
Poster presentations

PP-01 Parathyroid hormone hypersecretion-unusual cause and manifestation

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Introduction. Secondary hyperparathyroidism (SHPT) can manifest in 0.1% as a brown tumor. It is a giant cell granuloma which usually presents as osteolytic lesions on radiographic imaging. SHPT is treated with medications or parathyroidectomy (PTx). Ectopic parathyroid adenomas are frequent cause of failed initial surgery. Neck ultrasound and sestamibi scan are first-line imaging modalities, followed with SPECT or SPECT/CT, fine needle-aspiration cytology of a lesion and measurement of parathyroid hormone (PTH) in the aspirated material.

Case report. We present the case of a 44-year-old female patient with ESRD who underwent hemodialysis due to untreated vesicoureteral reflux (VUR). She had an advanced hyperparathyroidism with multiple osteolytic bone lesions and prominent mass in mandible, which was extirpated and histological finding confirmed the diagnosis of brown tumor. Subtotal PTx was done and histological finding confirmed hyperplastic parathyroid tissue. During the later pre-transplantation workup, chest x-ray showed nodular lung changes which were confirmed with MSCT. Ultrasound guided biopsy of the lesions showed no clear signs of malignancy. Sestamibi scan excluded hyper functional parathyroid tissue as well as ectopic parathyroid glands on the neck. Also, complete MSCT scan found no primary site of potential neoplastic process. Thoracotomy was performed and two nodular lesions were extirpated with histologic diagnosis of carcinoid. Nonetheless, a second opinion on histological finding showed that these changes match to parathyroid gland adenoma, and these was also confirmed by immunohistology-tumor cells were positive for PTH.

Conclusion. Parathyroid gland disorders in CKD can have various clinical manifestations. Brown tumor is a rare complication of unregulated SHPT that may resemble metastatic bone disease. Moreover, in cases of treatment failure of SHPT, especially after PTx has been done, we must always search for possible ectopic parathyroid activity.

PP-02 Therapeutic plasma exchange-our experience in last 4 years

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Introduction. Therapeutic plasma exchange (TPE) is extracorporeal procedure in which patients' plasma is removed by centrifugation or by filtration through semi-permeable membrane and replaced with appropriate replacement fluid.

Methods. We analyzed 56 patients that underwent TPE in our department from 2015 till 2018. Data were retrospectively analyzed from our Department of dialysis database.

Results. During period of 4 years total of 394 procedures were done on 56 patients, with average of 7 procedures per patient (minimum one TPE and maximum of 128 procedures in one patient). Among them 54 % were women (N 30/56), and 46 % were men (N 26/56) with median age 58 years. Therapeutic indications for the procedure included neurological (N 25/56), nephrological (N 23/56), hematological disorders (N 7/58) and one was performed due to paraneoplastic syndrome. The most common neurological indications were Guillain-Barre syndrome and myasthenia gravis, while the predominant nephrological indication was pauci-immune glomerulonephritis. Among hematological indications, we did most of TPE in patients with TTP. 80% of indications were in ASFA I category, 16% in ASFA II category and in remaining percentage of patients TPE was done in neurologic disease of unknown etiology or in nephrological disease from ASFA III category. There were no major complications and no fatal outcomes during the procedures. Most common complication was allergic reaction to fresh frozen plasma.

Conclusion. TPE used in variety of approved indications from ASFA category I and II, is safe and effective method for treating many conditions.

PP-03 Evaluation of arteriovenous fistulas for hemodialysis, duration and complications in 12-18 months follow-up

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Introduction. In 1966, Brescia and Cimino created the first arteriovenous fistula between the radial artery and the most suitable forearm vein, mostly often cephalic vein. These fistulas remain functional with adequate blood flow after one year of their creation, in more than 65% of patients. The aim of the study was to show functionality of primary fistulas for hemodialysis in a period of 12 to 18 months of their creation.

Methods. A total of 40 patients in a terminal stage of renal disease were taken in consideration, who were operated in the period from 1st of July 2002 till 31st of December 2002. The fistulas in all patients were with

direct latero-terminal anastomosis between radial artery and cephalic vein. Afterwards they were followed for 12-18 months.

Results. The average age of the patients was 63 years old. 42% of the patients were female and 58% were male. As for the complications after creating the AV fistula, we had 6 patients with thrombosis (in two cases new vascular access was created), 2 patients had late occlusions (new vascular access was done) and 1 patient with wound infection (resolved with antibiotics). We had functional A-V fistula with no complications afterwards in a total of 30 patients.

Conclusion. Arteriovenous fistulas are superior with longevity and lesser complications as a mode for hemodialysis access.

PP-04 Survival of patients in one dialysis unit

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Introduction. Dialysis treatment as one mode of renal replacement therapy for end stage renal disease, from one side prolongs patients' lives and improves their quality of life, but from another side it may impact negatively on their survival. The aim of this analysis was to study survival parameters of patients on dialysis treatment.

Methods. Data from 45 patients (M: 27; F:18) was used for this purpose. Medium age at the beginning of renal replacement therapy was 52.2±16.2 years and they were followed for 64±36.5 months.

Results. Kaplan-Meier analysis was done for survival as a whole as well as regarding the cause for kidney disease, age at beginning with dialysis, presence of diabetes and/or hypertension and serum antibodies against hepatitis C virus. Cumulative median (50th percentile) survival was 67 months, while the lower quartile (25th percentile) and the upper quartile (75th percentile) were 36 and 92 months, respectively. The cause for kidney disease influenced patient survival ($p < 0.001$): interstitial nephritis 39.4±46.5; obstructive nephropathy 39.2±49.3; polycystic kidney disease 65±9.8; diabetic nephropathy 35.1±36.0; glomerulonephritis 58.7±28.7. Survival also showed significance ($p < 0.001$) after stratification based on age of starting hemodialysis treatment: 20-29 years: 73±74.9 months; 30-39 years: 37.1±26.9; 40-49 years: 83.1±41.4; 50-59 years: 63.0±29.9; 60-69 years: 40.4±21.4; 70-79 years: 25.8±33.5; > 80 years: 41.0±26.9. Survival with regard anti-HCV antibodies test was not different ($p=0.77$); positive 55.4±44.6; negative 48.2±34.5.

Conclusion. The type of kidney disease, age at the beginning of replacement therapy and presence of diabetes, mainly affect survival of patients on maintenance hemodialysis treatment.

PP-05 Infection of central venous catheters in the Institute of nephrology - Struga

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Introduction. Beside all efforts in using arterio-venous fistulas as a permanent vascular access for hemodialysis, the number of central venous catheters (CVC) is still increasing. Furthermore, infection of CVCs remains an important factor in morbidity and mortality in our patients with end stage of renal disease.

Methods. In the Institute of Nephrology and Dialysis in Struga, in the period from 2000 till 2013, 3399 CVC were inserted: 2702 femoral catheters, 603 subclavian catheters, 23 jugular catheters, and 51 Hickman catheters. The primary objective was to estimate proportions of specific infectious causes by blood culture.

Results. Catheter-associated infections with Staphylococcus appeared in 72% of the patients, infections with Pseudomonas was in 5.9%, and Acinetobacter-infections in 2.6%. Proteus mirabilis as a cause for catheter-associated infection appeared in 3.2%, Enterococcus in 4.1%, and other rarely-frequent bacteria appeared in 12.3%.

Conclusion. The primary and most-frequent cause for CVC-infections is Staphylococcus aureus. Vancomycin is still the optimal choice for treatment of Staphylococcus aureus infections.

PP-06 A rare case of idiopathic hypocomplementemic interstitial nephritis, differential diagnosis and follow up

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Introduction. Idiopathic hypocomplementemic interstitial nephritis is a rare but severe form of tubulointerstitial disease characterized by massive tubulointerstitial immune deposits and low levels of complement's proteins. Differential diagnosis includes other causes of TIN with associated hypocomplementemia such as SLE, Sjogren's disease and especially IgG4-related TIN.

We describe a rare case of a patient who developed idiopathic hypocomplementemic interstitial nephritis and was treated with steroids.

Case report. A 72 year-old male patient with medical history of diabetes mellitus, arterial hypertension and coronary artery disease was admitted to our hospital due to progressive aggravation of renal function. Creatinine levels gradually raised from 1.23 mg/dl to 3 mg/dl during the last six months. The patient mentioned an episode of acute bronchitis a month previously to his admission. Laboratory work up showed renal failure (urea 153 mg/dl, creatinine 4 mg/dl), mild proteinuria (0.5 gr/d), low levels of C3 and C4 and increased serum IgG levels.

Renal biopsy demonstrated massive inflammatory infiltration of tubulointerstitial tissue and diffuse tubular fibrosis. The number of IgG4-1⁺ plasma cells was minimal. Immunofluorescence showed granular tubular basement membrane deposits of IgG and C1q. Other causes

of TIN were excluded and the patient was administered oral methylprednisolone for 4 months resulting in improvement of renal function (urea 89 mg/dl, creatinine 2.2 mg/dl) and normalization of complement levels as well as serum IgG levels. Six months later creatinine rose to 3.35 mg/dl and steroid treatment was re-administered.

Conclusion. Idiopathic hypocomplementemic interstitial nephritis is a rare but severe disease with rapid progression. Prompt diagnosis and immunosuppression treatment may contribute to better prognosis.

PP-07 Kidney biopsy in patients with hemorrhagic fever with renal syndrome-cases from a single centre

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Introduction. Hemorrhagic fever with renal syndrome is caused by one of the Hantaviruses. Most prevalent in Croatia are serovars Dobrava, often with more serious clinical picture, and Puumala, often with milder one. The disease is spread by certain rodents excretions which particles are most commonly inhaled. Classical clinical picture contains 5 phases, but often isolated symptoms and signs are found. The most prevalent are fever, headache, lumbar backache, thrombocytopenia and acute renal failure. The latter is the reason why in some cases a kidney biopsy is performed while waiting for the serology results.

Methods. We investigated clinical and histopathological data from four patients from our Centre who presented with acute renal failure and in whom a kidney biopsy was performed and serology for Hantaviruses was made.

Results. Our four patients were all young males, with mean age at the time of illness being 27.5 years, presenting from March till July. They were all previously healthy. All of them presented with fever and fatigue, two of them had headache and two of them had lumbar backache. All of them presented with acute kidney failure (creatinine 244-629 $\mu\text{mol/l}$) and with thrombocytopenia ($50-77 \times 10^9/l$, with one missing complete data here). At last, minor proteinuria was also found. After the kidney biopsy, on the light microscope two of them had similar findings, with acute tubular injury and hemorrhage in the medulla, which are typically found in the later discovered disease. One of the previous patients also had acute interstitial nephritis which was also a finding in the third patient - with many eosinophils, so he was initially prescribed with corticosteroids. The last patient had a biopsy done one month after the illness because of persistent proteinuria (24-hour proteinuria was max. 4.69g/dU, and later

0.10g/dU) and the biopsy findings were without pathological changes. The immunofluorescence and electron microscopy did not provide specific data. Ultimately all patients had positive IgM and IgG for Puumala virus which explained all the findings. They all had biopsy done in the same year, which was one of those years known as 'mice year', when a lot more cases of the disease were found due to increased number of rodents. Serology for leptospirosis, which can have similar clinical presentation, was done in two cases and was negative. A complete resolution of acute kidney failure and recovery of thrombocyte number as well as general condition ensued.

Conclusion. Hemorrhagic fever with renal syndrome is a disease that can affect multiple organs but most prominently it attacks kidneys. That is the reason why sometimes patients with more prominent acute kidney failure end up having kidney biopsy, although it's actually not necessary. Still, until the serology is done the exact cause of the failure is often unknown.

PP-08 Rivaroxaban induced nephropathy-case report

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Introduction. Non-vitamin K antagonist oral anticoagulants (NOACs) are since their registration gaining in popularity as the anticoagulant therapy of choice for atrial fibrillation (AF), deep vein thrombosis and pulmonary embolism. Compared to Warfarin the dosing is much simpler and the studies show less acute kidney injury (AKI) overall however there are some case reports describing AKI due to NOACs and there are isolated reports describing AKI due to rivaroxaban treatment. At least two of them were like ours associated with IgA nephropathy.

Methods. An 82-year-old-women was referred to our department for evaluation of gross hematuria and AKI. Due to recurring paroxysmal AF she was prescribed apixaban, which was changed to rivaroxaban after a month because of a vesicular and hemorrhagic rash appearing on the shin.

