslipidemia is a very common complication of chronic kidney disease (CKD). Increased serum C-reactive protein (CRP) levels and increased levels of interleukin (IL)-6 are associated with increased dialysis mortality. Dyslipidemia in maintenance hemodialysis (MHD) patients and correlation with CRP levels, IL-6 levels, and atherosclerotic cardiovascular disease (ASCVD) risk which estimates 10-year and lifetime ASCVD risk need to be studied.

AIM OF THE STUDY: Study of dyslipidemias in patients on MHD and correlation with CRP levels, IL-6 levels, ASCVD risk, and mortality.

METHODS: This was a prospective observational study. Duration of the study is 2 years. Inclusion criteria: Patients on MHD in our center for more than 6 months and who have given consent. Exclusion criteria: Patients who are on hemodialysis for less than 6 months, patients who are having cardiovascular disease, and patients who are lost to follow-up and who did not give consent. The study comprised 150 patients with CKD on MHD. All patients are interviewed using an uniform pro forma containing information on age, gender, and risk factors, including diabetes, hypertension (HTN), smoking, and cardiac disease. Data regarding treatment for diabetes, HTN, and vintage of dialysis were collected. Complete blood picture, blood urea, serum creatinine, electrolytes, lipid profile, CRP levels, IL-6 levels, electrocardiography, 2D ECHO, and other investigations were collected as required.

RESULTS: In the present study of 150 CKD patients on MHD, 99 patients are included in the study. Males are 69 (69.7%) and females are 30 (30.3%). Mean age of the study group is 45.18 ± 12.7 years. Mean age of males is 46.13 ± 12.79 years and of females is 43.00 ± 12.42 years. HTN is seen in 93 patients (93.93%) and diabetes in 15 patients (15.15%). HTN is more in males when compared to females, which is statistically significant, $P < 0.05$. 45.45% patients have hypocholesterolemia while 2.02% patients have hypercholesterolemia. 10.1% patients have hypotriglyceridemia while 26.26% have hypertriglyceridemia. 49.49% patients have low high-density lipoprotein (HDL) levels. 22.22% of patients have low low-density lipoprotein (LDL) levels and 31.31% have high LDL levels. CRP was significantly more in patients who had less HDL compared to patients who had HDL >30. Significantly higher CRP levels were observed in patients who died compared to patients who were alive, $P < 0.05$.

CONCLUSIONS: 45.45% of patients had hypocholesterolemia while 49.49% of patients had low HDL levels. CRP levels >6 mg/l are more in patients with low HDL levels (<30 mg/dl). Higher CRP levels >6 mg/dl are observed in patients who died compared to patients who are alive.

180. A STUDY OF POSTHEMODIALYSIS PROLONGED BLEEDING IN ARTERIOVENOUS FISTULA AND GRAFT: A STUDY OF 38 PATIENTS

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BACKGROUND: Prolonged bleeding through arteriovenous (AV) fistula or graft postdialysis is a less addressed issue. At times, it can be life-threatening if not attended immediately. Fewer cases are reported underestimating the actual incidence. Factors responsible are use of anticoagulants, single or dual antiplatelets, aneurysms, stenosis, infection, etc. A routine

examination with inspection, palpation, and auscultation may aid in diagnosis of aneurysms and stenosis.

AIM OF THE STUDY: To evaluate the factors responsible for posthemodialysis prolonged bleeding through AV fistula or graft puncture site.

METHODS: It was a retrospective observational study done at our institute between June 1, 2018, and May 30, 2019. 38 patients out of 135 hemodialysis patients with either fistula or graft had prolonged bleeding. Data pertaining to demographics, biochemistry, anticoagulation, fistula or graft intervention, nature of bandage used, duration of AV access, etc., were collected.

RESULTS: Total patients with fistula or graft were 135. Of the total 38 patients studied, graft 4 AV fistula 34. Of total 22 patients on antiplatelets, patients on dual antiplatelets 5, Patients on antiplatelet and anticoagulation 1, brachial AV fistula/graft 17, radial fistula 21.

CONCLUSIONS: It is appreciable to have an ongoing program for vascular access monitoring and surveillance for early detection of failure and allow timely referral of patients for intervention. Patients on dual antiplatelets and anticoagulants will require added attention and planning in dialysis unit.

181. CLINICAL PROFILE AND SHORT-TERM OUTCOMES OF ACUTE KIDNEY INJURY IN PATIENTS WITH PREECLAMPSIA AND ECLAPMSIA

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BACKGROUND: Acute kidney injury (AKI) is rare in women during pregnancy and puerperium. Although sepsis remains the predominant cause of AKI in pregnancy in developing countries, preeclampsia and eclampsia are the important causes and can be life-threatening.

AIM OF THE STUDY: To study the clinical characteristics of patients presenting with preeclampsia/eclampsia and AKI and maternal/fetal outcomes at 12 weeks' postpartum.

METHODS: This was a prospective study of patients admitted with preeclampsia or eclampsia and AKI in Gauhati Medical College Hospital from June 2018 to June 2019. Clinical profiles and outcome data were recorded. Criteria for diagnosis of AKI in pregnant women (any one of the three): (1) sudden increase in serum creatinine >1 mg/dl; (2) oliguria/anuria >12-h duration; and (3) need for dialysis.

RESULTS: A total of 26 cases were recorded. The median maternal age at delivery was 27 years. At least one recorded preexisting medical condition, including hypertension, diabetes mellitus, or chronic kidney disease was present in 5 cases (19.2%). Cesarean section was performed in 9 cases (34.6%). Twenty-two patients (84.6%) developed AKI in the third trimester and 4 (15.4%) within 12 weeks' postpartum. Four patients (15.4%) were treated with dialysis. Three women (11.5%) died, and 2 (7.7%) remained dialysis-dependent 12 weeks after delivery. Low birth weight (<2500 g), small for gestational age, or preterm birth (<37 weeks' gestation) occurred in eight pregnancies (30.7%). There were 2 (7.7%) neonatal deaths. AKI occurring before 34 weeks of gestation had worse fetal outcomes as compared to those after 34 weeks ($P < 0.01$).

CONCLUSIONS: AKI in pregnancies with preeclampsia or eclampsia can not only lead to maternal mortality and morbidity but also lead to poor perinatal outcomes. Preeclampsia or eclampsia presenting with AKI early during gestation had worse fetal outcomes.

182. PROFILE OF HEPATITIS C VIRUS-POSITIVE END-STAGE RENAL DISEASE PATIENTS ON MAINTAINANCE HEMODIALYSIS IN A SOUTH INDIAN CENTER

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BACKGROUND: Hepatitis C virus (HCV) infection is highly prevalent among patients treated with maintenance hemodialysis (HD) and is an important cause of morbidity and mortality. At present, no effective vaccine against HCV is available. Quarterly assessment of viral serology is recommended for all chronic kidney disease (CKD) patients on maintenance dialysis. We studied the clinical profile of hepatitis C infection in end-stage renal disease (ESRD) patients on maintenance HD in our hospital.

AIM OF THE STUDY: To study the clinical profile of hepatitis C infection in ESRD patients on maintenance HD.

