XVIII. Trilateral Czech-German-Polish Symposium on Nephrology and Young Investigator Forum

Park Inn Hotel, Prague, Czech Republic
5 - 6 October 2012

Česká nefrologická společnost • Czech Society of Nephrology

Abstract Book & Final Programme

www.TrilateralSymposium2012.org

Basilica of St Peter and St Paul, Vyšehrad

Partners

We would like to thank the following partners for their support:

Platinum Partners

Gold Partners

Silver Partners

Table of Contents

Welcome Address

Dear colleagues,

This year, the XVIII. Trilateral Czech-German-Polish Symposium on Nephrology will be held in Prague, 5 - 6 October, 2012. The concept of these traditional symposia has changed during last years to attract more young colleagues. The Young Investigator Forum offers the opportunity for young colleagues to present results of their research in front of international audience and be confronted with questions and remarks of their colleagues and tutors. More advanced nephrologists may enjoy the opportunity to hear guest lecturers of leading experts from the region.

The Czech Society of Nephrology, the organizer of the meeting, offers free accommodation for 1 night in 4-star hotel in central Prague, social event and free registration to the meeting for tutors and their fellows, who submit an abstract at first come, first serve system. Travel costs and additional accommodation need to be covered by participants.

Dear colleagues, we are looking forward to welcoming you again in the golden city of Prague!

Prof. Vladimír Tesař, M.D., Ph.D.
President of the Czech Society of Nephrology

Prof. Ondřej Viklický, M.D., Ph.D.
President-elect of the Czech Society of Nephrology

Organiser

Czech Society of Nephrology

U Nemocnice 2
120 00 Prague 2
Czech Republic

www.nefrol.cz

Symposium Secretariat

Mr. Karel Ježek
info@trilateralsymposium2012.org

CZECH-IN s.r.o.

Tel: +420 261 174 305
Fax: +420 261 174 307
5. kvetna 65
140 21 Prague 4
Czech Republic

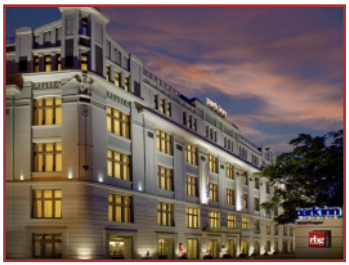
VENUE

PARK INN HOTEL PRAGUE

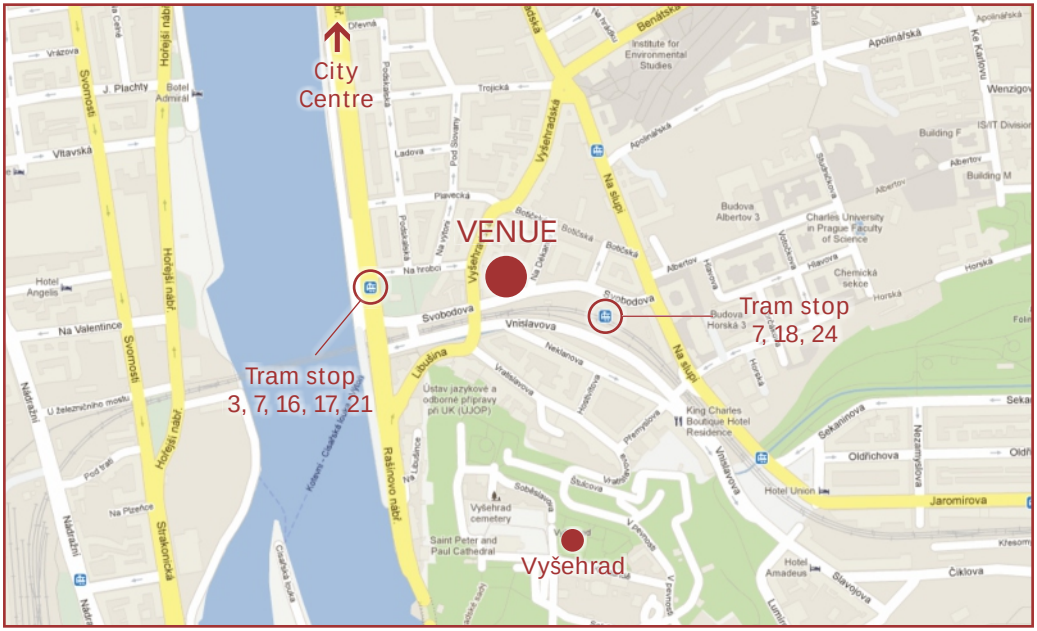
Svobodova 1961/1
CZ-12800 Prague 2
Czech Republic

Tel: +420 225 995 225
Fax: +420 225 995 111

www.parkinn.com/hotel-prague



Venue location



Symposium Topics

- Transplantation
- Chronic Kidney Diseases - CKD
- Experimental Nephrology and Transplantation
- Dialysis

Social Programme

The Symposium Dinner at Pilsner Restaurant in Municipal House

October 5TH, 2012 from 19:00

Departure from Park Inn Hotel at 18:45.