Results. She first noticed macroscopic hematuria one week after having started rivaroxaban. She had been on rivaroxaban for 15 days before she sought medical attention in our hospital. She was admitted with already poor kidney function and during hospitalization continued to decline. The kidney biopsy showed drug induced kidney injury which was superimposed on her probably preexistent IgA nephropathy. She was started on high dose prednisolone therapy.

Conclusion. Her current therapy consists of prednisolone in gradually decreasing doses, low molecular weight heparin for anticoagulation as well as her other treatment. She has stage 4 chronic kidney disease.

PP-09 Predictors of peritonitis in patients on peritoneal dialysis

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Introduction. Peritonitis is the most common complication of peritoneal dialysis (PD). PD associated peritonitis could lead to the technique failure and infection-related mortality.

The aim of the study was to determinate the predictors of peritonitis in patients on peritoneal dialysis.

Methods. Medical records of 88 patients undergoing peritoneal dialysis from January 1999 to December 2015 were retrospectively studied. Most of the patients were on continuous ambulatory PD, only four patients were on automated PD. Demographic variables (gender and age), dialysis-related variables (PD vintage, peritoneal membrane transport function, residual diuresis and body weight) and laboratory variables (serum level of hemoglobin, albumin and urea) were included in the simple regression analysis for determination of the predictors of episodes of peritonitis in the study population. All variables with a p level lower than 0.05 in the simple regression analysis were included in the multiple regression analysis.

Results. The peritonitis rate was 1 episode of peritonitis per 23.9 patient-months. The primary cure from peritonitis only with antibiotic treatment was present in 89.1% of episodes of peritonitis. The predictors associated with the episodes of peritonitis identified by simple regression analysis were longer PD vintage ($p=0.004$), lower residual diuresis ($p=0.036$) and slower peritoneal membrane transport function ($p=0.043$). The multiple regression analysis determined that the independent predictor of the episodes of peritonitis was longer PD vintage (OR=1.45, 95%CI: 1.18-1.80, $p=0.001$).

Conclusion. Longer PD vintage is associated with the episodes of peritonitis because as long as the patient is on peritoneal dialysis there is higher risk for development of peritonitis.

PP-10 IL28B single nucleotide polymorphisms are associated with the response to treatment with pegylated interferon in hemodialysis patients with chronic hepatitis C

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Introduction. Hemodialysis patients among many comorbidities are burdened by the risk of hepatitis C infections. The effect of the antiviral drugs that are used may vary compared to the general population.

Aim. The aim of the study was to determine the predictors of sustained viral response in hemodialysis patients with chronic hepatitis C treated with pegylated interferon alpha-2a.

Methods. Twenty eight hemodialysis (HD) patients with chronic hepatitis C virus infection (HCV) were treated with 135 µg of pegylated interferon alfa-2a (PEGIFN α-2a). The primary end point was sustained viral response (SVR), defined as an absence of detectable HCV RNA in the serum, 6 months after termination of the antiviral treatment. Gender, age, renal disease, HBV co-infection, HCV genotype, early viral response, end-treatment viral response, and single nucleotide polymorphisms (SNPs) near IL28B gene were evaluated as possible predictors of SVR in treated HD patients. The IL28B SNPs (rs12979860, rs8099917, rs12980275) were determined using SNP Genotyping Assays. The association between the possible predictors and SVR was determined with the univariate logistic regression. The independent predictors of SVR were determined with the multiple logistic regression analysis.

Results. The mean age of the treated patients was 47.2±11.0 years. Early viral response and end-treatment viral response were presented in 75% (21/28) and 71.4% (20/28) of patients, respectively. The overall SVR rate was 42.8% (12/28). The IL28B SNPs genotype presented with CC genotype of rs12979860, TT genotype of rs8099917, and AA genotype of rs12980275 was significantly more frequent in patients with SVR than SNPs genotype presented with non CC genotype of rs12979860, non TT genotype of rs8099917, and non AA genotype of rs12980275, (75% vs. 25%, $p=0.027$). The predictors associated with SVR identified by univariate logistic regression were early viral response (OR=1.77, 95%CI: 1.21-2.59, $p=0.006$), end-treatment viral response (OR=1.82, 95%CI: 1.28-2.59, $p=0.002$) and IL28B SNPs genotype (OR=1.53, 95%CI: 1.08-2.16, $p=0.021$). Multiple logistic regression analysis determined that the independent predictor of SVR was IL28B SNPs genotype (OR 1.43, 95%CI: 1.06-1.92, $p=0.046$).

Conclusions. The single nucleotide polymorphisms (SNPs) near IL28B gene are associated with the response to treatment with pegylated interferon alpha-2a in hemodialysis patients with chronic hepatitis C.

PP-11 Collapsing glomerulopathy-case report

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Introduction. Focal segmental glomerulosclerosis (FSGS) is classified into five variants, with the collapsing variant being the most rare. However, the number of idiopathic cases is increasing and the presentation becoming more routine.

Case report. 77 years old female patient was admitted with nephrotic syndrome and histopathologic features of glomerular capillary collapse. She presented chronic renal failure with serum creatinine 174 $\mu\text{mol/L}$. Nephrotic syndrome with lower extremities edema, progressively extended, resistant to treatment with diuretics. The value of total serum protein was 54 g/l, albumin 28g/L. Urinalysis demonstrated proteinuria 7.8 g/L and 12.3 g/D. Presence of 25-30 erythrocytes and 2-3 leukocytes in urine sediment was also noticed. Renal biopsy, was performed to determinate the glomerular disease. The histopathologic analysis showed fibrously thickened Bowman membrane, with discreetly thickened glomerular basal membrane and collapsed vascular lumen on TEM analysis. The treatment of the patient included corticosteroids, angiotensin converting enzyme inhibitor and lipid lowering agents, successfully with lowering the proteinuria, followed by withdrawal of the edema.

Conclusion. The nephrologist and nephropathologist have a main role for early diagnosis and better treatment procedure, in collapsing glomerulopathy.

PP-12 Treatment strategy of humerus fracture in patient with arteriovenous fistula for hemodialysis: case report

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Introduction. The arterio-venous fistula (AVF) is the first and the best vascular access for hemodialysis (HD), that providing adequate treatment, multi-decade survival and better quality of patients' lives.

Case report. 81 years old Caucasian male patient on HD with a functional AVF and humeral fracture was admitted in our hospital for treatment. He was with chronic kidney disease stage 5 on HD almost 8 years and had AVF as vascular access. From comorbidities he had high blood pressure (HBP), chronic cardiomyopathy (CMP), anemia, chronic obstructive pulmonary disease (COPD). The patient was presented with fracture of the left humeral bone due to the fall at home. At clinical presentation patient his left arm was immobilized, he had limited movements, mild pain in the whole body and sarcopenia. According the whole patient's condition we decided to use AVF for HD because all extra manipulation could had caused additional complication. The HD was performed through AVF without complication. After 1 month his immobilization was removed and control radiogram on left arm showed good position of the fractured fragments of the humeral bone and calluses formation.

Conclusion. The treatment and maintenance of these patients is a challenge for all nephrologist, that requiring

assessment of whole health condition with apply the most suitable treatment.

PP-13 Mesangioproliferative glomerulonephritis associated with polycythemia vera and ulcerative colitis: a case report

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Introduction. Membranoproliferative glomerulonephritis (MPGN) is a kidney disorder that involves inflammation and changes to kidney cells. It may lead to kidney failure.

Case report. A case of MPGN associated with polycythemia vera (PV), inflammatory bowel disease (ulcerative colitis) and seropositive rheumatoid arthritis (RA) in 60 years old man is described. The patient had a high blood pressure, granulated parenchyma on ultrasound, normal serum creatinine and glomerular filtration rate. The 24 hour proteinuria was 5.3 g/diuresis (g/Du) at the time of renal biopsy. Deposition of C3 complement was +3 on immunofluorescence examination. Pathological observation under a light microscope showed mesangiocapillary and endocapillary proliferation. PV was treated only with phlebotomy. Ulcerative colitis was under control with sulfasalazine. After treatment with intravenous corticosteroid therapy and oral corticosteroid therapy the patient's proteinuria decreased. On the following check-up after 6 months, proteinuria appeared high again. He was given a methylprednisolone pulse therapy followed up with oral therapy. On the last check up the result was 2.9 g/Du.

Conclusion. MPGN is usually a secondary disease and found in patients with autoimmune diseases, cancer, or infection. This is a rare case of MPGN associated with PV, ulcerative colitis and seropositive RA due to mix etiology.

PP-14 Catheter associated urinary tract infections (cauti) in patients hospitalized in intensive care unit at University Clinic of Nephrology-Skopje

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Introduction. Urinary tract infection (UTI) is common in hospitalized patients as a part of a Healthcare-associated infections (HAIs). It has been estimated that more than 80% of UTIs are associated with an indwelling catheter and notably, catheter-associated UTI (CAUTI) has been related with such complications that prolonged hospital stay, and increased cost, morbidity and mortality.

The aim of our study was to determine the related risk factors and to identify the causative agents contributing to the CAUTI and their resistance to antibiotics.

Methods. A retrospective study was conducted at Intensive care unit at University Clinic of Nephrology-Skopje on 100 patients with placed urinary catheter before or during the hospitalization. We checked up the results of urine culture, antibiogram and sensitivity/resistance to antibiotics, inflammatory markers in blood, leukocytes in urinary sediment, and the patients' comorbidity.

Results. The mean age of study was 70.3 years. Among them 53 male and 47 female, with placed urinary catheter (95% foley and 5% permanent urinary catheter) and different types of AKI and CKD [AKI=30 (30%), CKD=70 patients (70%)]. Positive urine culture was found in 65% of the patients (58.84% female and 47.69% male) in whom 26.15% with obstructive nephropathy, 49.23% with diabetes mellitus type 2, 9.23% with malignant illness of the urinary tract. Regarding the duration of catheterization, positive urine culture was found of 43.75% of the patients with urinary catheter present <5 days, 62.96% present >5 days, at 65.21% present >15 days and 90.90% in patients present >20 days. Confirmed or suspected urosepsis was found in 10%. The most common agent that cause CAUTI was Enterococcus in 30.76%, Escherichia coli (21.4%), E. coli ESBL+(11.5%), Klebsiella pneumoniae (7.7%), Klebsiella pneumoniae ESBL + (5.3%), followed by Pseudomonas aeruginosa (10.0%), and Enterobacter spp. (4.1%). A smaller proportion of CAUTI was caused by other gram-negative bacteria or by Staphylococcus spp. Microorganisms were often multidrug resistant probably following the increased use of broad-spectrum antibiotics in hospitals which is a considerable problem in ICU units.

Conclusion: An understanding of the risk factors in development of CAUTI, helps in reducing the patient complications. Shortening the duration of catheterization and sterile precautions in insertion can help in prevention on CAUTI.

PP-15 Tacrolimus intra-patient variability and metabolism type in stable kidney transplant recipients

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Introduction. Tacrolimus (TAC) is a most widely used immunosuppressive drug in transplantation. It is a challenging task for clinicians to achieve an optimal dose of TAC to reduce the chance of rejection and toxicity due to individual variability. The purpose of this study was to determine the intra-patient variability and metabolism type of tacrolimus.

Methods. Weekly tacrolimus trough levels were obtained in 40 stable kidney transplant recipients 6 months after transplantation, receiving TAC twice daily. As inclusive criteria, at least three consecutive TAC values were needed. Demographic (age, gender, body weight), laboratory (albumin, creatinine, TAC) and TAC prescription data was obtained from medical charts.

Graft function was calculated by Cockcroft-Gault Equation. TAC variability was quantified as the coefficient of variation (CV). TAC metabolism rate was estimated as the TAC blood trough concentration (C) divided by the daily dose (D). Fast TAC metabolism was defined by C/D rate below 1.05. Predictors of intra-patient TAC variability were estimated with regression analysis on the demographic, laboratory data and graft function.

Results. The mean age of study participants was 43±13.37 years, 29(72%) were men. TAC values ranged from 2.46-12.48, with mean value of 6.42±1.86 ng/ml. The median CV for the entire population was 22.49% (range 7.95%-48.12%). The regression analysis did not identify any demographic, laboratory characteristics, or graft function associated with CV. Twenty percentage of patients had CV > 30% and 12.5% were identified as fast metabolizers.