METHODS: Data on HCV infection in patients undergoing HD was collected. A total of 208 patients were included in the study. There were 139 males and 69 females, with a median age of 50 years. Patients were examined for a history of hepatitis, blood transfusions, hepatotoxic drug intake, hepatitis B vaccination, as well as the results of monthly ALT activity, and quarterly testing for anti-HCV status. Those who tested positive for anti-HCV were dialyzed on separate machines.

RESULTS: At the end of the study, 22 of the 208 patients (10.5%) were found to be anti-HCV positive. The prevalence of anti-HCV was also higher in patients who received blood transfusions.17 (75%) patients completed treatment and are in sustained virological remission.

CONCLUSIONS: HCV infection is common in patients undergoing HD. Improvement in screening assays, isolation of anti-HCV-positive patients during dialysis, and limitation of blood transfusions may decrease the transmission. Although no effective vaccine is currently available, highly effective treatment is in vogue.

183. IDENTIFICATION OF RENAL–NEURO AXIS IMMUNE INTERACTIONS AND PATHWAYS INVOLVED IN ACUTE KIDNEY INJURY

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BACKGROUND: Acute kidney injury (AKI), a heterogeneous clinical syndrome, is associated with inflammatory cascade, neuroinflammation, and enecelopathic abnormalities, which gradually lead to stress, apoptosis, hormonal changes, pain, and intonation in the nervous system. Cytokines and neuromolecules such TNF-α and CGR represent ideal candidates for understanding renal–neuro–immune axis. Together with these molecules, other possible genes that may facilitate such an axis may provide novel pathways in our understanding of AKI.

AIM OF THE STUDY: To establish the role of reno–neural axis in the pathogenesis of AKI through CGRP, TNF-α, TRPV1, CRLR, and PTGER4.

METHODS: The *in vitro* study was performed on male Balb/c mice by inducing AKI through the intraperitoneal injection of folic acid (250 mg/kg). The expression level analysis of CGRP and TNF-alpha, as well as their common interactors, i.e., CRLR, TRPV1, and PTGER4 genes, was performed by quantitative real-time PCR analysis in kidney and brain tissues. The immunohistological changes for TNF-α and CGRP were observed in kidney as well as brain. The BBB permeability was tested by Evans blue dye.

RESULTS: The mRNA expression by qPCR suggested modulatory expressions of CGRP, TNF, TRPV1, CRLR, and PTGER4, with progression of injury in kidney and brain tissues. The BBB was found permeable with progression of injury. The variation was also reflected in a similar pattern by immunohistology and ELISA.

CONCLUSIONS: This study reveals the modulation of inflammatory and pain molecules in kidney and brain tissues. It reveals the encelopathic changes in the brain and unveils the route of the communication between CGRP and TNF on reno–neuro–immune axis.

184. ADULT NEPHROTIC SYNDROME

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BACKGROUND: Adult nephrotic syndrome is a fairly common clinical entity with varied treatment responsiveness in different individuals. Even in the same geographical area with same histological diagnosis outcomes different.

AIM OF THE STUDY: To evaluate the different forms of adult nephrotic syndrome in a tertiary care center and to analyze the various outcomes and treatment responsiveness in different treatment modalities.

METHODS: This was a single-center prospective and observational study where patients were evaluated with thorough clinical history and biochemical tests including renal biopsy. The patients were followed at regular intervals of 1, 3, and 6 months and end of the year. Individuals were excluded if <18 years and having incidences of relapse. All they are treated as per current standard guidelines. Outcomes were studied such as steroid resistance, steroid dependent, and frequent relapse. Drug toxicity, infection rate, and other complications also were studied and treated accordingly.

RESULTS: Thirty new patients were enrolled who are diagnosed for first-time adult nephrotic syndrome with a mean age of 23.6 ± 5.20 years and among them 9 (30.0%) were females. About 2 (6.7%) patients had RPD and 16 (53.3%) had FSGS; 1 (3.3%) had IgA; 10 (33.3%) had MCD and 3 (10.0%) had MGN. Initial steroid sensitive was 26 (86.7%); 10 (33.3%) patients were found to be steroid dependent. About 4 (13.3%) were steroid resistant. The mean baseline serum creatinine was 1.5267 ± 1.4307 mg. The mean baseline 24-h urine protein of patients was 1926.03 ± 813.88. The mean baseline triglyceride was 289.5333 ± 126.53 mg/dL. Among drugs toxicities, 2 (6.7%) were cyclosporine related, 2 (6.7%) patients were MMF related, 4 (13.3%) tacrolimus related, and 10 (33.3%) steroid related. In steroid side effects, 4 (13.3%) had facial puffiness, 3 (10.0%) had hypertension, and 2 (6.7%) had hyperglycemia. In extended follow-up, 2 (6.7%) patients had complicated urinary tract infection and 2 (6.7%) had pustular psoriasis.

CONCLUSIONS: Adult nephrotic syndrome is common, and spectrums are also wide. The treatment responsiveness in different nephrotic syndromes with different protocols is also different with varied toxicity.

185. HEMOLYTIC–UREMIC SYNDROME SPECTRUM IN SNAKEBITE-INDUCED ACUTE KIDNEY INJURY: A REVIEW

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BACKGROUND: Thrombotic microangiopathies (TMAs)-associated hemolytic–uremic syndrome (HUS) is a clinical condition characterized by the triad of acute renal failure, thrombocytopenia, and hemolytic anemia. Association of HUS with Russell's viper venom (RVV)-induced acute kidney injury (SAKI) is rarely reported. RVV contains a number of active substances that can induce bleeding leading to severe hemolytic anemia and HUS and ultimately to SAKI.

AIM OF THE STUDY: The aim of this study is to review the incidence and association of HUS with SAKI in clinical patients.

METHODS: Electronic literature review and hand search bibliographies of all the relevant systematic reviews and narrative reviews were done. The Google and PubMed were searched from their inceptions with search terms "HUS," "AKI," "Snake bite," "TMA-HUS," "Snake bite and AKI," "HUS-AKI," "HUS-Snake venom induced AKI." Papers on clinical case reports were focused. Although the focus was on papers published in the past 5 years; frequently referenced and highly respected older publications are also included.

RESULTS: From the literature survey, it was found that HUS is an unusual cause of AKI following Russell's viper snake envenomation. Patients with HUS following SAKI had advanced azotemia with higher range of serum creatinine. Renal replacement therapy was

needed in HUS-associated SAKI patients. Intravascular hemolysis in the form of anemia, jaundice, raised plasma free hemoglobin, abnormal peripheral blood smear (presence of fragmented erythrocytes), and hemoglobinuria is present in about 50% of patients following bites by Russell's viper. Significant alterations in hematological parameters such as total hemoglobin; platelet count, leukocyte count, bilirubin, LDH, serum haptoglobin levels and presence of schistocytes in the peripheral blood smear; normal levels of prothrombin time and activated partial thromboplastin time were evident in the SAKI patients.

CONCLUSIONS: From various case reports on RVV-induced AKI it can be concluded that there is an association between intravascular hemolysis in SAKI, suggesting a condition more like HUS. However, there are controversies regarding classification of SAKI as HUS due to the absence of strong evidence.

