Poster presentations – dialysis

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PPD-01 The arterio-venous anastomosis in present days (Analysis of the last 100 arteriovenous anastomoses)

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Introduction. Arterio-venous anastomosis (AVA) continues to be the "gold standard" for vascular access in patients with chronic kidney disease (CKD) undergoing hemodialysis. The purpose of this retrospective study is to analyze the causes that led to CKD, the type of native AVA and its localization as well as their patency.

Methods. The study included the last 100 consecutive and random AVAs constructed in our clinic. 68 men of average age 62.3 (±10.8) years and 32 women of average age 59.9(±15.8) years were operated. The main causes that led to CKD were: chronic glomerulonephritis-33%, hypertensive nephropathy-24%, diabetic nephropathy-20%. The overweight patients were 33% and smokers were 30%. AVA has been successfully constructed in 82% of the patients on left hand and in 18% on the right hand.

Results. A distal, latero-terminal, radio-cephalic fistula was constructed on only 8% of the patients. The most common type of anastomosis was a latero-terminal radio-cephalic in the forearm-58%, followed by a latero-terminal brachio-cephalic fistula-19% and latero-lateral radio-cephalic in the forearm-14% of the patients. The extra-early (up to 7-th day) fistula patency was 95%, early (up to 3-rd month)-80%, one-year cumulative patency for 70 patients was 94%, the remaining 10 patients did not have 1 year of surgical intervention.

Conclusions. The analysis of our results showed that the relative share of the overweight and diabetes population is increasing today. In practice, solutions for the construction of primary forearm anastomosis are increasingly common.

PD-02 Hypokalemia as a marker of poor outcome in peritoneal dialysis – related peritonitis

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Introduction. Determine association between hypokalemia and clinical outcome in patients with peritoneal dialysis-related peritonitis (PDRP).

Methods. We retrospectively evaluated the records of all patients with PDRP who were treated in our hospital in period from 2016-2017. The influence of hypokalemia on the clinical features of peritonitis was assessed. Hypokalemia was defined as a serum potassium level <3.5 mmol/l. Diagnosis of peritonitis was made based on standard criteria. The demographic and laboratory characteristics, pathogens of peritonitis, method failure and mortality rate were analyzed.

Results. We analyzed 42 patients treated with standard PD solutions. We identified total 22 episodes of peritonitis (2 episodes were culture negative) in 17 patients. A single Gram+organisms were founded in 65% and single Gram-organisms were founded in 35 % of the positive culture cases. We verified complete resolution in all cases of Gram+peritonitis and loss of catheter and transfer on HD in 1 case of Gram-peritonitis (14,29%). There were not cases of fungal or multibacterial peritonitis or lethal outcomes. The overall peritonitis rate was 31.6 patient-month per episode. Hypokalemia occurred in 29,41% (5/17) patients with PDRP. Gram-microorganisms were lead pathogens responsible for 80% (4/5) episodes of PDRP in hypokalemic group. This group had significantly higher serum CRP ($p<0.01$), lower serum albumin ($p<0.05$) and PD catheter removal rate ($p<0.05$). There were no significant difference in age, gender, duration of dialysis and mortality between two groups.

Conclusions. Hypokalemia is a marker of poor outcome in peritoneal dialysis-related peritonitis, associated with a high frequency of gram negative causer's infection, malnutrition, inflammation and PD catheter removal rate.

PPD-03 Microinflammation as a risk factor for a development of a cardiovascular disease in hemodialysis patients

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Introcuction. C-reactive protein (CRP)-a reliable marker of microinflamation(MI) in CVD.
- sCRP is <5 mg/l- normal,
- sCRP>10 mg/l signify the microinflammation(MI) of ACC

MI on hemodialysis(HD) in 30- 50% of patients
HD and MI:
- biocompatibility of dialysis membrane,
- the conventional solution for hemodialysis,
- ultrafiltration feedback,
- latent or clinically manifest vascular access infections.

I- the traditional risk factors(TRF)- II-HD-hemodialysis
1-hypertension, 1-biocompatibility
2-hyperlipidemia, 2- endotoxins
3-diabetes mellitus, 3- the solution for hemodialysis
4- cigarette smoking,
5- obesity,
6-uremia (oks.LDL, free radicals ROS, hyperhomocysteinemia, infection, acidosis)

The aim of the study:
I - in hemodialysis patients
II- in the control group
1. to determine hs-CRP (high-sensitivity high-sensitivity CRP)

2. compare hs-CRP in HD and in the control group,
3. comparable hs-CRP in patients with and without cardiovascular complications (CVD) and to determine the incidence of cardiovascular disease on hemodialysis compared to traditional risk factors(TRF).

Methods.

- I- HD-
- group of 20 patients
- 15 males and 5 females
- mean age 57.5 years,
- 15 males with an average age 58.6 years, a group of five women's average age of 54.8 years,
- treated by repeated dialysis treatment in the General Hospital in Berane in 2012 and 2013 made a general overview to the exclusion of acute inflammatory diseases,

II- Control

group of 10 subjects (8 males and 2 females),

- mean age 50.7 years,
- while 8 of them were male with an average age 52.75 years,
- while two were female with an average age 42.5 years, who belong to a healthy population.
- From the medical documentatio 10 patients had developed cardiovascular complications, with an average age of 66.6 years, 9 males average age of 65.67 years, one female, age 76 years with coronary heart disease and all done CRP.

Results.

n 20 patients on hemodialysis,

-the mean concentration was hs-CRP-67±20.8 mg/l (baseline CRP<5 mg/l, while hs>10 mg/l) was significantly higher than in the reference value in the control group ranged 16.2±3.9 mg/l, and between these two groups there was a statistically significant difference ($p<0.01$). For groups of 10 hemodialysis patients with cardiovascular complications, the mean concentrations of hs-CRP was 75.3±31.78 mg/l, with the remaining 10 patients on dialysis without complication was conc. hs-CRP 82.45±24.65 mg/l between these two groups there was no statistically significant difference ($p>0.05$) .Followed compared to traditional risk factors, 10 hemodialysis patients with cardiovascular complications of 100% have hypertension, hyperlipidemia 30%, 20% of the patients with diabetes, 30% of the smoking and obesity have 30%.

Conclusions.

-The concentration of hs-CRP In HD-significantly increased compared to the control group(CG), which belongs to the healthy population.

- The concentration of hs-CRP in HD with cardiovascular complications was not significantly elevated compared with no complications.

The incidence of cardiovascular complications inHD and action on traditional and non-traditional risk factors can reduce the incidence of complications.

PPD-04 Primary kidney disease does not affect L-carnitine supplementation effects in hemodialysis patients

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Introduction. There is a growing body of evidence that the long-term hemodialysis (HD) leads to disturbances of carnitine homeostasis but the results of L-carnitine supplementation in HD patients have been conflicting. In the present prospective study we investigated the effectiveness of intravenous L-carnitine in mitigating dialysis-related protein-energy wasting (PEW).

Methods. Fifty patients (46% male, mean age 63±18.28 years, HD vintage 37.5 (7-288) months) received 1 g L-carnitine intravenously at the end of every HD session for 12 months. Clinical data were obtained from the medical records and charts. Laboratory parameters were measured prior to supplementation and controlled in 6-months intervals. Anthropometric measurements were performed prior to HD session. Malnutrition-inflammation score (MIS) was used as a scoring system representing the severity of PEW.

Results. A significant increase in total cholesterol, predominantly on the account of LDL was found ($p=0.005$). Simultaneously, HDL decreased ($p=0.001$) while triglyceride levels remained unchanged. Although the rise in serum prealbumin could be observed, lean tissue index (LTI) decreased and fat tissue index (FTI) increased which resulted in reduction of the LTI/FTI ratio ($p=0.002$). Multivariate regression analysis showed that higher FTI after introduction of L-carnitine led to greater hemodynamic stability (OR 1.709, 95% CI 1.006-2.905, $p=0.048$). Primary kidney disease had no influence on neither nutritional parameters nor on L-carnitine supplementation effects.

Conclusions. Our results show significant effects of L-carnitine supplementation on lipid metabolism. Although at first these changes could be claimed as undesirable they led to significant amelioration of MIS and were linked tomuch better appetite. Furthermore, FTI increase led to lesser number of intradialytic hypotension episodes. As there was no differences in HD treatment characteristics, primary kidney disease or residual diuresis we could conclude that positive energy balance (with an increase in prealbumin and FTI) eventually led to better hemodynamic stability.

PD-05 Survival of patients on hemodialysis with erectile dysfunction

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Introduction. In patients on hemodialysis, erectile dysfunction is an independent mortality factor. We investigated the impact of erectile dysfunction on survival rate of patients on hemodialysis.

Methods. During a seven-year period, erectile dysfunction was identified among the mortalities reported in pa-

tients receiving chronic hemodialysis. The study covered 70 patients of mean age 57±6.7 years. During the examined period, 42(60%) patients died, the study was completed by 28(40%) patients. Laboratory, demographic, anthropometric and clinical characteristics were recorded using standard methods.

Results. Statistically significant differences between the two groups of respondents were found concerning dialysis duration ($p<0.001$), number of leukocytes ($p=0.003$), adequacy of hemodialysis ($p=0.004$), intima media thickness of the carotid artery ($p<0.001$), presence of cardiovascular disease ($p=0.03$), residual diuresis ($p=0.04$), and hemodiafiltration ($p<0.001$). Hemodialysis adequacy (B-9.634; $p=0.017$), intima media thickness (B 0.022; $p=0.003$), residual diuresis (B-0.060; $p=0.007$), and lower rates cardiovascular disease (B 0.176; $p=0.034$) were significant survival predictors among our patients with erectile dysfunction.