Plzenska restaurant is a traditional Czech restaurant located in the basement of Municipal House, right in the centre of the city.

The restaurant offers traditional Czech cuisine and traditional Czech beer from Pilsen.

Scientific Programme - October 5th

O. Viklický
INTRODUCTION

Chronic Kidney Disease - CKD

October 5th, 10.00 - 12.00

Chairs: Marcin Adamczak, Romana Ryšavá, Vladimir T. Todorov

State of art lecture
Peter Gross
ADPKD - IS IT TREATABLE?
30 minutes

1. *Jan Vachek*
   IMPLEMENTATION AND FIRST RESULTS OF THE CZECH CKD REGISTRY (AB01)
   10 minutes
2. *Lena Obeidová*
   MUTATIONS OF PKD1, PKD2 AND PKHD1 GENES IN FAMILIES WITH POLYCYSTIC KIDNEY DISEASE IN THE CZECH REPUBLIC (AB02)
   10 minutes
3. *Oskar Zakiyanov*
   SEARCHING FOR BIOMARKER PATTERNS CHARACTERIZING INFLAMMATORY BURDEN IN PATIENTS WITH REDUCED RENAL FUNCTION (AB03)
   10 minutes
4. *Jana Granatova*
   ROLE OF URINARY PROTEIN ANALYSIS IN CHRONIC KIDNEY DISEASE DIAGNOSTICS: ALPHA-1-MICROGLOBULIN - NON-INVASIVE MARKER OF RENAL TUBULOINTERSTITIAL DAMAGE (AB04)
   10 minutes
5. *Eva Kurzak*
   IS ABDOMINAL CIRCUMFERENCE A USEFUL PARAMETER FOR ESTIMATION OF EXCRETORY KIDNEY FUNCTION IN PATIENTS WITH DECOMPENSATED LIVER CIRRHOSIS? (AB05)
   10 minutes
6. *Magdalena Szotowska*
   SERUM VITAMIN B12 AND FOLIC ACID CONCENTRATIONS AND ESTIMATED GLOMERULAR FILTRATION RATE (Egfr) IN THE ELDERLY - POLISH POPULATION STUDY - "PolSenior" (AB06)
   10 minutes

LUNCH, 12:00 - 13:00

SCIENTIFIC PROGRAMME - OCTOBER 5TH

TRANSPLANTATION

October 5th, 13.00 - 15.00

Chairs: Magdalena Durlik, Uwe Heemann, Ondřej Viklický

State of art lecture
Uwe Heemann
LIVING DONOR KIDNEY TRANSPLANTATION - RIKS FOR THE DONOR
25 minutes

1. *Agnieszka Furmanczyka*
THE SIGNIFICANCE OF ANTIPHOSPHOLIPID ANTIBODIES IN RENAL ALLOGRAFT RECIPIENTS - SINGLE CENTER EXPERIENCE (AB07)
10 minutes
2. *Miroslaw Banasik*
THE DEVELOPMENT OF CIRCULATING POSTTRANSPLANT ANTIENDOTHELIAL CELL ANTIBODIES (AECA) MAY BE ASSOCIATED WITH REJECTION AND WORSE RENAL FUNCTION LONG TIME AFTER TRANSPLANTATION (AB08)
10 minutes
3. *Miroslaw Banasik*
NON-HLA AND ANTI-HLA ANTIBODIES IN A LONG TERM FOLLOW-UP; INCIDENCE AND IMPORTANCE IN RENAL TRANSPLANTATION (AB09)
10 minutes
4. *Alena Verflova*
ANTIBODY-MEDIATED REJECTION IN KIDNEY RETRANSPLANTATION AND RESTRICTED ANTIGENS (PILOT STUDY) (AB10)
10 minutes
5. *Marcelina Żabińska*
INCREASED PLASMA MMP.2, TIMP-1, TIMP-2 AND URINE CCL2, IL-6, AND MMP-2 CONCENTRATIONS IN PROTEINURIE RENAL TRANSPLANT RECIPIENTS IN LONG-TERM OBSERVATION (AB11)
10 minutes
6. *Kararzyna Kwiecien*
INFLUENCE OF GLOMERULAR VOLUME OF KIDNEY DONOR ON KIDNEY ALLOGRAFT EXCRETORY FUNCTION IN LONG TERM OBSERVATION (AB12)
10 minutes
7. *Barbora Řepová*
OUTCOME OF 75 PREGNANCIES IN 57 RENAL TRANSPLANT RECIPIENTS (AB13)
10 minutes

COFFEE BREAK, 15:00 - 15:30

Scientific Programme - October 5th

Experimental Nephrology and Transplantation

October 5th, 15.30 - 17.30

Chairs: Christian Hugo, Peter Lachmann, Vladimír Tesař

State of art lecture
Christian Hugo
CAPILLARY REPAIR IN KIDNEY DISEASE
25 minutes