186. RITUXIMAB IN GLOMERULAR DISEASES

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BACKGROUND: Idiopathic nephrotic syndrome is the most common chronic glomerular disease in children. Approximately 1%–3% of children with idiopathic nephrotic syndrome are resistant to steroids and all immunosuppressive agents; a condition defined as refractory steroid-resistant nephrotic syndrome (SRNS); these SRNS children have a high risk of end-stage renal failure.

AIM OF THE STUDY: To evaluate the efficacy of rituximab in glomerular diseases, to evaluate response of rituximab by complete or partial remission, and to look for safety of rituximab.

METHODS: Type of study: A rospective study. Statistics: Assuming 95% confidence interval (CI); 35%, prevalence of nonresponse to rituximab and expected change is 15%; using the formula: N = z2Pq/d2 (P = prevalence; z = 95% CI; q = 1 − p; d = change); the required sample is 33. The patients included in the study will be given the dosage of rituximab as per body surface area (BSA), i. .; 375 mg/m^2, two to four doses and followed up for 12 months. Inclusion criteria: Patients of all age groups are included in the study. Patients with nephrotic syndrome who had received a trial of steroids, alkylating agents and at least 6 months therapy of calcineurin inhibitor had received the novel drug Rituximab. Exclusion criteria: patients with active focus of infection (acute/chronic), serological evidence of current or past HIV/hepatitis B/hepatitis C infection, known allergic reaction to rituximab, and patients/parents not willing to give informed consent.

RESULTS: Of 29 patients, 16 were male and 13 were female; 14 cases were minimal change disease (MCD), 14 cases were FSGS, 1 patient had mesangial hypercellularity. 18 cases were SRNS of which 9 had complete remission after rituximab. SDNS cases 6/11 had complete remission. 2 adult patients with refractory lupus nephritis had complete remission and 1 case of membranous nephropathy received 4 doses of rituximab but had no response. 1 case of atypical HUS recevied 1 dose of rituximab and acheived complete remission.

CONCLUSIONS: This study confirms the efficacy of rituximab Remission was achieved in 50.0% patients with SRNS and 72.72% patients achieved remission in patients with steroid-dependent nephrotic syndrome. There was a trend toward better response rates in patients with steroid-resistant MCD (83.3%) compared with FSGS (45.45%).

187. VIPER VENOM-INDUCED EXPERIMENTAL MURINE MODEL OF NEPHROTOXICITY AND ITS LONG-TERM OUTCOME

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BACKGROUND: Snakebite-induced acute kidney injury (SAKI) is a clinical burden in tropical countries. Recent studies reported that about one-third of the SAKI patients develop chronic kidney disease over 1-year period of envenomation. Despite this, the underlying molecular mechanism of venom-induced long-term renal consequences is still not properly delineated.

AIM OF THE STUDY: The aim of the present study is to investigate the long-term consequences of viper venom-induced nephrotoxicity in experimental murine model.

METHODS: Adult male Swiss albino mice were divided into four groups (for each group; n = 6). Control group received intramuscular (i.m) normal saline injection. Animals of venom-treated group received single i.m. injection of sublethal dose of Russell's viper venom (RVV) and sacrificed at 3, 7, and 30 days postenvenomation. Plasma and urinary creatinine and urinary microprotein were measured to confirm the renal functional status. Plasma CRP, renal TNF-α, and IFN-γ levels were measured to assess the inflammatory status of the studied groups. Total collagen content of the kidney was measured by hydroxyproline assay. Renal histopathology was done with eosin-hematoxylin and picrosirius red staining. Immunohistochemical study was performed with anti-TGF-β, CTGF, β-catenin, wnt-3, MMP-9, MMP-2, and collagen-I antibody. One-way ANOVA followed by Tukey *post hoc* analysis was carried out to check any significant variation among the studied group and a two-tail $P < 0.05$ was considered statistically significant.

RESULTS: It was found that RVV=treated animals showed significantly elevated plasma creatinine and urinary microprotein and reduced urinary creatinine concentration. A significant increase in inflammatory markers was also noted in venom treated groups compared to control at all studied time points. 3 days and 30 days, but not 7 days postenvenomation group of animals showed a significantly elevated total collagen content in kidneys compared to that of control. Immunohistochemical analysis showed elevated renal expression of TGF-β, CTGF, β-catenin, MMP-9, MMP-2, and collagen-I among the venom-treated group. However, the expression of wnt-3 was not altered significantly among the groups.

CONCLUSIONS: From the present study, it can be concluded that RVV-induced acute kidney injury may proceed towards renal fibrosis, possibly by persistently elevated inflammation and profibrotic factors.

188. KIDNEY TRANSPLANT: IMPROVING OUTCOMES

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BACKGROUND: Renal transplantation is the modality of the choice for the management of children with end-stage renal disease. It offers better quality of life, though associated with risk of rejection and infection.

AIM OF THE STUDY: (1) To study the outcome of pediatric renal transplant at Fortis Hospitals over the last 12 years; (2) To evaluate incidence of infection and rejection in these patients.

METHODS: This is a retrospective review of patients ≤18 years of age who underwent renal transplant at Fortis Hospitals, India, from 2006 to 2018. The study group comprised a total 120 children who underwent renal transplant between 2006 and 2018 at Fortis Hospitals. The immunosuppression protocol consisted of induction by either basiliximab or ATG, followed by maintenance immunosuppression with tacrolimus, mycophenolate, and steroids. Data on age, sex, use of immunosuppression, and incidence of infection and rejection were collected. Percentage, range, and median were used to represent the data.

RESULTS: The study group comprised 120 children, with a median age of 14 years (3–18 years). There were 85 boys and 35 girls. 17 patients received no induction. Median creatinine at the time of discharge was 0.74 mg/dl (0.3–1.6 mg/dl). The median duration of follow-up was 60 months (1–156 months). In our cohort; patient survival rate was 98.3% and graft survival rate was 95.8%. 18 patients had infections - Urinary tract infection (8), CMV infections (7), BK virus infection (2), tuberculosis (1), varicella (1), cryptosporidium diarrhea (1), and fungal infection (1). Rate of rejection was 13.3%. Two patients had graft loss in the early postoperative period; one secondary to renal vein thrombosis and other due to BK virus infection/acute tubular necrosis. Five patients lost the graft over the next 12 years due to noncompliance with medications (4) and recurrence of FSGS (1). Two patients died with functioning graft.

CONCLUSIONS: With advances in immunosuppression, rejection rate and graft survival have improved dramatically over the last decade. Compliance with medications and regular follow-up are the major contributors for satisfactory long-term outcomes.

189. ROLE OF RITUXIMAB IN GLOMERULAR DISEASES

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BACKGROUND: Patients with glomerular diseases treated with steroids and immunosuppressants such as CNIs, cyclophosphamide, and MMF. Some patients may exhibit steroid resistance and steroid dependence, despite combined use with immunosuppressants Prone to severe steroid toxicity. Even immunosuppressant drugs also have significant adverse effects. Hence, a paradigm shift from toxic "nonspecific" therapies to selective immunomodulating regimens is necessary for glomerular diseases.