Conclusion. Predictive survival parameters for such patients are residual diuresis, high quality hemodialysis, a low incidence of cardiovascular diseases, and less intima media thickness of the carotid arteries.

PPD-06 Encapsulating peritoneal sclerosis

Pesic S

Introduction. Damage to the peritoneal membrane induced by long-term peritoneal dialysis, can leads to serious, often life-threatening complications as is encapsulating peritoneal sclerosis (IPS). The incidence of IPS-e is about 2.5%, and increases with the duration of peritoneal dialysis. The pathogenesis of sclerosing peritonitis is multifactorial, most commonly the result of an association of inflammatory stimuli and damage of the peritoneal membrane. Mortality is extremely high about 40%.

Case study. Patient K. N. age 62, from Belgrade, on chronic peritoneal dialysis treatment 9 years. After observed ultrafiltration weakness and the occurrence of sterile peritonitis, IPS was diagnosed. The Tamoxifen therapy was introduced and patient was switched to hemodialysis. On several occasions, the patient was hospitalized due to suboclusion and in 2016 athesiolysis with resection of the small intestine was performed together with jejunal-ileal anastomosis. Postoperatively patient expressed signs of malnutrition, fever with an increased markers of inflammation. The twentieth postoperative day he expired.

Conclusions. Immunosuppressive therapy may be effective in the control and prevention of disease progression as well as timely surgical treatment. Finding of early markers for the diagnosis of IPS-e and timely transfer of these patients to other treatment modality for renal replacement function can contribute to a better outcome and reduced mortality in these patients. It may be important to consider regular CT diagnostic procedure after long-term PD for timely diagnosis and surgical intervention.

PPD-07 Treatment of congestive heart failure with sequential dialysis

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Introduction. The advanced congestive heart failure (CHF) may provoke functional kidney disturbances with insufficient and resistant to conservative therapy water excretion. The treatment of chronic renal failure (CRF) with active dialysis related to ultrafiltration (UF), may overcome the renal diuretics resistance with diuresis restoration and edema withdrawal. The aim of the study was to define the indications for active, discontinued UF in setting of the CHF refractory to drugs, especially in the treatment of edema.

Methods. We investigated 12 patients, mean age 62.4±5.3 years, with incipient renal failure, but advanced congestive heart failure. Seven of them were males and 5 females. The indication for discontinued UF, was the severe expressed heart failure, reduced diuresis and initial renal insufficiency. In all investigated patients, before and after each UF procedure, the serum sodium and potassium level, blood urea nitrogen (BUN), creatinine and osmolality were checked. The body weight, abdominal and crural parameters were noted before and after dialysis.?

Results. The recovery was achieved in 10 patients with CHF, but 2 patients out of 12 did not demonstrated satisfactory response to UF. The biochemical features encountered to CHF patients suggest chronic hyponatremia, hypokalemia and hypovolemia. Proteinuria range from 1.2 to 3.6 g/l, and was present in 6 patients. The clinical data were performed with edema formation, reduced diuresis and dyspnea. Mean UF rate achieved after several dialysis was 12.4±7.6L.

Conclusion. Chronic heart failure in chronic renal patients, with severe edemas is an indication for UF therapy, even if the levels of BUN and creatinine are not increased. Reduction of the body weight and the extracellular volume, contributed for improved survival in these patients. However the risk of complications is high and not always with successful treatment.

PPD-08 Incidence, types and complications of vascular accesses in patients on chronic hemodialysis in Clinic for Nephrology, Clinical Centre of Serbia

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Introduction. Hemodialysis (HD) is the most frequent type of renal replacement therapy for patients with end stage renal disease (ESRD) in Serbia. Appropriate vascular access is essential for good and quality HD. The aim of our study is to present the incidence and types of vascular accesses for hemodialysis in patients with ESRD and to show complications regarding the type of vascular accesses.

Methods. Study included 153 patients admitted in Clinic of nephrology, Clinical Center of Serbia for creating vascular access prior to hemodialysis due to ESRD, need

for immediately start hemodialysis due to uremic syndrome and patients whose vascular access was malfunctioning. Clinical and demographic data were collected from medical records.

Results. The most often vascular access was primary arteriovenous fistula (AVF) (68.7%), REDO AVF was done to 11.1% patients, while permanent dialysis catheter (Hickman) was implanted to 15% and arteriovenous graft (AVG) to 3.9% patients ($p<0.001$). Patients with Hickman catheter were significantly older (72±13.6 vs. 63±15.3 vs. 62±17.2 respectively, $p=0.043$) and had a higher mortality rate (17.4% vs. 2.5% vs. 12.5%, respectively, $p=0.008$) compared to patients with AVF and AVG. Vascular access thrombosis was the most common complication (80%). Central venous catheter (CVC) for HD was placed in 19.6% patients due to nonexistent vascular access and in 23.5% CVC was used until the maturation of vascular access. Mortality rate was significantly lower in patients with prior created vascular access compared to uremic patients with CVC as first vascular access been CVC (3.3% vs. 13.3%, $p=0.026$).

Conclusions. AVF is the most common vascular access for HD. Predominant complication of vascular access is its thrombosis. Elective creation of vascular access for HD significantly reduces mortality rate.

PPD-09 Malnutrition Inflammation Complex Syndrome in Hemodialysis Patients- Implications in Cardiovascular and Vascular Access Outcomes

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Introduction. Malnutrition Inflammation Complex Syndrome (MICS) is frequently encountered in maintenance hemodialysis patients. The cause of this syndrome appears to be multifactorial (including inflammatory cytokine overload, nutrient wasting, uremic toxin accumulation, volume overload). The implications of this syndrome are vast, leading to poorer cardiovascular outcomes, higher intrahospital mortality and lower erythropoietin responsiveness. Our study aims to assess which MICS component correlates with 1-year cardiovascular outcomes, mortality and vascular access patency.

Methods. We retrospectively analyzed 155 chronic maintenance patients for whom we recorded demographics, subjective global assessment (SGA) score, comorbidities, biochemical parameters (hemoglobin, iron status, albumin, CRP, phosphorus, calcium, iPTH), dialysis quality parameters (kt/V, membrane type, membrane surface) and vascular access in January 2017. The outcomes for our patients recorded after one year, in January 2018 were: all-cause mortality, cardiovascular-cause mortality, myocardial infarction, stroke, arteriovenous fistula thrombosis, central line dysfunction.

Results. All-cause mortality was directly and significantly correlated with underweight status ($r=0.21$, $p=0.01$) and higher SGA score ($r=0.2$, $p=0.01$). Cardiovascular mortality was correlated directly with: age ($r=0.2$, $p=0.01$), dialysis vintage ($r=0.2$, $p=0.02$), underweight status ($r=0.23$, $p=0.003$), higher SGA ($r=0.2$, $p=0.02$), lower kt/V ($r=-0.2$, $p=0.01$). For new myocardial infarction, the direct, significant correlations with MICS components were: age ($r=0.17$, $p=0.03$), underweight status ($r=0.19$, $p=0.01$), SGA score ($r=0.24$, $p=0.004$), ferritin levels ($r=0.2$, $p=0.009$), and lower kt/V ($r=-0.24$, $p=0.002$). Concerning vascular access dysfunction, we obtained the following results: higher SGA score correlates directly with AV fistula thrombosis ($r=0.37$, $p=0.05$), as well as with central line dysfunction ($r=0.22$, $p=0.004$).

Conclusions. Malnutrition Inflammation Complex Syndrome assessment components are associated with higher all-cause mortality, cardiovascular mortality and vascular access dysfunction in our lot of patients, showing the need for better tertiary prevention regarding this subject.

PPD-10 Relationship between leptin level and nutritional status in chronic hemodialysis patients

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Introduction. Malnutrition is frequent and associated with increased risk of mortality and morbidity in hemodialysis (HD) patients. Detecting malnutrition early and treating is of vital important. Various parameters and anthropometric measurements are utilized, but none can provide definite information on their own. Leptin is peptide hormone, involved in the regulation of appetite, and might have a role in the development of anorexia in uremia. Several studies showed significant association between leptin and nutritional parameters, such as serum albumin, prealbumin and total cholesterol.

Methods. The aim of the study was to analyze nutritional status depending on leptin level and relationship between leptin, laboratory parameters and anthropometric measurements in predicting malnutrition in HD patients.

Results. Patients with low leptin level had poorer nutritional status (albumin 36.36±3.42 vs. 41.02±2.78 vs 41.66± 3.11, $p< 0.001$; total cholesterol 3.75±0.71 vs. 4.35±1.10 vs. 4.99±0.98, $p< 0.001$; transferrin 1.26±0.29 vs. 1.58±0.38 vs. 1.64±0.27, $p<0.05$; BMI 19.09±1.24 vs. 22.83±7.92 vs. 27.92±3.80, $p<0.05$). Patients with normal and high leptin level had good nutritional status. A statistically significant direct correlation was found between leptin level and Body Mass Index and reverse correlation between leptin and total cholesterol. In the malnutrition prediction, leptin showed good sensitivity (0.89), and specificity was similar as other parameters (0.45 for leptin vs. 0.65 for BMI

vs. 0.44 for serum albumin vs. 0.48 vs. 0.50 for transferrin and 0.44 for total cholesterol).

Conclusions. Our results showed that patients with low leptin had malnutrition. With increase of leptin level the nutritional status was improved.

PPD-11 Correlation between testosterone levels in male hemodialysis patients and cardiovascular risk parameters

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Introduction. Low serum testosterone levels in hemodialysis patients have recently been associated with cardiovascular risk factors and increased mortality. Testosterone deficiency is a common finding in hemodialysis patients, most probably as a result of altered sex-hormone metabolism. Low testosterone levels were associated with endothelial dysfunction and atherosclerosis. Low testosterone level is associated with poor nutritional status and increased inflammation in hemodialysis patients.