Conclusion. In our study tacrolimus did display a moderate intra-patient variability. High tacrolimus variability may identify a subset of patients who warrant increased surveillance and patient education regarding dietary and medication compliance.

PP-16 Relationship between stroke and mortality in hemodialysis patients

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Introduction. Stroke incidence in hemodialysis (HD) patients is up to 10 times greater than in the general population, but the implications for mortality after stroke in these patients are not fully understood. The aim of this study was to examine predictive value for stroke death of various clinical variables after long-term HD.

Methods. We performed retrospective single-center study to determine the risks for stroke among 261 prevalent HD patients (mean age at beginning of HD 49.69±15.59 years, diabetes 17.2%) during 10-years. Cerebrovascular disease death was defined as fatal-stroke death with evidence of compatible neuroimaging.

Results. During the 10-year follow-up, 171 out of 261 patients (65.54%) had died, 40(23%) patients from fatal-stroke, 64(37%) patients from cardiac disease (CD) and 67(39 %) patients from non-cardiovascular disease (non-CVD). Patients deceased from fatal-stroke are significantly different from patients who died from CD and non-CVD with higher systolic blood pressure (mmHg) (157.28±23.16; 135.25±21.35; 130.31±24.71, p=0.000), higher diastolic blood pressure (mmHg) (91.68±16.68; 76.62±13.97; 76.56±17.12, p=0.000), higher pulse pressure (mmHg) (65.60±14.33; 58.63±17.29; 53.75±13.82, p=0.001), higher ultrafiltration (L) (3.06±0.84; 2.74±0.65; 3.03±0.81L; p=0.045), and higher phosphate levels (mmol/L) (1.61±0.38; 1.41±0.36; 1.47±0.35, p=0.024). Kaplan-Meier analysis showed that patients

with systolic blood pressure >150mmHg (log rank, $p=0.000$), pulse pressure >65mmHg (log rank, $p=0.000$) and ultrafiltration >3.0l (log rank, $p=0.002$) had a higher mortality from fatal-stroke than patients with systolic blood pressure <150mmHg, pulse pressure <65 mmHg and ultrafiltration <3.0l.

Conclusion. Hemodialysis patients have high mortality after fatal stroke which has multifactorial reasons. Our findings confirmed the association of systolic blood pressure >150mmHg, pulse pressure >65mmHg and ultrafiltration >3l with higher mortality from fatal stroke among maintenance HD patients. Strict management of volume overload in HD patients are urgently required to direct prevention and treatment of this significant disease.

PP-17 Are renal patients with o blood type frailer and neglected on the transplant waiting list?

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Introduction. Development of the program for cadaveric transplantation requires additional information on potential risks of organ shortage. The export of blood group O donor kidneys to other blood groups leads to longer waiting times. If a certain population is characterized with less frequent O type, this problem can be emphasized. Also patients with O blood type are in higher risk of mortality.

Aim: In this study we aimed to assess the difference between renal patients and healthy subjects in respect of blood groups distribution. We hypothesize that O blood group patients are more frequent among critically ill patients.

Methods. We tested the blood groups in 1737 hospitalized renal patients in tertiary University clinic of Skopje, N. Macedonia during 6 years period. The distribution of blood groups was compared to 1547 healthy blood donors. Also the critically ill patients hospitalized in the Intensive Care Unit (ICU) were compared to the other renal patients.

Results. The healthy and renal group were not different in respect of ethnicity. We found blood group A in 757 patients (43.6%), blood group B in 281 patients (16.1%), blood group O in 588 patients (33.9%), blood group AB in 111 patients (6.4%) and these results were comparable to the blood types in the general population: 42.2%, 16.3%, 32.6%, and 8.7%, respectively. Among patients hospitalized in the ICU, there were significantly more patients with O blood type than in others 221/606 (36.4%) vs 367/1132 (32%), $p<0.05$, respectively.

Conclusion. The frailty of O blood type renal patients should imply review and further research in order to improve the balance of the transplant health care towards all blood types.

PP-18 Glucose levels during dialysis with glucose-free versus glucose-rich dialysate fluid

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Introduction. Asymptomatic hypoglycemia has been reported in both diabetic and non-diabetic patients on hemodialysis. Uremic symptoms as inadequate appetite, nausea and vomiting worsen the risk of hypoglycemia at starting dialysis. In our dialysis unit, as a standard therapeutic approach for decreasing this risk, continuous venous 5% glucose solution is applied during the glucose-free dialysate (GFD) dialysis. In this interventional study we sought to assess the glycemic control during standard starting dialysis protocol versus novel approach with glucose rich dialysis fluid (GRD).

Methods. Twenty-one dialysis patients with chronic renal failure were subsequently dialyzed using GRD (5.6 mmol/l) and GFD fluid. They did not take hypoglycemic medication prior or food during dialysis. Blood was sampled at regular intervals during dialysis. The dialysis prescription consisted of ultrafiltration (UF) up to 1l, membrane surface (MS) up to 1.4 m² and time of 2-2.5 hours. Intra-patient glycemic variability was defined by Coefficient of variation (CV). Paired t-test was used to determine the difference in glucose variability for both therapeutic approaches.

Results. The mean age of study participants was 62.9511.73 years, 7(33%) had diabetes. The two dialysis approaches did not differ in respect of starting blood pressure, UF and MS. Only two episodes of hypoglycemia occurred in both types of dialysis. The mean glucose level was higher during GRD (8.151.89 vs.6.291.33, $p=0.001$), respectively. The glucose CV was lower in GRD dialysis, but the difference was insignificant (16.97 8.86 vs. 21.0511.99, $p=0.151$). When only diabetic patients were analyzed, also the glucose CV difference was not significant ($p=0.151$).

Conclusion. The GRD approach for starting dialysis is non - inferior to standard GFD care.

PP-19 Prostatic specific antigen level and ultrasound -calculated prostate gland volume in prostatic cancer and benign prostatic hyperplasia

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Introduction. Although the levels of prostate-specific Antigen (PSA) in serum above 4 ng/ml suggest the presence of prostatic cancer, benign prostatic hyperplasia (BPH) is also frequently accompanied by levels

above this normal value. Furthermore, enlarged ultrasound-calculated prostate gland volume can also be found either in prostatic cancer or BPH.

Aim. To compare PSA levels and volume of the prostatic gland in patients with BPH and prostatic cancer.

Methods. We did retrospective analysis on all prostatic biopsies performed between April 2018 and April 2019, in our University Clinic. Patients with prostatitis were excluded. Two groups were formed based on the histopathological finding-either prostatic cancer or BPH. Both groups were subdivided by cut-off serum values for PSA-10 ng/ml, and also by the ultrasound measured prostatic gland of volume 60ccm³. The groups were compared with X squared test.

Results. Out of total 128 patients, 76 patients were diagnosed with prostatic cancer (59.37%), and 52 patients with BPH (40.63%). Patients with prostatic cancer had more often smaller sized prostatic volume 65ccm² (86%) vs 14ccm³ (18%), p=0.018, and higher values for PSA 38ng/ml (73%) vs 20ng/ml (39%), p=0.048, than patients with BPH, respectively. The correlation between PSA and prostatic volume in patients with prostatic cancer was positive and significant, but not in patients with BPH.

Conclusion. Prostate size was inversely associated with the risk of prostatic cancer at final pathology.

PP-20 Active smoking is associated with lower dialysis adequacy in prevalent dialysis patients

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Introduction. Dialysis adequacy measured by spKt/V and lower than 1.2 or URR lower than 60% is associated with a significant increase in the patient mortality rate. Patients' adherence to the medical treatment is crucial to achieve recommended targets for spKt/V. Smoking is recognized factor of non-adherence. In this study we sought to assess the association of active smoking and dialysis adequacy in dialysis patients.

Methods. 134 prevalent dialysis patients were included in 6 months observational study. Number of missed or on purpose interrupted dialysis sessions was obtained. Dialysis adequacy was calculated as spKt/V and URR. Patients were questioned about current active smoking status. T-Test and Chi-Square test were used for performing comparative analysis.

Results. The majority of patients declared as non-smokers 100(75%) and 34(25%) were active smokers. Men, younger age and shorter dialysis vintage were significantly more often in active smokers, 9 (26%) vs 25(73%), p=0.028; 57.26 12.59 vs 50.15 14.10, p=0.012; 118.59 76.25 vs 88.82 57.63, p=0.030, respectively. spKt/V and URR were significantly lower and Kt/V target was less achieved in smokers, 1.46 0.19 vs 1.30 0.021, p=0.019; 67.14 5.86 vs 63.64 8.30, p=0.002; 14(14%) vs 11(32%), p=0.023, respectively. Shorter dialysis sessions, larger ultrafiltration and higher percentage of missed/

interrupted dialysis session on patients demand were observed in smokers, 4.15 0.30 vs 4.05 0.17, p=0.019; 3.10 0.78 vs 3.54 0.92, p=0.017; 25(0.3%) vs 48(1.9%), p=0.031, respectively.

Conclusion. Active smokers, especially younger men, achieve less recommended levels for dialysis adequacy. Non-adherence to treatment duration in smokers is a problem to be solved.

PP-21 Morphometric analysis of glomeruli, clinical features and outcome in obese and non-obese focal segmental glomerulosclerosis patients

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Introduction. In the past three decades focal segmental glomerulosclerosis (FSGS) was commonly regarded as a part of obesity related glomerulopathy (ORG) a distinct entity featuring proteinuria, glomerulomegalia, progressive glomerulosclerosis and renal functional decline. The aims of the study were to evaluate the glomerular morphometry, clinical features and two years outcome in obese and non-obese FSGS patients.

Methods. The study included 35 FSGS patients (23 males, mean age 46.5±15.2 years) divided in two groups: obese (BMI ≥27 kg/m²- 18 patients, mean age 47.2±15.5 years) and non-obese (BMI <27 kg/m²-17 patients, mean age 45.7±15.2 years). The serum concentrations of proteins, albumin, cholesterol, triglyceride and creatinine were determined at the time the kidney biopsy, 6, 12 and 24 months after the kidney biopsy. Formula Cockcroft-Gault; Cockcroft- Gault (BMI < 27 kg/m²) and Cockcroft-Gault LBW (BMI ≥27 kg/m²) was calculated. Glomerular radius (GR), glomerular volume (GV) and glomerular density (GD) were compared morphometrically between two groups.

Results. At the time of kidney biopsy and 6 months later the obese had significantly lower GFR compared to non-obese. After 24months follow-up there was not any difference between groups. Obese had significantly higher GR (109.44±6.03 μm vs 98.53±14.38 μm) and GV (3.13±0.49 x10⁶ μm³ vs 2.26±0.83 x10⁶ μm³), only mildly lower GD (1.91±0.39/mm² vs 1.95±0.61/mm²) compared to non-obese. Significant positive association

between GV and BMI ($r=0.439$) was found. After 12 months follow-up significantly higher percentage of non-obese patients reached complete remission (71.4% vs 37.5%) compared to obese ($\chi^2=0.041$), but after 24 months there were no significant difference.

Conclusion. Obese patients at the time of kidney biopsy and 6 months later had already the significant lower kidney function compared to non-obese. However, after 12 and 24 months, this difference was still lower and without significance as well as after 24 months percentage of patients with complete remission between two groups.

PP-22 Clinical impact of cardiorenal anemia syndrome in heart failure

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Introduction. Cardio-renal syndrome is a very complex disease, in which both kidneys and heart are involved and create a feed-back cycle with worsening the progression and carries a bad prognosis. Based on pathophysiology, if the organ that was primary damaged subsequently leads to the damage of the other organ, and if the organ damage is acute or chronic, cardio-renal syndrome is divided in five subtypes. The prevalence of cardio-renal syndrome is highly increased by aging, on the other hand, anemia is often present in both CKD and CSV, and it is an independent risk factor, on outcome and survival of this patients. The triad of CVD, CKD, and anemia has been named cardio-renal-anemia syndrome.

The aim of the study is to evaluate the epidemiology and the classification of CRS in heart failure patients, the presence and the role of anemia in this group of patients. Cardio-renal treatment remains a huge challenge for both cardiologist and nephrologist and cardio-renal anemia syndrome is an entity that should be identified. The early identification of anemia and cardio-renal subtypes, especially in the initial stages, plays an important role in assessment of high risk patients. Also, early identification has been proven to reduce complications over the long term.