AIM OF THE STUDY: To assess the efficacy/role of rituximab in glomerular diseases.

METHODS: This was a prospective study including glomerular disease patients who were dependent/resistant/contraindicated to conventional treatment. Patients with active/recent history of infection were excluded. 1–4 doses of rituximab 375 mg/m^2 (IV infusion over 4–5 h with premedication) as per clinical and serological parameters followed by tapering of immunosuppressant drugs. As per the response, further treatment plan tapering of existing immunosuppression; decision regarding further doses of rituximab were taken.

RESULTS: Patients included in study were 20. Mean age was 26.05 + 18.39 years; Males were 14 (70%); females were 6 (30%). Mean proteinuria at presentation: 3.988 g/day. biopsy suggestive of MN = 8; MCD = 6; FSGS = 3; LN = 3. 90% of patients were previously treated with steroids or other imunosuppressant drugs. MN group (N = 8) 100% attained response (CR – 50%; PR – 50%). Among SDNS (N = 3), all attained complete remission. Among SRNS (N = 6), 40% attained PR and 60% had no response. Patients with increasing CD19 count on follow-up (2 patients) had relapses and treated with maintenance rituximab doses.

CONCLUSIONS: Rituximab; effective therapy for glomerular diseases-Attaining remission; preventing progression to ESRD. SDNS has better outcomes than SRNS. Few cases of SRNS are also resistant to rituximab. CD19/20 count can be used as a surrogate marker of impending relapse in patients who attained remission.

190. HISTOPATHOLOGICAL SPECTRUM OF RENAL BIOPSIES IN ADULT PATIENTS WITH NEPHROTIC RANGE PROTEINURIA IN A TERTIARY CARE HOSPITAL IN SOUTH INDIA

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BACKGROUND: Renal allograft dysfunction can have plentitude of presentations. A diligent follow-up of patients is mandated along with an allograft biopsy which acts as the cornerstone for management and is required for decision-making in the form of measures such as titration of immunosuppression. Here, we present a retrospective study carried out in a tertiary care center in South India from January 2019 to June 2019.

AIM OF THE STUDY: To study the clinical and histopathological spectrum of glomerular lesions in patients undergoing renal biopsy presenting with nephrotic range proteinuria.

METHODS: Subjects included 106 patients with age of 18–80 years presenting with nephrotic range proteinuria, requiring renal biopsy; from August 2018 to July 2019; admitted under Nephrology Unit 1; NIMS; Hyderabad. The clinical, laboratory, and histopathological data of patients

were collected and analyzed. The patients had undergone a percutaneous renal biopsy using an 18-gauge renal biopsy gun under ultrasonographic guidance. All the biopsy specimens were analyzed by the same pathologist with light and immunofluorescence microscopy. Baseline clinical parameters at presentation were recorded along with baseline laboratory parameters of serum creatinine, albumin, cholesterol, 24-h urine protein, and complete urine examination were recorded. Histopathological findings of light microscopy were recorded. Statistical analysis of the data collected was done using SPSS ver.20

RESULTS: Subjects included 106 patients with age of 18–80 years presenting with nephrotic range proteinuria, requiring renal biopsy, from August 2018 to July 2019, admitted under Nephrology Unit 1, NIMS, Hyderabad. The clinical, laboratory, and histopathological data of patients were collected and analyzed. The patients had undergone a percutaneous renal biopsy using an 18-gauge renal biopsy gun under ultrasonographic guidance.

CONCLUSIONS: MCD and PIGN were the most common histopathological findings in our observational study of nephrotic range proteinuria. DN was uncommonly seen as most of these patients are diagnosed clinically and did not undergo renal biopsy.

191. HOW ADEQUATE IS OUR FOOD LABELING SYSTEM FOR PATIENTS WITH KIDNEY DISEASE?

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BACKGROUND: The Food Safety and Standard Authority of India (FSSAI) mandates that food industries display the nutritive values which should comprise of proximate principles (PP) of food. In addition, the food industries need to provide the values of claimed nutrients and food additives, including preservatives, food colors; food essences, etc.

AIM OF THE STUDY: To assess whether the current food labels meet the FSSAI criteria and to identify its shortcomings and propose practical options for upgrading food labels.

METHODS: Nutritive values from various food categories such as bread, biscuits, milk, curd, creams, butter, ice creams, chocolates, and instant gravies were collected from supermarkets. They were assessed for PP, including carbohydrates, proteins, fats, and other macro and micronutrients such as sodium, potassium, calcium, phosphorus, iron, and dietary fiber. We also conducted a survey on hemodialysis patients to assess their knowledge about food labeling, challenges in understanding labels, and options for upgrading it.

RESULTS: We assessed labels of 159 food products. PP was reported in all food products. Dietary sodium was reported in 41.8%; potassium was reported in 3.5%; calcium was reported in 64.7%; phosphorus was reported in 23.8%; iron was reported in 22.1%; and dietary fiber was reported in 5.6% food products. From the survey on 82 hemodialysis patients, it was found that 36.5% patients do not read the food labels before purchasing. 56% patients reported that they do not read the ingredients and 89% patients reported that they cannot understand the nutritive composition given on labels. 91.5% patients reported they wish to have simpler icons on food labels, for example, tick (✓) mark and cross (✗) mark.

CONCLUSIONS: Current food labeling system is inadequate in reporting macro and micronutrients. For better understanding, simple cautionary signs including tick (✓) mark and cross (✗) mark may prove to be helpful in making correct food choices for this population.

192. GUILLAIN–BARRE SYNDROME-LIKE PRESENTATION AND THROMBOTIC MICROANGIOPATHY WITH CALCINEURIN INHIBITOR TOXICITY: A CASE REPORT

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BACKGROUND: Calcineurin inhibitors (CNIs) are frequently used as immunosuppression in renal transplantation. Tacrolimus has been associated with moderate-to-severe neurological side effects. One uncommon side effect is peripheral neuropathy. Few cases of tacrolimus neurotoxicity may improve when the tacrolimus is switched to cyclosporine. Cyclosporine shares much side effects as tacrolimus. One of the rare side effects of CNIs is thrombotic microangiopathy, leading to graft dysfunction.

AIM OF THE STUDY: To project the rare and deadly side effect of CNIs.

METHODS: A 35–year-old male, haplomatch with father as donor, underwent live-related renal transplantation. NKD was unknown. His immunosuppressants were three doses of solumedrol and tacrolimus, MMF, and wysolone as maintenance therapy. Postoperative course was uneventful and was discharge on 10th postoperative day. During discharge, his serum creatinine was 1.2 mg/dl and tacrolimus trough level was 6.21 ng/l. Gradually, his prednisolone dose was tapered to 5 mg/day. Three-month post-transplantation, he presented with acute progressive weakness of both lower limb and loose motion. On examination, tone was decreased in both lower limb, with muscle power 2/5. DTR absent, with impaired joint position sensation up to the ankle. Nerve conduction study is suggestive of demyelination of both lower limb motor nerves, normal sensory potential.

