Oral presentations

OP-01 AKI and SIADH in patient with hemorrhagic fever and renal syndrome (HFRS)

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Introduction. Hemorrhagic fever with renal syndrome (HFRS) is a rodent borne disease, which is manifested with elevated temperature, headache, abdominal back pain, hypotension, multisystem bleeding, and acute kidney injury-AKI. The HFRS most commonly passes through five clinical stages, such as: febrile status, hypotension, oliguria, polyuria phase, and recovery phase. Those who survive the illness may develop chronic renal failure. Studies show that severe neurological manifestations such as encephalitis or meningitis can occur in HFRS. Some authors have described rare cases of pituitary gland and pituitary insufficiency in patients with HFRS.

Case report. Male patient, aged 27, admitted to the intensive treatment unit with high febricity, headache, abdominal and lumbar pain both sides, nausea, vomiting, bilateral conjugal effusion, hemorrhagic diastase from the nasal mucosa. At admission oliguric, with macroscopic hematuria. Thrombocytopenia and AKI were observed-serum creatinine level 776 μmol /l. Initially, there was doubt about the HFRS diagnosis, since it was winter time (January) and seasonal characteristics of the HFRS in Montenegro has distribution of the disease during the summer and early autumn. After admission, serological testconfirmed HTN (Hantaan) serotype. He had a positive socio-epidemiological anamnesis, drinking forest water and professional exposure to rodents in his working environment. He was treated with polysymptomatic therapy and diuretics, and in the next seven days there was a recovery of renal function with appropriate diuretic and normalization of serum concentrations of nitric waste products, as well as platelet counts. On the eighth day of hospitalization heavy polyuria began to develop - 8 liters of diuresis in 24 hours, with simultaneous hyperkaliemia (8.7 mmol/l), followed by the development of quadriplegia. Serum and urine analyzes (osmolarity, osmolality, and electrolyte concentration) indicated SIADH syndrome-an inadequate excretion of antidiuretic hormone. The MRI (magnetic resonance) of the endocranium showed hemorrhages in the pituitary gland, followed by pituitary necrosis. The patient was treated with RRT-hemodialysis and there was recovery of the diuresis, electrolyte status and acidosis status. He had a transient leap of serum liver enzyme activity. Further monitoring of the patient showed a consequential damage to the renal function with the development of chronic renal failure (CRF) with creatinine clearance of 0.68 ml/s and presence of proteinuria. The control pituitary MRI, after year and a half, had finding of an empty sella syndrome with a normal hormonal status. Patient was under continuous control of endocrinologists and nephthalmologists.

Conclusions. Some patients have severe neurological manifestations and severe pituitary insufficiency within the HFRS. After such Hantaan virus infection, some patients may require lifelong hormone substitution therapy and all patients with HFRS should be closely monitored with regard to endocrine complications.

OP-02 General characteristics and predictors of acute kidney injury due to leptospirosis in Albanian population

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Introduction. Acute kidney injury (AKI) is common in leptospirosis. It is usually characterized by hypokalemia and non-oliguric forms of AKI. Low urine output and hyperkalemia are associated with poor outcome. The aim of this study is to investigate predictors of oliguric AKI in leptospirosis and identify characteristics of this condition in the Albanian population.

Methods. A retrospective study enrolled 119 consecutive adult patients diagnosed with leptospirosis, admitted at Infection Diseases and Nephrology Department of University Centre "Mother Teresa" Tirana, Albania from 2010-2015. Patients who developed AKI were analysed. The markers of oliguria were analysed by receiver operating characteristic (ROC) curves.

Results. Age range comprised patients from 15-78 year, mean age 48+15.4. 92% were male and 8% female. LOS was 14.1+7.4 days. 95 patients developed AKI. Among them, 18.9% were oliguric and 81.1% non-oliguric. ROC curves were used to assess the prediction for developing oliguria. AUC for albumin on admission was 85.4%, with sensitivity of 90% and specificity of 71.1% at cut-off value <2.7 g/dl. AUC for creatinine on admission was 76.9%, with sensitivity of 83.4% and specificity of 64% at cut-off value ≥3.84 mg/dl. AUC for HCO_3 on admission was 76.9%, with sensitivity of 68.7% and specificity of 79.1% at cut-off value <18.4mEq/L. Almost 50% of the analysed population developed severe AKI (AKIN III 51% RIFLE 48%). 9.2% of the total population received renal replacement therapy. Mortality was 8.4%.

Conclusions. AKI is very frequent in leptospirosis. It is a complication associated with high mortality, 8.4% in our cohort. In our study hypoalbuminemia, elevated serum creatinine and low serum levels HCO^{3-} on admission we-

re indicators for oliguric AKI. Every effort should be made to prevent and treat AKI induced by leptospirosis.

OP-03 Health-related quality of life and associated factors in Albanian patients undergoing hemodialysis

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Introduction. Quality of life is an important indicator of a person's health and well-being as well as a parameter to calculate person's illness and survival. Diminished health-related quality of life (HRQoL) is common among hemodialysis patients. In this context, identification of factors that affect the quality of life of these patients takes on particular importance. Purpose: There is currently little data on the health related quality of life (HRQOL) of Albanian ESRD patients undergoing HD and this study sought to examine the patterns of HRQOL and its associated factors within this population.

Methods. This is a cross-sectional study involving 110 patients who had over three months of hemodialysis. KDQoL-36 questionnaire was used to assess their health-related quality of life. Clinical and laboratory data were collected for each patient. These data were analysed in relation to the five components of KDQoL-36.

Results. Out of 110 patients included in this study, 70 of them (64%) were males and 40(26%) females. Their average age was 54.5±12.3 and on the average 4±4.7 years on dialysis. The average values for the five components of KDQoL-36 resulted respectively: SF-12 physical component 40.47; SF-12 mental component 42.70; Burden of chronic renal disease 22.16; Symptoms and Problems 81.29; The effect of chronic kidney disease 60.40. There was a statistically significant correlation between all five components of KDQoL-36 and Diabetes Mellitus, hemoglobin levels and both Symptoms/Problems, SF-12 mental component, gender and Symptoms/Problems also Burden of chronic renal disease.

Conclusions. Our study demonstrated that Albanian HD patients have very low average value of the component "Burden of chronic renal disease" and a satisfactory average of the component "Symptoms and Problems". Factors associated with poorer HRQoL included female gender, DM, anemia. Other modifiable factors should be further investigated to improve HRQoL for HD patients.

OP-04 Patient with deep vein thrombosis and acute renal failure-case report

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Case report. A 70-year-old female patient, was sent to the Clinic of Internal Medicine for suspected deep vein thrombosis. The patient noticed the swelling of the left leg a few days before hospital admission. Clinical examination found that she was febrile 38.8° C and hypotensive 90/60 mm Hg. Laboratory findings showed an increase in D-dimer and nitrogen compounds in serum; urea 15.5 mmol/L, creatinine 338 μmol/L and a mass of leukocytes and bacteria in urine. Color Doppler sonography of the left leg revealed the thrombus at the beginning of the deep femoral vein with propagation in the pelvic veins as well as the superficial femoral vein that was completely thrombosed up to the distal third of thigh. The thrombus also propagated into the great saphenous vein to the half of the thigh. The abdominal ultrasound showed normal results. Upon admission to the hospital, anticoagulant therapy and infusion of fludis had been administered as well as antibiotic therapy after urine culture findings. The fourth day of hospitalization there swasregression of nitrogenous compounds in the blood and gradual correction of renal function; urea 12.6 mmol/L, creatinine 215 μmol/L. During hospitalization urinary catheter was inserted. After anticoagulant therapy, local status was improving and the patient left the hospital clinically stable and normotensive with the normal values of nitrogenous compounds and adequate diuresis.

OP-05 Glycated albumin as predictor of cardiovascular mortality in hemodialysis patients with diabetes mellitus

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Introduction. Glycated albumin (GA) is three-week marker of glycemic control in the patients with diabetes mellitus (DM), while pathophysiological aspect of protein glycosylation represents the cause of the most serious diabetic complications. Since the level of glycosylated hemoglobin (HbA1c) has a controversial effect on mortality, data from the literature suggest a possible predictive role of GA on morbidity and mortality in hemodialysis patients with diabetes. The aim of this study was to explore the possible predictive role of glycated albumin on cardiovascular (CV) mortality in hemodialysis diabetic patients.

Methods. This prospective study included 40 diabetic patients on chronic hemodialysis. The CV mortality of these patients was followed during 5 years. GA was determined by ELISA. In addition to these indices of protein glycosylation and quality of glycoregulation, following parameters were analysed: BMI, waist circumference, previous CVD events, HD adequacy (Kt/V), wESA dose.

Results. According to ROC analysis, the values of GA> 10% and HbA1c>6.5% signified an unsatisfactory glycemic control. During 5 years follow-up period, 86% patients who died due to cardiovascular reason had GA> 10%, and 57% HbA1c>6.5%. In Cox regression hazard model, after adjustment for age and HD duration, it has been shown that the patients with GA>10% had 2.6 times

higher cardiovascular mortality risk than those with GA<10%, and patients with HbA1c>6.5% had 1.4 higher mortality risk, than those with HbA1c<6.5%.
Conclusions. Our study confirmed that glycated albumin is a predictor of cardiovascular mortality in diabetic patients who are on maintenance hemodialysis. Tight glycemic control is of imperative in order to reduce DM related complications.

OP-06 Kidney transplantation in elderly patients
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Introduction. Increasing number of elderly patients are receiving RRT and lack of donors led to establishment of "senior" program within Eurotransplant in 2000. Program anticipates organ allocation from donor older than 65 to recipient in the same age group. It is obligatory for donor, but not for recipient meaning elderly recipient can receive kidney from younger donor. We bring results for kidney transplantation in elderly patients since our Center is a part of Eurotransplant.
Methods. We retrospectively reviewed data of patients transplanted in University Hospital Center Zagreb from 2007 to date.
Results. 118 patients aged ≥65 years received kidney transplant in our Center since 2007. There were 41 female, and 77 male patients. Average age of recipient was 69.55 years with the youngest patient being 65.05 and the oldest 77.35 years old. Average age of donor was 56.67 years, with the youngest donor being only 18 and the oldest 78 years old. There were 56 female, and 62 male donors. Average cold ischaemia time was 13.4 h and 22.8 min (range from 2h 05 min to 23 h 05 min). They all received standard triple immunosuppressive therapy, with basiliximab or Thymoglobuline as induction. 9 patients (7.6%) died, and the average survival is 48.9 months with the longest being 126 months.
Conclusion. Age itself is not a contraindication for kidney transplantation. The approach should be strictly individualized. Extended criteria donors should be taken into a consideration for these patients.