Conclusion. Appropriate intervention are important to modify reversible factors, which leads to better outcome. Tailor therapy is the best way to manage this patients.

PP-23 Connection of troponin with the onset of cardiovascular diseases in patients with chronic kidney disease

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Introduction. Despite the use of numerous biomarkers for the prediction of cardiovascular events (CVE), there is still a problem of estimating CV morbidity and mortality in patients with chronic kidney disease (CKD). The aim of our study was to investigate the association of troponin with newly occurred CVE in patients with CKD stages 3-5HD.

Methods. The prospective study included 87 patients, who were divided into four groups: CKD stages 3a, 3b, 4 and 5HD. During 18 months of follow-up, the following events were reported: myocardial infarction, worsening of the existing or newly occurred angina pectoris, cerebrovascular insult, peripheral arterial disease and cardiac death.

Results. The highest number of CVE was registered in hemodialysis patients (45.9%). Patients with CKD stage 3a had normal troponin levels, but with further progression of CKD, troponin value increased so that the highest value was found in the group of hemodialysis patients ($p=0.003$). In patients with registered CVE, significantly lower hemoglobin ($p=0.005$) and albumin values ($p=0.011$), as well as higher troponin values ($p=0.018$) were observed compared to patients without CVE. The correlation between troponin and the occurrence of CVE has not been confirmed by the Cox regression analysis.

Conclusion. Analysis of patients with CKD stages 3-5HD did not confirm that elevated troponin was a risk factor for the CVE. The finding should be analyzed in a larger study during longer follow-up time.

PP-24 Adherence to the mediterranean diet and metabolic parameters in patients with chronic kidney disease stage 5

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Introduction. Mediterranean diet has been associated with lower risk of cardiovascular disease and cancer. Dietary restrictions often imposed to patients with Chronic Kidney Disease (CKD) stage 5 leads to lower adherence to this dietary pattern, due to the limited allowance in the consumption of foods of plant origin. The aim of this study was to evaluate the level of ad-

herence to the Mediterranean diet in a sample of patients with CKD stage 5.

Methods. Fifty patients (33 men), 24 undergoing hemodialysis (HD) and 26 under peritoneal dialysis (PD) were consecutively enrolled in the study. Body mass Index (BMI) based on dry body weight was calculated and a semi quantitative food frequency questionnaire was completed in order to evaluate the adherence to the Mediterranean diet by the MediterraneanDietScore (MedDietScore). Data from the medical history of the patients were also recorded, namely the years on dialysis, medications and biochemical analyses.

Results. According to our analysis our patients (Mean age 54.4 ± 17.7 years, BMI 25.5 ± 3.87 kg/m², average duration of dialysis 6.6 ± 7.1 yrs) had medium level of adherence to the Mediterranean diet (MedDietScore 30 ± 3.27). No statistical significant differences were detected between sexes and between HD and PD patients. MedDietScore was negatively associated with age (-0.354 , $p=0.016$) but it was not significantly associated with the levels of phosphate, potassium and albumin.

Conclusion. The patients in our study had similar level of adherence to the Mediterranean Diet with the general population. Adhering to this dietary pattern did not have a significant impact on the metabolic profile of these patients.

PP-25 Hyperuricemia and CKD-new insights into novel treatments

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Introduction. Hyperuricemia is a common finding in CKD. There is no doubt about the strong relationship between CKD and hyperuricemia. It is still to be proven and open for discussion if high serum acid levels can be a result of CKD or indicate a path that leads to kidney disease. Uric acid-lowering therapy has been reported to delay the progression of kidney disease and/or reduce cardiovascular risk in patients with CKD. As we know, CKD patients are often accompanied by other comorbidities: hypertension, diabetes, ischemic heart disease, etc. These comorbidities impact therapeutic decision making, since available uric acid-lowering agents have precautions and/or contraindications in these settings, so the effective choice of urate-lowering therapy, still remains a challenge. The current urate-lowering strategies include reducing the urate production with xanthine oxidase (XO) inhibitors and accelerating the urinary excretion of uric acid (UA) with uricosuric-agents which have limited effectiveness in patients with reduced renal function. Allopurinol is widely recommended for the treatment of hyperuricemia, but requires dose adjustment in subjects with renal impairment, which may lead to a reduced benefit. Febuxostat is an alternative option for the treatment of hyperuricemia in patients with chronic kidney disease

(CKD) because it undergoes hepatic metabolism and may require less dose adjustment in association with the renal impairment.

The aim of our study was to evaluate the effectiveness of febuxostat in lowering acid uric levels in patients with mild to moderate CKD.

Methods. The follow up was six months. Levels of uric acid decreased significantly after six months of treatment with febuxostat. More than 85% of study subjects reached the target of uric acid levels less than 6mg/dL and no serious adverse events were noted. Administering febuxostat over a 6 months period appears to normalize uric acid levels and preserve or even improve kidney function in hyperuricemic patients with mild to moderate kidney disease.

Conclusion. Febuxostat is highly effective and well-tolerated uric acid lowering drug, but more studies with larger population size are needed to fully explore the clinical benefits of this novel agent.

PP-26 Vancomycin induced linear IgA bullous dermatosis in a patient on peritoneal dialysis

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Introduction. Linear IgA bullous dermatosis (LABD) is a rare autoimmune sub-epidermal bullous dermatosis, characterized by linear IgA deposition along the basement membrane. It can be induced by drugs, where half of the cases is associated with the use of vancomycin. LABD manifests as tense bullae with erythematous skin changes accompanied with pruritus, leading to creation of numerous papules covered with crusts. Histologically, there is sub-epidermal formation of bullae with variable lymphocytic and neutrophilic infiltrate, and the direct immunofluorescence (DIF) detects auto-antibodies as linear IgA deposition.

Case report. A 70-year-old man undergoing CAPD program due to ESRD, with prior implanted mechanical aortic valve, was hospitalized due to fever and suspicion on endocarditis. Empirically, he was treated with vancomycin. TEE has been made, but showed no vegetations. Urinalysis and chest x-ray were also unremarkable. There has been a regression of inflammatory parameters along with good clinical response on applied therapy so he was discharged. Two days later, he noted bullous skin changes on trunk and intertriginous area, and was hospitalized again. Skin biopsy was performed and the light microscope found clusters of inflammatory cells, predominantly neutrophils, inside of tense blisters. DIF demonstrated linear IgA deposition in basement membrane and confirmed that it was LABD probably caused by vancomycin. Vancomycin is immediately discontinued and combination of topical antibiotics and corticosteroids was administered with regression of skin changes.

Conclusion. LABD usually occurs one day to two weeks after drug administration, therefore we must always think of that entity in patients that have recently taken vancomycin. Cutaneous biopsy and DIF are the basis for establishing diagnosis. Discontinuation of drug with supportive measures leads to resolution of changes.

PP-27 N-Terminal PRO-B-type natriuretic peptide and cardiac dysfunction in hemodialysis patients

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Introduction. In hemodialysis (HD) patients plasma levels of N-terminal pro-B-type natriuretic peptide (NT-proBNP) are almost always markedly raised for reasons largely unknown. This study examined the effect of baseline NT-proBNP as a prognostic factor for determination of patients at high risk of cardiac dysfunction.

Methods. We measured NT-proBNP in 57 prevalent HD patients (mean age 50.49±12.64 years, mean HD vintage 108.70±64.46 months, diabetes 10.5%, CV disease 50.9%) to examine the relationship of this marker with cardiac dysfunction. Echocardiography was performed in all patients and left ventricular mass index was estimated using the Devereux formula.

Results. The mean pre-HD NT-proBNP value was 10229.61±10027.87pg/ml (345-35000). Patients with CV disease have significantly higher levels of NT-proBNP compared to patients without CV disease (14614.31±11302.21 vs. 5688.30±5415.47; p=0.005). There was an inverse correlation between NT-proBNP and left ventricular (LV) ejection fraction (r=-0.322, p=0.027) and a positive correlation with systolic blood pressure (r=0.379, p=0.003), pulse pressure (r=0.446, p=0.000) and LV hypertrophy (r=0.438, p=0.002). Patients with NT-proBNP >10.000pg/ml had significantly higher systolic blood pressure (151.58±25.24 vs 130.05±18.80mmHg, p=0.000), diastolic blood pressure (87.37±16.99 vs 78.21±13.89mmHg, p=0.040), pulse pressure (64.21±15.35 vs 51.84±11.23mmHg, p=0.001), LV hypertrophy (157.56±42.58 vs 121.49±37.83g/m², p=0.001) and significantly lower hemoglobin (102.51±7.63 vs 109.09±11.30 g/l, p=0.036), length of HD (3.94±0.16 vs 4.02±0.12/ hours, p=0.045) and ejection fraction (63.36±8.30 vs 68.86±6.68%, p=0.028), than those with NT-proBNP <10.000pg/ml.

Conclusion. Our results suggest that basal NT-proBNP concentration are associated with volume overload and left ventricular dysfunction in HD patients. Furthermore, identifying HD patients with NT-proBNP >10.000 pg/ml suggests that monitoring NT-proBNP may be useful for assessing cardiovascular risk in HD patients.

PP- 28 Hepatitis E virus and chronic kidney disease
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Introduction. Hepatitis E virus infection in immune compromised patients, including end stage chronic kidney disease (CKD) and kidney transplant patients, is not always a benign, self-healing disease. It can be invasive and chronic with life-threatening consequences. Transplanted patients have a high risk of developing persistent hepatitis E virus (HEV) infections and progressive liver fibrosis. Incidence and prevalence are also increasing in more developed countries. Disease is transmitted fecal-orally. The most frequent sources of HEV infection in developed countries are pigs, wild animals and insufficiently thermally processed meat products. Seroprevalence of HEV is more prevalent in patients on dialysis and kidney transplant patients.

Methods. The goal of our work is to establish HEV seroprevalence in a subgroup of 115 patients at Polyclinic B. Braun Avitum in Zagreb, which is an integral part of the national study involving more than 1,600 participants.

Results. At this point we have the results of the HEV IgG antibody assay and are still processing IgM antibodies and HCV RNA. IgG antibodies are present in 33% of subjects. More frequent in male subjects, not found in subjects younger than 40 years and more frequent in older age groups. They are more frequent in the rural population and the participants who have been in contact with wild animals and pigs. Significantly elevated in subjects receiving blood transfusions.

Conclusion. Further clinical studies are needed to clarify incidence and prevalence of HEV and clinical consequences. It is essential to educate nephrologists in prevention, diagnosis and treatment of these potentially serious hepatic disease.

PP-29 Long-term hemodialysis survivor: 33 years of maintenance hemodialysis in a diabetic female with non-cuffed catheter during last 18 years

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Introduction. In cases of frequent fistula thrombosis or when the possibility for constructing a new native AVF or arteriovenous graft (AVG) is exhausted, one or two "temporary", precurved, non-tunneled, non-cuffed, single-lumen jugular catheters can serve as long-term vascular access, with a complication rate comparable to that in "permanent", tunneled catheters.

Case report. Patient described is 63-year-old female patient with diabetes mellitus type 1 with 33-year history of end-stage renal disease and hemodialysis treatment with different vascular accesses. During her lifetime on hemodialysis she had two native AVF, five Gore-tex AVG on the both arms and thigh and tunneled Ash-split catheter inserted into the right jugular vein

which was later adherent to the right atrium wall. Because of exhausted vasculature she has been performing double-needle hemodialysis with single pre-curved, non-tunneled, single-lumen jugular catheters (for blood take) and the peripheral vein (for blood return) for last 18 years. Our case report demonstrates that it was possible to use such jugular catheter as the long-term vascular access, providing double-needle hemodialysis by using peripheral vein for blood return, for 18 years. During this time, she had one bacteremia, one *Staphylococcus aureus* sepsis and, for the second time, the adherence of the catheter tip to the right atrium wall. The peripheral veins of the legs and arms 'matured' like fistula vein, both in vein diameter (about 4.2 mm) and thickness of the wall (1mm).

Conclusion. New evidence revealed that tunneled and pre-curved non-tunneled catheters may be comparable in terms of reaching the combined endpoint of catheter-related infections and malfunction. Furthermore, our dialysis center's experience, including the case we presented on, also suggests that such jugular hemodialysis catheters locked with 30% trisodium citrate can be an efficient long-term access for hemodialysis in selected patients not eligible for an AVF or AVG creation.