RESULTS: His serum electrolyte and renal function were deranged (serum creatinine 3.8 mg/dl). Stool for CS was negative; CSF study was normal. Tacrolimus level was high 15.30 ng/L. Fluid balance and dyselectrolemia were normalized. Tacrolimus dose was reduced. Repeat tacrolimus dose was 8.2 ng/L. Renal function and neurological defect did not improve. Transplant biopsy was done suggestive of CNI toxicity. Tacrolimus was stopped and Cyclosporine was started. After 2 days, his neurological defect start improvement. He is being discharge with mild persistent left foot drop and serum creatinine 1.48 mg/dl. He was on irregular follow-up. After 2 months, when he came for follow-up, serum creatinine was 3.4 mg/dl. Cyclosporine level was 131.29 ng/L. DSA was negative.

Graft biopsy was suggestive of thrombotic microangiopathy. Cyclosporine was stopped and Sirolimus was started. Serum creatine was gradually improved to 2.1 mg/dl. Now, he is in follow-up with us for 2 years with serum creatinine between 1.7 and2 mg/dl.

CONCLUSIONS: Recognizing tacrolimus neurotoxicity and substituting with other immunosuppression can prevent permanent nerve damage. Conversion to cyclosporine is an option; be cautious with its rare side effect thrombotic microangiopathy. Early recognition and withdrawal of drugs can preserve the graft function.

193. TARGETING SNAKE VENOM-INDUCED ACUTE KIDNEY INJURY, FOCUSING AT BITE SITE: A HYPOTHETICAL APPROACH

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BACKGROUND: Russell's viper bite and envenomation is endemic in India, which causes dangerous complications starting from local tissue damage to systemic toxicity. Renal involvement is one of the most serious manifestations, which not only caused by direct venom effect but also can be developed due to secondary consequences of severe muscle damage. Anti-snake venom serum (ASVS) intervention, the only available therapy, is protective against systemic toxicity but not equally so in local damages.

AIM OF THE STUDY: The present study aims to highlight-bite site of venom repository and its involvement in renal pathology.

METHODS: Articles were searched from PubMed; Google Scholar; Medline and other databases with search word "snake bite," "Russell's viper (RV) bite," "local effects of viper bite," "myotoxicity," "rhabdomyolysis," "acute kidney injury (AKI)," "local effect treatment," "myotoxicity and AKI," "treatment of myotoxicity," "treatment of AKI." Searched articles were thoroughly studied to explore the therapeutic interventions which may prevent snake venom-induced acute kidney injury by targeting venom-induced myotoxicity.

RESULTS: It was found that increased levels of plasma creatine kinase and lactate dehydrogenase in association with myoglobinuria stating a condition of muscle damage after RV envenomation. Myoglobin released in blood directly causes renal tubular damage. Hence, there is an already established link between myotoxicity and AKI. However, these two manifestations are separately treated. Articles were found where local application of treatment protected from myotoxicity, but any of them did not mention the status of kidneys.

CONCLUSIONS: This study proposes a hypothesis that in RV envenomation, if bite site is targeted by local application of either ASVS or other antivenin substances as early as possible; therefore, the degree of renal insult can be prevented.

194. COOMB'S-NEGATIVE HEMOLYTIC ANEMIA MIMICKING THROMBOTIC MICROANGIOPATHY IN DENGUE FEVER: CASE REPORT

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BACKGROUND: Dengue is a virus-borne illness which has varied presentation and complications involving various organs such as CNS, liver, heart, lungs, hematological system, and kidneys. Renal involvement could be in the form of acute kidney injury; acute glomerulonephritis, and rarely thrombotic microangiopathy (TMA).

AIM OF THE STUDY: NA.

METHODS: Coomb's positive hemolytic anemia due to dengue fever is a rare phenomenon and has been described in some case reports. Dengue virus may alter some antigens on RBC membranes and cross-react with antibodies directed against the virus resulting in Coomb's positive test, but sometimes, these antibody titers are so low that it may yield Coomb's negative reaction; this presentation of dengue has not been reported in the literature.

RESULTS: We report a case of dengue fever who presented with hematuria and rise in serum creatinine on day 3 of illness. Laboratory findings were consistent with TMA (Thrombocytopenia, increased schistocytes on smear, raised LDH, normal coagulogram, and negative Coomb's test) was managed with plasmapheresis and supportive care, with no improvement; hemolytic anemia (Coomb's negative) was considered as a differential diagnosis. Plasmapheresis was stopped and supportive management continued; patient became asymptomatic on day 5 and was discharged on day 8 with normal creatinine.

CONCLUSIONS: NA.

195. IDIOPATHIC NEPHROTIC SYNDROME PRECEDING THE EMERGENCE OF SYSTEMIC LUPUS ERYTHEMATOSUS IN A 12-YEAR-OLD BOY

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BACKGROUND: Childhood-onset SLE is a rare but severe autoimmune disease with multisystem involvement. The median age of onset of SLE is between 11 and 12 years (rare below 5 years of age), and 80% of patients are females.

AIM OF THE STUDY: Idiopathic nephrotic syndrome preceding the emergence of SLE in a 12-year-old boy.

METHODS: Renal involvement is a frequent concomitant of the multisystem manifestations of SLE at the time of initial presentation. However, references to renal disease as the sole manifestation of SLE in children are sparse.

RESULTS: Herein, we report a case of a 12-year-old boy who was diagnosed with nephrotic syndrome at 3 years of age. He was a steroid-dependent, infrequent relapse who was started on levamisole at 10 years of age. He presented to us with a relapse of nephrotic syndrome in association with other symptoms of digital gangrene, swaying while walking. On evaluation he was found to have nephrotic range proteinuria with ANA4+; dsDNA

+ low complements; with popliteal vein thrombosis and MRI-s/o CNS vasculitis. A renal biopsy was performed which was suggestive of membranous nephropathy with full house on IF. Patient was treated with Intravenous methylprednisolone, iv cyclophosphamide, and plasmapheresis and showed a dramatic response to the treatment.

CONCLUSIONS: Glomerulopathy may be the first symptom of SLE, and the appearance of other clinical and biological symptoms may be delayed by several years.

196. IDENTIFYING RELATION BETWEEN EPITHELIAL-MESENCHYMAL TRANSITION MARKERS IN RAT UNILATERAL URETER OBSTRUCTION MODEL OF RENAL INJURY

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BACKGROUND: Ureter obstruction causes reversible subacute renal injury. It can lead to tubular cell death and fibrosis. Epithelial-mesenchymal transition (EMT) plays a key role in renal fibrogenesis by promoting activation and mobilization of multiple fibrogenic cells. This process is mediated through distinctive signaling pathways which may act as viable therapeutic targets. Therefore; identification of the EMT markers and inhibition of their expression can become central target for antifibrotic strategies.

AIM OF THE STUDY: The aim is to generate ureter obstruction renal injury model and to identify EMT markers during obstructive nephropathy.

METHODS: The ureter of the rat was ligated. After 14 days, kidneys were harvested for histopathological examination and RT-PCR analysis.