OP-07 The influence of MDR1 gene polymorphisms on kidney graft function
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Introduction. MDR1 gene polymorphisms are connected with calcineurin inhibitors' pharmacokinetics, but little is known about the relationship between MDR1 genotypes and kidney graft function. The aim of this study was to examine the association between the three most important single nucleotide polymorphisms (SNPs) of MDR1 gene (C1236T, G2677T/A, C3435T) and kidney graft function.
Methods. The study included 61 kidney transplant recipients who received cyclosporine based immunosuppressive protocol. DNA was isolated from whole blood samples. Detection and analysis of MDR1 gene polymorphisms were performed using PCR method. During the first two years after transplantation kidney graft function measured by serum creatinine and creatinine clearance, was followed.
Results. According to our results, genotype frequencies were: C1236T-CC (19.7%), CT (80.3%); G2677T/A-GG (22.9%), GT (59%), TA (6.6%), TT (11.5%); C3435T-CC (26.2%), CT (59%) and TT (14.8%). No difference was found among genotypes related to gender and age. Recipients with wild alleles for C1236T polymorphism had significantly lower creatinine level at the 1st (p=0.007), 3rd (p=0.013) and 24th (p=0.014) month after transplantation than heterozygotes. Patients with GG genotype for G2677T/A SNP had better graft function measured by creatinine level than GT and TT patients at the end of the 1st (p=0.02), 3rd (p=0.04), 12th (p=0.03), and 24th (p=0.02) month. CC alleles for SNP C3435T had lower creatinine level that CT and TT alleles at the end of the first year after transplantation (p=0.03). Better allograft function, measured by creatinine clearance, patients with CC alleles had at the end of the 1st year after transplantation for C1236T (p = 0.046) and C3435T (p = 0.047) SNP.
Conclusions. Our study showed that patients with wild alleles for all three SNPs of MDR1 gene had better function during the first two years after transplantation than heterozygotes or variant alleles.

OP-08 Chronic antibody-mediated rejection and treatment in renal transplant recipients: a single center experience
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Introduction. Chronic antibody-mediated rejection (AMR) among kidney transplant recipients is a major unresolved problem which often causes the loss of renal allograft. We aimed to examine incidence, demographics and treatment properties of chronic AMR in our renal transplant patient population.
Methods. We retrospectively examined renal transplant recipients, who have undergone renal allograft biopsy from January 2011-June 2018 and observed at Renal Transplantation Unit of Ankara University Faculty of Medicine. Biopsy results and demographic features, treatment and outcome of chronic AMR were investigated.
Results. 133 renal allograft biopsies were performed to 107 patients kidney recipients: 33(24.8%) acute AMR, 26(19.5%) acute T-cell mediated rejection, 20(15.0%) borderline changes, 8(6.0%) calcineurin inhibitor toxicity, 8(6.0%) recurrent or de novo glomerulonephritis, 5(3.8%) chronic AMR were diagnosed. Five patients with chronic AMR had never experienced an acute rejection episode

and all were under maintenance immunosuppressive treatment (Table 1). The mean time between rejection episodes and the transplant was 146±52 months (min: 84, max: 216). All patients with chronic AMR had histologic evidence of chronic humoral rejection and extensive C4d staining in peritubular capillaries. Donor-specific antibodies (DSA) were evaluated in recipients and positive in four patients. Different treatment modalities were administered. Three patients (60%) were refractory to treatment and lost their transplants, one of whom was DSA negative and treated with plasmapheresis, intravenous immunoglobulin and rituximab. Two patients (40%) had stable renal functions after 3 and 14 months follow-up, one of them took no rescue treatment due to severe interstitial fibrosis and tubular atrophy in renal allograft biopsy. No relationship between treatment regimen and graft survival was observed.

Conclusions. Chronic AMR is becoming clinically critical and a major cause of allograft loss because this form of rejection is usually unresponsive to current treatment protocols. More extensive understanding of pathogenesis of antibody induced injury and development of new therapeutic approaches are needed to improve the outcomes of chronic AMR.

Table 1. Patients with chronic AMR that never experienced an acute rejection episode

Patient	Recipient age and sex	İmmunosupresive treatment	Time to chronic AMR diagnosis (months) and sCr at diagnosis (mg/dl)	Presence of DSA	Presence of C4d in renal transplant biopsy	Treatment	Outcome
1	31, Male	CS, MMF, Tac	216, 3.04	Positive Class II MFI: 1957	Positive	Pulse CS, ATG	Stable renal function
2	44, Female	CS, MMF, Tac	84, 2.52	Negative	Positive	PPH, IVIG, RTX	Graft loss
3	26, Male	CS, MMF, Tac	180, 2.81	Positive Class II MFI: 7530	Positive	No induction therapy	Stable renal function
4	30, Male	CSA, EVE	120, 7.49	Positive Class I MFI: 10690 Class II MFI: 4312	Positive	Pulse CS	Graft loss
5	51, Male	CS, MMF, Tac	132, 3.24	Positive Class II MFI: 10424	Positive	Pulse CS	Graft loss

Abbreviations: AMR, antibody-mediated rejection; ATG, anti-thymocyte globulin; CS, corticosteroids; CSA, cyclosporine; DSA; donor specific antibody; EVE, everolimus; IVIG, intravenous immunoglobulin; MFI, mean fluorescence intensity; MMF, mycofenolate mofetil, PPH, plasmapheresis; RTX, rituximab; sCr, serum creatinine; Tac, tacrolimus

OP-09 Therapeutic Effect of Plasmapheresis, İntravenous Immunoglobulin and Rituximab in Kidney Transplant Recipients with High Panel- Reactive Antibody Levels: A Single Centre Experience

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Introduction. High Panel Reactive Antibody (PRA) levels, limits patients access to kidney transplantation, from potential living donor candidates and decreases renal graft survival by causing acute antibody mediated rejection (AAMR). İn this article, we report our experiences the efficiency of plasmapheresis in reduction of serum PRA levels in renal transplantation candidates and in patients with AAMR.

Methods. We examined retrospectively 47 patients with high levels of PRA (18 for desensitization and 29 with AAMR) from 2008-2018 in Ankara Faculty of Medicine. We evaluate the reduction in PRA class 1 and PRA class 2 levels before and after plasmapheresis, intravenous Immunoglobulin (İVİG) and rituximab therapy

Results. The mean plasmapheresis session was 4.13±2.05. Mean reduction in PRA class 1 was 25.7±6.66% to 19.7±6% ($p<0.05$). In desensitization group; mean reduction in PRA class 1 was 28±9.10% to 22.1±8.14%. ($p<0.05$).

Conclusions. Plasmaferesis is a successful method in reducing PRA levels in renal transplantation candidates and in patients with AAMR.

OP-10 Biopsy proven non-diabetic nephropathy in diabetic patients - single center experience

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Introduction. Kidney biopsy is not the first diagnostic option in patients with diabetes mellitus (DM) and proteinuria. The reason for this is because the slow progression of kidney function decline is thought to be from

diabetic nephropathy (DN), particularly if diabetic retinopathy is present. However, literature data have shown that primary glomerulopathy (PGN) may be interfered with DN. The aim of our study was to analyse histopathological findings and relevant clinical data in DM patients who underwent kidney biopsy.

Methods. In accordance to the current guidelines, we performed kidney biopsy in cases with short history of DM, marked nephrotic syndrome, progressive renal failure, persistent hematuria and/or retinal changes. From 2009-2016 we performed 153 successful kidney biopsies (age 49.8±16.2; 75 men). Out of all, 40 biopsies were performed due to acute kidney injury and for lupus nephritis staging and these were excluded from analysis. Remaining 113 biopsies were performed due to nephrotic syndrome, urine sediment disorders or deterioration of kidney function.

Results. Out of all analysed biopsy data (patients' mean age 51.6±16.6; 62 men), DM was present in 21 (18%; 11 men) and mean duration of diabetes was 4.98±4.38 years (1-15 years). Compared to patients without (w/o) DM, DM patients had statistically higher daily proteinuria (10.0 vs 6.8 gr/24h; p=0.023), and age (55.8 vs 50.7 years; p=0.216) and there were no difference in serum cholesterol (6.7 vs 6.3; p=0.412) and creatinine levels (138 vs. 158 μmol/L; p=0.433) between two groups. Histopathological findings revealed that 13 out of 21 patients (62%) had DN. In remaining 8 patients, the findings were membranous nephropathy in 4, focal-segmental glomerular sclerosis in 2 patients; one patient had IgA nephropathy and one had amyloidosis. Binary logistic regression had shown that males with DM had OR 15.75 (CI 1.42-174.2; p=0.025) for developing non-DN kidney disease. Those with confirmed non-DN PGN were referred for standard immunosuppressive regimen.

Conclusions. Non-diabetic kidney disease was present in 38% among our diabetic patients who underwent kidney biopsy (membranous nephropathy, FSGS, IgA nephropathy, amyloidosis). Male genderwas significant risk factor for non-DM PGN.

OP-11 Graft survival in patients with renal transplantation due to FMF-renal amyloidosis

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Introduction. AA amyloidosis is most commonly caused by FMF in our country. Amyloidosis caused secondary due to FMF is an important cause of end stage renal failure. Renal transplantation is an alternative treatment comparing with hemodialysis in these patients. The present study aimed to show the results of long-term follow-up of graft survival in patients with renal transplantation due to secondary amyloidosis caused by FMF.

Metods. Twenty-seven patients who underwent renal transplantation from 2005-2017 at the University of Ankara Medical Faculty, İbni Sina Hospital were included retrospectively in the study. End-stage renal failure in all of these patients was renal amyloidosis secondary due to FMF.