PP-30 Nutritional assesment in peritoneal dialysis patients show to low protein and energy intake

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Introduction. Protein malnutrition is common in peritoneal dialysis patients and depends on many factors. The aim of the study was to analyze dietary intake of dialysis patients and to determine if it meets their nutritional needs.

Methods. A clinical study was carried out on 25 dialysis patients in the Peritoneal Dialysis Unit of University Clinical Center of Ljubljana. Nutritional interview was conducted unannounced three times over a period of one month with the 24 hour recall method. Results were analyzed with the Prodi 6.7 Expert software. Body composition has been measured with bio impedance spectroscopy.

Results. Average caloric intake of 25 patients is 22.74 ±6.54 kcal/kg body weight per day, average protein intake is 0.86±0.30 g/kg body weight per day. Average values of body weights were 73.33±13.76 kg, BMI (body mass index) was 24.26±2.53 kg/m², average lean tissue index 13.67±3.21 kg/m² and values of Phase angle were 5.08±1.17. It was monitored in 24 hours also intake of fat (0.82±0.35g/kg bw/day), carbohydrate (2.68±1.08 g/kg bw/day), sodium (3.39±6.66 g/day), potassium (2.01±0.55g/day) and phosphorus (0.87±0.29) Caloric and protein intake values were lower than recommended for dialysis patients.

Conclusion. Successful collaboration between patient and dietitian is crucial for objective results of nutritional assessment and malnutrition therapy. Protein and energy intake were found to be lower in peritoneal dialysis patients than recommended.

PP-31 Serum vitamin D levels in kidney transplant recipients

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Introduction. Hypovitaminosis D may be present in kidney transplant patients as a result of immunosuppression therapy and low sun exposure, as well as prefiguring kidney disease.

Methods. This cross-sectional study has been performed on Nephrology Clinic, University Clinical Center Sarajevo. The total of 106 kidney transplant patients had participated in the study. Based on serum vitamin D values they were divided into 3 groups: deficiency, insufficiency and sufficiency of vitamin D.

Results. Vitamin D deficiency was diagnosed in 32.2% of patients, vitamin D insufficiency was diagnosed in 60% of patients, while 7.7% had sufficient serum vitamin D values. Deficiency was associated with higher prednisone doses, use of mycophenolate sodium, tacrolimus, and lower doses of vitamin D supplementation. Furthermore, there was no significant difference in glomerular filtration rate (GFR) values between the groups. Significant medium negative correlation between vitamin D and parathormone (PTH) values was found (rho=-0.370; p<0.01). There was also no significant difference in vitamin D levels between groups of patients made based on time after kidney transplant.

Conclusion. More than 90% of patients had hypovitaminosis D. Despite potential ultraviolet B exposure, inadequate vitamin D levels were prevalent in our study group. Importantly, some immunosuppressive medications were associated with vitamin D deficiency and high doses of vitamin D were associated with less deficiency. The study showed no link between time after kidney transplant and vitamin D values as well as the no impact of vitamin D on graft function.

PP-32 Incorect course of central venous hemodialysis catheters in patients with end stage renal disease requiring hemodialysis

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Introduction. Venous catheters are commonly used for acute angioaccess. The optimal insertion site is the internal jugular vein. The subclavian site should generally be avoided because it is associated with a higher incidence of insertion-related complications. Catheteri-

zation of the femoral vein is a good choice when there is a need for short term hemodialysis (<1-2weeks).

Methods. We present six patients in which we placed central venous hemodialysis catheters. In two patients the central section of the subclavian venous catheter was shown into the internal jugular vein and then into the right atrium (No1 and No2). In one patient the subclavian venous catheter, instead of the right atrium, continued his course into the internal jugular vein (No3). In one patient the initial part of the subclavian venous catheter had curved course (No4), while in another patient the subclavian venous catheter was refolding in the right atrium (No5) and, finally, in the last patient the internal jugular vein continued its course into the azygos vein (No6).

Results. In patients No1, No2, No3 and No6 the central venous catheters were removed. In patient No5 we moved the catheter towards out. Patient No4 was treated for some time with hemodialysis using this catheter, but the catheter did not have adequate supply.

Conclusion. Hemodialysis central venous catheters sometimes during insertion follow incorrect course and may need to be moved or removed and reinserted in other site. Catheter insertion, especially in internal jugular and subclavian vein, should always be followed by a chest x-ray examination.

PP-33 Psychological evaluation of living kidney donors: why and how

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Introduction. The psychological evaluation is an important part of the preoperative evaluation of kidney donors. According to the literature data transplant centers in Europe vary in the content and methods used for psychological assessment of potential donors. The Psychological Care for Living Donors and Recipients working group of ELPAT (European platform on ethical, legal and psychosocial aspects of organ transplantation), developed an evidence-based instrument to standardize the psychosocial screening process of potential donors.

Methods. The psychological evaluation of potential donors is performed as a standard procedure at the Clinic of Nephrology in Skopje. It is implemented through semi-structured interview, Personality test and a Red Flag Checklist developed by ELPAT.

The semi-structured interview consists of 40 questions about the following topics: a) informed consent (ambivalence, determination regarding the decision of donation), b) motivation for donation and decision making process (how the decision to donate was made), c) expectations about the process (health expectations for the recipient, expectations regarding the effect of the donation on the relationship with the recipient), d) comprehension/knowledge/awareness/ understanding of the

process including potential risks, benefits, health outcomes, recovery process, e) cognitive status, f) current stressors (relationships, home, work, financial), g) adequacy of social support and donor-recipient relationship, h) socio-demographic characteristics and lifestyle.

In order to understand and describe the psychological profile (personality and psychopathology) that characterizes kidney donor, we use personality test MMPI (Minnesota Multiphasic Personality Inventory). In situation where the donor is perceived as potentially "high risk" additional psychiatric evaluation is required.

Conclusion. The purpose of the psychological evaluation is not to exclude every potential donor who has psychopathology or behavior problems, but to anticipate the risks and to provide timely psychological support and counseling.

PP-34 Increase of diabetic patients on hemodialysis and multidisciplinary challenges for nephrologists

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Introduction. Diabetes was nearly absent in our hemodialytic population before the 2000. Changing of lifestyle, westernization of food and stress have brought the increase of this morbid condition.

Methods and results. In 2005 there were 30 000 diabetics in Albania and in 2018 there are 80 000. Diabetic nephropathy is increasing too and now is our everyday clinical practice challenge. Diabetics on hemodialysis are now more and more present with their problems and difficulties that need not only nephrological but a multidisciplinary approach. Diabetic nephropathy in 2011 had only 11.3% of hemodialytic pie and now is reaching 17.2% of primary cause of ESRD in our hemodialytic population. We are below the European and North American data but in incident patients it is becoming the second predominant cause of renal failure, after the hypertensive nephrosclerosis, reaching the 25%-27%. Increasing number is translated into increased problems especially in vascular access, cardiovascular problems, diabetic foot problems, glycemic control, etc.

Conclusion. Caring about the glycemic levels, type of hypoglycemic drugs, time and dosage, eating or not during the hemodialysis session, are every session challenges. Cardiovascular problems with frequent hypotensions, coronary heart disease and cardiac heart failure are another difficult field to manage. But the most important and continuous care is that of vascular access, the "Achille's Heel" of our patients. Results from our studies reveal diabetes like the second cause of arteriovenous fistulas failure, after the age of patients, so we are reinforcing the whole medical chain for referring patients in the fourth stage of CKD for the creation of permanent vascular access, especially diabetics.

PP-35 Bacterial infections after kidney transplant

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Introduction. Kidney transplantation is the best choice for patient treatment with advanced chronic renal disease. Successful renal transplantation is depended on a good compromise between sufficient immunosuppression and adequate level of immune competence which avoid acute rejection and maintaining immunity to prevent infection occurrence, respectively. Infections remain a frequent complication.

The aim of study was to evaluate the incidence of bacterial infections in renal transplant recipients during the first year after transplantation according to different characteristics of patients and therapies aiming to recommend interventions in periods and groups with higher risk.

Methods. This is a longitudinal retrospective study, conducted in UHC "Mother Thersa", Tirana, Albania. 100 patients that had undergone renal transplantation during January 2015-December 2018, were included in the study. Patients were selected in Transplant Register. The necessary information was collected from patient individual medical files. The data was analyzed using SPSS 22 program.

Results. Mean age resulted 35.3±12.8 and male/female ratio was 1.8. In only 40 % of patients were observed at least one infectious episode. Most common were urinary tract infections 35%, predominately in male gender. E. coli was the most common causative organism (19%), followed by Proteus (10%) and Enterococcus (6%). 21% of infectious episodes occurred between 2 to 6 months after transplantation.

Conclusion. Based on the results of this study, men had higher risk of developing bacterial infections, especially UTI. The period 2-6 months after transplantation showed to have greater incidence of bacterial infections. The age group 15-31years had the greater incidence, respectively. Studies with greater samples are recommended in order to improve the quality of life in these patients.

PP-36 The challenges of bone mineral disorder mangement in a transplanted pediatric patient

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Introduction. The authors present a case report of the first total parathyroidectomy performed in our clinic in an adolescent with G 4T stage CKD associated hyperparathyroidism, secondary anemia and hypokalemia. The difficult management of postoperative complications, electrolytic balance, anemia and infections are presented in this case report.

Case report. After the surgical procedure the intact PTH values dropped significantly during the first 72 hours (from an initial of 3974pg/ml to 4,3pg/ml) manifested by severe hypocalcaemia and hungry bone syndrome. Hypocalcaemia was treated with intravenous calcium gluconate and high dose oral vitamin D. Severe hypocalcaemia manifested with multiple episodes of tetany and stridor was difficult to reduce with oral calcium carbonate treatment, requiring a longer intravenous treatment (up to 3 months). Another challenge was the control of hypomagnesemia which required long term treatment. Blood transfusions were necessary to control the anemia. Multiple infections (pneumonia, acute pyelonephritis, and catheter associated infection) were treated with broad spectrum antibiotics.

Conclusion. Parathyroidectomy is an option in patients with severe hyperparathyroidism associated to chronic kidney disease after renal transplantation. The management of mineral-bone disorder in the pediatric patients is difficult due to the lack of studies. In this case, the control of calcium and magnesium balance required up to 6 months of aggressive treatment.

PP-37 Catheter related complications in incident hemodialysis patients - ten years study

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Introduction. Vascular access is one of the most important factors that affects survival of hemodialysis patients. Native arteriovenous (AV) fistula is still considered the gold standard for vascular access. However, use of central venous catheters for hemodialysis is constantly increasing. This is largely because of the older population starting renal replacement therapy and whose blood vessels are often inappropriate for AV fistula construction. Catheter related complications include early complications, occurring during catheter placement and delayed complications, such as infection and thrombosis.

Aim: To investigate the incidence rates and risk factors for catheter-related complications in incident patients at Hemodialysis Clinic, Clinical Centre University of Sarajevo, during ten (10) year period, from 1st of January 2006 till 31st of December 2015.

Methods. Our retrospective study included 391 incident patients on hemodialysis, from whom 159 patients had catheter inserted (temporal or tunneled cuffed) and were included in further examination. Patients' demographic data, line placement and post-procedure complications were collected.

Results. Catheters were placed in 159 patients (40.6%), out of 391 incident patients. Temporary catheters (TC) had 119(74.8%) patients and tunneled cuffed catheters had (TCC) 40(25.2%) patients. Incidence rate of TC placement related complications was 2.6%, with the insufficient blood flow as the most common complica-

tion. TCC placement related complication occurred in one case (2.5%) as bleeding. Delayed catheter related complications occurred in 62(52.1%) patients with TC and in 14(35.0%) patients with TCC. Thrombosis was the most common TC complication (18.5%) while infection was the most common in patients with TCC (15.0%). Time spent on TCC represented high risk factor for the development of delayed complications. Higher number of catheter insertions was associated with catheter placement related complications and delayed complications, in both TC and TCC.

Conclusion. Incidence rate of complications was significantly higher in patients with TC, rather than in patients with TCC. Low incidence rate of placement related complications indicates that radiological-guided placement was performed safely with excellent technical success. Incidence rate of delayed catheter related complications, for both TC and TCC, was favorable in comparison with other studies reported in the literature.