RESULTS: Changes in the gene expression of ligated kidney were observed as compared to the contralateral nonligated kidney.

CONCLUSIONS: To understand the procedure concerned with the development of kidney fibrogenesis to kidney fibrosis, UUO is scrutinized as one of the extensively studied model for renal fibrosis.

197. LONG-TERM FOLLOW OF RITUXIMAB THERAPY IN STEROID AND CALCINEURIN INHIBITOR DEPENDENT OR RESISTANT NEPHROTIC SYNDROME: A SINGLE-CENTER EXPERIENCE

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BACKGROUND: Idiopathic nephrotic syndrome is one of the most common glomerular diseases in children and adults with the central event being podocyte injury. The treatment of nephrotic syndrome remains a therapeutic challenge to nephrologists despite the availability of different drugs. The crucial role of B-lymphocytes in the pathogenesis of nephrotic syndrome has made it a possible therapeutic target. Rituximab, a chimeric monoclonal antibody, is found to be effective in nephrotic syndrome.

AIM OF THE STUDY: To study the efficacy and safety of rituximab in steroid and calcineurin inhibitor dependent or resistant nephrotic syndrome.

METHODS: It is a prospective study that included a total of 70 patients with nephrotic syndrome who were either steroid-dependent or resistant and calcineurin inhibitor (CNI) dependent or resistant with symptomatic relapse of illness. These patients were given four doses of rituximab 375 mg/m^2 1 week apart, and the response to it was assessed along with its safety profile during follow-up.

RESULTS: Out of 70 patients in the study, 48 were males. 48 patients had biopsy-proven minimal change disease and 24 had FSGS. 57 of them were steroid dependent and remaining 13 were steroid resistant. 55 were CNI dependent and 16 were resistant. After giving 4 doses of Rituximab, 54 went into remission and 17 were resistant to rituximab. Among the MCD group; 91% of them responded to rituximab while 58% of patients with FSGS responded to rituximab. Mean duration of follow up is 3.1 years; at the end of 2-year post–rituximab, 44 patients out of 54 remained in remission while 10 developed relapse Mild infusion reaction was observed in 2 patients and two of them developed urinary tract infection.

CONCLUSIONS: Rituximab is safe and effective in patients with steroid and CNI-dependent or -resistant nephritic syndrome. Steroid-dependent nephrotic syndrome cases responded better to rituximab. Patients with minimal change disease responded better to rituximab than FSGS.

198. CLINICAL PROFILE OF PROLIFERATIVE GLOMERULONEPHRITIS WITH MONOCLONAL IMMUNOGLOBULIN DEPOSIT DISEASE: OUR EXPERIENCE IN A TERTIARY CARE CENTER

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BACKGROUND: Proliferative glomerulonephritis with monoclonal immunoglobulin deposits (PGNMID) is a condition where monoclonal immunoglobulins are deposited in the glomerulus. Presenting features include nephrotic-range proteinuria in about half; hematuria in three-fourths; and reduced glomerular filtration rate in two-thirds. Only a-third have detectable circulating monoclonal protein at presentation and multiple myeloma is rare.

AIM OF THE STUDY: To study the clinical profile of proliferative glomerulonephritis with monoclonal immunoglobulin deposit disease – our experience in a tertiary care center.

METHODS: Renal biopsy-proven PGNMID were included. Workup for myeloma including bone marrow aspiration and

biopsy, cytogenetics, skeletal survey, and SPEP was done. Free light chain assay in serum and urine done to identify the clone. Beta 2 microglobin levels measured. Patients were treated with bortezomib and response was assessed.

RESULTS: Patient 1 was deceased donor transplant recipient with native kidney disease being biopsy-proven MPGN–immune complex-mediated presented with allograft dysfunction and nephrotic range proteinuria and active urinary sediments. Allograft biopsy showed PGNMID. However, the clone could not be identified on bone marrow, SPEP, and immunofixation electrophoresis. He treated with subcutaneous bortezomib and currently in complete remission. Patient 2 was live-related ABO-compatible renal allograft recipient with native kidney disease being biopsy-proven immune complex-mediated GN; HBSAg positive status presented with allograft dysfunction and active urinary sediments 2 month post-transplant. Allograft biopsy showed PGNMID. He treated with bortezomib. However, he had an aggressive disease course and had graft loss in 2 months and is currently Dialysis dependent.

CONCLUSIONS: Hematuria was the presenting feature in 1 and nephrotic syndrome in 3 Kappa chain restriction was seen in all cases with elevated beta 2 microglobulin. Clonal identification was negative in all four patients. MPGN was the most common pattern a good response is seen to bortezomib.

199. CLINICOPATHOLOGICAL STUDY AND SHORT-TERM OUTCOME OF PAUCI-IMMUNE GLOMERULONEPHRITIS

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BACKGROUND: Pauci-immune glomerulonephritis, which is characterized by the paucity of staining for immunoglobulins, is the MC cause of crescentic glomerulonephritis and may occur as a renal-limited disease or as a component of systemic necrotizing small-vessel vasculitis. The systemic vasculitides that may be accompanied by pauci-immune crescentic glomerulonephritis include microscopic polyangiitis (MPA); granulomatosis with polyangiitis (GPA), and eosinophilic GPA (EGPA).

AIM OF THE STUDY: To study the cases of pauci-immune glomerulonephritis detected at a tertiary care hospital and their short term outcome.

METHODS: 30 biopsy-proven cases of pauci-immune glomerulonephritis were studied from February 2018 till July 2019.

RESULTS: Out of 30 cases, 22 were males and 8 were female. c-anca was positive in 25 patients and p-acna in 3 patients; 2 patients were anca negative. Complete remission was achieved in 10 cases whereas partial remission was achieved in 10 cases no remission in remaining 10 cases.

CONCLUSIONS: Pauci-immune crescentic glomerulonephritis has varied manifestations with c-anca positive patients having more relapses and worse prognosis.

192. GUILLAIN–BARRE SYNDROME-LIKE PRESENTATION AND THROMBOTIC MICROANGIOPATHY WITH CALCINEURIN INHIBITOR TOXICITY: A CASE REPORT

Prawash Kumar Chowdhary, S A Kale
Department of Nephrology; Ramkrishna Care Hospital; Raipur; Chhattisgarh; India

BACKGROUND: Calcineurin inhibitors (CNIs) are frequently used as immunosuppression in renal transplantation. Tacrolimus has been associated with moderate-to-severe neurological side effects. One uncommon side effect is peripheral neuropathy. Few cases of tacrolimus neurotoxicity may improve when the tacrolimus is switched to cyclosporine. Cyclosporine shares much side effects as tacrolimus. One of the rare side effects of CNIs is thrombotic microangiopathy, leading to graft dysfunction.

AIM OF THE STUDY: To project the rare and deadly side effect of CNIs.