Results. Twenty-two patients (81.5%) were treated with triple immunosuppressive therapy consisting of MMF+Tac+ Steroid and 5 patients (18.5%) were treated with triple immunosuppressive therapy consisting with Tac+AZA+ Prednol. Acute cellular rejection in 3 patients (11.1%), acute cellular and humoral rejection in 1 patient (3.7%) occurred. In follow-up, graft loss due to acute cellular rejection was observed in only 1 patient. In 1 patient, after 3 years of follow-up, urosepsis and cardiac arrest associated functional graft were observed.

Conclusions. The long-term results of renal transplantation due to FMF-associated amyloidosis cases are quite successful.

OP-12 Results of kidney transplantation program in Montenegro

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Introduction. Preparation of all necessary conditions for the beginning of transplantation program in Montenegro started in 2006 with different activities including public, legal, medical, educational and international cooperation aspects. The first kidney transplantations from living donors in Montenegro were performed on 25th and 26th September 2012.

Methods. data referring to the outcome of kidney transplantation program in Montenegro.

Results. In the period from 2012 until now, 37 kidney transplantations from living related donor were performed and one kidney transplantation from deceased donor in Clinical Center of Montenegro. In the period of five years of follow up, all patients with kidney transplant were in good condition and without serious complication in the post-transplant period. There was complication in two kidney recipient in perioperative period who had delayed graft function. In one recipient there was urinoma; in one patient deep venous thrombosis; and in one patient episode of acute pancreatitis after sirolimus introduction in the immunosuppressive therapy protocol. In one patient we had lymphocele treated by marsupialization, and in one patient kidney graft calculi, successfully treated. Serum creatinine level in the follow up period was in referent values in recipients as well as in donors. There were no episodes of hyperacute and acute rejection and there were no episodes of complications due to immunosuppressive therapy. All kidney donors are followed up carefully in our center; their serum creatinine level was in reference values and there was no evidence of impairment of residual kidney function.

Conclusions. The development of transplantation system improved many medical fields and continuous education of medical staff. Our next steps are improvement of deceased organ donor transplantation and achievement of higher rate of deceased donor kidney transplantation and kidney transplantation program with incompatible blood groups.

OP-013 New anticoagulant therapy and vascular calcification in chronic renal failure: control of outcome ??

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Introduction. Calcified Uremic Arteriolopathy (CUA), clinically manifested by necrotic lesions of the skin and subcutaneous tissue. The pathohistological substrate of insufficient tissue perfusion and ischemia are microvascular stenosis due to calcification of small arterial and arterioles media, endovascular fibrosis and venous thrombosis. Etiopathogenetic, CUA is most commonly associated with calcium and phosphate metabolism disorders in chronic renal failure and co-existence of cardiological and vascular pathology-the main indications e for use of anticoagulant therapy (iatrogenic inactivation of vitamin K dependent vascular calcification inhibitors (ucMGP)).

Methods. 50 years old, obese female patient, treated with PD for 18 months (Kt/V-2,2), delayed parathyroidectomy (dg.SHPTH) due to DVT (excluded thrombophilia), after month of ambulatory follow-up by vascular surgeon and the use of antagonist K and low molecular weight heparin, was hospitalized due to vertigo, hypotension and massive necrotic inflammatory lesions of the skin.

Results. PH findings in the dermal/subdermal blood vessels, in addition to the typical changes in CUA, were due to the dominance of thrombins of fibrin and erythrocytes, with minimal calcified deposits and with extensive inflammatory infiltrates (Ly, PMN, eosinophils) in the marginal necrosis zone. The finding of anti-Heparin/PF4 antibodies does not exclude sensitivity to LMWH (HIT). Parathyroidectomy, an attempt to transition to HD, directing to direct thrombin inhibitors (argatroban) instead of LMWH, surgical lesion treatment and infection prevention, have caused local regression of change and recovery.

Conclusions. CUA, "external" vasculopathy, indirectly points to the risk of iatrogenic calcifying vascular lesions in chronic renal failure and the necessity of legislative availability of new anticoagulants (direct thrombin inhibitors, FX inhibitors). The recommendations on prescribing are missing (indications, clinical scores of risk assessment and dosing).

OP–14 Treatment options for BK nephropathy-single center experience

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Introduction. BK nephropathy is a known complication of novel potent immunosuppressive (IS) protocols in kidney transplant recipients. It occurs in up to 10% of renal transplant patients, and it can cause allograft failure in 7.5%. BK nephropathy is treated by reduction and modification of IS therapy, administration of immunoglobulins (IVIG) and cidofovir. There is no preferred protocol for BK nephropathy management. Here we present our data on biopsy proven BK nephropathy management protocols.

Methods. We analyzed medical records of 1960 patients in our transplant center. Data included from newly transplanted patients that underwent our screening protocol and all other cases that were assessed for BK virus (B/U) when signs of graft deterioration were found. We selected patients that had biopsy proven BK nephropathy, and retrospectively assessed the course of their treatment.

Results. Three percent of our patients had BK virus reactivation and 14% of those patients had biopsy proven BK nephropathy. In patients with BK nephropathy we identified two major treatment groups, one in which solely IS therapy was modified and the other where in association with IS protocol modification IVIG was administered. We applied IVIG in patients with BK viruria that exceeded 10E4 of virus copies in blood. In 57% of patients with BK nephropathy we introduced mTOR inhibitors in their IS protocol. Patients in both groups had a decrease in the number of BK virus copies in blood after therapy.

Conclusions. BK nephropathy is an important factor for graft and patient survival. Prevention by screening for BK reactivation is currently the most efficient way of managing BK nephropathy. Our analysis has shown that BK nephropathy management is highly patient specific.

OP-15 Quantifying Microvascular Abnormalities of Diabetics Patients with Chronic Kidney Disease

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Introduction. Chronic kidney disease (CKD) is strongly associated with cardiovascular disease and there is an established association between vasculopathy affecting the kidney and eye.

Optical coherence tomography (OCT) angiography is a novel, rapid method for high-definition imaging of the retina and detecting infraclinical lesions in parafoveal capillaries. Its use in patients at high cardiovascular disease risk remains unexplored.

Methods. We used the new OptoVue OCTA (Optical coherence tomography angiography) machine, AngioVue system (Optovue Inc., Fremont, CA, USA) to examine superficial and deep capillary plexuses (SCP and DCP) on macular OCTA scans (3×3mm) centered on the fovea in a prospective cross-sectional study in? 24 diabetics with different stages of CKD and diabetic retinopathy (DR), 8 diabetics without CKD or DR and 8 matched healthy controls. Qualitative analysis concerned morphological ischemic capillary alterations. Quantitative analysis measured foveal avascular zone (FAZ) size, parafoveal capillary density, microaneurysms, neovasularisations, percent area of

nonperfusion (PAN), and adjusted flow index (AFI). The same, masked ophthalmologist carried out each study. Plasma C-reactive protein, nitric oxide (NO) and endothelin-1 (ET-1), as measures of inflammation and endothelial function, were also assessed.

Results. All OCTA parameters showed a significant linear correlation with DR and CKD severity ($P<0.05$) in the univariate models except for AFI measured in the SCP and these correlations remained significant after correcting for covariates. Compared to the other capillary layers, the AFI at the DCP decreased significantly with DR and CKD severity. When comparing individual disease severity groups as categories, eyes of subjects with CKD and DR had significantly increased PAN and AFI in the SCP compared to healthy subjects ($P<0.05$). Foveal avascular zone (FAZ) size, parafoveal capillary density, microaneurysms, neovascularisations, percent area of nonperfusion (PAN) were associated with increased circulating C-reactive protein ($r=-0.57$, $P=0.0002$), and ET-1 ($r=-0.44$, $P<0.01$). Finally, decreased NO was associated with parafoveal capillary density, and inflammation and arterial stiffness only in the presence of renal impairment.

Conclusions. Retinal and choriocapillar vascular nonperfusion in OCTA is correlated significantly with disease severity in eyes with DR and CKD. Higher flow rate in the SCP may be an early marker of diabetic microvascular changes before clinical signs generalized atherosclerosis characteristic of CKD. OCT-A could be a new noninvasive tool to quantify microvascular damage in the retinal capillary network to study kidney disease in patients with diabetes. Similarly, the associations with arterial stiffness, inflammation, and endothelial dysfunction warrant further examination.

OP-16 Clinical development of women with X-linked Alport Syndrome

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Introduction. The X-linked Alport Syndrome (XLAS) is caused from mutations to the A5 chain of collagen type IV (COL4A5) and it causes sensorineural hearing loss, keratoconus, and progressive loss of renal function that follows in almost all the heterozygotes men from young age to end stage renal disease (ESRD). Up to recently women were simply considered "carriers" but it is now known that they also can have complete phenotype of the disease as man, and some of them may progress to ESRD. Aim of this study was to investigate the development and the prognosis of CKD in women with transmute to COL4A5.

Methods. We studied 7 families with different transmute. Globally, 48 members of families (18 men and 30 women) were investigated, and in 30 were found carriers of mutation to COL4A5 (8 men and 22 women). Seven from the 22 were submitted to kidney biopsy before performing genes analysis. The female patients were followed for at least 5 years and all clinical information were collected by the medical files.

Results. The age of 22 heterozygotes females ranged from 7 to 78 years (intermediate age 32 years). From the 7 patients with kidney biopsy only in 2 a diagnosis of Alport syndrome was confirmed, two had diagnosis of focal segmental glomerulonephritis (FSGS), one thin basement membrane glomerulonephritis, one postinfectious glomerulonephritis and one IgM nephropathy. The big majority of patients (54%, ages from 7 until 46 years) presented only with hematuria without CKD. However in 18% CKD was present (impairment of renal function or proteinuria >1gr, ages from 7 until 60 years) and 27% had ESRD (from 20 until 70 years). The mutation c.4688+5G>A in gene COL4A5, has not been described in the bibliography, however it is found in region of gene where the changes are pathogenic, have not been found in physiologic individuals, and concern intensely maintained nucleotide in the limit intronsexons, fact that likely influences the splicing process. Finally it is located only in the suffering members of family and no in healthy.