1. *Claudia Schwarzenberger*
   ANALYSIS OF GLOMERULAR GENE EXPRESSION PROFILES DURING THE TIME COURSE OF MURINE SELECTIVE ENDOTHELIAL INJURY AND REGENERATION (AB14)
   10 minutes
2. *Peter Lachmann*
   THE PEROXISOME PROLIFERATOR-ACTIVATED RECEPTOR-GAMMA - BINDING SITE PAL3 PLAYS A ROLE IN THE TRANSCRIPTIONAL CONTROL OF HUMAN RENIN GENE IN VIVO (AB15)
   10 minutes
3. *Holger Schirutschke*
   A NEW APPARATUS FOR STANDARDIZED RAT KIDNEY BIOPSY (AB16)
   10 minutes
4. *Mariana Wohlfahrtova*
   TRANSCRIPTOME OF ISCHEMIA/REPERFUSION INJURY AND ROLE OF TUBUAR DAMAGE IN DELAYED (AB17)
   10 minutes
5. *Eva Krystufkova*
   TOLERANCE MARKERS IN KIDNEY TRANSPLANTATION: PROSPECTIVE STUDY (AB18)
   10 minutes
6. *Marketa Šafaříková*
   THE MUTATIONAL ANALYSIS OF THE ACTN4 GENE IN PATIENT WITH FOCAL SEGMENTAL GLOMERULOSCLEROSIS USING HRM METHOD (AB19)
   10 minutes
7. *Zuzana Potyšová*
   THE INFLUENCE OF SOME POLYMORPHISMS ON DEVELOPMENT OF AA AMYLOIDOSIS (AB20)
   10 minutes

The Symposium Dinner at Pilsner Restaurant in Municipal house, 19:00 – 22:00 (departure 18:45)

SCIENTIFIC PROGRAMME - OCTOBER 6TH

DIALYSIS

October 6th, 8.30 - 10.10

Chairs: Marta Kalousová, Marian Klinger, Sylvie Opatrná

State of art lecture
Marian Klinger
DIALYSIS IN THE ELDERLY
25 minutes

1. *Susanne Tholen*
   VARIABILITY OF COGNITIVE PERFORMANCE DURING HEMODIALYSIS: STANDARDIZATION OF COGNITIVE ASSESSMENT (AB21)
   10 minutes
2. *Krzysztof Letachowicz*
   CREATION OF ARTERIOVENOUS FISTULAE IN DIALYSIS NESTORS ABOVE 80 YEARS OLD (AB22)
   10 minutes
3. *Anna Pöpperlová*
   LOW GDP PERITONEAL DIALYSIS REGIMEN HAS A BENEFICIAL EFFECT ON PLASMA LEVELS OF PROINFLAMMATORY LIGANDS OF RECEPTOR FOR ADVANCED GLYCATION END PRODUCTS (*AB23)*
   10 minutes
4. *Lukas Kielberger*
   ALBUMIN LOSS AS A SIGNIFICANT SIDE EFFECT IN EXTRACORPOREAL IMMUNOADSORBTION (AB24)
   10 minutes
5. *Martin Havrda*
   DISCRIMINATION OF AKI VERSUS CKD: ROLE FO URINARY ALPHA-1-MICROGLOBULINE/ALBUMIN RATION (AB25)
   10 minutes
6. *Vit Motáň*
   CASE REPORT - LEAK OF THE PERITONEAL DIALYSATE TO THE PLEURAL CAVITY USING HRM METHOD (AB26)
   10 minutes

COFFEE BREAK, 10:10 - 10:30

Scientific Programme - October 6th

Clinical Nephrology

October 6th, 10.30 - 12.10

Chairs: Peter Gross, Martin Havrda, Vladimír Teplan

State of art lecture
Vladimír Tesař
NEW TREATMENT ASPECTS
25 minutes

1. *Maciej Szymczak*
   HEPARANASE AS A NOVEL MARKER OF LUPUS NEPHRITIS ACTIVITY (AB27)
   10 minutes
2. *Satu Sinikka Pesickova*
   DETECTION OF CYTOKINES IN PATIENTS WITH LUPUS NEPHRITIS (AB28)
   10 minutes
3. *Zdenka Chocova*
   LONG-TERM EFFECT OF RITUXIMAB ADMINISTRATION IN PATIENTS WITH ANCA-ASSOCIATED VASCULITIS (AB29)
   10 minutes
4. *Pavel Konopásek*
   PULMONARY INVOLVEMENT IN PATIENTS WITH ANCA - ASSOCIATED VASCULITIS - SINGLE CENTRE EXPERIENCE (AB30)
   10 minutes
5. *Dita Maixnerová*
   THE RETROSPECTIVE ANALYSIS OF 343 CZECH PATIENTS WITH IgA NEPHROPATHY - ONE CENTRE (AB31)
   10 minutes
6. *Viera Železníková*
   POLYMORPHISMS IN THE VITAMIN D RECEPTOR GENE AND PARATHYROID HORMONE GENE IN THE DEVELOPMENT OF DIABETES MELLITUS AND DIABETIC NEPHROPATHY (AB32)
   10 minutes

Abstracts - Oral Presentations

AB01

IMPLEMENTATION AND FIRST RESULTS OF THE CZECH CKD REGISTRY

Jan Vachek[1], Vladimir Tesar[2], Ivan Rychlik[3]