METHODS: A 35–year-old male, haplomatch with father as donor, underwent live-related renal transplantation. NKD was unknown. His immunosuppressants were three doses of solumedrol and tacrolimus, MMF, and wysolone as maintenance therapy. Postoperative course was uneventful and was discharge on 10th postoperative day. During discharge, his serum creatinine was 1.2 mg/dl and tacrolimus trough level was 6.21 ng/l. Gradually, his prednisolone dose was tapered to 5 mg/day. Three-month post-transplantation, he presented with acute progressive weakness of both lower limb and loose motion. On examination, tone was decreased in both lower limb, with muscle power 2/5. DTR absent, with impaired joint position sensation up to the ankle. Nerve conduction study is suggestive of demyelination of both lower limb motor nerves, normal sensory potential.

RESULTS: His serum electrolyte and renal function were deranged (serum creatinine 3.8 mg/dl). Stool for CS was negative; CSF study was normal. Tacrolimus level was high 15.30 ng/L. Fluid balance and dyselectrolemia were normalized. Tacrolimus dose was reduced. Repeat tacrolimus dose was 8.2 ng/L. Renal function and neurological defect did not improve. Transplant biopsy was done suggestive of CNI toxicity. Tacrolimus was stopped and Cyclosporine was started. After 2 days, his neurological defect start improvement. He is being discharge with mild persistent left foot drop and serum creatinine 1.48 mg/dl. He was on irregular follow-up. After 2 months, when he came for follow-up, serum creatinine was 3.4 mg/dl. Cyclosporine level was 131.29 ng/L. DSA was negative. Graft biopsy was suggestive of thrombotic microangiopathy. Cyclosporine was stopped and Sirolimus was started. Serum creatine was gradually improved to 2.1 mg/dl. Now, he is in follow-up with us for 2 years with serum creatinine between 1.7 and2 mg/dl.

CONCLUSIONS: Recognizing tacrolimus neurotoxicity and substituting with other immunosuppression can prevent permanent nerve damage. Conversion to cyclosporine is an option; be cautious with its rare side effect thrombotic microangiopathy. Early recognition and withdrawal of drugs can preserve the graft function.

4. A NOVEL COMPLEMENT FACTOR B GENE MUTATION IN ADULT-ONSET ATYPICAL HEMOLYTIC–UREMIC SYNDROME

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BACKGROUND: Approximately 10% of all hemolytic–uremic syndrome (HUS) is due to atypical HUS (aHUS). Prognosis is poor in aHUS, and mortality can go up to 25%. In half of the patients, progression to end-stage kidney disease occurred. Complement factor B (CFB) gene is one essential component for the activation of alternate pathway. Mutations in the CFB gene are rarest among all the complement mutations, occurring in only 1%–2% of all aHUS patients. We describe a novel CFB gene mutation.

AIM OF THE STUDY: This was a case study to see the response of plasma therapy in CFB gene mutation-associated aHUS.

METHODS: Laboratory parameters revealed hemoglobin – 8.5 g/dl; total leukocyte count – 11,500/μL; platelet – 83,000/μL; serum creatinine – 7.4 mg/dl; serum LDH – 1565 U/L; peripheral blood film showed schistocytes; slightly raised total and indirect bilirubin; normal kidney sizes on ultrasonography; no active urinary sediments; complement C3 level was low and ANA was negative; no evidence of G6PD deficiency and tests for malaria, dengue, and typhoid were negative. The patient was given five sessions of plasma exchanges along with three sessions of hemodialysis initially, following which he achieved hematological remission and became dialysis independent. Renal biopsy was done which revealed evidence of thrombotic microangiopathy (TMA). Anti-factor H level was not sent and complement mutation analysis revealed novel CFB gene mutation. The mutation analysis in our case was done at Medgenome Labs Ltd., Bangalore.

RESULTS: The patient achieved hematological remission and became dialysis independent. He had adequate urine output and serum creatinine came down from 7.4 to 3.8 mg/dl on the last follow-up.

CONCLUSIONS: We describe a novel heterozygous missense mutation of complement factor B gene (c.1106C>T; p.Pro369 Leu) that was associated with aHUS. Early diagnosis and plasma therapy can be lifesaving. Reporting more similar CFB gene mutation is necessary to know the pathogenicity of the mutation.

201. TACROLIMUS-INDUCED NEUROTOXICITY WHICH REVERSED AFTER CONVERSION FROM TACROLIMUS TO CYCLOSPORINE

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BACKGROUND: Tacrolimus neurotoxicity is an uncommon complication following renal transplantation. It may present as mild neurotoxicity in the form of headache, insomnia, and tremors, or as severe neurotoxicity with progressive neurologic worsening.

AIM OF THE STUDY: Present two patients who underwent a living-related donor kidney transplant and developed tacrolimus-induced neurotoxicity.

METHODS: Two diabetic patients with ESRD underwent living related donor kidney transplant. In one patient induction was done with basiliximab and in another with Thymoglobulin. In both patients maintenance immunosuppression included tacrolimus, MMF-Na, and tapering doses of prednisolone.

RESULTS: Case 1: A 62-year-old man underwent preemptive renal transplant with spousal donor. On postoperative day 4, the patient became restless, was confused, had abnormal limb movement, and was self-muttering. His tacrolimus trough level was 14.1 ng/dl and serum creatinine was 0.85 mg/dl. There was no focal neurological deficit. Tacrolimus neurotoxicity was suspected, and hence, it was discontinued and cyclosporine started. Symptoms resolved completely over next 24 h. Case 2: A 52-year-old male underwent living-related renal transplant with sibling donor. On postoperative day 3, his tacrolimus trough level was 18.40 ng/ml. Tacrolimus dose was reduced. On postoperative day 6, the patient became restless, developed abnormal limb movement, and started self-muttering (as shown in the video to be played on presentation). There was no focal neuro-deficit. Tacrolimus was changed to cysclosporine. All the neurological symptoms resolved completely after changing from tacrolimus to cyclosporine.

CONCLUSIONS: Tacrolimus neurotoxicity should be considered in transplant patients developing confusion, restlessness, involuntary limb movements, and self-muttering in the early posttransplant period. Conversion to cyclosporine results in complete resolution of neurotoxicity.

202. BURKHOLDERIA CENOCEPACIA: A RARE CAUSE OF HOSPITAL-ACQUIRED URINARY TRACT INFECTION CAUSING COMPLICATED GRAFT PYELONEPHRITIS

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BACKGROUND: Pyelonephritis is the most common infection among renal-transplant recipients. Gram-negative organisms (56%–90%); are the most common etiological agents, and 24% of episodes are associated with complications. We report here a case of complicated raft pyelonephritis caused by an unusual organism.

AIM OF THE STUDY: To report a case of complicated graft pyelonephritis caused by *Burkholderia cenocepacia* and review relevant literature on the organism.

METHODS: A 40-year-old man underwent deceased donor kidney transplant with thymoglobulin induction at another center and postoperatively was found to have new-onset diabetes and urinoma which was managed conservatively with

DJ stenting and Foley's catheter bladder drainage. After DJ stent removal 2 months later, he was noticed to have an increasing trend of creatinine and episodes of gross hematuria, malaise, and vague abdominal pain with no associated fever or chills. He presented to our center with graft dysfunction, but graft biopsy showed neutrophilic casts suggestive of pyelonephritis and blood and urine culture grew Gram-negative bacilli, which was subsequently characterized as *B. cenocepacia*. Graft ultrasound confirmed an abscess in the upper pole. After 2 weeks of intravenous meropenem, repeat blood and urine cultures were sterile. We speculate that the DJ stent may have been the possible source of infection.