Conclusions. The kidney biopsy in patients with XLAS usually is not diagnostic without the use of electron microscope. The XLAS should not be considered as a nonmalignant disease for the heterozygous women of our population In 27% leads to ESRD and in particular that roughly half of the cases are present in relativly young age, similar with men. The more likely explanation for the above phenomenon is asymmetrical de-activation of X chromosome or the existence of modification genes.

OP-17 Prognostic factors for risk assessment in sepsis-induced acute kidney injury (s-AKI) patients

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Introduction. Several prognostic scores and biomarkers have been assessed for risk stratification in septic patients with AKI. Serum lactate is a routinely used biomarker for the management of patients with sepsis and correlates with hypoperfusion and fluid resuscitation. Procalcitonin (PCT) is a bacterial infection marker and its kinetics indicates the response to antimicrobial management. There is insufficient data comparing these two markers regarding outcome prediction. The aim of our study was to compare the prognostic accuracy of lactate and PCT and the combination of them in s-AKI patients population treated with hemodialysis in a tertiary hospital.

Methods. This is an observational cohort study of adult patients with confirmed sepsis or septic shock. All patients had PCT and lactate measurements on admission and during follow-up. We used logistic regression and area under the curve (AUC) as a measure of discrimination of lactate and PCT with in-hospital mortality.

Results. The in-hospital mortality rate of the 91 included patients (mean age 68.7 years) was 21.9% (95% CI=19.6.2 to 25.9%). Concerning prognosis, the initial lactate level was a better mortality predictor (AUC 0.71) compared to PCT (AUC 0.56). For follow-up measurements, PCT (AUC 0.78) showed better discrimination than lactate (AUC 0.71). When looking at biomarker kinetics, PCT increase was more strongly associated with fatal outcomes compared to initial levels alone (AUC 0.81) and was a better predictor compared to lactate kinetics (AUC 0.61). A joint logistic regression model combining follow-up measurements of lactate and PCT kinetics showed a superior prognostic accuracy (AUC 0.80) compared to these markers alone.
Conclusions. Both biomarkers, PCT, and lactate provide prognostic information in s-AKI patients treated by hemodialysis, primarily when analysing kinetics.

OP-18 T cell cytokines in the pathogenesis of histological lesions in different types of podocytopathies
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Introduction. Different T cell subtypes infiltrate glomeruli and through the production of different cytokines are directly involved in the pathogenesis and evolution of histologic lesions in most types of primary glomerulonephritides. We evaluated the role of Th1, Th2 and Treg cytokines in three forms of primary podocytopathies.
Methods. Seventy nine patients with nephrotic syndrome due to: Primary Membranous Nephropathy (PMN) (n=22, M/F 10/12, age 58.2±12yrs, Scr=1.2±0.53mg/dl, Upr=6.3± 3.3g/24h), Focal Segmental Glomerulosclerosis (FSGS) (n=36, M/F 22/14, age: 41.9±17yrs, Scr=1.7±0.8mg/dl, Upr=4.7±5.5g/24hr), and Minimal Change Disease (MCD) (n=21, M/F 5/16, age: 41.4±15yrs, Scr=1±0.4mg/dl, Upr= 7.9±9.3g/24hr) were included in the study. Renal biopsies were re-evaluated regarding obsolescent glomeruli, presence of FSGS, severity of tubular atrophy, interstitial fibrosis and vascular hyalinosis. In first morning urine samples collected at the day of renal biopsy, Th1 (IL-2, IL-12, GM-CSF, INF-γ, TNF-α), Th2 (IL-4, IL-5, IL-13) and Treg (IL-10) cytokines were measured simultaneously, using Luminex technology, and results were correlated with histological parameters and renal function outcome.
Results. In PMN urinary IL-5 levels were correlated to the presence of secondary FSGS (p=0.03), while IL-4 and IL-10 with the severity of tubular atrophy (p=0.05 and p=0.04 respectively). In FSGS, urinary IL-12 levels were the only independent factor correlated with the severity of chronic histologic findings (obsolescent glomeruli, p=0.009 and interstitial fibrosis, p=0.02), as well as impairment of renal function at the end of follow up (p=0.03). In MCD the whole cohort of Th2 cytokines (IL-4, IL-5, IL-13) were significantly increased in patients with multiple relapses (p=0.05, p=0.001, p=0.03 respectively).
Conclusions. Th1 cytokines are implicated in the pathogenesis and progression of FSGS, while Th2 and Treg cytokines seem to be involved in PMN and MCD. In contrast to primary FSGS, secondary FSGS observed in PMN, is correlated to Th2 production, suggesting a different pathogenesis of FSGS in the two entities.

OP-19 Correlation between diabetes mellitus, intima media complex and diastolic dysfunction
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Introduction. Diabetes mellitus is the leading cause of chronic kidney disease (CKD). Cardiovascular disease (CVD) is the main factor affecting prognosis in CKD patients whose morbidity and mortality is 10 to 20 times greater than in the healthy population. The aim of the study is to determine correlation between diabetes mellitus and intima media complex (IMC) thickening in the carotid artery wall, biomarker of heart failure (B-type natriuretic peptide-BNP, N-terminal pro BNP (NTproBNP) and diastolic dysfunction of left ventricle (DDLV) in CKD patients.
Methods. This prospective study included 100 patients with any stage of CKD and GFR level that did not required active treatment by some form of renal replacement therapy. We examined the connection between diabetes mellitus and IMC, BNP, NTproBNP, DDLV.
Using Doppler ultrasound examination we determine the IMC thickening in the carotid artery wall and presence of plaque. All patients underwent measurements of BNP and NTproBNP in blood using electro luminescence immunoassay according to the gender and age. Dopller echocardiography measurement E/A was used for the assessment of diastolic function of left ventricle. Ejection fraction (EF) was expressed as EF% = UV/EDV.
Results. Diabetes mellitus was diagnosed in 31% (31/100) out of 100 patients. Sex distribution was as follows-58% men, mean age was 56.7±10.6 years. Obesity was present in (29/31) 90.3% of the patients, 6.7% had normal weight. Smokers were present in 54.9% cases. Diabetes mellitus type 2 had 93.5% and type1 6.5% of patients. 93.5% of patients with diabetes mellitus and CKD had thick IMC (29/31) 90.3%, as well as 70% of patients had plaque in the carotid artery wall (22/31), 35.5% had pathological values of biomarkers of heart failure (11/31) and 22.6% of patients had systolic dysfunction of left ventricle and 90% DDLV (28/31).
Conclusions. There is significant positive correlation between diabetes mellitus and changes in carotid artery wall, biomarkers of heart failure and DDLV that points out to increased cardiovascular morbidity and mortality

in CKD patients, even before the initiation of any means of renal replacement therapy.

OP-20 Endemic (Balkan) nephropathy and kidney transplantation

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Introduction. Endemic (Balkan) nephropathy (EN) is characterized by tubulointerstitial damage and increased incidence of upper uroepithelium tumors (UUT). The use of immunosuppressive drugs and an increased risk of malignancy after transplantation imposes a need for regular monitoring for the purpose of early detection and treatment of UUT. The aim of the study was to evaluate the frequency of UUT in patients with EN following kidney transplantation.

Methods. Retrospective analysis of medical documentation of patients with EN transplanted at the Clinical Centre of Serbia from January 2003 to December 2013.

Results. During the eleven-year period, 405 kidney transplantations were performed, of which 62% were from a living donor. Only 9(2.2%) patients, average age of 56±4.7 years, were diagnosed with EN. Patients were transplanted from brain dead donors without prior bilateral nephroureterectomy. Induction consisted of antihyomocyte globulin in eight and basiliximab in one patient, while maintenance therapy was based on tacrolimus, mycophenolic acid and corticosteroids. None of the patients had CMV and EBV reactivation. In the early postoperative period, fatal outcome with functional graft occurred in 4 patients due to surgical complications and infections. One patient had transplantectomy due to renal artery thrombosis. None of the remaining 4 patients was diagnosed with UUT on transplanted or native kidneys, as well as tumors of the urinary bladder. All 4 patients still have a functional graft.

Conclusions. The number of prevalent patients with EN has been stable and relatively low over the past several decades, which partly explains the relatively small number of these patients treated by kidney transplantationtherapy. Although none of the patients in our study have had previously performed protective nephroureterectomy, as some authors suggest, none of them developed UUT.

OP-21 Changing of Immunosuppressive Treatment and Results in Intensive Care Unit: Single Center Experience of Renal Transplant Patients

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Introduction. Renal transplant patients (RTP) are very prone to admission of intensive care unit (ICU) due to several complications including severe infections and sepsis, cardiovascular diseases, and other organ failures. During ICU, although there is no standard protocol for immunosuppressive treatments, the dose and the number of drugs used are generally decreased. The aim of this study is to evaluate the changes in immunosuppressive treatments during ICU and evaluate the results of RTP in ICU.

Methods. We evaluated retrospectively our RTP in ICU from 2012-2017. The immunosuppressive protocols and the result were taken from the ICU documents.

Results. A total of 31 (18 males, 13 females, 10 deceased donors and 21 living related) patients were suitable for the analysis. Mean age was 50±10 years, and mean duration after transplantation was 103.4±102.3 months. The average duration time in ICU was 26±34 days. They were all under the triple immunosuppressive protocol including Tac+MMF+Steroid before the admission. The reason for ICU admission was severe sepsis in all patients. Total follow up period was 90±89 months. During ICU hospitalization, 16 patients (51.6%) died and a total of 10 patient were lost with functional graft. In ICU, change in immunosuppressive treatments was as follows; a total of the 23 patients (74.2%) were given only corticosteroid with the mean 32±23 mg/day for immunosuppressive treatment for the mean duration of 26±34 days, 8 patients (25.8%) were changed from triple to two drugs immunosuppressive treatment. For 5 patients (16.1%) MMF+Steroid, 3 patients (9.7%) were given tac+steroid. Mean creatinine levels during ICU were 2.53 mg/dl and 1.86 mg/dl in admission and discharge, respectively. Acute rejection was not developed in any of the patient. Acute kidney damage developed in 42% (13 patients) of the patients in ICU. However, graft functions were returned to previous levels after discharge.

Conclusions. In our study, we observed that life threating infections were the main cause of ICU admission. Reduction in immunosuppressive treatments are common and reduced dose double or single steroid applications were seem to be safe in these patients. None of the patients developed acute rejection and permanent graft damage.