[1] *Department of Nephrology, First Faculty of Medicine, Charles University in Prague and General University Hospital in Prague, Prague*
[2] *(1) Department of Nephrology, First Faculty of Medicine, Charles University in Prague and General University Hospital in Prague, Prague*
[3] *2nd Department of Internal Medicine, Third Faculty of Medicine, Charles University in Prague; University Hospital Kralovske Vinohrady, Prague*

Advanced chronic kidney disease (CKD) is a serious public health issue with far-reaching medical and social consequences causing large cost burdens to the public health system. However, reliable data on epidemiology, CKD progression, comorbidities, various treatment approaches and their impact on patients' prognosis, quality of life, and economic issues are lacking. The aim of this paper is to demonstrate the first results of the Czech CKD registry based on clinical data.

The Czech CKD registry is a database containing demographic information, clinical parameters, and outcome measurements of more than 1600 CKD patients. A network of 40 nephrology centers is participating in this project. Demographic data are included together with routinely screened clinical data. Data are collected quarterly either automatically by Czech-made NEFRIS software or manually. All centres treating CKD patients are welcome to cooperate with the registry; this cooperation is voluntary and unpaid.

As of May 2012, data were available from 40 participating centres and from 1628 patients diagnosed with advanced CKD. Examples: Currently, 30.3% of patients are between 70-79 years, 25.5% are between 60-69 years, 11.4% between 50-59 years. Diabetes was diagnosed in 24.8% of all patients. The major primary renal disease is vascular nephropathy at 45% but as of May 2012, the underlying renal disease is still available in only 22% of patients (data are amended continuously). In most cases (26.1% of patients), three antihypertensive agents were prescribed, followed by four drugs in 21.8%, two agents in 19.0%, and a single drug in 11.27%. In 54.24% of patients, ACE-inhibitors and ARBs were prescribed, diuretics in 65.64%, beta-blockers in 47.21%.

This registry provides reliable nationwide data on the CKD epidemiology and disease course. The number of centres and enrolled patients increases constantly. Thus, an opportunity for further outcomes research and new projects (e.g. serum and DNA bank) is given.

AB02

MUTATIONS OF PKD1, PKD2 AND PKHD1 GENES IN FAMILIES WITH POLYCYSTIC KIDNEY DISEASE IN THE CZECH REPUBLIC

Lena Obeidová[1], Jitka Štekrová[1], Jana Reiterová[2], Veronika Elišáková[1], Miroslav Merta[1], Milada Kohoutová[1], Vladimír Tesar[2]

[1] *Institute of Biology and Medical Genetics , General Teaching Hospital of 1st Faculty of Medicine, Charles University, Prague*
[2] *Dept.of Nephrology, General Teaching Hospital of 1st Faculty of Medicine, Charles University, Prague*

Autosomal dominant polycystic kidney disease (ADPKD) is the most common hereditary renal disorder, and is estimated to affect approximately 1 in 500-1,000 births. ADPKD is a systematic disorder characterized by a formation of cysts and by connective tissue abnormalities involving many organs.

The progressive enlargement of renal cysts causes the decline in renal function resulting in end-stage renal disease typically in mid to late adulthood. The disease is caused by mutations of *PKD1* and *PKD2*

genes. The autosomal recessive form of polycystic kidney disease (ARPKD) caused by mutations in the *PKHD1* gene is less common than ADPKD but with more severe manifestation. It usually presents in early childhood when up to 50% of affected neonates die of pulmonary hypoplasia.

The aim of this work is the optimization of the molecular methods to provide reliable and fast presymptomatic, prenatal and preimplantation diagnostics of polycystic kidney disease.

Presymptomatic DNA analysis has been performed in our laboratory for over 20 years by the linkage analysis using highly polymorphic markers. Nowadays the analysis performed within research projects also includes detection methods as heteroduplex analysis, Multiplex Ligation-dependent Probe Amplification (MLPA) and high resolution melting (HRM) analysis. 150 Czech families with ADPKD were analyzed. Recently we have added the next-generation sequencing (NGS) as well as a new mutational detection method in the *PKHD1* gene.

So far, mutations of the PKD genes have been detected in more than 50% of families. Most mutations were unique for Czech population. One large deletion of the *PKD1* gene was identified. Determination of localization and type of mutations within the *PKD* and *PKHD1* genes and their genotype-phenotype correlation improves DNA diagnostics together with the assessment of the clinical prognosis of patients.

Supported by the grant project IGA MZCR NT 13090-4 and PRVOUK- P25/LF1/2.