Methods. The aim of the study was to examine the correlation between the testosterone levels and structural and functional changes of the heart in hemodialysis patients. Cardiac structural and functional disorders were measured by echocardiography indexes.

Results. Sixty four hemodialysis patients were enrolled in this study (33 males and 31 females), mean age 56.47±11.79 years and had undergone dialysis for 72 to 6491 days. We got statistically significant low levels of total, bioavailable and free testosterone in large percentage male patients (87.7%). We found statistically significant negative correlation between tota, free and bioavailable testosterone levels and fractional shortening of left ventricle (FSLV). We also found statistically significant negative correlation between total and free and bioavailable testosterone levels and ainterventricular septal thickness (IVST) and also significant negative correlation between total and free and bioavailable testosterone levels and the thickness of posterior heart wall.

Conclusions. Correlations found in this study indicate the importance of testosterone levels and hypogonadism in male hemodialysis patients and represent a new field of research of treatment and prevention in these patients. Increasing testosterone levels may improve other pathophysiologic pathways that are related to the elevated mortality risk of hemodialysis patients.

PPD-12 Higher ultrafiltration rate may predict intraocular blood pressure in hemodialysis patients

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Introduction. Ocular problems have been reported to exist in patients with end-stage renal disease (ESRD). Changes in intraocular pressure (IOP) are an eye problem among hemodialysis patients, about which there is controversy in the literature. Most studies have shown an increase or no changes in IOP during hemodialysis, but some describe a decrease in IOP during session. This study aimed to evaluate the effects of a one session of hemodialysis on IOP and its relationship with ultrafiltration rate.

Methods. This cross-sectional study was carried out on 67 patients, 35% females, (134 eyes) who were under conventional intermittent hemodialysis for at least 3 months. Patients under glaucoma treatment, with corneal abnormalities, history of corneal surgery, allergy to topical anesthetic agents, or a current eye infection were excluded. Measurements were made at 2 time points, using a pneumotonometer with the patient in a seated position: approximately 15 minutes before starting hemodialysis (T1), and approximately 15 minutes after ending hemodialysis (T2). Blood pressures were also measured at these times. Echocardiographic studies were performed prior to and 30-60 min following the dialysis session. Mean inferior vena cava diameter (IVCD) was expressed as IVCD in inspiration+IVCD in expiration/2. IVCD was adjusted for body surface area (BSA).

Results. Mean age of the patients was 53.2±11.5 years. Laterality of the eyes (right or left) had no significant effect on the predialysis and post dialysis IOP values. Significant increase in intraocular pressure and decrease in plasma osmolarity, SBP, IVCD was found post dialysis.

PPD-13 The role of epicardial fat tissue at cardiovascular risk assessment in hemodialysis patients with nutritional disorder

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Introduction. Protein-energy malnutrition (PEM) is one of the most important risk factors in terms of morbidity and mortality in patients with end-stage renal disease (ESRD) receiving hemodialysis therapy (HD). In this population it is important to evaluate the nutritional status and body composition correctly. Our aim was to compare epicardial adipose tissue (EAT) thickness in HD patients with and without malnutrition. Our second objective was to determine whether the role of EAT in HD patients can be used to determine cardiovascular risk factor in HD patients with malnutrition.

Methods. Fifty-six patients who were receiving HD therapy for ESRD were included in the study. Mini Nutritional Assessment (MNA) was administered to determine the nutritional status of the patients. According to MNA

scores; patients were divided into two groups as PEM+ PEM risk group (group 1, n=25, score <24) and group well-nourished (group 2, n=31, score ≥24). In addition, Tanita SC 330, a body composition analyzer, was used to evaluate the body composition of patients. Blood biochemistry was evaluated retrospectively. Transthoracic echocardiography was performed to determine EAT.

Results. Of the 56 patients included in the study, 31 were male and 25 were female. EAT values were significantly different between the two groups (p=0.032). EAT value was higher in Group 2 than in Group 1. Phosphate (p=0.01) and calcium x phosphate product (p=0.02) values were significantly higher in Group 1. In addition, fat mass (p=0.011), visceral fat percentage (p<0.001), muscle mass (p<0.001), metabolic age (p=0.01), lean body mass (p<0.001) and basal metabolic rate (p<0.001) was significantly higher in Group 1. The highest positive correlation with EAT value was found with visceral fat ratio (r=0.600, p<0.001). There was also a moderate correlation with age (r=0.594, p< 0.001), metabolic age (r=0.501, p<0.001) and low correlation with CRP (r=0.402, p=0.002), fat mass (r=0.388, p=0.003), BMI (r=0.398, p=0.002).

Conclusions. Low EAT level in patients with malnutrition has led to questioning the role of EAT in assessing the risk of CVD in HD patients. Because malnutrition is a frequent problem in the HD population, it is important to know whether patients have malnutrition in order to be able to evaluate EAT as a cardiovascular risk factor in this patients group. As a result, we think that EAT can be used as a risk factor for KVC in patients without malnutrition.

PPD-14 Recurrent thrombosis of AV fistulas in patients with Alport syndrome

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Introduction. The maintenance of adequate vascular access is crucial to patient survival on hemodialysis. Complications related to vascular access account for 20 to 25% of all hospitalizations in dialysis patients. Thrombosis is the leading cause of arteriovenous fistula and graft failure. Thrombophilias are inherited or acquired predispositions to thrombosis and have been suggested as a possible cause of dialysis access thrombosis. Studies to date have been conflicting, with some suggesting a significant association whereas others have not. There are few cases of Alport syndrome as underlying chronic kidney disease (CKD) with diagnosed genetic thrombophilia described in literature.

Case study. Male patient, 25 years old, presented with hematuria and non-nephrotic range proteinuria in childhood, age of two years. At the age of eleven years old he presented with elevated levels of serum creatinine and urea for the first time. Kidney biopsy was performed and Alport syndrome diagnosed. Patient developed severe bilateral hypoacusis also in early childhood. Six years ago the progression of CKD was noticed. He developed end stage chronic renal failure at the age of 24, and was started with RRT, hemodialysis. Patient had multiple recurrent thrombosis of all AV fistulas created in the following period of three years, and with recurrent thrombosis of central venous catheters used as vascular accesses while AV fistulas were maturing. He was treated with anticoagulation therapy all the time, beside the dialysis anticoagulation. By the time he developed thrombosis of all vascular accesses, treatment with CAPD was started in the age of 25. The hematological evaluation was performed and the antiphospholipid syndrome was proven. Genetic analyses on inherited thrombophilias showed that the presence of homozygosity in C667T polymorphism and heterozygosity in A1298C polymorphism in MTHFR gene. Mutation in PAI-1 4G/5G gene in homozygous status was also proven. Polymorphisms for factor V Leiden, in factor II prothrombin mutation and mutation in factor II genes were not detected. He had thrombosis of last AV fistula, although treated with acenocoumarol as anticoagulant therapy with low molecular weight heparin (LMWH) during hemodialysis. He was switched to peritoneal dialysis because of accesses failure.

Conclusions. The presence of thrombophilia is associated with hemodialysis access thrombosis. In patients with Alport syndrome inherited thrombophilias disorders should be diagnosed in every case of first vascular access thrombosis and earlier than in other groups of CKD patients in order to prevent the thrombosis of next hemodialysis vascular accesses with proper anticoagulant therapy.

PPD-15 GF-1 and cognitive functioning in CKD patients

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Introduction. Prevalence of cognitive function decline in end stage renal disease (ESRD) patients undergoing hemodialysis is higher than in general population. We analyzed risk factors for cognitive function decline in those patients.

Methods. This study included 93 ESRD patients undergoing hemodialysis two or three times a week in Center for hemodialysis, Clinical center of Montenegro and two regional centers for hemodialysis in Montenegro. The cognitive status of patients was assessed using the Mini Mental Score Examination (MMSE) test. Laboratory data about risk factors for cognitive function decline was obtained in Center for clinical-laboratory diagnostic in Clinical center of Montenegro.

Results. All 93 patients have been divided into three groups according the results of MMSE. Patients in first group had severe cognitive impairment and MMSE score below 17(26.88%), patients in second group with MMSE score 18-23 had moderate cognitive impairment (40.86%) and third group of patients have MMSE>24 and no cog-

nitive impairment (32.26% of patients enrolled in study). There were no significant differences between groups for gender, smoking habits and level of parathyroid hormone. Level of education was significantly different between groups of patients ($p<0.001$). Laboratory markers observed in this study with significant differences between groups were: IGF 1, IGFBP 3, erythrocytes and hemoglobin ($p< 0.001$, $p=0.004$, $p<0.001$, $p=0.002$ respectively).
IGF 1 proved to be of great importance for evaluating cognitive status in our study. This marker was statistically different between groups ($p<0.001$) and Tukey post hoc analysis showed significant differences between all three groups (first and second group $p=0.045$, second and third group $p=0.015$, first and third group $p<0.001$).
Conclusions. Our data suggest that IGF 1 can be considered as novel biomarker for assessment of cognitive functioning in CKD patients what can be of huge clinical importance. This can be important and the particular new significance of this survey in relation to other studies.