OP-22 Outcomes of Canakinumab Treatment in Kidney Transplant Recipients with Familial Mediterranean Fever

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Introduction. Familial Mediterranean fever, is the most common cause of secondary amyloidosis in Turkey. With colchicine treatment complete remission rate is 60-65%. Approximately 5-10% of patients are resistant. Canakinumab, anti-interleukin (İL)-1 monoclonal antibody is known to be safe and efficient treatment for FMF when patients have colchicine resistance and/or intolerance.

Methods. In the period of 20102017 we screened kidney transplant recipients with FMF in Ankara Faculty of Medicine. We reported 4 kidney transplant recipients with FMF secondary amyloidosis. All 4 patients had FMF attacks

and end-stage renal disease secondary to amyloidosis despite using regular maximum colchicine dose.
Results. İn 3 patients, canakinumab treatment was started after transplantation, and in 1 patient two months before transplantation. All patients had prior treatment with anakinra before canakinumab. One patient had attacks with anakinra, 3 patients had no attacks with anakinra treatment. No serious side effect were seen with anakinra, in 1 patient caused reactions at the site of injection. All 4 patients continued with canakinumab treatment 150 mg for 4 to 8 week intervals with colchicine, approximately for 2 years. They had no attacks (fever, abdominal pain, arthritis, etc.), serum CRP and serum amyloid A levels were normalized, creatinine and proteinuria were stable under canakinumab treatment. Life threatening infection and graft lost were not seen in this two year period with canakinumab therapy.
Results. Canakinumab treatment is a safe, efficient treatment in kidney transplant recipients with FMF.

OP-23 Kidney transplantation in patient with previous malignant disease

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Introduction. Patients with end stage renal disease (ESRD) who have been successfully treated for their cancer are generally considered to be suitable for renal transplantation. Review of previous reports and especially data on recurrent cancers suggest some general guidelines on waiting time between treatment of specific cancers and renal transplantations. According to some registries 13% of recurrences occurred in patient treated more than 5 years before transplantation. The incidence of colon cancer in renal transplant recipients in not elevated during the first 10 years after renal transplantation. It is recommended to wait at least 5 years before transplantation for patients treated for colon cancer.
Case report. Patient RT, male, 58 years old, was diagnosed with pulmonary sarcoidosis 25 years before. He was on regular prednisolone therapy since then. In time he developed extra pulmonary manifestations of sarcoidosis including bilateral kidney calcifications. He developed chronic kidney disease (CKD) 23 years before. In 2002 he was treated with pyelolithotomy of the right kidney. He had subtotal thyroidectomy in 1986, and total thyroidectomy in 1991 due to medullary thyroid cancer with remaining paresis of recurrent nerve with dysphonia and iatrogenic hypothyroidism. Six years ago he was diagnosed with colon adenocarcinoma staging C2pT3N2B (Astler Coller) with secondary deposits in 6/15 resected lymph nodes. He was treated with chemotherapy after wards (6 cycles of capecitabine) following left hemicolectomy. He also had splenectomy during the same procedure. He was diagnosed 2011 with multi ischemic changes in the brain on brain CT tomography. From 2011 he developed arterial hypertension. In 2011 he developed ESRD. He started hemodialysis treatment in February 2014. He was clinically assessed for treatment with kidney transplantation from living related donor in December 2013. In that period he was diagnosed with diabetes mellitus type 2, probably based on the long time prednisolone therapy complications. Control colonoscopy was performef a year ago. Three polyps were found and removed. Histopathological analyses showed low grade dysplasia. Tumor markers, CT tomography of chest, abdomen and thorax showed no recurrence or progression of malignant disease. MRI examination of abdomen showed the presence of granulomatous sarcoidosis changes in the liver. PET scan of whole body was performed in the last year twice and showed no signs of malignant disease. He also has benign prostate hypertrophy and he is treated with alpha blockers on regular basis. Serum ACE (angiotensin converting enzyme) activity was in referent levels and there was no signs of radiological progression of pulmonary sarcoidosis with regular spirometry parameters.
Conclusions. Patient was presented to the transplantation council. We got oncologist agreement for kidney transplantation. He was treated with living related kidney transplantation. It was transplantation of higher risk due to many present comorbidities prior to transplantation. He was treated with basiliximab in induction therapy and with cyclosporine, mycophenolate mofetil and prednisolone as maintenance immunosuppressive therapy. The cyclosporine therapy was converted to sirolimus regimen therapy three months after transplantation. Perioperative and post-transplant period went out without complications. Patient is under frequent oncology controls. Most patients benefit from a waiting period prior to renal transplantation. In case of some cancers at increased risk of recurrence a longer waiting interval of 5 years should be considered. While these statistics may provide general guidelines, the risk of tumor recurrence has to be balanced against the benefits of renal transplantation for each individual patient.

OP-24 Hepatorenal syndrome in kidney transplant recipient

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Introduction. Hepatorenal syndrome (HRS) is a well-recognized complication of end-stage liver disease. Once thought to be a reversible condition with liver transplantation alone, HRS may directly contribute to the require-

ment for long-term dialysis post-transplant. Type 1 HRS or liver failure accompanied by rapidly progressive renal failure carries a median patient survival of 2 to 4 weeks; patients with type 2 HRS or liver failure associated with a slower deterioration of renal function fare better with a median survival of approximately 6 months.

Case report. Male patient, 51 years old, was treated with kidney transplantation from deceased donor, nine years ago, due to terminal renal failure caused by membranous glomerulonephritis. Renal transplantation underwent without any complications. Afterwards he started with immunosuppressive treatment with tacrolimus, mycophenolate mofetil and steroids. Graft function was stable. He started with alcohol abuse after transplantation and developed alcoholic liver cirrhosis two years ago. On the admission he was diagnosed with acute graft dysfunction, anemia, severe thrombocytopenia, and coagulation disorder. In the short time period he rapidly developed HRS following AKI-and manifestation of hemorrhagic syndrome. He was treated with pulse corticosteroid therapy, beside polysymptomatic therapy, in order to reduce the impairment of renal allograft, without any success in improving renal graft function. In the period of two weeks he developed anuria and end stage renal failure and started treatment with RRT with hemodialysis. All drugs administered in the therapy were dosed according to the degree of hepatic and renal insufficiency. He was treated with hemodialysis in the next period of few weeks, without complication. He was put on waiting list for combined liver and kidney transplantation, but died due to severe gastrointestinal hemorrhage.

Conclusion. Combined liver and kidney transplantation for patients with HRS should be considered.

OP-25 Kidney transplantation and Jeune syndrome

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Introduction. Jeune syndrome (asphyxiating thoracic dystrophy, ATD) is a rare autosomal recessive skeletal dysplasia characterized by a small, narrow chest and variable limb shortness with a considerable neonatal mortality as a result of respiratory distress syndrome. Renal, hepatic, pancreatic and ocular complications may occur later in life. Recently two causal genes mutations were identified in ATD syndrome-IFT80 and DYNC2H1. Progressive kidney disease, the nephronophthisis occurs in about 30% of patients. Progressive renal failure is typical for mild form of asphyxiating thoracic dystrophy. There are several cases of patients with Jeune syndrome treated with kidney transplantation successfully described in the literature.

Case report. Male patient, third child of healthy parents, diagnosed with Jeune syndrome in the age of two, after respiratory distress episode and many episodes of respiratory infections and several episodes of pneumonias. He has normal XY karyotype, not tested for IFT80 and DYNC2H1 mutations. He had growth failure and was treated with recombinant growth hormone, abnormal chest shape and limb shortness. He has narrow thorax with short, broad, horizontally oriented ribs, a typical trident appearance of the acetabular margins. Skeletal radiographs showed a small thorax, brachydactyly of the fingers, short and broad diaphyses, wide metaphyses of the arms and legs, and short iliac bones with spiky protrusions. He was diagnosed with retinitis pigmentosa, complicated cataract of the right eye, treated with pseudophakia. Also pancreatic cysts were presentand had normal hepatic function.. In the age of three he had several episodes of seizures, successfully controlled with anticonvulsants. Radiological examination in the age of two also showed nephronophthisis. He developed CKD with arterial hypertension and renal anemia in the age of five. Treated with intermittent hemodialysis for eight months without complications. Followed by living related kidney transplantation, father was kidney donor. Treated with basiliximab in induction and with maintenance immunosuppressive protocol including cyclosporine, mycophenolate mophetil and steroids. The kidney transplantation was successful, without complications. There was no-delayed graft function (DGF), acute rejection or other complications, with remaining arterial hypertension. He was evaluated thirteen years after transplantation. The level of serum creatinine was 123 μmoll, with creatinine clearance of 0.96 ml/s, and proteinuria level of 0.82 g/day, with anemia controlled successfully with ESA. Arterial hypertension was well controlled with calcium channel blockers and beta blockers. There were no complications of immunosuppressive therapy so far. Without pathological findings on color Doppler ultrasound examination of allograft. Respiratory function test including spirometry and body plethysmography showed general restrictive ventilation disorder, but still well tolerated. Gastrointestinal findings showed several pancreatic cysts with regular hepatic and pancreatic function.

Conclusions. ATD is a genetically heterogeneous multi-organ disease with variable expression, predominantly affecting the thoracic cage with respiratory complications as the main problem, but also with renal complications which leads to the CKD and the need of renal replacement therapy.

OP-26 Rapamycin in etiology of deep venous thrombosis and acute pancreatitis

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Introduction. Evidence indicate that rapamycin may contribute to an increased risk of thrombosis. Researchers found that endothelial membrane remodeling induced by rapamycin is crucial for the adhesion of platelets to en-

dothelial cells and thereby for thrombosis. Many investigations showed that rapamycin induces autophagy of pancreatic cells.