AB03

SEARCHING FOR BIOMARKER PATTERNS CHARACTERIZING INFLAMMATORY BURDEN IN PATIENTS WITH REDUCED RENAL FUNCTION

Oskar Zakiyanov[1] Vitezslav Kříha[2], Jan Vachek[1], Jana Švarcová[3], Tomáš Zima[3], Vladimír Tesař[1], Marta Kalousová[3]

[1] *Department of Nephrology, First Faculty of Medicine, Charles University in Prague and General University Hospital in Prague, Prague, Czech Republic*
[2] *Department of Physics, Faculty of Electrical Engineering, Czech Technical University in Prague, Prague, Czech Republic*
[3] *Institute of Medical Biochemistry and Laboratory Diagnostics, First Faculty of Medicine, Charles University in Prague; General University Hospital in Prague, Prague, Czech Republic*

Placental growth factor (PlGF), pregnancy-associated plasma protein-A (PAPP-A), soluble receptor for advanced glycation end products (sRAGE) calcium binding protein S100A12 (EN-RAGE) and high mobility group box 1 (HMGB1) have been implicated as novel biomarkers in clinical research. It is becoming clear that testing various groups of patients in conjunction with various biomarkers may better the definition of inflammatory risk profile in patients with reduced renal function.

The studied groups were as follows: 40 patients with AKI at the inception of renal replacement therapy, 42 patients starting dialysis defined as CKD 5, 31 long-term haemodialysis patients (HD) and 39 age-matched healthy controls. PlGF, sRAGE, EN-RAGE and HMGB1 levels were assessed using enzyme linked immunosorbent assay, PAPP-A levels using time-resolved amplified cryptate emission, and routine biochemical parameters were measured using standard methods.

PAPP-A was elevated ($P < 0.001$) in AKI (20.6 ± 16.8 mIU/L), CKD 5 (27.8 ± 39.3) and HD (20.8 ± 9.9) compared with controls (9.1 ± 2.3); PlGF was elevated only ($P < 0.05$) in HD (11.5 ± 3.3 pg/mL) versus controls (8.5 ± 2.4). sRAGE was increased ($P < 0.001$) in CKD 5 (3227 ± 1458 pg/mL) and HD (2746 ± 1218) versus controls (1765 ± 721). EN-RAGE was ($P < 0.001$) elevated in AKI (492.4 ±. 449.5 ng/mL) compared with controls (60.1 ± 61.8). Similarly, HMGB1 was ($P < 0.001$) elevated in AKI (5.88 ± 7.59 ng/mL) versus controls (1.78 ± 1.25). Biomarkers significantly related to inflammatory parameters were EN-RAGE and HMGB1.

PAPP-A was significantly elevated in all studied groups. PlGF was elevated only in HD group. sRAGE was increased ($P < 0.001$) in CKD 5 (3227 ± 1458 pg/mL) and HD (2746 ± 1218) versus controls (1765 ± 721). EN-RAGE was ($P < 0.001$) elevated in AKI (492.4 ±. 449.5 ng/mL) compared with controls (60.1 ± 61.8). Similarly, HMGB1 was ($P < 0.001$) elevated in AKI (5.88 ± 7.59 ng/mL) versus controls (1.78 ± 1.25). Biomarkers significantly related to inflammatory parameters were EN-RAGE and HMGB1.

PAPP-A was significantly elevated in all studied groups. PlGF was elevated only in HD group. sRAGE was increased in CKD5 and HD groups. EN-RAGE and HMGB1 were significantly increased in AKI group. Multiple screening revealed that selected biomarkers, specifically EN-RAGE and HMGB1, showed a significant correlation with inflammatory burden in patients with reduced renal function.

AB04

ROLE OF URINARY PROTEIN ANALYSIS IN CHRONIC KIDNEY DISEASE DIAGNOSTICS: ALPHA-1-MICROGLOBULIN – NON-INVASIVE MARKER OF RENAL TUBULOINTERSTITIAL DAMAGE

Jana Granatová[1], Martin Havrda[2], Zdenka Hruskova[3], Jana Maluskova[4], Zdenka Vernerova[5], Jana Vranova[6], Karolina Kratka[7], Tomas Zima[8], Vladimir Tesar[9], Ondrej Viklicky[10]

[1] *Department of Biochemistry, Thomayer Hospital, Prague, 1st Faculty of Medicine, Charles University, Prague, Czech Republic;*
Thomayer Hospital, Prague 4, Department of Clinical Biochemistry, Prague
[2] *1st Internal Department, University Hospital Vinohrady and 3rd Faculty of Medicine, Charles University, Prague*
[3] *Department of Nephrology, General University Hospital;*
1st Faculty of Medicine, Charles University, Prague
[4] *Institute of Clinical and Experimental Medicine, Prague; Clinical and Transplant Medicine Department*
[5] *Institute of Pathology, 3rd Faculty of Medicine, Charles University Prague*
[6] *Institute of Medical Biophysics and Informatics, 3rd Faculty of Medicine, Charles University, Prague*
[7] *1st Internal Department, University Hospital Vinohrady, Prague*
[8] *Institute of Clinical Biochemistry and Laboratory Diagnostics, General University Hospital;*
1st Faculty of Medicine, Charles University, Prague
[9] *Department of Nephrology, Genaral University Hospital;*
1st Faculty of Medicine, Charles University, Prague
[10] *Nephrology Department, Institute of Clinical and Experimental Medicine, Prague*

INTRODUCTION AND AIMS:

Non-invasive assessment of secondary renal TI damage in patients with suspected glomerular disease could be helpful for better planning of diagnostic checkup. Renal biopsy (RB) may be unnecessary in subjects with advanced TI damage - histologic diagnosis does not significantly change their treatment. In pilot study we studied urinary alpha-1microglobulin/albumin ratio (A1m/Alb) as potential non-invasive marker of TI fibrosis. Strong association between A1m/Alb and grade of TI damage assessed morphologically in RB was found. A larger study with well-defined, statistically significant cohort was designed to verify and extend these results.