PP-38 Proteinuria and anti-HLA antibody in renal allograft function

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Introduction. Proteinuria is a marker of kidney tissue injuries, regularly used in assessment of renal allograft function. The presence of de novo anti HLA antibody (Ab) can cause ABMR or "silence rejection".

The aim of our investigation was to explore their occurrence and clinical importance after transplantation.

Methods. We follow up 51 kidney transplant recipient, non-sensitized, on the quadruple immunosuppressive protocol 1, 12 and 24 month after transplantation. Anti HLA Ab were detected with Luminex technic and MFI >800 was taken as a significant. 24 our proteinuria was measured in g/L and value >0.07 was taken as a significant. Kidney biopsy was performed on the month 12 and for tissue analysis Banff classification was used.

Results. From all, 17 pts developed de novo anti HLA ab. More of them had proteinuria >0.07 on the month 12 after transplantation (3 v.s. 14, p=0.026). Also high number of pts with anti HLA ab from class I had significant proteinuria (2 v.s 11, p=0.041). Findings of C3 >2 deposition on IF was accompanied with higher proteinuria (0.51±0.5 v.s. 1.24±1.3, p=0.044). Higher percentage of pts with significant proteinuria had mix tissue injuries including ABMR and other different categories of Banff classification (42% v.s. 70%, p=0.037). Univariate linear regression analysis found donor age, presence of cat. 2 (ABMR) according to Banff classification, DSA and MFI as statistical significant prognostic values for appearing of proteinuria in kidney allografts.

Conclusion. Our study showed significant proteinuria in presence of de novo anti HLA ab and mix tissue

injuries including ABMR and confirmed them as an importance factors in follow up kidney allograft function.

PP-39 Parathyroidectomy in therapy of secondary hyperparathyroidism in UHC Rijeka

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Introduction. Parathyroid glands in the earliest stages of chronic renal failure (CRF) undergo multi glandular generalized hyperplasia in response to hyperphosphatemia, hypocalcemia, and decreased active vitamin D levels. Majority of the patients on dialysis treatment, ultimately develop refractory secondary hyperparathyroidism, a true neoplastic disorder of the parathyroid glands. Observed enhancement of parathyroid tissue apoptosis or reduced proliferation using various medications could cause significant regression of hyperplasia. However, surgical correction still remains the final therapy primarily reserved for symptomatic patients despite optimal drug therapy. As regard, the prevalence of parathyroidectomy has been lowered in the first decade of the 21st century most likely due to the introduction of active vitamin D analogs and cinacalcet.

Aim: To correlate trends in rates of parathyroidectomy in periods before and after 2003.

Results. The period from 1977 to 2003, 54 patients on dialysis underwent parathyroid surgery. The average length of dialysis treatment prior to surgery was 8.5 years. Patients were normocalcemic (2.4±0.4 mmol/l) with pronounced hyperphosphatemia (1.83±0.8 mmol/l) and markedly elevated values of PTH (37.96±57.25 pmol/l) and AF (389.05±363.82 U/ml). During the period from 2003-2018 parathyroidectomy was performed in 23 patients with a slightly shorter period on dialysis and with much higher mean values of PTH (173.2 pmol/l) and AP (228.5U/ml) which were impossible to control by drugs.

Conclusion. The study showed a sustained reduction in parathyroidectomy rates during the years, probably due to better therapeutic possibilities of secondary hyperparathyroidism controlling in early stages of CRF.

PP-40 Arteriovenous fistula stenosis and the association with other vascular access complications

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Introduction. Among the most important complication of hemodialysis (HD) arteriovenous fistulas (AVF) is stenosis. This may precipitate either AVF premature failure, AVF complete occlusion or dialysis inadequacy. Peak systolic velocities over 400 m/s and lumen reduction >50% are considered criteria for AVF stenosis.

The current cross-sectional study aims to assess the prevalence of AVF stenosis among chronic HD patients and their association with other vascular access complications.

Methods. Our study included 174 chronic HD patients, mean age of 58±12 years, 35% female, with 35.9% radio-cephalic AVF, 12.1% brachio-basilic AVF, 52% brachio-cephalic AVF, average dialysis vintage 44 months. The same nephrologist experienced in vascular access performed Doppler and B-mode AVF US scans. We also recorded the average kT/V in the week of the ultrasound assessment. The aim of the study was to analyze how many AVF stenoses were incidentally found in our patient group, as well as to see whether AVF stenosis associates with other vascular access complications.

Results. In our group of 174 HD patients, we found that 26 patients (15%) had significant AVF stenosis. There was no significant distribution difference in the type of AVF (radio-cephalic, brachio-cephalic, brachio-basilic) in the groups with/without stenosis. The AVFs that presented stenosis also seemed to develop more calcifications (68%) than the group with no AVF stenosis (34%, $p=0.04$). Moreover, stenotic AVFs tended to develop more aneurysms than the non-stenotic group-38% VS 28% ($p=0.04$). There was no significant difference in the association with dialysis efficiency, cardiac calcifications, AVF flux or inflow arterial diameters and the presence of significant collaterals ($p>0.05$).

Conclusion. Stenotic AVFs tend to develop more wall calcifications and aneurysms than non-stenotic AVFs, which may contribute to their lower survival, which is why prompt intervention should be undertaken.

PP-41 The cardiac ultrasound prognostic value in HD patients-a three years multicenter follow-up study

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Introduction. The aim this study was to assess the cardiac ultrasound role in predicting mortality in HD patients.

Methods. 1104 with CKD 5 on HD therapy in 9 HD centers have been included (average age 58.8 years, 669 males, 23% with DM). 1090 patients underwent 1/year post therapy cardiac ultrasound. Left ventricular hypertrophy (LVH), valve calcifications (VCa) and ejection fraction (EF) have been assessed.

Results. At inclusion, the prevalence of VCa was 66.2% (61.6%-single valve, 4.4% 2 valve). From the patients without VCa at inclusion, 17% died during the follow-up and 51% developed one or two VCa. In the patients with VCa, the mortality during the follow-up was higher 24.7% ($p=0.001$). At inclusion, 67.7% of the patients presented LVH. From the patients without LVH 20.2% died and 20% developed LVH. In the patients with LVH at inclusion the mortality was 24.1%. EF was found <50% at inclusion in 15% of the

patients Mortality during follow-up was significantly higher in these patients (34.9% vs 24.5% $p=0.001$). EF varied during the follow-up time. According to this variation, we divided the cohort into 3 groups: Group 1 with EF varying -5 to +5% (30.2% of the cases), Group 2 with increasing EF >5% (34.8% of the cases) and Group 3 with EF decreasing >5% (34.8%). During the follow-up, mortality was higher in Group 2 (33.4%) and significantly lower in Group 3 (23.7%).

Conclusion. Yearly monitoring of some echocardiographic parameters in HD patients may contribute to a better assessment of mortality risk in HD patients.

PP-42 "Renaissance" of kidney biopsy in Albania and adequate treatment of glomerulonephritis

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Introduction. Glomerulonephritis are still an open, beautiful and disputable field of nephrology. But treating them without a kidney biopsy leads to more open, disputable, unsatisfactory and sometimes dangerous results. Our University Clinic of Nephrology has really a successful background and history in this field with a lot of kidney biopsies during the 1985- 1990, published also in foreign reviews. Than with the political system transition to democracy accompanied with forms of depression in several fields of medicine and not only, the biopsy slowly, gradually was left aside. It was a holster of about 2 decades without this crucial examination in the field of glomerulonephritis. The "renaissance" was very welcomed also not in a public hospital. Now is about ten years that we treat glomerulonephritis after having the kidney biopsy results.

Material and results. The first data and results are satisfactory: Our diagnosis changed in about 30-35% of cases and our treatment too. The strategy and management of our patients changed in about 23% of cases this especially in grave proteinuria and unresolved acute kidney injuries with active urinary sediment. Forms of glomerulonephritis diagnosed were as follows: IgA nephropathy 19%; Focal segmental glomerulosclerosis 17%; Membranous GN 16%; Membrano-proliferative glomerulonephritis 15%; Minimal change Disease 12%; Lupus nephritis 8%; ESRD 4%; Rapid progressive glomerulonephritis 2%; Pauci imun glomerulonephritis 2%; Amyloidosis 1%; Diabetic nephropathy 1%; IGM glomerulonephritis 1%; C3 glomerulopathy 1%; Post preeclampsia nephropathy 1%. There were few complications including hematoma, hematuria. The regimens implemented for these glomerulonephritis treatments were: Ponticelli regimen, Pozzi regimen, oral prednisone, methylprednisolone pulse, cyclosporine, mycophenolate mofetil.

Conclusion. Following the international guidelines, Italian experiences and studies, Anglo-Saxons directives or mixing together to have a tailored therapy for each patient's clinical presentation and its' specifics is very

important but the most important thing is to have clear form of glomerulonephritis to cure for whom the kidney biopsy is a crucial and unsubstitutable tool.

PP-43 The use of ultrasound in determining the position of central venous catheter for hemodialysis - flow signal

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Introduction. Central venous catheters (CVC) are common vascular access for hemodialysis. The introduction of a catheter into a blood vessel is associated with many risks due to the proximity of vital organs and previously damaged blood vessels. The use of ultrasound is of great help in orientation, introduction and positioning of CVC.

Methods. Before inserting the CVC patients undergo ultrasound examination of the neck blood vessels. Ultrasound guided internal jugular vein catheterization is performed. After catheterization, position of the catheter tip can be determined by ultrasound. After visualization of the right atrium a jet stream of 20 ml saline is injected through the venous line of catheter. If the catheter is in the correct position jet stream is ultrasonically visualized in the right atrium ("a flow signal"). Absence of "flow signal" tells us about the abnormal position of CVC. Orientation with the ultrasound examination is very important in cases of emergency dialysis or revision of CVC position.

Results. In our center all catheterization are made under ultrasound guidance. Percentage of the blood vessel puncture with the first puncture is 83%, and the number of complications such as puncturing the carotid artery, hematoma, pneumo/hemothorax is negligible. The position of the catheter is routinely confirmed by chest X-ray, patients who must be urgently dialyzed undergo echocardiography, and after the hemodialysis chest X-ray is performed.

Conclusion. Ultrasound is not only an immense help, it also has a major role to determine position of the catheter tip. In urgent cases it shortens the time from catheterization to the initiation of hemodialysis. The X-ray identified anomalies of position and attempting to revise the same reduces the number of x-rays.

PP-44 Vascular approach as a predisposing factor for infections in hemodialysis patients

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Introduction. Frequent infections in patients treated with dialysis are one of the most common causes of mortality and morbidity in that population. In these patients, infections are most often associated with dialysis access.

Aim of this study is to point to high risk of infections in patients with central venous catheter (CVC) and the need for creation of preventive AV fistula.

Methods. We examined hemodialysis patients at the Clinic for nephrology, Clinical Center of Montenegro, and their medical documentation. The research was carried out retrospectively for a period of 3 years (January 2016.-January 2019). Obtained results were processed with descriptive statistics.

Results. Study showed that 22 patients had some form of infection and they were on a chronic hemodialysis program in the observed period, independently of the vascular approach. In that period, 80 to 85 patients were treated monthly with hemodialysis. Of 22 patients 16(72.7%) had CVC and 6(27.3%) were on immunosuppressive therapy. All 22 had comorbidities. Four patients had positive hemocultures. Staphylococcus aureus was isolated in three patients, Citrobacter and Enterococcus were isolated in one patient. Three had a positive urine cultures and one was positive for hepatitis B. Febrile state was clinically dominant in 15(68.2%) patients without any other manifestations. Sepsis was diagnosed in 4 patients. One respiratory, urinary and infection of soft tissue each were also verified. Three patients (13.6%) died and 19(86.4%) were cured.

Conclusion. Of infected patients, 72.7% had CVC which has the highest risk for the development of infection from all vascular approaches, but there is still a large number of patients who start treatment with hemodialysis via CVC.

PP-45 Intradialytic blood pressure in hemodialysis patients

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Introduction. Hypertension is a major risk factor for renal disease. Conversely, chronic kidney disease (CKD) is the most common form of secondary hypertension with mutual influence. In patients treated with hemodialysis, hypertension is common and often poorly controlled. The aim of the study was to investigate the rate of intradialytic hypertension (IDH) and its associated factors among patients with chronic kidney disease.