Case report. Male patient, 26 years old, was treated with preemptive kidney transplantation from living related donor. He was treated with thymoglobulin in induction therapy because of donor specific antibodies detected prior to transplantation. Due to surgical complications, he had reperfusion graft injury and delayed graft function. Initial immunosuppressive protocol with thymoglobulin and tacrolimus was converted to rapamycin and dismissal of thymoglobulin. Patient was treated with low-molecular-weight heparin (LMWH) in preparation and after intervention. One month after rapamycin treatment he developed deep venous thrombosis of the right leg. He was treated with intravenous heparin with successful recanalization of venous vessels. Twenty days after rapamycin usage he developed an acute pancreatitis followed by increased serum concentrations of amylase and lipase and urine amylase concentrations. After polysymptomatic therapy, patient recovered its pancreatic function. Finally, rapamycin was removed from the immunosuppressive therapy. Patient was with stabile graft function in the next year of follow up period without thrombosis episodes or episodes of pancreatitis.

Conclusions, All patients treated with rapamycin after kidney transplantation should be carefully monitored for venous thrombosis and pancreatic events.

OP-27 Post-transplant proteinuria as a feature of NODAT

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Introduction. The first consideration in evaluating post-transplant proteinuria is whether it originates from the native kidneys or from the allograft. An increasing proportion of patients do not receive dialysis before transplantation and those individuals may have proteinuria due to their native kidney disease. Proteinuria greater than 1500 mg/d 1 year post-transplant and/or an increase in proteinuria from 3 weeks to 1 year >500 mg/d is indicative of new allograft pathology. The second issue to consider is the type of allograft pathology causing post-transplant proteinuria. Some forms of allograft glomerular pathology, such as transplant glomerulopathy, may be associated with CAN but it has distinct pathogenesis, clinical presentation and prognosis. Second, other forms of non-recurrent glomerular disease, such as focal segmental glomerulosclerosis, are rarely present in patients with CAN and when present defines a subgroup of patients with a distinct clinical presentation and prognosis.

Case report. Male patient, 44 years old, admitted to nephrology department because of nephrotic syndrome, with the level of proteinuria of 7,93 g/d with all other elements of nephrotic syndrome, with slight increase in serum creatinine level. Fifteen years ago he was diagnosed with IgA nephropathy and developed CKD in the next few years. Treated with intermittent dialysis for three years. Treated with kidney transplantation from living related donor ten years ago, without significant complications in the follow up period. He was treated with immunosuppressive protocol with basiliximab in induction and tacrolimus, mycophenolate mophetil and steroids after transplantation, without changes in protocol. The level of urine proteinuria in follow up period was less than 500 mg/day. One year prior to this hospitalization he developed arterial hypertension and NODAT and started treatment with insulin, ACE inhibitors and beta blocker. Color Doppler ultrasound showed no signs of acute rejection or CAN-chronic allograft rejection. We also examined other possible causes of nephrotic syndrome-infections, malignancies and hematological diseases, but without positive findings. We suspected that the cause of proteinuria and nephrotic syndrome could be recurrent IgA allograft nephropathy. The biopsy of the allograft was performed. Pathological examination showed glomeruli with expanded mesangium, thick matrix and the formation of nodules in glomeruli, hypercellular nodules, with segmental duplication of the glomerular basement membrane. In peritubular capillaries deposits of C4d were not found. Changes found on EM and in total matched the changes in the context of diabetic nephropathy. There were no signs of recurrent IgA nephropathy or other glomerulopathies.

Conclusions. Proteinuria is a useful prognostic marker after kidney transplantation. Proteinuria after kidney transplantation identifies recipients with glomerular diseases that may cause graft failure. In patients without demonstrable glomerular pathology, other causes of proteinuria should be considered and investigated, including NODAT. These possibilities deserve investigation for better understanding of the prognostic implications of proteinuria after kidney transplantation.

OP-28 Ultrasound characteristics of blood vessels and successful creation of vascular access in diabetic patients

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Introduction. Patients with diabetic nephropathy who developed ESRD are considered complicated regarding the creation of successful vascular access (VA) for hemodialysis. Surgical failure usually arises due to unfavourable blood vessel morphology. Preoperative echosonographic examination is advised to assess the adequacy of blood vessels and determine the type of preoperative intervention. The aim of the study was to show whether patients

with diabetes mellitus have the same success in creating a VA compared to non-diabetics.
Methods. The study included 239 patients with an ultrasound assessment indicating feasible creation of the first or "after first" VA (all approaches after the first created). Of the above, 90 patients had diabetes mellitus as the underlying disease and they were referred for the first (88.1%) and "after first" vascular access (18.9%) and the groups were compared with the remaining 149 patients without diabetes mellitus. The criterion for a successful VA was adequate hemodialysis over a given VA after the maturation period.
Results. Non-diabetics had a 2.09-fold higher probability of successful VA (OR: 2.09, 95% CI: 1.08-4.05). The use of anti-aggregation agents, oral anticoagulant therapy, statins and ACE inhibitors did not affect the outcome of VA in both groups of patients. Inappropriate colour Doppler parameters (uncompressible vein, deep vein position, accessory veins, adverse venous and arterial morphology) were equally presented in both groups of patients.
Conclusions. Successful creation of VA in patients with diabetes mellitus is less common. Given that there was no significant difference in colour Doppler findings between diabetics and non-diabetics, it is necessary to consider and investigate other risk factors for higher success of VA creation.

OP-29 Influence of hemodialysis and hemodiafiltration on serum superoxide dismutase activity and C-reactive protein levels in end-stage renal disease patients

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Introduction. Recent data suggest that inflammation and oxidative stress are common in end-stage renal disease (ESRD) patients on chronic hemodialysis (HD) treatment. The hemodialysis and hemodiafiltration (HDF) are essential renal replacement treatments in patients with ESRD. The aim of this study was to evaluate the influence of HD versus HDF treatment on serum superoxide dismutase activity (SOD), C-reactive protein (CRP), albumin and uric acid levels in ESRD patients on chronic HD treatment.
Methods. In this cross-sectional, single-center study, a total of 100 patients (60% males, 40% females) with ESRD undergoing chronic HD treatment were enrolled. Their mean age was 54.1±11.8 years, with the duration of dialysis of 91.4±76.2 months. The participants were subdivided into HD group (n=37) and HDF group (n=63) according to the dialysis technique. They underwent regular high-flux HD or HDF for 4 hours, three times a week. Blood samples were taken before the procedure of HD in order to measure the serum levels of SOD, CRP, albumin and uric acid. Serum SOD concentration was determined by an enzyme-linked immunosorbent assay (ELISA) method using a commercial kit. Nephelometry was used to measure CRP plasma levels (normal levels 0-5 mg/L). Serum albumin and uric acid concentration were determined by spectrophotometry method.
Results. Serum CRP level was significantly higher (p=0.006), while albumin concentration was significantly lower (p=0.036) in the HD group compared to HDF group. Patients in the HD group had higher serum uric acid level compared to patients in the HDF group, but the difference was not statistically significant (p=0.062). The groups did not differ significantly in serum level of SOD (p=0.999). Significant positive correlation was only observed between serum albumin and uric acid levels in HDF group (r=0.264; p=0.036).
Conclusions. The significant elevation of serum CRP level together with the decrease in serum albumin level observed in HD group suggests that hemodialysis is more associated with the presence of micro-inflammatory state compared to hemodiafiltration in ESRD patients on chronic HD treatment.

OP-30 Vascular access in elderly-a challenge or a damnation?

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Introduction. The annual increase of the number of hemodialysis (HD)-treated patients is 8-16 % in the 75-plus group. The main aim of our study is recording the vascular access type in HD-patients treated for more than 90 days within a five-year period (from January 1, 2012 to December 31, 2016).
Methods. Eighty three (83) patients with a median age of 59.7±13.98 years (28 females and 55 males) were divided in three groups: A (<45 years)-11, B (45-64 years)-42 and C (>65 years)-30.
Results. The median treatment duration was 681.6 days and no statistically significant differences were found between the groups (p>0.05). The used vascular accesses types were arterio-venous anastomosis (AVA), cuffed catheter (CC) and temporary catheter (TC). The access type distribution at the start of HD treatment was: A: AVA-0, CC-0, TC-11; B: AVA-8, CC-9, TC-25; C: AVA-8, CC-10, TC-12 and the differences between the patients from group A and those from groups B and C was significant (p<0.05). After 90 days of HD-treatment, the vascular access type distribution was: A: AVA-10, CC-1, TC-0; B: AVA-36, CC-6, TC-0; C: AVA-17, CC-13, TC-0 and the differences between the relative share of AVA between the groups A, B, and those from group C was statistically significant (p<0.05).
Conclusion. Based on our data, we conclude that the old age is not a contraindication for AVA creation but vascular access type must be decided individually.

OP-31 Arterial stiffness and circulating angiogenic factors in hemodialysed patients

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Introduction. Arterial stiffness is reported to be a predictor of mortality in hemodialysis patients, and there is also data regarding the association of circulating angiogenic factors, such as vascular endothelial growth factor (VEGF) with chronic kidney disease. The purpose of this study was to assess the potential relationship of arterial stiffness with elements of CKD-MBD, with markers of cardiovascular disease and with VEGF.

Methods. We conducted a single-center cross-sectional study that included 63 CKD G5D patients (hemodialysis for 1-5 years, mean age 60.1±11.8 years). All patients were assessed regarding cardiovascular disease (medical history, echocardiography and ECG), we performed using standard methods blood biochemistry, complete blood count and with enzyme- linked immunosorbent assay method- VEGF, soluble klotho. In every patient we measured aortic augmentation index (AAI) and brachial pulse wave velocity (PWV), using oscillometry.

Results. In the studied patients we found a mean value of PWV of 9.3±1.8 m/s. PWV showed a positive correlation with age (r=0.38, p=0.009). We had also found a statistically significant correlation between PWV and serum calcium (r=0.53, p=0.0003) and serum phosphate (r=0.38, p=009), but there was however no statistically significant correlation with iPTH, alkaline phosphatase, vitamin D, soluble klotho. Arterial stiffness results, expressed using PWV showed no differences between the subgroups of patients with/ without diabetes mellitus, valvular calcification, left ventricular hypertrophy, signs of ischemia on ECG. Regarding serum VEGF (mean value 137.13+/-78.74 pg/ml), with higher values in patients with diabetes (154.2 vs 122.8, not statistically significant). We found no statistically significant correlation of VEGF with arterial stiffness. On the other hand, we found a positive, statistically significant correlation, between PWV and hemoglobin (r=0.48, p=0.001) and with serum albumin (r=0.53, p=0.0003). With regard to dialysis efficiency we found a surprising positive statistically significant correlation between eKT/V and PWV (r=0.36, p=0.01), and also with dialysis blood flow (r=0.49, p=0.0007). It has to be mentioned that we observed an increase of eKT/V with the dialysis vintage (r=0.31, p=0.01).