METHODS:

The pilot retrospective analysis: included 42 patients (age 22-75) who underwent RB for glomerular

diseases and those quantitative urinary protein analysis performed. Based on RB histology, degree of TI fibrosis assessed using semiquantitative scale (grade 1-4). A1m/Alb measured and compared in patiens with different grades of fibrosis. Patients with no and mild fibrosis (grade 1-2) compared to those with moderate and severe fibrosis (grade 3-4). A new study started in 2011, 200 patients in three nephrological centres with performed diagnostic RB and urinary protein analysis planned. Score of TI damage in RB histology (fibrosis, tubular atrophy and vascular lesions) assessed morphologically. Fresh just analysed data of 165 patients will have been presented.

RESULTS:

Pilot study: A1m/Alb differed significantly among all the groups (p=0,0007), in multiple comparison significant difference between patients with fibrosis grade 1 vs. grade 4 (p=0,019) and between subgroups with fibrosis grade 1+2 vs. grade 3+4 (p=0,001). Strong associations between A1m/Alb and grade of fibrosis (r=0,626; p<0,001), eGFR CKD-EPI (r=-0,620; p<0,001), eGFR MDRD (r=-0,625; p<0,001). No association between A1m/Alb and age.

CONCLUSIONS:

In pilot study A1m/Alb was strongly associated with degree of TI fibrosis and glomerular filtration rate. We found A1m/Alb helpful in patients with glomerular disease to identify subjects with advanced TI fibrosis.

AB05

IS ABDOMINAL CIRCUMFERENCE A USEFUL PARAMETER FOR ESTIMATION OF EXCRETORY KIDNEY FUNCTION IN PATIENTS WITH DECOMPENSATED LIVER CIRRHOSIS?

Ewa Kurzak[1], Henryk Karkoszka[1], Magdalena Szotowska[1], Marcin Adamczak[1], Andrzej Wiecek[1]

[1] *Department of Nephrology, Endocrinology and Metabolic Diseases, Medical University of Silesia, Katowice, Poland*

INTRODUCTION:

Factors affecting excretory kidney function in patients with decompensated liver cirrhosis are not fully understood. The evaluation of kidney function using routine diagnostic methods in these patients is difficult.

AIM:

The aim of this study was to determine whether there is an association between indicators of liver function, abdominal circumference and excretory kidney function in patients with decompensated liver cirrhosis.

METHODS:

Medical records of 86 patients with decompensated liver cirrhosis were retrospectively analyzed. Statistical analysis was performed based on the Spearman test and univariate analysis of variance with post-hoc test of Fisher LSD.

RESULTS:

Study group was characterized by following values: creatininemia 88.5±43.9 µmol/l, albuminemia 29.0±6.4 g/l, bilirubinemia 121.5±146.5 µmol/l , INR 1.5±0.9, and abdominal circumference 97.3±10.9 cm. There was no significant correlation between creatininemia and albuminemia, bilirubinemia or INR. A statistically significant positive correlation was found between creatininemia and abdominal circumference ($p=0.004$, $R=0.329$). Study group was split into terciles of abdominal circumference (<92; 92-102; >102 cm). Patients from these terciles differed significantly ($p=0.05$) with respect to creatininemia (72.6±34.1; 85.5±46.0; 102.6±44.5 µmol/l, respectively). Post-hoc analysis showed significantly ($p=0.02$) higher values of creatininemia in tercile III than in tercile I.

CONCLUSIONS:

Abdominal circumference higher than 102 cm, caused by severe ascites in patients with liver cirrhosis is associated with worse excretory kidney function.

In patients with decompensated liver cirrhosis, abdominal circumference measurements should be a useful parameter to predict worsening of kidney function.

AB06

SERUM VITAMIN B12 AND FOLIC ACID CONCENTRATIONS AND ESTIMATED GLOMERULAR FILTRATION RATE (EGFR) IN THE ELDERLY – POLISH POPULATION STUDY – „POLSENIOR"

Magdalena Szotowska[1], Jerzy Chudek[1], Marcin Adamczak[1], Andrzej Więcek[1]

[1] *Department of Nephrology, Endocrinology and Metabolic Diseases, Medical University of Silesia, Katowice, Poland*

INTRODUCTION AND AIMS:

In the last years increasing prevalence of vitamin B_{12} and folic acid deficiency is observed in different groups of patients. Taking into consideration important role of vitamin B_{12} and folate in hematopoesis, skin and brain function, such deficiency seems to be one of the crucial problems in health issue.

The aim of this study was to examine serum vitamin B_{12} and folic acid concentrations and their relationship with estimated glomerular filtration rate (eGFR) in representative samples of the elderly population in Poland.