PPD-16 Ultrasound characteristics of blood vessels and success in vascular access creation

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Introduction. Preoperative ultrasound mapping of blood vessels before the surgical creation of a vascular access (VA) for hemodialysis is a useful diagnostic procedure that provides not only diameter of the arterial and venous blood vessels but also dynamic parameters. Such examination provides the higher percentage of successful AVF and AVG creation. The aim of the study was to show the effect of ultrasonic color Doppler parameters on success in creating VA.
Methods. The study included 239 patients (154 males, 85 females) with an ultrasound assessment indicating feasible creation of the first or "after first" VA (all approaches after the first created). Out of all, first VA was created in 176 (73.6%) and "after first" VA was created in 63 (26.4%) patients. Success in creating VA was correlated with ultrasound parameters and applied therapy. The criterion for a successful VA was adequate hemodialysis over a given VA after the maturation period. Results: With each increase in venous blood vessel by 1mm, probability of successful creation of VA increased by 2.98 times (OR: 2.98, 95% CI: 1.42-6.24). There was no statistically significant influence of vein morphology, arterial morphology, vein compressibility and depth on the success of the creation of the first and "after first" VA. The absence of accessory veins carries a significantly greater success of creating "after first" VA ($p = 0.04$).
Conclusions. A greater success in VA creation was observed with use of antiaggregant therapy and if vein diameter increased. Satisfactory ultrasound characteristics of blood vessels are not always a prerequisite for successful creation of VA and other factors of influence should be considered.

PPD-17 Insulin like growth factor 1 (IGF1) as a potential biomarker for assessment of cardiovascular status in end-stage renal disease (ESRD) patients undergoing hemodialysis

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Introduction. Cardiovascular diseases (CVD) are the leading cause of mortality in hemodialysis patients. There are many factors that increase cardiovascular morbidity and mortality in those patients. Chronic kidney disease (CKD) leads to malnutrition, of which the main consequence is a catabolic state. Catabolism induces malnutrition/inflammation syndrome as a key factor leading to CVD.
Methods. The survey was conducted from March 2017 to January 2018, covering 104 ESRD patients on the Chronic Hemodialysis Programme. All relevant ultrasound examinations were performed in Clinical Center of Montenegro.
Results. In the analyzed group of 102 patients we found that the serum levels of IGF1 had a negative correlation with cardiac indexes, including left ventricular mass index (LVMI), the thickness of the septum (SW) and the last wall (LW) and the ejection fraction of the left ventricle (EF), all of which were analyzed in our research. Statistically significant correlations between serum levels of IGF1 and the fractional shortening of the left ventricle (FSLV) and the time since the start of hemodialysis were not verified.
Conclusions. This study has shown a statistically significant correlation between serum levels of insulin like growth factor 1 and the following cardiac indexes: the ejection fraction of the left ventricle (EF), left ventricular mass index (LVMI) and the thickness of septum and the last wall.

PPD-18 Oxidative stress parameters and cardiovascular risk in hemodialysis patients

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Introduction. Beside traditional cardiovascular disorders (CVD) risk factors, microinflammation and oxidative stress have very important role in CVD pathogenesis. The role of inflammation in the propagation of atherosclerosis and susceptibility to cardiovascular (CV) events

in ESRD is well established. Together oxidative stress and inflammation contribute to development and progression of CKD and the associated complications including atherosclerosis, CVD, EPO resistant anemia, immune deficiency, cachexia and others. Among many inflammatory biomarkers that have been studied, high-sensitivity C-reactive protein (hsCRP) has received the most attention in screening and as a predictor of risk and clinical response in this population.

Methods. The aim of the study was to examine the correlation between the different parameters of oxidative stress and microinflammation and correlation between these parameters and structural and functional changes of the heart in hemodialysis patients.

Results. Sixty four hemodialysis patients were enrolled in this study (33 males and 31 females, mean age 56.47 ±11.79 years and had undergone dialysis for 72 to 6491 days. The presence of systemic inflammation was found in 594% patients. Compared with the measurements in the normal hs-CRP group, the interventricular septal thickness (IVST) measurements in the increased hs-CRP group were increased, whereas the left ventricular ejection fraction (LVEF) significantly reduced in this group. We found statistically significant correlation between elevated levels of hs-CRP and interventricular septal thickness (IVST). We also found statistically significant correlation between high levels of hs-CRP and reduced LVEF. There was statistically significant positive correlation between hs-CRP and left atrial pressure of the heart. There was statistically significant positive correlation between levels of creatinine before and after hemodialysis with levels of homocysteine. There was statistically significant positive correlation between levels of serum albumins and level of homocysteine. There is statistically significant correlation between myeloperoxidase (MPO) activity and right ventricle pressure. We found statistically significant correlation between interleukin 6 (IL-6) and fractional shortening of left ventricle, reduced LVEF and left atrial pressure. We also found statistically significant correlation between testosterone level and fractional shortening of left ventricle.

Conclusions. Thickening of the cardiac wall was observed in addition to the manifestation of reduction in heart functioning of patients with elevated proinflammatory parameters. The changes in cardiac structure and function may be caused by the microinflammatory state in hemodialysis patients and changes in hs-CRP levels may be an important cause of the changes. Correlations found in this study indicate the importance microinflammation and condition of chronic oxidative stress in hemodialysis patients and represent a new field of research of treatment and prevention in these patients.

PPD-19 B cell immunity in chronic renal failure, alterations following initiation of renal replacement treatment

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Introduction. End-stage renal disease (ESRD) is associated with immunodeficiency, which makes a significant contribution to morbidity and mortality. The present study aimed at analysis of B lymphocyte subpopulations in pre- and six months post-dialysis ESRD patients.

Methods. B cells (CD45+ CD19+) and their subsets B1a (CD19+CD5+), naive (CD19+ CD27-), memory (CD19+ CD27+), CD19+ BAFF+ and CD19+ IgM+, were quantified using flow cytometry in the peripheral blood of 27pre-dialysis and 11 post-dialysis patients. The results were compared to healthy control group.

Results. ESRD patients had reduced lymphocyte count (1606±655μ/L vs.2459±520μ/L, $p<0.001$) and B cell (CD19+) count (82.7±54.9μ/L vs.177.6±73.8μ/L, $p<0.001$) compared to controls. Likewise, whereas the percentages of B cell subsets were not particularly affected, except for B1a subset which presented a significant increase (4.1± 3.8% vs. 0.7±0.7% $p<0.001$), the absolute number of almost all subsets was significantly smaller in ESRD patients (CD19+: 81.3±60.4μ/L vs. 162.1±64.5μ/L, p=0.005, Naive: 55.6±46.6μ/L vs. 97.2±46.6μ/L, p=0.004, Memory: 27.1± 15.6μ/L vs. 83.5±56.8μ/L, $p<0.001$, CD19+BAFF+: 69.5± 47.5μ/L vs. 154.7±74.6μ/L, $p<0.001$, CD19+IgM+: 58.1± 42.7μ/L vs.117.9±58.94μ/L, p=0.001). In 11 patients who had a follow-up 6 months after starting on renal replacement treatment no differences were found, apart from CD19+IgM+ (74.7±7.4μ/L vs. post 66.9±14.7μ/L, p=0.041) and B1a percentage (3.0±2.4% vs. 1.0±0.8% p=0.038), which further decreased.

Conclusions. Significant reduction was noticed in B cells subpopulations in patients with ESRD on pre-dialysis stage, and in some of them further reduction was noticed in post-dialysis stage, and these changes may be implicated in clinical manifestations, such as frequent infections or impaired response to vaccination.

PPD-20 Consequences of chronic kidney disease and hemodialysis modalities in T lymphocyte immunity

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Introduction. End stage renal disease (ESRD) is associated with alterations in immune response. The aim of this study was to assess changes in the T cell repertoire within ESRD patients on pre-and six-monthspost-dialysis state.

Methods. T cells subpopulations, namely CD3+CD4+, CD3+CD8+, Natural Killer cells (CD4+CD16+56+), Tregs (CD4+CD25+FoxP3+), CD8+CD28+, CD8+CD28- and CD4+CD28- cells, were isolated from whole blood samples using flow cytometry in 27 pre-dialysis and 12 post-dialysis patients. The results were compared to 13 healthy controls.

Results. ESRD pre-dialysis patients had reduced number of total lymphocytes (1456±624μ/L vs. 2197±478μ/L, p< 0.0001), CD4+ cells (697.9±365μ/L vs. 1135.9±360μ/L, p<0.0001), NK cells (238.3±141.2μ/L vs. 277.3±83.8μ/L) and Tregs (48.3±27.9μ/L vs. 69.5±24.6μ/L, p=0.02) compared to healthy controls. CD4+CD28- were increased among patients on ESRD (66.5±107 vs. 51.9±47μ/L), as were CD8+CD28- (237±207 vs. 202±136).

Fourteen patients had a follow up sample after 6 months in renal replacement treatment, 8 in hemodialysis (HD) and 6 in continuous ambulatory peritoneal dialysis (CAPD). No difference was evident between patients at time of initiating renal replacement treatment. After being for 6 months on HD, patients had significantly increased lymphocyte count (p=0.009), NKs, CD4+CD28- and CD8+CD28- (p=0.05, p=0.04, p=0.01 respectively), and reduced Tregs (p=0.02). In contrast, patients who were commenced on CAPD had no such differences and T cell subtypes remained stable.

Conclusions. Significant alterations within ESRD patients were noticed, with reduction in CD4+, and Tregs, and increased expression of CD4+CD28- and CD8+CD28-cells. After being on hemodialysis for 6 months further reduction in Tregs and increase of CD4+CD28- and CD8+CD28- cells were noticed, while T cell subpopulations were stable in CAPD, and even tended to return to normal.

Poster presentations- clinical nephrology

PPCN-01 Severe hypothyroidism and renal failure

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Introduction. Hypothyroidism and hyperthyroidism affect renal function by direct renal effects as well as systemic, hemodynamic, metabolic and cardiovascular effects. Most of renal manifestations of thyroid manifestations are reversible with treatment.