Methods. In a cross-sectional study one hundred-forty five patients with chronic renal disease treated with hemodialysis (HD) for at least 3 months in the Fieri regional hospital in Albania during the year 2018 were enrolled in the study. Demographic and clinical characteristics and ultrasound findings were evaluated. A multivariable linear regression model was used to find factors associated with pulmonary artery pressure.

Results. The mean age of participants was 59.9±13.2 years. 65(44.8%) of the sample were females and 80 (55.2%) males. The mean duration of HD was 36±29 months. The mean uricemia value in females was

5.68±1.40 mg/dl, while in males was 6.45±1.66 mg/dl, ($p=0.01$). There was no significant difference in systolic and diastolic blood pressure according to the stages of dialysis ($p=0.6$). The prevalence of IDH was 21.3%. Males had a significantly higher prevalence than females ($p<0.01$). In multivariate analyses, predictors of the IDH were volume excess ($p=0.02$), serum albumin levels ($p<0.01$) and intradialytic hypotension ($p<0.01$). **Conclusion.** Clinicians assess the prognostic significance of intradialytic BP profiles and its change over time to prevent cardiovascular events and mortality.

PP-46 Mortality analysis in patients on maintenance hemodialysis-single center experience

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Introduction. Despite the development and advancement in medicine, mortality rate amongst hemodialysis patients is still high. According to literature data it is around 8-10% in Japan, 15-20% in Europe, and the highest in the USA, around 30%.

Methods. We performed a retrospective observational single center study in patients on maintenance hemodialysis (HD) within February 2014 to June 2019. We assessed crude mortality rate in correlation to primary cause of end-stage kidney disease (ESKD), dialysis vintage, comorbidities and causes of deaths.

Results. The number of patients who died within February 2014-June 2019 was 72. In 2014 out of 72 patients on maintenance hemodialysis there were 8 deaths. In 2015, 80 patients were treated and 14 died. In 2016 fifteen out of 87 patients died. The mortality rate in 2017 was 13.68% and in 2018 15.79%. In the first six months in 2019 out of 92 patients treated in the center there were 7 deaths. Regarding the primary cause for ESKD, arterial hypertension (HTA) was predominant (37.5%), followed by DM type II (27.8%), obstructive nephropathy (13.9%), chronic glomerulonephritis (11.1%), adult dominant polycystic kidney disease (5.5%) and other (4.2%). The youngest patient had 31 years of age, and the oldest was 85. There was slight female predominance in the mortality rate, males were 32 (44.5%) and females were 40 (55.5%). The mortality rate according to dialysis vintage was: < 90 days on HD 31.9%, 3-6 months 2.8%, 6-12 months 9.7%, 1-5 years 40.3%, 5-10 years 9.7%, and >10 years 5.6% deaths. The causes of death were as follows: cerebrovascular event 29.2%, sudden cardiac death 27.8%, and terminal malignant disease 25%, complication regarding vascular access 8.3%, and other 9.7%.

Conclusion. It can be concluded that the overall mortality rate in a single center is 15-17% which is close to the average in Europe. The primary cause for ESKD in the patients who died was HTA and DM type II. Mor-

tality rate was higher in female than in male. Cardiovascular comorbidities were amongst the most frequent, but in the recent years also malignancies are becoming significant. Regarding the dialysis vintage, the highest mortality rate is in patients who are <90 days on HD and between 1-5 years.

PP-47 Hematological disorders after kidney transplant

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Introduction. Renal transplantation is the best choice for treating patients with advanced stages of chronic renal disease. A successful renal transplant relies on a good combination of immunosuppressive therapy and the maintenance of an appropriate level of immune defense of the body, avoiding acute bone turnover and the occurrence of possible infections.

Aim: The purpose of this study is to determine the incidence of hematological disorders in transplant patients, categorized according to 3 main periods in the first year after the transplant, in order to intervene rationally in the most frequent periods and groups up.

Methods. This is a longitudinal retrospective study conducted in Albania at the University Hospital Center, QSU "Mother Teresa", Tirana. This study included 97 patients who performed renal transplantation between January 2015 and December 2018. Patients were selected from the Basic Transplant Record. Based on the individual patient records, information was available about the hematological disorders that these patients had during the first year after the transplant. Statistical data packets SPSS 22 were used in data processing.

Results. The average age of the patients in the study was 35.3±12.8 and the male/female ratio was 1.80. Predominate patients who have had a hematological disorder during the first year after the renal transplant. The worst hematologic disorders were post-transplant anemia 38%, cytopenia after transplantation of 12% of which thrombocytopenia was most frequent and no high mortality. The most frequent episode of disorders was the second post-transplant period, from the 2nd to the 6th month. The most common etiologic causes were viral infections and immunosuppression.

Conclusion. Based on the data analysis of this study, the most endangered by hematological disorders are male patients and the highest risk period is the second post-transplant period. Patients under treatment with high doses of immunosuppressive treatment were most affected by hematological disorders. The most affected age group was 15-31 years old. Larger studies in the population of transplanted patients are recommended to interfere with improving the quality of life in these patients.

PP-48 Erysipelas in dialysis patient

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Introduction. Cellulitis/erysipelas is a clinical diagnosis based on erythema, swelling and local tenderness of the skin and subcutaneous tissues accompanied by fever and malaise. Cellulitis of the lower limb shares several clinical characteristics with deep venous thrombosis (DVT) and both have variability of clinical signs. These factors may lead to diagnostic uncertainty, which is particularly important in pts with clinically diagnosed cellulitis who are slow to respond to antimicrobials. Erysipelas is an infrequent infection of the skin and soft tissues. Streptococcal etiology is more common in rural areas and females, and the average age is approximately 60 years. Pts often have comorbidities such as DM 2, venous insufficiency in the leg and chronic lymphedema, leg ulcers and chronic renal failure. All these conditions favor local infections or are capable of compromising the immune system.

Case report. 65 years old female patient with primary diagnosis APKD; with edema, pain and redness of left lower limb. Blood count was insignificant, only CRP was elevated at the beginning (74.4) and slowly declined to normal values with treatment (2). Blood test for hemostasis showed elevated d-dimers with secondary activated fibrinolysis. Patient was firstly treated with quinolone group of antibiotics, clarithromycin 500mg, and LMWH in the days of hemodialysis. There was slight improvement of the condition. The edema, redness and pain of the leg remained, so hospitalization was indicated. She was switched to double therapy with ciprofloxacin and clindamycin, LMWH 4000IE. remained. After two weeks, she was dismissed from the hospital. Doppler ultrasonography of lower extremities found masses in the right VFC and VF. After three weeks of therapy there was normalization of values of d-dimers and INR, OAK was stopped. Her condition improved after one month from the first appearance of the disease. Edema and redness of the lower limb disappeared; only brown pigmentation remained. Therapy with sol. boric acid locally, tabl.ACE selen 1x1 caps Serapeptase 1x1 for 20 days remains. Because of the difficulty of obtaining bacterial cultures from patients with cellulitis/erysipelas the microbiology of these common infections remains incomplete. Positive blood cultures in the most cases showed streptococcus pyogenes (46%) after that staphylococcus aureus (14%), and on the third place gram negative microorganisms 11%. Blood cultures are unlikely to change the management of simple located SST in otherwise healthy. Immunocompromised pts however, because of the potential for deep tissue involvement cultures are useful in pts with severe infections or signs of systemic involvement in older or immunocompromised pts. Imaging studies are not indicated for simple SSTs. Plain RTG<US, CT, or magnetic resonance may show soft tissue edema or fascial thickening, fluid collections or soft tissue air. Immunocompromised pts are more prone to SST and

may not demonstrate classical clinical features and less findings because of their attenuated immune response. Diagnostic testing should be performed early to identify the causative organism and evaluate the extent of involvement and antibiotic therapy should be commenced to cover possible pathogens, including atypical organisms that can cause serious infections (resistant gram-negative bacteria, anaerobes, fungi). Pts admitted with lower limb cellulitis prospectively underwent a likelihood assessment for DVT using the Wells criteria followed by investigations with d-dimers and ultrasound.

Conclusion. Severe venous congestion produces a clinical appearance that can be indistinguishable from the appearance of cellulitis. Pts with warm, swollen, tender leg should be evaluated for both cellulitis and DVT, because pts with primary DVT often develop a secondary cellulitis while pts with primary cellulitis often develop a secondary DVT. Superficial thrombophlebitis, likewise is often associated with a clinically inapparent underlying DVT.

PP-49 Significant differences in mortality between diabetic versus non-diabetic hemodialysis patients: the 5 year follow-up analysis

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Introduction. The study objective was to determine the differences between diabetic and non-diabetic hemodialysis (HD) patients, at initiation and during the 5year follow-up analysis.

Methods. A total of 261 HD patients (mean age 49.69±15.59 years, diabetes mellitus 17.2%), were prospectively followed up for 60 months. We examined several risk factors at initiation of HD and uremia and dialysis related risk factors during 5 year HD treatment.

Results. At initiation of HD, diabetic vs non-diabetic patients were significantly older (55.64±11.89 vs 48.44±15.38 year, p=0.00), had higher systolic blood pressure (175.64±26.11 vs 165.81±28.08 mmHg, p=0.04), pulse pressure (81.79±22.61 vs 68.41±20.64mmHg, p=0.00), left ventricular mass index (176.46±50.46 vs 156.01±47.59 g/m², p=0.04), but lower creatinine (755.50±301.37 vs 1024.86±373.91 μmol/l, p=0.00) and albumin (34.32±5.29. vs 37.81±5.86 g/l, p=0.001). An estimated glomerular filtration rate (eGFR) was significantly higher in diabetic vs non-diabetic patients (8.31±4.01 vs 6.01±3.26 ml/min, p=0.04). During the HD treatment diabetic vs non-diabetic patients have lower hemoglobin (100.26±16.13 vs 105.53±13.37, p=0.02), albumin (36.53±3.96 vs 38.54±3.21, p=0.00), but higher CRP (26.00±39.04 vs 15.92±20.53, p=0.001) and left ventricular mass index (169.38±41.75 vs 138.13±51.28, g/m², p=0.006). Kaplan-

Meier analysis showed that all cause (log rank, $p=0.012$) and CV mortality (log rank, $p=0.008$) were significantly higher in diabetic vs non-diabetic patients. When compared with non-diabetic patients, HR for all-cause (1.8; CI95%1.16-2.75, $p=0.008$) and CV mortality (2.1; CI95%1.24-3.52, $p=0.006$) was significantly higher for diabetic patient.

Conclusion. We concluded that diabetic patients, despite the higher eGFR at initiation of HD, have higher all-cause and CV mortality which has multifactorial reasons.

PP-50 The predictors of parathormone variability in hemodialysis patients

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Introduction. KDIGO Clinical Practice Guidelines recommended that in hemodialysis (HD) patients serum parathormone (PTH) levels should be maintained in the range of approximately 2-9 times the upper normal limit for the assay.

The aim of the study was to evaluate the predictors of PTH variability in HD patients over a 12 months period.

Methods. The study encompassed 398 patients (256 M and 142 F) with the average age 59.64 ± 13.29 years and the average HD vintage 78.63 ± 64.26 months. Over a 12 months period serum calcium, phosphorus, alkaline phosphatase (APh), oral calcium carbonate daily dose, oral calcitriol weekly dose, and dialysis fluid calcium concentration were monitored monthly, and PTH at 6 months. According to PTH assay reference level (18.4-80.1 pg/ml) 3 groups of patients were categorized: patients with low PTH <160 , with target range PTH=160-721, and with high PTH >721 . For statistical analysis chi-square test, combined analysis of variance with repeated measures and logistic regression analysis were performed by softer SPSS.

Results. Over a 12 months period the number of patients with low PTH significantly decreased, but the number of patients with target range PTH and high PTH increased. In 35 patients consistently hemodialyzed with dialysis fluid $Ca=1.25$ mmol/L the highest Ca and Pi and the significant increase of PTH and APh were observed. In 24 patients consistently hemodialyzed with dialysis fluid $Ca=1.75$ mmol/L, the lowest Ca and Pi and the significant decrease of PTH were observed. In 195 patients consistently hemodialyzed with dialysis fluid $Ca=1.5$ mmol/L, no significant changes in Ca, Pi, PTH and APh were observed. The dialysis fluid $Ca=1.75$ (OR=8.33), increased Ca (OR=7.7), and presence of diabetes mellitus (OR=2.44) were the most significant

predictors of low PTH <160 , but the increased Ca (OR=6.88), dialysis fluid $Ca=1.25$ (OR=5.08), and increased Pi (OR=2.72) were the most significant predictors of high PTH >721 by model of logistic regression analysis.