METHODS:

In 1193 subjects (609 males; females) aged over 65 years (mean age 79±9) from the "Polsenior" study the relationship between vitamin B_{12} or folate serum concentrations and eGFR was calculated. Serum vitamin B_{12} and folate concentration was measured by RIA method. eGFR was estimated using the CKD-EPI formula.

RESULTS:

Number of subjects	199	659	278
estimated Glomerular Filtration Rate [ml/min]	90-120	60-90	<60
Age of subjects [years]	76±11	77±11	76±11
Serum vitamin B_{12} concentration [pg/ml]	334±769	312±220	285±142
Serum folic acid concentration [µg/ml]	5.63±7.44	4.90±4.34	4.59±4.70

Serum vitamin B_{12} and folic acid concentrations in whole group with age over 65 years were similar to subjects with age 55-64 years. Analysis of variance, between groups stratified according to eGFR with respect of both vitamin B_{12} and folic acid, showed significant ($p<0.05$) differences. However there was no significant correlation between age or eGFR and serum vitamin B_{12} or folate concentrations.

CONCLUSIONS:

1. Both vitamin B_{12} and folate concentrations decrease with worsening of kidney function in elderly patient's. 2. These results suggest a particular need for increased vigilance for deficiency of vitamin B_{12} and folic acid in elderly patients with chronic kidney disease.

AB07

THE SIGNIFICANCE OF ANTIPHOSPHOLIPID ANTIBODIES IN RENAL ALLOGRAFT RECIPIENTS – SINGLE CENTER EXPERIENCE

Agnieszka Furmanczyka[1], Teresa Bączkowska[1], Anna Sadowska[1], Magdalena Durlik[1]

[1] *Department of Transplantation Medicine and Nephrology, Transplantation Institute - Warsaw*

BACKGROUND:

The APLA (*antiphospholipid antibodies*) are the most common cause of acquired thrombophilia. In transplant recipients graft thrombosis usually leads to graft loss.

OBJECTIVE:

The aim of the study was to determine the relation between APLA and graft thrombosis in renal recipients.

PATIENTS AND METHODS:

The study included 37 Caucasian renal recipients. The patiens were divided into 2 subgroups: the first included patients with no additional risk factor for thrombosis T(-) and the second subgroup T(+) included patients with previous strong thrombotic events (thrombosis 1). APLA panel consisted of lupus anticoagulant (LA), anticardiolipin antibodies (ACL), anti-β2Glycoprotein 1 antibodies (anti-β2GPI) and antiprothrombin antibodies (anti-PT). APLA were detected in serum twice in 6 months interval. Mean observation time was 12 months.

RESULTS:

APLA prevalence in renal recipients was 16.22%. There were no statistically significant differences between APLA in T(-) and T(+). A statistically signifiant correlations were found between anti-β2GPI IgM and ACL IgM, anti-β2GPI IgM and IgG, ACL IgM and ACL IgG. The measured strenght of correlation remained at moderate level (correlation coefficient 0.3). There was no significant difference in serum kreatinine concentration in T(-) and T(+).

DISCUSSION:

The lack of differences in APLA between T(-) and T(+) can be explained by immunosuppressive regimen or spontaneous APLA elimination. In T(-) no thrombotic event was observed during follow-up. In T(+) one case of graft thrombosis occurred during observation time in APS patient treated with LMWH. In T(+) 9/10 patients were anticoagulated, what probably prevented from developing more thrombotic events.

CONCLUSION:

The prevalence of APLA in renal recipients is higher than in general population. Due to the presence of confounding factors affecting APLA (steroids, short observation time, LMWH administration), based on the tested group, we can not clearly determine APLA importance as a marker of thrombosis in renal recipients.

AB08

THE DEVELOPMENT OF CIRCULATING POSTTRANSPLANT ANTIENDOTHELIAL CELL ANTIBODIES (AECA) MAY BE ASSOCIATED WITH REJECTION AND WORSE RENAL FUNCTION LONG TIME AFTER TRANSPLANTATION

Miroslaw Banasik[1], Maria Boratynska[1], Katarzyna Koscielska-Kasprzak[1], Marta Myszka,1 Marcelina Zabinska[1], Beata Nowakowska[2], Agnieszka Halon[3], Pawel Chudoba[4], Dariusz Patrzalek[4], Marian Klinger[1]

1 *Department of Nephrology and Transplantation Medicine*
2 *Institute of Immunology and Experimental Therapy*
3 *Department of Pathology*
4 *Department of Vascular, General, Transplantation Surgery*

INTRODUCTION AND AIMS:

It has been suggested that non-HLA antibodies might have a role in pathogenesis of allograft rejection. Anti-endothelial cell antibodies (AECAs) were proposed as potential cause of antibody mediated injury in addition to anti-HLA antibodies. The development of noninvasive biomarkers (among others might be AECAs) seems to be crucial for individualizing therapy.

The purpose of this study was to access the incidence of AECAs, the influence on renal function and the association with rejection.