Case report. A 66-years-old male was admitted to our hospital with a history of generalized fatigue. He referred weight gain, cold intolerance, dry skin and constipation. There was sudden onset of peri-orbital, facial and generalized leg swelling associated with muscle ache and pains. He had no past medical history, but failed to do regular checkup. On clinical examination he was overweight with peri-orbital edema, facial swelling and dry skin. Laboratory results revealed very high TSH value: TSH 145 mUI/l (NR 0.35-4.75); FT4 0.3 ng/ml (NR 0.89-1.75); Ac anti TPO 15029 U/L (NR<70), urea 100 mg/dl; creatinine 1.7 mg/dl; GFR 51 mL/min. Full blood count was normal and urine analysis showed no evidence of blood or protein. Creatinine kinase was elevated at 235 U/l (0-170) with a normal electrocardiogram and heart ultrasonography. Renal ultrasonography showed normal kidneys and no other abnormalities. A diagnosis of autoimmune thyroiditis was made and the thyroxine replacement was started. After two months the renal and thyroid function were in the normal range.

Conclusions. The cause of the renal failure in hypothyroidism is due to decreased renal plasma flow owing to the hypodynamic state in hypothyroidism. Since there is an important link between thyroid function and renal function we suggest to evaluate the thyroid function in all patients with impaired renal function.

PPCN-02 A case of C3 glomerulonephritis triggered by a respiratory infection

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Introduction. C3 glomerulonephritis (C3GN) is a rare glomerular disease. Uncontrolled activation of the alternative pathway of complement's cascade leads to glomerular deposition mainly of C3 protein with little or no immunoglobulins.

Case report. We present a case of C3GN followed an infection of the respiratory tract. A71 year-old male patient was admitted in our hospital due to an infection of the lower respiratory system. During his hospitalization he presented acute renal failure (urea 143 mg/dl, creatinine 2.9 mg/dl) with full-blown nephrotic syndrome (6.3g/24 hours), microscopic hematuria and arterial hypertension. Immunologic testing revealed the presence of autoantibodies (ANA 1/640, Ra-test 24.8 IU/ ml) and low levels of complement's protein C3 (2 mg/dl, normal 82-175 mg/dl). The kidney biopsy showed interstitial inflammation, mild mesangial expansion and massive granular deposits of C3 in the glomerular basement membranes without deposition of immunoglobulins. Specific treatment with cyclosporine and methylprednisolone was initiated. Two months later the patient had normal renal function, proteinuria 222 mg/24 hours while C3 levels were 62 mg/dl.

Conclusions. C3 GN should be taken in consideration for differential diagnosis in patients with post-infectious acute renal injury. Cyclosporine-based regimen may lead to early remission.

PPCN-03 Hypercalcemic acute renal failure as primary manifestation of non-secretory myltiple myeloma

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Introduction. Non secretory multiple myeloma (NSMM) is a rare variant of multiple myeloma (MM), characterized by lack of monoclonal immunoglobulin or monoclonal heavy or light chains in the serum and urine. Despite the high incidence of osteolytic lesions, hypercalcemia is not common, due to preservation of renal function and renal tubular calcium homeostasis. Combination of hypercalcemia and acute renal impairment in NSMM is quite unusual.

Case report. We present a case hypercalcemic acute renal failure and lytic bone lesions as primary manifestations of NSMM. A 66-year-old female patient was admitted to our hospital due to intense sciatic nerve pain. Radiography and spinal CT scanning revealed osteolytic and mixed osteoporotic and osteosclerotic lesions of the vertebrae and loins. Laboratory investigations showed normochromic normocytic anemia (Hct 33.3%, Hgb 11.4g/dL, MCV 90.7fL, MCH 31.1pg), acute renal failure (urea 89 mg/dL, creatinine 2.23 mg/dL) and hypercalcemia (calcium 14.9mg/dL). Serum and urine protein electrophoresis were normal. Bone marrow biopsy revealed infiltration of monoclonal plasma cells (70%), CD138, MUM1, EMA and CyclinD1 positive, compatible with low-intermediate grade of Bartl-Frisch classification of plasma cell myeloma. The patient received a two-round treatment with bortezomib sc., dexamethasone iv. and cyclophosphamide iv. She was discharged at the 48th day of hospitalization presenting normal serum calcium levels and normal renal function.

Conclusion. Non secretory multiple myeloma should be considered for the differential diagnosis in patients with osteolytic lesions, hypercalcemia and acute renal failure. Treatment should include bortezomib and cyclophosphamide.

PPCN-04 Fibromuscular dysplasia (FMD)-Case report

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Introduction. Fibromuscular dysplasia (FMD) is a segmental, non-inflammatory, non-atherosclerotic disorder of the musculature of arterial walls, leading to stenosis of small and medium-sized arteries.

Etiology is unknown and according to the recent reports estimated incidence in the general population is 2% to 3%. Renal arteries are mostly affected (bilateral disease involvement in 39% to 64%) but FMD changes of cerebral and/or carotid arteries were found in 15% of cases. FMD lesions have been also reported in limb, digestive and coronary arteries.

Case report. Female patient, born in 1979 smoker (20 cig/day), normal BMI.

In 2006, at age of 27 years hypertension (150/100 mmHg) was verified during the second pregnancy (no edema, no proteinuria). In 2011 she was admitted to our department after hypertensive emergency (BP 220/140 mmHg). Bilateral renal artery stenosis was diagnosed. Digital subtraction angiography (DSA) revealed left renal artery (RA): the ring of FMD with non-significant (20% lumen) stenosis; the right RA: in the distal third of RA hemodynamically significant stenosis- the type of medial fibroplasia. The patient was treated with percutaneous transluminal renal angioplasty (PTRA) of the left RA. After intervention her BP was controlled with trandolapril 0.5 mg, amlodipine 10 mg and nebivolol 2.5 mg and kidney function was normal. In 2012 she was admitted to the hospital again after hypertensive emergency and neurological symptoms (headache, disorientation)-subarachnoid hemorrhage + aneurism of the right ACI, aphasia of the right PCA were verified on CT. Embolization of the right ACI was performed. At renal Doppler ultrasound no changes were found at RA. Later on in 2013 she was treated three more times with "coiling" due to recurrent aneurysms in the basin of right ACI and its branches, BP was normal. In 2016 BP became uncontrolled (24h ABPM 157/94 mmHg) without neurological symptoms. DSA verified the restenosis of the right RA ("string of pearls") plus recurrence of aneurysm at right ACI. She was treated with balloon dilatation (RA) and stent-embolization (ACI) after which the BP was controlled (nebivolol 2.5 mg, amlodipine 5 mg) with normal kidney function. In 2018 BP and kidney function were normal, renal Doppler showed no signs of stenosis and neither new changes no new aneurisms on brain MRI.

PPCN-05 Clinical implications of monoclonal gammopathy in patients with diabetes mellitus

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Introduction. MGUS is asymptomatic pre-malignant disorder and is characterized by clonal proliferation of plasma cells. The etiology of this disease is unknown. It is often a result of idiopathic rearrangements of immunoglobulin genes, which causes the production of the M paraprotein followed by production of monoclonal light chains (FLC). MGUS can cause kidney damage. In the nephrons, FLC pass through glomerular epithelial fenestration when their quantity overwhelms the capacity of the renal reabsorption, causing nephrotoxicity and renal function impairment. Production of monoclonal FLC and disturbed ratio κ/λ are predictors of progression of MGUS in the subsequent phases, such as multiple myeloma.

Case report. Patient male, age 64, a longtime diabetic on insulin therapy, hypertonic for many years, surgical and radiotherapy treated for cancer of the vocal cords 20 years ago, with no signs of recurrence, with established chronic renal insufficiency, with creatinine clearance of 0.64 ml/s, presented with nephrotic syndrome after an episode of bronchopneumonia. In laboratory findings persisted accelerated SE 120, anemia, with proteinuria of 12 gr/24h, elevated beta 2 microglobulin 13800 (up to 2400 ref. value), increased serum concentrations of IgM, kappa and lambda serum increased, normal ratio. On ultrasound liver was regular size, spleen voluminous. Bone marrow biopsy was performed by hematologists and findings on histopathologic analysis and IHH (immunohistochemistry analysis). Obtained findings showed regular cellularity, represented all three myeloid lineage, regular cell maturation and proper ratio. Immunohistochemical findngs showed polyclonal plasma cells (part of kappa + lamda). The conclusion was that the morphological findings with immunohistochemical staining corresponds to nonspecific reactive changes. In a sample of bone marrow there was no element of lymphoproliferative disorder. The values of nitrogen compounds in serum ranged from a maximum of 340 µmol/l. Urine kappa and lambda chains had regular concentration and ratio. The findings of serum protein electrophoresis described the presence of paraprotein in the gamma region. Quantitative analysis of urinary proteins demonstrated a non-selective glomerular proteinuria and renal hematuria. The immunology findings showed very high rheumatoid factor, with low consumption values of C4 complement component; form that is usually seen in immunoproliferative malignant hematological diseases. Indirect laryngoscopy excluded recurrence of cancer of ORL region. We excluded the existence of solid organs malignancy (tumor markers normal, CT examination without pathological changes suspected tumor changes). Not verified bone lesions in the skeletal system. Testing on sarcoidosis and neuroendocrine tumors was also negative. Congo red staining of bone marrow for amyloidosis was negative. The patient underwent kidney biopsy. The findings of biopsies showed glomeruli with expanded mesangium with heavy matrix and the proliferation of mesangial cells, with duplication of GBM, with subepithelial deposits. The majority of glomeruli obtained global, cellular or fibrocellular crescents; 40% interstitial fibrosis accompanied by showing atrophy of tubules. Focal mononuclear cell infiltrates were present in the binder, arterioles with concentric hialynosis of intima. The findings of immunofluorescence along the GBM obtained focal and segmental abundant, granular deposits of IgM and kappa light chains, granular deposits of IgG, fibrin, C3 and lambda light chains, IgA and C1q were negative. Findings indicated a proliferative glomerulonephritis with monoclonal IgG deposits. The patient did not met current CRAB criteria for the diagnosis of multiple myeloma and was under constant supervision of hematologists and nephrologists. In the follow up period of 6 months he developed multiple myeloma.