RESULTS: *B. cenocepacia* is an opportunistic pathogen which commonly causes nosocomial infection in hospitalized patients. While respiratory infections are transmitted via droplets, bloodstream or solid organ infections are spread through contaminated devices where the organism forms a biofilm which renders it resistant to many antibiotics. There have been case reports of urinary tract infection caused by *B. cenocepacia*; especially in hosts with predisposing factors such as vesicoureteral reflux (VUR), neurogenic bladder, bladder irrigation, or use of contaminated medical devices. Although there are two case reports of *B. cenocepacia* causing urinary tract infection in renal allograft recipients, both cases had a prolonged course complicated by multiple relapses requiring protracted antibiotic therapy and/or graft nephrectomy. This case is unique in that the organism responded to a carbapenem despite *in vitro* reports, suggesting drug resistance to this class.

CONCLUSIONS: *B. cenocepacia* is a rare etiology for pyelonephritis in a renal-transplant patient but must be considered where there are significant nosocomial risk factors for the infection.

203. MORPHOMETRIC VARIATIONS IN RENAL VASCULATURE; A HINDRANCE TO TRANSPLANTATION

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BACKGROUND: Variation in renal vasculature is a commonly encountered anomaly and is prevalent in around 60% of the population. Duplication of renal artery or vein otherwise is mostly asymptomatic and remains undiagnosed. However, preoperative workup of prospective voluntary kidney donors prior to renal transplantation reveals these anatomical anomalies.

AIM OF THE STUDY: This is a T.

METHODS: This is a cross sectional observetional study.The study was carried out in the Dept of Anatomy and Nephrology of the research institute.Voluntary kidney donors were the.

RESULTS: Ii.

CONCLUSIONS: Ii.

204. EXOME SEQUENCING OF SAUDI ARABIAN PATIENTS WITH AUTOSOMAL DOMINANT POLYCYSTIC KIDNEY DISEASE

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INTRODUCTION: Autosomal dominant polycystic kidney disease (ADPKD) is characterized by progressive development of kidney cysts and enlargement and dysfunction of the kidneys. The Consortium of Radiologic Imaging Studies of the Polycystic Kidney Disease (CRISP) cohort revealed that 89.1% had either a PKD1 or PKD2 mutation. Of the CRISP patients with a genetic cause detected, mutation in PKD1 accounted for 85%, while mutations in the PKD2 accounted for the remaining 15%.

AIM OF THE STUDY: Here, we report exome sequencing of 16 Saudi patients diagnosed with ADPKD and 16 ethnically matched controls.

METHODS: Exome sequencing was performed using combinatorial probe-anchor synthesis and improved DNA Nanoballs technology on BGISEQ-500 sequencers (BGI, China) using the BGI Exome V4 (54 Mb) kit. Identified variants were validated with Sanger sequencing.

RESULTS: With the exception of GC-rich exon 1, we obtained excellent coverage of PKD1` (mean read depth = 88) including both duplicated and nonduplicated regions. Of nine patients with typical ADPKD presentations (bilateral symmetrical kidney involvement, positive family history, concordant imaging, and kidney function), four had protein-truncating PKD1 mutations, one had a PKD1 missense mutation, and one had a PKD2 mutation. These variants have not been previously observed in the Saudi population. In seven clinically diagnosed ADPKD cases, but with atypical features, no PKD1 to PKD2 mutations were identified, but rare predicted pathogenic heterozygous variants were found in cystogenic candidate genes including PKHD1, PKD1L3, EGF, CFTR, and TSC2.

CONCLUSION: Mutations in PKD1 and PKD2 are the most common cause of ADPKD in Saudi patients with typical ADPKD.

205. NOVEL HAPLOTYPE INDICATOR FOR END-STAGE RENAL DISEASE PROGRESSION AMONG SAUDI PATIENTS

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INTRODUCTION: CKD is an abnormality of kidney function and/or structure present for more than 3 months; it passes through several stages and end by ESRD (CKD stage 5 were eGFR <15 ml/dL).

AIM OF THE STUDY: Different biomarker, diagnostic imaging, and laboratory investigations were used to assess the progression and severity of CKD and newly introduced genetic markers are coming to practice.

METHODS: A study was done in KFHU, Saudi Arabia, looking for the progression of CKD toward ESRD using genetic markers.

RESULTS: The study includes 160 Saudi CKD patients reporting to the nephrology division, department of internal medicine and 189 healthy subjects of Saudi origin without evidence of renal disorders (serum creatinine <1.4 and <1.2 mg/dl in men and women, respectively) were taken as control. We found various associations of different genes such as MYH9, E1 (GCCT), E5 (GCCT), and SHROOM3 gene to CKD and ESRD as reported by others. In our study, E4 and E6 haplotypes were found to be significantly associated with an increased risk of CKD and Haplotype GTTT was found to be associated with ESRD only.

CONCLUSION: The study includes 160 Saudi CKD patients reporting to the Department of Nephrology and 189 healthy subjects of Saudi origin without evidence of renal disorders (serum creatinine <1.4 and <1.2 mg/dl in men and women, respectively) were taken as control.

206. BASILIXIMAB VERSUS NO INDUCTION THERAPY IN LOW IMMUNOLOGICAL RISK KIDNEY-TRANSPLANT RECIPIENTS

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BACKGROUND: Induction immunosuppression decreases the risk for acute rejection and improves graft outcomes in kidney transplant recipients, but its role in low immunological risk group of patients is controversial.

AIM OF THE STUDY: The objective of this study was to evaluate the impact of induction with basiliximab versus no induction therapy on outcomes in low immunological risk kidney transplant recipients (KTRs).

METHODS: This study was conducted between May 2013 and May 2018 in a tertiary care center in Eastern India. It was a prospective study where two groups of low immunological risk KTRs were identified, one who did not receive induction therapy and the other who received induction therapy with basiliximab. Low immunological risk KTRs was defined in this study as patients undergoing first transplant, panel reactive antibody <20%, and human leukocyte antigen mismatches ≤3. Both groups were comparable in baseline characteristics and risk factors for acute rejection.

RESULTS: A total of 104 low immunological risk KTRs were identified with 52 patients who did not receive induction therapy and another 52 patients who received basiliximab. Adjusted risk for delayed graft function was higher (odds ratio [OR] 1.69, 95% confidence interval [CI] 1.05–3.11, $P = 0.02$) and 1-year acute rejection was found to be lower (OR 0.53, 95% CI 0.35–1.08, $P = 0.09$) in the basiliximab group compared to the group of patients who did not receive induction therapy. Adjusted 5 year graft survival was similar in both groups. Adjusted patient death risk was found to be lower (hazard ratio 0.42, 95% CI 0.30–0.74, $P = 0.04$) in the basiliximab group.

CONCLUSION: Perioperative induction with basiliximab in low immunological risk KTRs had lower rejection and lower patient death risk.