Conclusions. These data indicate an increase of arterial stiffness with age and an association with elements of CKD-MBD. We found also a positive correlation with serum albumin and hemoglobin. However, our study could not show a relationship of arterial stiffness with markers of cardiovascular disease or with circulating angiogenic factors. Further studies are needed to examine the role of angiogenic factors in CKD.

OP-32 Unusual vascular access for hemodialysis

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Introduction. Arteriovenous (AV) fistula is the best vascular access (VA) for patients requiring chronic hemodialysis (HD) therapy. Repetitive venous punctures in forearms in patient on HD develop venous fibrosis, making impossible subsequent cannulation and creation of more AV fistula. Limiting factor for future creation of AV fistula is also use of central venous catheters (CVC) for initial HD therapy in app 60% of patients. The aim of the study was to describe the creation of unusual VA for HD in patients with limited options that may be a matter of choice to safe and prolong the patient's life.

Methods. We had performed 26690 VA at our Department for VA, Clinic of Nephrology, Skopje in a period of 40 years (1977-2017): 9309 as permanent VA, 7968 AV fistula (85.6%) and 1341 (14.4%) tunnelled catheters (TC) such as femoral, subclavian and jugular. Beside of performing AV fistula, AV grafts and TC, we have also performed some unusual VA for HD. Due to some complications, v. azygos (n=1) was enlarged which gave an opportunity to be used as unusual VA for HD; v. saphena magna and a. femoralis superficialis anastomosis (n=2); a. femoralis was cannulated until patients were prepared for continuous ambulatory peritoneal dialysis (n=4).

Results. We have cannulated v. azygos intentionally for a period of 45 days during cardio surgery performed thrombectomy to right atrium and bypass from v. innominate to right atrium with Dacron graft 8mm and catheter Tesio insertion in v. innominate to right atrium. In 2 other patients we avoid using upper VA due to stenosis at innominate veins and performed v. saphena magna and a. femoralis superficialis anastomosis. One patient was with occlusion of right and left axilar vein and occlusion of both femoral veins. We had to perform HD sessions using catheters in a. femoralis in a period of 45 days until patients were prepared for continuous ambulatory peritoneal dialysis.

Conclusions. Unusual VA for HD may be used as a last lifesaving procedure in chronic renal failure patients in whom conventional accesses failed. Such approach may be of choice as it provides sustainable VA for HD.

OP-33 Paradoxal diuresis after vasopressin administration to hemodialysis patients with bleeding

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Abstract. Uremic bleeding is a well-recognized complication in patients with renal failure. The most common agent used in uremic patients with active bleeding is desmopressin. Desmopressin doses for uremic bleeding are approximately 10-fold higher than doses used for diabetes insipidus. We use desmopressin in oral form in treatment of haematoma in the right upper thigh in haemodialysis patients. Residual urine output was to 100-200 ml/24 hours during the past couple of years. The second day after the introduction of desmopressin to the treatment, patient complained about suprapubic painful distension tension.. Urinary catheter was placed and 900 ml of clear liquid was evacuated. The patient continued to have diuresis in the following days, between 600-800 ml per day. Scientific explanation for this phenomenon were found. We have possible explanations for the diuretic effect of vasopressin: increase of renal perfusion pressure, inhibition of sodium reabsorption at the renal tubules and the release of atrial natriuretic peptide. This question can only be answered by a prospective trial of the effect of vasopressin in dialysis patients.

OP-34 One-year outcome of kidney allograft rejection with microvascular injury: role of HLA and non-HLA antibodies

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Introduction. Microvascular injury (MVI) defined as peritubular capillaritis (ptc) and glomerulitis (g) is one of fundamental, but unspecific features of antibody-mediated rejection (AMR). Preexisting and/or *de novo* donor-specific HLA antibodies (DSA) class I and class II are associated with MVI, accelerated allograft fibrosis and subsequent premature graft loss. AMR may also be caused by non-HLA antibodies (i.e. anti-angiotensin II type 1 receptor [anti-AT1 R], or anti-endothelin receptor [anti-ETAR]), either alone or together with DSA. However, previous studies showed conflicting results regarding prognostic significance of non-HLA antibodies on kidney allograft. Therefore, our aim was to investigate a role of DSA and non-HLA antibodies on the medium-term outcome of kidney allograft rejection with MVI.
Methods. Retrospective analysis included 46 pts who had kidney transplantation (tx), or simultaneous pancreas and kidney tx (SPKT) at Merkur hospital between 2007 and 2016, with MVI on protocol, or indication biopsy (bx). Patients with available DSA data pretransplant and at the time of rejection, as well as non-HLA data at the time of kidney rejection were included. Pts with preexisting DSA were considered as DSA positive at the time of rejection even if the DSAs were not detected at that time. Biopsies were scored using the Banff 2017 classification. All pts received treatment for graft rejection that included corticosteroids, anti-thymocyte globulin (ATG), plasmapheresis, intravenous immunoglobulins (IVIg), bortezomib, and/or rituximab depending on the type of rejection.
Results. Among 46 pts with MVI, borderline rejection was diagnosed in 6 pts, TCMR in 13 pts, and AMR in 27 pts (acute/active 18 pts, and 9 pts chronic active). AMR type I was present in 14 pts, and AMR type II in 13 pts. Median time from tx to rejection episode with MVI in borderline group was 32 days (IQR 6-57), in TCMR group 14 days (IQR 10-105), and in AMR group 54 days (IQR 11-1159) (p=0.14). The three groups (borderline, TCMR, and AMR) were different regarding the degree of MVI (ptc+g score) (borderline 1.5±0.5, TCMR 1.8±1, AMR 3.5±1; p<0.001), and cg score (borderline 0±0, TCMR 0±0, AMR 0.7±1.1; p=0.027). There was no statistically significant difference regarding cv score, IF/TA score, eGFR at the time of rejection, eGFR six and twelve months after rejection among the three groups. One year following rejection death-censored graft survival (DCGS) and overall graft survival (OGS) were not statistically significant according to the Banff groups (borderline 100%, TCMR 84.6%, and AMR 88.9%; p=0.57 respectively).
Antibodies (DSA and/or non-HLA) were associated with MVI in 36 pts. 11 pts had only DSAs (all *de novo* DSA), 12 pts had only non-HLA-Abs (AT1R-Ab in all), and 13 pts had both DSA and non-HLA Abs (preexistent DSA in 4 pts, and *de novo* in 9 pts). Time from tx to the rejection was statistically different between groups (only DSA 109 days (IQR 11.1324), only non-HLA-Abs 9 days (IQR 4.5-40), both DSA (preexisting) and non-HLA-Abs 43 (IQR 20.5-118), both DSA (*de novo*), non-HLA-Abs 463 (IQR 181-1304), and antibody negative pts 13.5 days (IQR10-70) (p=0.02). DCGS was not different between pts without antibodies, only DSA, only non-HLA, and both DSA and non-HLA Abs (77.8%, 90.9%, 100%, and 92.3%; p=0.335, respectively).
Conclusions. Our results showed that patients with microvascular injury and DSAs and/or non-HLA antibodies may not experience poorer death-censored graft survival or overall graft survival within first year of acute rejection when active multimodal treatment is applied.

OP-35 Prooxidant-antioxidant balance, hsTnI and hsCRP: mortality prediction in haemodialysis patients, two-year follow-up

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Introduction. Oxidative stress and inflammation are highly intertwined pathophysiological processes. We analyzed the markers of these processes and high-sensitive troponin I (hsTnI) for mortality prediction in patients on haemodialysis.

Methods. This study enrolled a total of 62 patients on regular haemodialysis. The patients were monitored for two years, and the observed outcomes were all-cause and cardiovascular mortality. Blood samples were taken before one dialysis session for analysis of the baseline concentrations of prooxidant-antioxidant balance (PAB), total antioxidant status (TAS), total oxidative status (TOS), hsTnI, hsCRP and resistin.

Results. The overall all-cause mortality was 37.1% and CVD mortality 16.1%. By univariate and multivariate logistic regression, our findings suggest that good predictors of all-cause mortality include hsCRP and PAB ($p<.05$) and of CVD mortality hsCRP ($p<.05$) and hsTnI ($p<.001$). To evaluate the relationship between the combined parameter measurements and all-cause/CVD mortality risk, patients were divided into three groups according to their PAB, hsCRP and hsTnI concentrations. The cutoffs for hsCRP and hsTnI and the median for PAB were used. Kaplan-Meier survival curves pointed out that the highest mortality risk of all-cause mortality was in the group with hsCRP levels above the cutoff and PAB levels above the median ($p<.001$). The highest risk of CVD mortality was found in the group with hsCRP and hsTnI levels above the cutoff levels ($p=.001$).

Conclusions. Our data suggest that hsCRP and PAB are very good predictors of all-cause mortality. For CVD complications and mortality prediction in HD patients, the most sensitive parameters appear to be hsTnI and hsCRP.

OP-36 Risk assessment of development of contrast-induced nephropathy-case description

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Introduction. Contrast-induced nephropathy is defined as exposure to contrast media to the exclusion of other causes of kidney damage, increase of serum creatinine concentration >44μmol/l (0.5 mg/dl) or relatively >25% from baseline within 24-48 hours after intravenous administration of contrast medium and restore for 1-3 weeks. There are invariable (age, diabetes, existing kidney disease, progressive heart failure, low left ventricular ejection fraction <40%, acute myocardial infarction, cardiogenic shock, kidney transplant) and variable factor of risk (volume of contrast medium, hypotension, anemia and blood loss, dehydration, hypoalbuminemia <35 g/l, nephrotoxic drugs). The aim of the study is to describe the case of a comorbid patient with monitoring risk assessment for a contrast nephropathy after CT angiography endocranium, including seven invariable and variable risk factors with chronic kidney disease and the repeated use of a contrast agent.