Conclusion. Patients with diabetes and chronic kidney disease are more prone to the development of immunoproliferative hematological malignancies. In such patients, precancerous conditions such as MGUS have faster progression to overt malignancies such as multiple myeloma. Therefore, should be closely monitored and diagnostic processed for a potential hematological disorders. The emergence of proteinuria, especially in nephrotic range, in patients with diabetic nephropathy may not be due only to diabetic glomerulosclerosis, but it can be a manifestation of concurrent malignant and systemic diseases.

PPCN-06 Referral to nephrologist, initiation of hemodialysis and care of advanced CKD patients in western Romania

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Introduction. Referral of CKD patients to nephrologists and initiation of chronic dialysis therapy are frequently debated issues. Both are dependent of the initiation guidelines and many regional specific factors. The aim of this study was to investigate referral and dialysis initiation in advanced CKD patients in a HD center in western Romania.

Methods. We evaluated patients who initiated HD therapy between 2014-June 2017, in a hospital HD center from Western Romania (N=228, 41.6% female, mean age 59.6 ±13.7 years). The patients' data have been retrieved from their hospital and GP files. Early referral to nephrologist (ER) was considered >12 months and late referral (LR) 7ml/min/1.73m^2 and late initiation (LI) GFR 4.5mg/dl) was present in 82.4% of the cases. Patients' survival was negatively influenced (Cox regression analysis) by age >65 years (P<0.001), lack of pre-dialysis monitoring by a nephrologist [P = 0.01, hazards ratio (HR) = 0.8], severe anaemia, lack of erythropoetin treatment (P< 0.001, HR = 0.6), and co-morbidity, e.g. cardiovascular diseases (P<0.001, HR = 1.8) and diabetes mellitus (P<0.001, HR = 2.2).

Conclusion. Early referal to the nephrologist was associated with a longer predyalisis period. Further evolution implies strategies of prevention, based on national surveys, supported by the Romanian Renal Registry.

PPCN-07 Renal function in early postoperative period after open surgery repair of abdominal aortic aneurysm

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Introduction. Acute kidney injury is a common complication after surgical treatment of abdominal aortic aneurysm. Open surgery is most common surgical technique for treatment of abdominal aortic aneurysm. The aim of the study is to present changing of kidney function in early postoperative period after open surgical treatment of abdominal aortic aneurysm.

Methods. This prospective study included 146 patients who needed elective treatment of abdominal aortic aneurysm. Clinical and laboratory parameters were obtained during the early postoperative period.

Results. Average age of patients admitted in this study was 67±7.1 years with dominant male gender (89.7%). Prevalence of patients with preexisting chronic kidney disease was 21.2% and ventricular ejection fraction was 52.6±10.4%. Autotransfusion with cell saver substitute 580ml of blood after average bleeding of 1300ml per intervention. It was 1142±525.9 ml of colloids and 2393 ±750.3ml of crystalloids infused during the surgical procedure. eGFR increased during first four days after intervention (77±34.3ml/min, 79±37 ml/min, 80±37.5 ml/min, 83±42.8 ml/min, 85±45.6 ml/min, respectively p=0.023).

Conclusions. Renal function enhanced after open surgery repair of abdominal aortic aneurysm. Appropriate volume replacement is necessary for prevention of acute kidney injury.

PPCN-08 Comparison of GFR values measured by the camera method and by the MDRD formula and the relative functions of each kidney measured in DTPA scintigraphy in patients with or suspected obstructive uropathy

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Introduction. In our study, we compared the GFR values measured by the gamma camera method and the e-GFR method calculated by the MDRD formula in patients who underwent DTPA dynamic renal scintigraphy for suspected obstructive uropathy. Also, we evaluated the role of DTPA scintigraphy in the follow-up of these patients by comparing the relative functions of each kidney by means of GFR values measured in DTPA scintigraphy.

Methods. A total of consecutive 59 patients were included in this retrospective study. Patients' serum creatinine, age, gender, and race information were used in the MDRD formula to calculate the e-GFR value. According to the e-GFR results, patients were divided into 3 groups: above 90 ml/min (Group 1), 60-90 ml/min (Group 2), and below 60 ml/min (Group 3). The groups were compared in terms of GFR measuring methods, % reduction in relative renal function, and pathologic findings detected in radiological imaging methods.

Results. There were 33 patients in Group 1, 18 patients in Group 2 and 8 patients in Group 3. There was no significant correlation in group 1 (p=0.437, r=-0.140) when comparing both GFR measuring methods (e-GFR and camera method). On the other hand, we found high correlation both in Group 2 (r=0.006, p=0.006) and Group 3 (p=0.043, r=0.723). When the groups were evaluated in terms of decline in relative function (below 10, 10-20, 21-30, and above 30), the number of patients with a decrease in relative renal function greater than 30% was 16(48.5%) in group 1, 6(33%) in group 2 and 5(62.5%) in group 3. When the reduction in relative function of 15 patients with normal radiological examination (CT and USG) was evaluated, there was a decrease of 10% in 7 patients, a decrease of 10-20% in 2 patients, and a decrease of 30% in 6 patients.

Conclusions. Our study showed that patients with normal e-GFR may also have a relative decrease in renal function in DTPA renal scintigraphy in addition to patients with decreased e-GFR. This suggests that decrease in e-GFR is later than the development of a renal dysfunction due to compensatory mechanisms. Demonstration of markedly decreased relative renal function in the radiologically normal kidneys shows that DTPA dynamic renal scintigraphy is an important follow-up method for patients with suspected or proven obstructive uropathy.

PPCN-09 Membranoprolopherative glomerulonephritis secondary to hepatitis C infection

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Introduction. HCV infection should be regarded as a systemic disease, involving various systems. Membranoprolipherative glomerulonephritis (MPGN) is the main histopathologic type of renal involvement. Direct antiviral antibiotics (DAA) have achieved elimination of infection but their effect to secondary complications is not clarified yet. Aim of the study is to present clinical and histological findings of glomerulonephritis secondary to HCV infection, and to assess efficacy of DAA treatment in renal implications.

Methods. Forty eight patients were diagnosed with MPGN during 2000-2016, from whom 6 (M/F 2/4, age 37-68yrs) had hepatitis C.

Results. All patients presented with nephritic syndrome, Screat>2mg/dl, Uprot 4-18g/24hr, and 4/6 required hemodialysis at diagnosis. All patients had reduced C3 and C4 levels and 3/6 had positive cryoglobulins, presented with alveolar hemorrhage (1/3) acute renal injury (3/3) and hemorrhagic rush (3/3). Two patients had mucosa-associated lymphoid tissue (MALT) lymphoma at presentation. Renal biopsy showed endo- (6/6) and extra-capillary

(4/6) proliferation, double contour (6/6), FSGS (4/6), mild tubular atrophy and severe interstitial infiltration. Three patients were diagnosed before 2010, treated with interferon, and had no response. Three were diagnosed after 2010, started on DAA and had a complete recovery of renal function. Simultaneous treatment with plasmapheresis and steroids were applied for cryoglobulinemia. Despite recovery of renal function repeated biopsy showed elimination of inflammation but advanced chronic lesions.
Conclusions. Apart from curing hepatitis C, DAA treatment has beneficial effect on extrahepatic manifestations, although chronic lesions remain in glomeruli.

PPCN-10 Unexpected fatal outcome of treatment membranous lupus nephritis-a case report

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Introduction. The aim is to show the fatal outcomes in patients with type V lupus nephritis (LN) due to the presence of parasitosis of the digestive tract.
Case report. S.Z., 65 old years female patient, in the last 5 years treated for sicca syndrome with a positive ANA, anti SSA and anti SSB Antibody. She was admittied in nephrology unit with acute renal failure due to Clostridium difficile colitis, previously thoroughly gastro-intestinal tested including endoscopy. Immunological findings (C3 lowered -0.76; easily elevated ANA SSA- 33.7 and 47.3 ANA-SSB) conditioned for renal biopsy to be performed. The findings were as follows: the prime lupus nephritis type V Activity Index 10 and Chronicity 3. Standard treatment for LN was initiated (3 pulse doses of methylprednisolone, followed by corticosteroids per os in dose 0,5-1 mg/kg body weight +6 pulses cyclophosphamide in dose 0,5-0,75mg/BSA). After 3 months partial remission was detected (complete recovery of renal function with GFR: 106.64 ml/min, reduction of proteinuria from 11.7 to4.0 g/24 h, the normalization of the urine sediment, C3-0.45, C4 0.01, cryoglobulins and other immunoglobullins were normal). However, the numerous side effects of therapies were registered: steroid diabetes, reactivation of Clostridium difficile colitis, depression and moniliasis of the digestive tract with a strong digestive discomfort and deterioration of patients with purpura. Gradually stopping the immunosuppressive therapy and control gastroscopy was performed with findings that pointed to the existence of Strongyloides stercoralis gastritis with the presence of adult worms in the lumen of dilated glands. The patient urgently was hospitalized at the Clinic for Infectious and Tropical Diseases University Clinical Ceter of Serbia where she died after a few hours.
Conclusions. A rare and unusual case with fatal outcome is presented in patients with unrecognized parasitic disease of the digestive tract and lupus nephritis type V. Despite the necessity and effectiveness of the treatment of glomerulopathy, immunosuppressive therapy has resulted with severe adverse effects including the activation of parasitic disease of the digestive tract. Therefore, before starting immunosuppressive therapy check the possible presence of comorbidities that may further compromise the primary disease.