Conclusion. The prolonged use of dialysis fluid with high calcium concentration and oral calcitriol high dose in patients with low level of calcium led to PTH decrease, but prolonged use of dialysis fluid with low Ca concentration and oral calcitriol low dose in patients with high level of calcium led to PTH increase.

PP-51 Urinary tract infection in adults living in the community

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Introduction. Urinary tract infection (UTI) is one of the most commonly diagnosed infections in adults. Consensus guidelines have been published to assist clinicians with diagnosis and treatment of urinary tract infection, however, diagnosis, management, and prevention of urinary tract infection in the general population is still challenging.

Aim of our study was to evaluate incidence of UTI in a general population of age >18 years, and to find factors associated with UTI.

Methods. Patients of age >18 years followed by the general practitioner (GP) during January-June 2017 were included and screened for the presence of genitourinary symptoms and/or a significant bacteriuria with a quantitative count of ≥ 105 colony forming units of bacteria per milliliter (CFU/ml) in one urine specimen.

Results. 2820 patients needed the GP consultation during the study time. 74(2.6%) patients completed criteria for the diagnosis of UTI. The ratio female (69%)/male (31%) was 2.2/1, and the mean age was 56 ± 12 years. Patients >65 years were (37%). Comorbidity was present as prostatic hypertrophy and urinary retention (12%); Diabetes Mellitus (19%); dementia and bladder incontinence in 6%. Patients with recurrent UTI were 35%. No one had a urinary catheter. Comorbidity was independent predictor of recurrent UTI: odd ratio 31; confidence interval 2.4-417.4; $p=0.008$. The frequency of localized genitourinary symptoms were: dysuria (40%), frequency and urgency (2.5%), lower abdominal pain (22.9%), back pain (25.7%), hematuria (15.4%), fever or chills (15.4%). Escherichia coli was found in all of urine cultures performed.

Conclusions. The diagnosis and treatment of UTI remains a significant challenge for clinicians caring for adults. Older adult patients with comorbidity should have frequent examination and longer follow up.

PP-52 Treating secondary glomerulonephritis right by treating primary disease

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Introduction. Happiness is when we diagnose a hidden, treatable secondary cause of glomerulonephritis - this very nice statement that I have seen last month brought me to report a successful case of remission of glomerulonephritis due to hepatitis C treatment.

Case report. A 34 year-old female was admitted in Nephrology Unit for malaise, hypertension, purpuric cutaneous lesions in both legs and face, arthralgia, acute renal failure. She revealed Hepatitis C positivity. After full immunologic screening resulted a low complement (C4) titer, positive type II (IgM) cryoglobulins, increased rheumatoid factor, positive anti HCV and very high levels of HCV-RNA(over 4 million copies). After the kidney biopsy that resulted Type 2 cryoglobulinemic membranoproliferative glomerulonephritis she was treated with rituximab and for a period of one year she was on remission. The hepatitis continued to be untreated, active and after rituximab it aggravated with higher titers of HCV RNA. Finally she initiated interferon and ribavirin combination for the treatment of Hepatitis C with a lot of hematological and infectious side effects. At the end of treatment, the HCV RNA decreased but did not became negative, the hepatitis was not eradicated, not fully recovered. Six months later she presented with proteinuria, microscopic hematuria, hypertension, high cryoglobulin levels and purpuric lesions especially in legs and face. The evident hepatic fibrosis in elastography and the high HCV RNA titer were imperative for an aggressive, modern, costly treatment like HARVONI (ledipasvir 90 mg and sofosbuvir 400 mg) 1 tablet per day for three months. After three months of therapy she was HCV RNA negative. Two months later her glomerulonephritis was on remission. She presented in our ambulatory last month, one year after the treatment with HARVONI and she is still in remission without proteinuria, hematuria, and hypertension.

Conclusion. When diagnosing a secondary glomerulonephritis we better need to treat the primary cause for having the satisfaction of kidney recovery.

PP-53 Urinary tract infections (uti) caused by intra-hospital strains of bacteria at the University Clinic of Nephrology in Skopje

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Introduction. Urinary tract infections (UTI) are among the most common infections caused by intra-hospital strains of bacteria. Many studies show that they account for 23-49% of intra-hospital infections. The most common triggers are Gram negative bacteria and they contribute significantly to the increase in morbidity, mortality and costs of treatment. The risk factors for UTI include female sex, urological interventions, other pre-

sent infections, diabetes mellitus, chronic kidney disease/hemodialysis, antimicrobial therapy, etc.

Methods. At the University Clinic of Nephrology in Skopje, a retrospective study was conducted where positive urine cultures for intra-hospital bacteria strains were analyzed in patients who were hospitalized at the Clinic for various reasons over a period of 2 years. The study analyzed a total of 84 pts (45 women and 39 men, average age 55g). Analyzed data: primary disease (especially DM and carcinomas) and comorbidities, gender, age, clinical and laboratory signs of infection, urine cultures, urological interventions, administered antibiotics and antimicrobial resistance in some of them.

Results. In most of the patients there was only one bacteria as a cause of the infection (90.7%), while in 9.3% of the patients there were two bacteria as causes of UTI. Raised values of Le and CRP, as well as febricity, were registered in the majority of patients (80%). Urosepsis was reported in 7 patients. Diabetes mellitus had 16 patients (19%); patients with transplanted kidney (15 pts-17.8%) in whom there was no positive urinary culture, still antibiotics were given because of immunological suppression; obstructive nephropathy and suspected/confirmed malignant process (part of patients with JJ stents) had 12 pts (16.6%). The most common triggers: Escherichia coli (39.1%, mostly ESBL+), Klebsiella spp (18.7%, part of them ESL+), Pseudomonas aeruginosa (12.5%) and much less Proteus mirabilis, Enterococcus faecalis and etc. Most of the infections were treated with imipenem/meropenem, tazobactam or colistin (according to an antibiogram). Several results were obtained where only one antibiotic was susceptible. Vancomycin resistant Enterococcus was registered in 2 cases and was treated with Linezolid.

Conclusion. The examined patients were in large part at risk factors that could not be affected (underlying disease, comorbidities, etc.) but there are factors that can be affected. First of all, it is implementation of all measures for prevention of intra-hospital infections - rational setting of urinary catheter, urological interventions and rational administration of antibiotic therapy.

PP-54 Short-term postpartum follow-up of patients with chronic hypertension and preeclampsia by the nephrologist

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Introduction. Hypertensive disorders in pregnancy cause significant maternal and fetal morbidity and mortality and may cause future renal complications.

The aim of our study was to define management of hypertension short-term postpartum as well as the renal outcomes and the need of further check-ups of these patients by the nephrologist.

Methods. Patients with chronic hypertension and preeclampsia were referred to the University clinic of nephrology for a checkup after delivery. The check-up included blood pressure measurement, kidney ultrasound, 24-hour proteinuria, serum creatinine, estimated GFR according to Cockcroft-Gault and determination of risk factors.

Results. A total of 80 patients with chronic hypertension or preeclampsia were referred postpartum to the University clinic of Nephrology in the period 2016-2019 for a regular checkup. Sixty patients had chronic hypertension and twenty had preeclampsia. At a mean time of follow up 90 days after delivery, mean blood pressure (BP) was 135/90 mm Hg and the mean glomerular filtration rate was 112 ml/min. Thirty percent of patients had a blood pressure of 140/90 mmHg or higher and received antihypertensive medications (95% of patients received Methylodopa and 5% received other antihypertensive drugs). Proteinuria was present in 10% (8 patients) and proteinuria and hypertension was present in 5% (4 patients). Kidney ultrasound revealed normal findings in 74 patients, unilateral kidney hypoplasia in 5 patients and suprarenal adenoma in 1 patient. Glomerulonephritis was proven by renal biopsy in 4 patients. Risk factors for uncontrolled hypertension (BP >140/90 mmHg) were age, preeclampsia and persistent proteinuria.

Conclusion. Regular checkups by the nephrologist for women with chronic hypertension and preeclampsia postpartum are recommended.

PP-55 Some psychological specifics in patients on hemodialysis

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Introduction. Chronic Renal Disease is a public health problem that tends to take dimensions of epidemic. Statistical data confirm that CKD affects 10-15% of the adult population worldwide and is associated with poor quality of life, increased risk for cardiovascular disease, and reduced life expectancy. Frequent hospitalizations and dependency on technology and providers place individuals with CKD at high risk for multiple safety events. Threats to their safety may be physical, emotional, or psychological. Additionally, protein-bound uremic toxins (PBUTs) play a role in the multisystem disease with a serious threat for the function of nervous system and psyche. In this context, the level of anxiety and depression are confirmed to be high, as well as some personality characteristics.

The aim of our study was to evaluate the level of depression and personality characteristics in a group of randomly selected patients treated with hemodialysis.

Methods. The evaluated sample comprised 230 patients, mean age 55.5±13.5 years, with duration of dialysis about 6.5 years, and both genders. Used psychometric

tools were Beck Depression Inventory, Taylor Alexithymia Scale, as well as MMPI-201.

Results. Obtained results confirmed variable level of depression (minimal in 21-43%, mild in 35-71%, moderate in 17-85% and severe in 14-28%) significantly positively correlated with age and educational level. Scores for TAS-20 showed that 50% of patients were indicative for alexithymia construct, 18% had possible alexithymia and the rest of 32% were non-alexithymic. MMPI-201 showed hypersensitivity, depressive mood, and withdrawal from friends and relatives. More specific emotional traits were accentuated anxiety, low level of hostility but very high positive aggression which destroys their social communications.

Conclusion. Study confirmed psychological specifics in patients treated with hemodialysis and need for some psychological interventions (support, cognitive-behavior therapy, biofeedback, and in some patients medications). However, the team which is responsible for this group of chronic patients' needs the collaboration with psychologist/psychiatrist for preventing serious problems with suicide as a threatening possibility.

PP-56 Be aware of bilateral renal artery thrombosis in acute kidney injury and atrial fibrillation patient

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Introduction. Renal infarction is an underdiagnosed and underreported event which needs to be diagnosed rapidly to prevent permanent loss of renal function. It is often mistaken for more benign pathology and is worthwhile reviewing and reporting.

Case report. 77-year-old female patient was admitted with symptoms of weakness, dyspnea, diarrhea and anuria starting week before admission. One month prior to hospital admission she had abdominal pain in the right upper quadrant, similar to cholecystic pain, which she had suffered many years ago (Gilbert syndrome) which was resolved by cholecystectomy. She had a history of chronic atrial fibrillation and was off anti-coagulant drugs. Her relevant past medical history included hypertension and dyslipidemia. Physical examination revealed no obvious abdominal pain, flank tenderness, a blood pressure of 130/80 mmHg and an irregular rhythm with a heart rate of 110 beats per minute. She was afebrile, with normal saturation, had peripheral edema and bilateral pleural effusion.

Laboratory studies on admission, showed white blood count $10.8 \times 10^3/\text{mm}^3$, absolute neutrophil count $7.8 \times 10^3/\text{mm}^3$, red blood cells count $4.06 \times 10^6/\text{mm}^3$, hemoglobin level 11.3g/dl, thrombocytes count $425 \times 10^3/\text{mm}^3$, normal liver functions tests, a tendency for hyperkalemia, normal INR and prothrombin level and high urea and creatinine level (152 mg/dl, 10.2mg/dl, respectively).

On hospitalization, the first most important step was solving the rapid decline in renal function and anuria so we started treatment with hemodialysis. The second step was a more accurate diagnosis of this unexplained AKI and for this, it was immediately performed a total body contrast-enhanced computed tomography (CT). No signs of pancreatitis or kidney stones were found, but multiple micro areas of infarction in the left kid-

ney, as well as a superior hemi renal infarction in the right kidney, were reported.

Conclusion. Renal infarction is an easily missed diagnosis due to its nonspecific presentation. Sudden onset of abdominal pain with nausea and vomiting, and high aspartate transaminase and lactate dehydrogenase in a patient with atrial fibrillation should raise high suspicion for renal infarction. Early diagnosis, early anticoagulation, and early thrombectomy is the key to rapid recovery.