Case report. We performed an ambulatory contrast CT angiography of the endocranium at General Hospital in Berane, suggested by a neurologist with the usual volume of contrast agent. Being repeated contrast procedure in male patient with comorbidity we monitored his clinical, laboratory daily before and after the procedure 1 to 12 months. Score for a risk assessment of contrast- induced nephropathy is defined according to the table where stagnant heart failure defined as NYHA III/IV and/or with the data on lung edema, chronic kidney disease as sCR> 133 μmol/l or lower JMF <60 ml/min / 1.73m^2, systolic hypotension <80 mmHg, anemia with hematocrit <36-39%. Scoring for risk of contrasting nephropathy was divided in four groups, small risk with a score <5, 6-10 moderate, medium 11-15 and very high risk with a score >16. In a period of one year, he was monitored by standard laboratory findings with anemia status, serum creatinine before and after contrast procedures and monitoring of diuresis and other specialist examinations, including seven parameters of risk factors for contrast-induced nephropathy. Before contrast procedures his findings were as follows: moderate systolic hypotension <110 mmHg (score 1), heart failure NYHA II (score 2), age 65 (score 2), moderate anemia (score 1), diabetes type 2 (score 1), the volume of contrast 100 ml (score 1), serum creatinine 90 μmol/l (score 1) or JGM 80 ml/min/1.73 m^2 (score 1). The total score was 9 and was on the table in Range score risks in the second of four groups of estimated risk of contrast nephropathy and increased concentrations of serum creatinine by 44 μmol/l and there is a moderate risk for contrast- induced nephropathy and dialysis.

Conclusions. Early detection of patients with increased risk for the development of contrast nephropathy before and after administration of contrast medium is important for optimal status. Euvolemia, avoidance of nephrotoxic drugs, the use of contrast agents with low osmolarity, participation of specialists in the prevention of contrast nephropathy development, shortens the length of hospital stay and cost of treatment.

OP-37 Off-clamp Nephron sparing surgery (NSS) and its impact on postoperative kidney function.

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Introduction. Although minimal invasive approach is preferable for partial nephrectomy (PN), open procedure has sill its own place. Recently introduced mini-flank approach is considered appropriate alternative to laparoscopic or robotically assisted PN regarding cosmetic and functional outcomes. Zero ischemia time PN (ZTPN) was developed in order to minimize renal ischemia and preserve renal function. Our technique of ZTPN with hemostatic suture in running fashion aimed to estimate efficacy of this approach in terms of perioperative complications, operative time and estimated blood loss (EBL).

Methods. We retrospectively analyzed 96 consecutive patients who underwent PN, using supra 11th or supra 12th rib mini flank approach. Patients with solitary tumor, limited to the kidney (T1-T2) were included. Using our technique, EBL was 150 ml and average OT 120.2 min. Postoperative transfusion rate was 2.1% with maximum 2 blood units required.
Results. Surgical resection margins were negative in 100% of cases and none patient developed a local or distant recurrence during follow up period. There was no significant difference between preoperative and postoperative outcomes regarding creatinine and glomerular filtration rate (GFR) ($p=0.43$ and $p=0.51$).
Conclusions. We can state that our technique is at least comparable to others, open or laparoscopic, with emphasize on low EBL and good postoperative functional outcome.

OP-38 Drug-related clinical manifestations in elderly patients at a nephrology outpatient clinic

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Introduction. Polypharmacotherapy and inappropriate medication use is known and common in general elderly population. Less is known about potential adverse drug effects, drug interactions and their clinical manifestations in elderly patients with chronic kidney disease (CKD). In our study, we aimed to define the polypharmacotherapy and drug-related clinical manifestations in CKD patients.
Methods. We retrospectively examined the data of 99 elderly CKD patients at our nephrology outpatient clinic. Basic demographic data, comorbidities, concomitant medications, potential adverse drug effects and/or drug interactions were recorded. At the visiting day, patients answered a questionnaire about their pharmacotherapy and possible adverse effects. A clinical history and status were obtained. Clinical manifestations of potential inappropriate medication use were recorded.
Results. We included 99 patients (34 female, 65 male), average age 77 years (range from 65 to 94 years). On average, patients regularly used 6.7±2.9 drugs. Number of drugs used by our patients increased with age ($r=0.251$; $p<0.012$). Most commonly prescribed drugs prone to adverse drug effects and/or drug interactions were beta blockers (9.2%), non-steroid anti-inflammatory drugs (8.8%), angiotensin converting enzyme inhibitors (7.6%), antilipemic drugs (7.0%), calcium channel blockers (6.1%), antacids (6.5%), loop diuretics (6.1%), antiglycemic drugs (6.1%), alfa blockers (4.7%) and sartans (4.7%), respectively. No clinically relevant abnormalities in homeostasis of coagulation, electrolytes, lipids and/or glycaemia related to drug prescribing were found. In 44 patients, arterial hypotension was determined, 8 of them had clear clinical manifestations of hypotension.
Conclusions. The results of our study show drug-related, clinically relevant blood pressure overtreatment in CKD patients, resulting in hypotension.

OP-39 Early lesions of focal segmental glomerulosclerosis in a patient with acromegaly

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Introduction. Growth hormone (GH)/IGF-1 axis regulates renal growth and function. Hypersecretion of GH in acromegaly is associated with glomerular hypertrophy, hyperfiltration and higher albuminuria levels.
Case report. We present a rare case of focal segmental glomerulosclerosis (FGSG) in a young patient with pituitary adenoma secreting GH. A 30 year-old male patient with acromegaly phenotype was admitted in our hospital due to nephrotic range proteinuria (7.1 gr/dl). His medical history included surgical removal of a pituitary adenoma secreting GH followed by radiotherapy four years ago as well as diabetes mellitus and arterial hypertension. The patient presented normal levels of urea and creatinine (32 mg/dl and 1 mg/dl, respectively), glomerular hyperfiltration (mGFR 220 ml/min) with enlarged kidneys on ultrasound. Imunological and hormonal testing were normal. He underwent renal biopsy which revealed glomerulomegaly, juxtaglomerular cell hyperplasia and lesions suggestive of early stage of FSGS. Symptomatic therapy targeting strict control of blood pressure was initiated. Three months later proteinuria was decreased to subnephrotic level (3.2 gr/dl).
Conclusions. Hypersecretion of GH is associated with structural and functional renal changes leading progressively to FSGS. Strict control of metabolic and hemodynamic parameters is essential for glomerular protection in acromegalic patients.

OP-40 Balkan endemic nephropathy and malignant tumors of urinary bladder- 40 years of follow up

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Introduction. Balkan endemic nephropathy (BEN) is a chronic tubulointestitial kidney disease prevalent in Serbia, Bosnia, Croatia, Bulgaria and Romania. BEN is often associated with the high concomitant appearance of malignant tumors of the urothelium (MTU), especially with malignant tumors upper urothelium (MTUU). The aim of the paper is to assess the basic epidemiological characte-

ristics of malignant tumors of urinary bladder (MTUB) occurring in Jablanica region in the period of 40 years, and to determine the linear trend of MTUB frequency in region with BEN compared to non-endemic regions.

Methods. The research period lasted from 1978-2017. During the analysis of the frequency of MTUB, we used the operative material of Urology Department, Health Care Center, Leskovac, and Urology Clinic, Clinical Center, Nis. The average annual incidence rate (AAIR) was calculated per 100,000 people. We collected data about our patients regarding their sex, age, place of birth and place of living. Patients were classified by the place of living (A-endemic regions, B-hypo-endemic regions, C-non-endemic urban regions, D-non-endemic rural regions). Finally, we observed groups C and D (non-endemic regions) for MTUB. For practical reasons, this period was divided into two parts, the first one from 1978-1997 and the second from 1998-2017.

Results. From 1978 to 2017, 1208 cases of MTUB (282 female and 926 male-1:3.28) with average age of 62 (the youngest 32, and the oldest 86 years). There were 17 patients in endemic (A), 25 in hypo-endemic (B) and 1166 in non-endemic regions (C,D). AAIR of MTUB was (14.35) in endemic regions, (11,23) in hypo-endemic regions and (11,82) in non-endemic regions. There was five times decline in the relative rate of incidence of MTUB per annum in endemic regions from the first to the second period, while the approximate annual rate for MTUB in non-endemic regions was increased by 3,19 times (288: 920). The linear trend of MTUB in the observed period was statically increased ($y=1.6415x +3,45$; $r^2=0,85$). In the first observed period, MTUB of the Jablanica district in endemic regions was 2.58 times more frequent than in non-endemic ones compared to the number of inhabitants, while in the second observed period it was 1.59 times more frequent in non-endemic regions.

Conclusions. High frequency of malignant tumors of the urothelium, primarily MTUU in the areas with BEN incidence, probably points to the common nephropathogentic and cancerogenic etiological factors and proves the existence of a positive correlation between BEN and MTUU, which is not the case with MTUB.

OP-41Diabetic nephropathy, challenges of treatment

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Introduction. Diabetic nephropathy as a major complication of diabetes represents a progressive structural and functional kidney damage, leading to chronic kidney failure and end stage renal disease (ESRD). Novel protocols of treatment and tight follow up between nephrologist and endocrinologist have showed a huge impact in managing the disease and changing its natural path. Early referral to a nephrologist and screening for microalbuminuria and structural kidney damages is a MUST nowadays. A late referral to a nephrologist dismisses the possibility of optimal treatment and represents on itself the major burden and the biggest obstacle on treatment of diabetic nephropathy, thus increasing morbidity, mortality and hospitalization rate. Late referral leads to unfollowed abnormalities, unnoticed progression of kidney disease, patient and family unawareness and fast kidney damage.

Methods. We present an overview of our inpatient situation during 2016-2017.

Results. We conclude that our patients are referred very late for nephrologist checkup that they usually present with overt diabetic nephropathy, frank proteinuria or macroalbuminuria, decreased GFR and on a great proportion with ESRD, leaving no further choices for treatment except renal replacement therapy. Besides this our patients often show with very severe illness, different comorbidities such as: cardiac failure, sepsis, pulmonary failure, cerebrovascular insult etc., lowering the chances of treatment and poor survivor rate.

Conclusion. Nowadays diabetic nephropathy is the leading cause of ESRD in our country and our scope is to work harder and target early stages of the disease in cooperation with primary care units, endocrinology and cardiology departments!