PPCN-11 Treatment of isolated renal amyloidosis

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Introduction. Amyloidosis is a rare heterogeneous group of diseases characterized by extracellular deposits of amyloid, causing organ dysfunction. It has a wide range of clinical manifestations, depending on which organs are affected, including the nephrotic syndrome, hepatosplenomegaly, congestive heart failure, carpal tunnel syndrome. Abbreviations which are used for different types of systemic amyloidosis are: AL (primary-the deposits immunoglobulin light chain), AA (reactive-secondary), and Aβ2M (β2 consequence of microglobulinemia associated with dialysis). AL and AA represent about 95% of all cases of amyloidosis. The treatment of amyloidosis is complex, and the prognosis uncertain.
Case report. Patient male, age 55 years with no previous history of the disease, presented with nephrotic syndrome, and creatinine level of up to 130 μmol/l. Clinical evaluation of the patient excluded secondary causes of nephrotic syndrome; ruled out systemic connective tissue diseases, malignancy, infection, TB. Sarcoidosis was also excluded. Patient underwent bone biopsy with immunophenotyping in which all three hematopoietic cell lineage were obtained with regular maturation, without elements of myeloma/ multiple myeloma or lymphoproliferative disorder; Congo red staining for amyloidosis was negative. The patient subsequently underwent percutaneous renal biopsy. Histochemical areas of mesangium were PAS negative, with positive Congo red staining, with typical birefringence in polarized light. Findings fit in renal amyloidosis with predominant renal glomeruli abstraction and occasionally blood vessels. Patient underwent adipose tissue biopsy and biopsy of rectal mucosa with Congo red, which were negative with no evidence of amyloidosis. In order to exclude secondary amyloidosis patient underwent PET scan of the whole body, without verified malignant lesions. It was concluded that it was a kidney amyloidosis with no signs of the affection to other organs. Patient underwent treatment of chemotherapy with high dosage-CyBorD protocol (cyclophosphamide, bortezomib, and dexametha-

sone) through 8 cycles, high-dose chemotherapy with melphalan, and transplantation of autologous stem cells.
Conclusions. In patient the treatment was performed with 8 cycles of therapy CyBorD protocol with prophylactic therapy with no significant clinical complications. The findings in evaluation after four cycles of therapy obtained values of nitrogen compounds in serum urea 5 mmol /l, serum creatinine 104 μmol/l, with the rank of proteinuria 1.6 gr/24h and creatinine clearance of 1.15 ml/s. The patient was also treated with autologous stem cell transplantation successfully, with stabile renal function and decreased level of proteinuria.

PPCN-12 Therapeutic plasma exchange in treatment of devic disease
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Introduction. Neuromyelitis optica (NMO) is a rare inflammatory and demyelinating autoimmune disorder of the central nervous system characterized by recurrent attacks of optic neuritis and longitudinally extensive transverse myelitis (LETM). Recent studies have shown that NMO has more frequently a relapsing course. Particular pathological features of NMO as prominent IgG and immune complex deposition and complement activation provide the rationale for the early initiation of plasma exchange in acute exacerbations of NMO.
Case report. Female patient, 52 years old, was diagnosed NMO at neurology department a year ago. After many attacks of bilateral optic neuritis and without clinical criteria for MS-multiple sclerosis, she was tested for anti-aquaporin 4 water channel IgG antibodies (anti AQP4 antibodies) and was seropositive. Patients had a relapsing NMO form with repetitive attacks of unilateral and bilateral optic neuritis and myelitis with minor brainstem signs as nystagmus, nausea, diplopia and dysphagia with no MRI detected brain lesions and confirmed lesions of spinal cord. Patient had four acute attacks in the previous year and all relapses were resistant to corticosteroid therapy and other immunosuppressive agents used in prophylactic treatment. All four attacks were treated with therapeutic plasma exchange (TPE) with 5 % albumin as replacement fluid and with 1.5 blood volume exchange. We used peripheral veins as vascular access and citrate anticoagulation. Every attack was treated with series of five plasma exchanges every other day. After first two TPE we got a mild clinical improvement, but after the last two TPE we got a significant clinical improvement in disappearing of symptoms and recovering neurological state. In last two TPE sessions the clinical improvements started to appear quickly, after two plasma exchanges. We had mild complication of TPE presenting with transient electrolyte imbalances and without coagulation disorders.
Conclusions. In case of unresponsiveness to steroids, early initiation of a rescue therapy with plasmapheresis is a method of choice of treatment of patients with NMO. Removal of antibodies, immune complexes and activated complement from circulation contribute to decrease the inflammatory response and may provide rapid functional recovery.

Poster presentations- transplantation

PPTX-01 Recurrence of focal segmental sclerosis after kidney transplantation from diseased and living donor
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Introduction. In focal segmental glomerular sclerosis (FSGS), the success of renal transplantation may be impaired by the frequent risk of recurrence of the disease on the allograft. In the first kidney allograft, 20 to 30% of patients develop recurrence of FSGS. Second grafts, in those who have had recurrence in their first graft, are generally accompanied by a further recurrence.
Case report. Male patient, 32 years old, was diagnosed nephrotic syndrome and CKD in 27th year. He is from family with ADPKD. In the same year he developed ESRD and started with hemodialysis treatment. In 29th year he was treated with kidney transplantation from deceased donor. He developed multiple complications afterwards: delayed graft function, proteinuria, vein graft stenosis and ureteral obstruction treated with ureteral stent and ureteroneocystostomy. He was treated with plasmapheresis without success. He underwent 4 graft biopsies with recurrent FSGS findings with elements of acute rejection and acute tubular necrosis. He was also treated with rituximab and intravenous immunoglobulins. Due to many infection episodes and complications in the next period he underwent graftectomy one year after. He was treated with kidney transplantation from living related donor in 2014 without complications in postoperative period. Four months after transplantation he presented with proteinuria of 30 grams per day. After biopsy of transplanted kidney recurrent FSGS was pathologically confirmed. Patient was treated with plasmapheresis, corticosteroids, intravenous immunoglobulins and rituximab. Proteinuria was reduced to 0.4 grams per day and graft function was preserved.
Conclusion. Recurrence of FSGS after transplantation is relatively frequent in patients who lost a previous transplant from recurrence. In the case of living donation, the possibility of recurrence and its consequences should be clearly exposed to and discussed with the donor and the recipient.

PPTX-02 Pregnancy in renal transplant recipients
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Introduction. Women of childbearing age with end-stage renal disease requiring renal replacement therapy have almost tenfold lower fertility rates compared to the general population. A live birth rate consistently ranges between 72% and 80% what is comparable to the general population. However, renal transplant recipients experience overall higher rates of cesarean sections, preterm (<37 weeks) deliveries with babies of small gestational age and low birth weight. Herein, we present data on pregnancies recorded in two transplant centers in neighboring countries.

Methods. All pregnancies which occurred in renal transplant recipients who are in follow-up at University hospital center Zagreb or Clinical center Montenegro were recorded. Complications and type of delivery, live birth rate, gestational age and weight of the newborns were evaluated.

Results. Twenty-four spontaneous pregnancies were recorded (in 21 patients), 16 from UHC Zagreb (12 successful, and 4 spontaneous abortions), and 8 from KCCG, one of them being twin pregnancy. Pregnancies occurred 2 to 12 years after the transplant. Two patients from Montenegro died twenty years ago, after the delivery (one from sepsis in local hospital two months later, and one during the pregnancy). Both patients received transplants in Bombay, India and were not regularly followed up. All patients underwent Cesarean section. Live birth rate was 79%. Newborn gestational age ranged from 32 to 39 weeks (mean 34 weeks), with weight 2400 to 3400 g (mean 2800 g). Immunosuppressive protocol included cyclosporine (16 patients) or tacrolimus (5 patients), azathioprine and steroids. One patient had ABO incompatible transplantation. Allograft function remained stable in all patients.

Conclusions. Pregnancies in renal transplant recipients are relatively rare and are considered "high risk" while both mother and offspring may develop complications related to immunosuppressive therapy, suboptimal allograft function as well as by their primary kidney diseases. Relatively high number of transplantations in Montenegrin patients may be explained by younger age of patients and cultural differences which force pregnancies.

PPTX-03 Relapse rates and outcomes of idiopathic membranous nephropathy post kidney transplantation

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Introduction. The aim is to study the frequency of relapse and long-term outcomes of idiopathic membranous nephropathy (IMN) after kidney transplantation (KTx) in patients who ended up in ESRD due to it.

Methods. We retrospectively reviewed the medical charts of all patients with IMN as primary disease, who were transplanted in our hospital from 1990-2016. All patients had biopsy proven IMN in their native kidneys. Demographics and characteristics related to the donors and the recipients at the time of KTx were recorded, including, dialysis time, immunosuppressive schemes, histocompatibility data, acute rejection episodes, patient and graft survival, and eGFR at the end of the follow up time. All relapses of IMN were recorded in conjunction with the treatment which was given and the related response. Patients with KTx incompatible for the ABO system were excluded as well as patients with major surgical complication during the 1st month or adherence problems. All patients with relapse were initially treated with an ACE inhibitor (fosinopril) and depending on the response or not were treated with the Ponticelli protocol, as 2nd line therapy, or more recently with rituximab.

Results. 18 patients, who ended in ESRD due to IMN, received a graft in our hospital from 1990-2016. The mean age at the time of KTx was 47±11.5 years and 13(72.2%) of them were males. The mean time in dialysis was 63.2(±51.5) months, the graft was from deceased donors in 13 cases (72.2%), with a mean donor age of 46(±15.5) years. During a follow up time of 84.97(±57.6) months, 7 patients (38.8%) experienced at least one episode of IMN relapse. Time to relapse was 45.6(±42.7) months from KTx and 24-hour proteinuria was 4.1(□2.9) grams. Two patients experienced acute rejection, one of them during the relapse of IMN. At the end of the follow up time, patients survival was 100%, graft survival was 88.9%, with a mean serum creatinine of 1.8(±0.23) mg/dl, eGFR of 60.84 (±27.3) ml/min/1.73m^2 and mean 24-hour proteinuria of 0.75(±0.58) grams.

Conclusions. Relapse of IMN in the graft is not rare, but in most occasions is responsive to therapy, either with inhibition of the renin angiotensin system, either with enhancement of immunosuppressive treatment, and generally it does not affect long term graft survival.

PPTX-04 Kidney transplantation in patients with inherited thrombophilia

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Introduction. Early allograft loss, due to acute thrombotic complications, remains a constant and proportionally increasing complication of renal transplantation. Most recently the evolution of thrombophilia research has established the potential for inherited hypercoagulability to predispose to acute allograft thrombosis. Inheritance of the factor V Leiden (FVL), prothrombin G20210A mutation, or the presence of antiphospholipid antibodies (APA) or other hypercoagulable states such as hyperhomocystinemia or the C677T polymorphism of the methylene-

tetrahydrofolate reductase gene (MTHFR) may increase the risk of renal allograft thrombosis.

Case reports. First patient, male, 34 years old, treated with kidney transplantation from deceased donor for the first time 5 years ago, with primary cause for ESRD was polycystic kidney disease and FSGS focal segmental glomerular sclerosis. In early post-transplant period he got graft vein thrombosis causing DGF delayed graft function and hemodialysis requirement after transplantation. Graft survival was one year and he was returned on chronic hemodialysis treatment. In preparation for second transplantation, he was tested for thrombophilia and prothrombin G20210A mutation was detected accompanied with C677T polymorphism. Second patient, male, 29 years old, treated with preemptive living related kidney transplantation in the age of 26, unknown etiology of ESRD. Patient developed graft artery thrombosis after kidney transplantation and deep venous thrombosis in the period of follow up, beside therapy with low weight molecular heparin in preparation for transplantation and after surgery. He also developed bilateral avascular necrosis of femoral head in the next period, treated with total hip arthroplasty. He was tested for thrombophilia and prothrombin G20210A mutation was detected. Second kidney transplantation in both cases with higher doses of anticoagulant therapy in preparation and afterwards underwent without thrombotic complications.

Conclusions. Identifying patients with thrombophilia before transplantation and defining their management presents many challenges. The risk of allograft thrombosis must be weighed against the risk of perioperative bleeding and the need for long-term anticoagulation.

PPTX-05 Kidney donor with factor XII deficiency

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Introduction. Factor XII deficiency is usually discovered in patients with a prolonged activated partial thromboplastin time (aPTT). While homozygous individuals have undetectable levels, heterozygous have levels between 25% and 50%. It was found to be associated with myocardial infarction, coronary artery disease, miscarriage, and coronary stent thrombosis. However, most reports of factor XII deficiency and thrombosis document arterial-side thrombosis. Herein we present a kidney donor with factor XII deficiency.

Case report. A 55-year-old female was admitted for evaluation as a potential kidney donor for her husband. She had three pregnancies which passed without complications. At the initial evaluation for kidney donation her aPTT was found to be 74.0 s (normal range 26-37), prothrombin time 14.2 s (11-14), INR 1.2 and thrombin time was 19.1 s (14-21). Broad coagulation examination was performed. Results revealed factor XII deficiency -25.5% (70-150), AT III was 83.8% (79.4-11.5), protein C 74.1% (70-140), with normal values for factors II, V, and XI, but with decreased activity of protein S 53.7% (58-127.5), F VII 59.1% (70-120), F X 52.4% (70-120) and increased F VIII >15% (70-155) and F XIII 146.6% (70-140). vWF activity and lupus anticoagulant were within the normal range. Based on these findings patient preoperatively received enoxaparin-sodium 0.4 ml. Fresh frozen plasma was prepared for treatment of eventual bleeding. Nephrectomy passed uneventfully.

Conclusions. Our case demonstrates that patients with F XII deficiency are suitable candidates for kidney donation. In our patient, combination of deficient and increased activity of different clotting factors probably enabled uneventful pregnancies, as well as post-nephrectomy course.

PPTX-06 DiGeorge Syndrome and kidney transplantation

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Introduction. DiGeorge syndrome is a syndrome caused by the deletion of a small segment of chromosome 22. While the symptoms can be variable they often include congenital heart problems, specific facial features, frequent infections, developmental delay. Associated condition include kidney problems, hearing loss, and autoimmune disorders such as rheumatoid arthritis or Graves disease. Congenital kidney and urinary tract anomalies are present in approximately 30% of the patients with the DiGeorge syndrome.

Case report. Male patient, diagnosed with DiGeorge syndrome and 22q11.2 deletion in early childhood, manifested with seizures do to hypocalcemia in first year of life. Diagnostic investigations of hypocalcemia revealed hypoparathyroidism, absence of thymus and partial T cells immunodeficiency. In the next period he had frequent infections of respiratory and GI tract and the severe hypacusia. He was treated with analogs of vitamin D and calcium preparations. In the age of 23 elevated levels of serum creatinine and urea were firstly noticed. In the next few years he developed chronic kidney disease (CKD) and arterial hypertension. In the age of 33 he developed end stage renal disease (ESRD). He was treated with renal transplantation from living related donor in the age 33, without complications. We used basiliximab in induction therapy and standard protocol with tacrolimus, mycophenolate mophetil and steroids. Although many years of CKD, due to hypoparathyroidism in DiGeorge syndrome, he did not develop CKD MBD or its complications. In perioperative, postoperative period and afterwards, he was treated with calcium preparations and vitamin D supplements. In a year of follow up, until now, his graft function was stable, without rejection or immunosuppression complications.

Conclusions. 22q11.2 microdeletion syndrome (DiGeorge) is a common cause of renal tract malformations, CKD and ESRD and all patients should be monitored for renal

function. They could be also successfully treated with kidney transplantation with adequate follow up.

PPTX-07 Rituximab in treatment of acutisation of chronic antibody mediated renal allograft rejection

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Introduction. Rituximab, which leads to a nearly complete elimination of B-cells, has been shown to be effective in acute antibody-mediated rejections. However, in chronic antibody-mediated rejection, its therapeutic effects are not evident so far. This could be related to the fact that chronic graft damage related to alloantibodies proceeds very slowly in a subclinical manner. In an individual patient, it is not clear when this process was initiated and, thus, the time point of treatment might be too late in order to reverse the already present chronic changes of graft destruction.

Case report. Female patient, 35 years old, treated with kidney transplantation from living related donor in the age of 22, with IgA nephropathy confirmed with prior kidney biopsy, as cause of terminal CKD. She had good graft function, with serum creatinine level of 150 μmol/l, until the switching of immunosuppression regimen between the calcineurin inhibitors tacrolimus and cyclosporin; and conversion of mycophenolate mofetil (MMF) to azathioprine, in preparation for assisted conception treatment; which was unsuccessful. She developed anemia, deterioration of graft function (with serum creatinine level of 397 μmol/l) and proteinuria in range over 1 gram/24h. We performed graft biopsy and got the diagnosis of acute humoral rejection AMR Banff I, ATN like, and diffuse positivity of c4d 2-3+ in peritubular capillares. Donor specific antibodies (DSA) were positive. The treatment consisted of switching the immunosuppressive regimen in introduction of CIN inhibitor back in therapy (tacrolimus) and MMF, corticosteroid pulsatile therapy (500mg of methylprednisolone); five sessions of plasmapheresis and treatment with rituximab in standard dose (375 mg/m²).The result of therapy was the reduction in serum creatinine level to 190 μmol/l and reduction of proteinuria to 0.6 gr/24h. The graft function remained stable on that level in the follow up period.

Conclusions. The reduction or inhibition of the production of DSAs would be an important target in order to reduce alloantibody-mediated chronic graft damage.

PPTX-08 Histopathological diagnoses and management of patients with glomerular diseases induced by medications: A case series

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Introduction. The aim is to study the clinical and histopathological characteristics of patients with drug-induced glomerular diseases and record the outcomes in conjunction with the appropriate treatment, beyond the discontinuation of the offending medicine.

Methods. All cases with any type of biopsy proven glomerular disease, which was associated with administration of a certain medication were studied retrospectively. Demographics and patients' characteristics were recorded along with the related clinical picture, the treatment and the outcome during the follow up time.

Results. Eight patients with glomerular diseases associated with medicines were identified. Six of them were females with a mean age of 59.6(±18.8) years. The renal biopsy was performed within 3-17 days from onset of symptoms which included either nephrotic syndrome (n=4) or nephritic syndrome with acute renal dysfunction (n=4). Patients with acute nephritic syndrome reported general symptoms including fever, arthralgias, fatigue, anorexia and rash. Histopathological evaluation revealed minimal change disease in 3 patients, membranous nephropathy in 1, pauci-immune glomerulonephritis in 2 and lupus like nephritis (WHO Class III, και IV) in 2. The medicines, which were associated were d-penicillamine, tamoxiphen, OH-chlorokine, NSAIDs, propyl-thiouracile, etarnecept, methimazole και infliximab. The median value of serum creatinine was 0.5 (min: 0.5, max: 2.7 mg/dl), the median 24-hour proteinuria was 5530 mg (min: 630, max: 240000 mg) while 4 of the patients had active urine sediment. In patients with nephrotic syndrome discontinuation of the offending drug lead to complete remission within a few weeks. Patients with acute nephritis required treatment with cyclophosphamide and glucocorticoids for 3-6 months, in addition to the removal of the offending drug.

Conclusions. In this small series of patients with glomerular diseases associated with medicines discontinuation of the related drug lead to remission of the nephrotic syndrome within a few weeks while patients with acute nephritic syndrome required treatment with cyclophosphamide and glucocorticoids for 3-6 months, in addition to the removal of the offending drug.