METHODS:

AECAs were detected by an indirect immunofluorescence test using the TITERPLANE technique. Single cell line of cultivated human umbilical vein endothelial cells was layered onto the reaction areas of slides and then incubated with diluted serum. AECAS were detected in patients after transplantation. Anty-HLA and other non-HLA were checked. Blood type compatible transplant recipients received standard triple immunosuppression. Biopsy was performed to diagnose transplant rejection.

RESULTS:

AECAs were checked in 35 consecutive patients 5 years after transplantation. AECAs were present in 5 patients (14.3%) of our group. In 1 pt AECAs coexisted with anti-HLA antibodies. The analysis showed that biopsy proven acute rejection appeared in 60% of patients with AECAs vs. 14% in the control group (without any anti-HLA or non-HLA antibodies). In 1 pt with AECAs (without anty-HLA) c4d was present.

Renal function measured by creatinine in patients with AECAs was 1.52±0.4mg/dl comparing to pts without antibodies 1.24±0.2mg/dl ($p<0,05$). HLA mismatches in both groups were similar 2,9 vs 2,8; PRA, CIT, donors and recipients age also were similar.

CONCLUSIONS:

A long time after transplantation anti-endothelial cell antibodies (AECAs) are present in 14.3% of patients. The influence of AECAs on rejection might be significant. AECAs may deteriorate renal function. Post-transplant monitoring of AECAs might improve transplant care.

AB09

NON-HLA AND ANTI-HLA ANTIBODIES IN A LONG TERM FOLLOW-UP; INCIDENCE AND IMPORTANCE IN RENAL TRANSPLANTATION

Miroslaw Banasik[1], Maria Boratynska[1], Katarzyna Koscielska-Kasprzak[1], Marcelina Zabinska[1], Marta Myszka[1], Agnieszka Halon[2], Przemyslaw Szyber[3], Dariusz Patrzalek[3], Marian Klinger[1]

1 *Department of Nephrology and Transplantation Medicine*
2 *Department of Pathomorfology*
3 *Department of Vascular, General and Transplantation Surgery*

INTRODUCTION:

The detection of antibody mediated injury is becoming increasingly important in post-transplant patient care. The aim was to determine the presence of non-HLA and anti-HLA antibodies in “stable” patients 5 years after kidney transplantation and their influence on renal function.

METHODS:

We evaluated the presence of non-HLA and anti-HLA antibodies in 35 consecutive renal transplant patients with stable renal function 5 years after transplantation. Pre-transplant CDC cross-match was negative in all patients. Anti-endothelial cell antibodies(AECA), anti-angiotensinII type1 receptor antibodies(anti-AT1R), and anti-endothelin receptor antibodies (anti-ETAR) were assayed as non-HLA antibodies.

RESULTS:

Non-HLA antibodies were found in 12(34%) patients including: AECA in 5(14%), anti-AT1R in 6(17%), anti-ETAR in 4(11%), both anti-AT1R and anti-ETAR were present in 3 patients. Anti-HLA antibodies were present in 13(37%) patients including anti-HLA class I and class II antibodies in 3 patients, class I only in 7 and class II only in 3 patients.

Seven patients had both non-HLA antibodies and anti-HLA antibodies: 1 patient had AECA, 3 anti-AT1R and 3 anti-ETAR antibodies.

The patients were divided in two groups: an antibody-negative group included patients without any antibodies(n=13) and an antibody-positive group included patients with antibodies (non-HLA and/or anti-HLA;n=22).

Renal function in the antibody-negative group was significantly better comparing to the antibody-positive group(Table). BPAR occurred in 2/13(15%) patients from the antibody-negative group but in 8/22(36%) patients from the antibody-positive. AMR was diagnosed in 2patients with antibodies.

CONCLUSION:

Our preliminary data showed high prevalence of the production of autoantibodies and alloantibodies in stable patients 5 years after kidney transplantation. Simultaneous production of these antibodies and their association with renal function may suggest active humoral immune response, which is poorly controlled by immunosuppression.

	12-month	24-month	36-month	48-month	60-month
Ab- (n=13)	1.16±0.2	1.26±0.2	1.25±0.2	1.24±0.2	1.24±0.2
Ab+ (n=22)	1.3±0.4	1.46±0.3	1.51±0.43	1.60±0.4	1.71±0.6
p	NS	NS	0.01	0.02	0.002

AB10

ANTIBODY-MEDIATED REJECTION IN KIDNEY RETRANSPLANTATION AND RESTRICTED ANTIGENS (PILOT STUDY)

A. Verflová[1], E. Slimáčková[1], J. Slatinská[1], A. Slavčev[1], Š. Vítko[1], E. Honsová[1], O. Viklický[1]

[1] IKEM, Videnska 1958/9, Praha 4, 14021

BACKGROUND:

Patients who underwent kidney retransplantation have generally increased risk of antibody mediated rejection (AMR). Retransplantation of kidney from a donor against whom the memory alloimmune response exists but CDC cross-match is negative represents the new challenge in kidney transplantation.

OBJECTIVES:

Analysis the outcome of kidney retransplantion in patiens with and without immunologically defined restricted antigens from previous transplants.

METHODS:

88 patients who underwent retransplantation were included in this retrospective study. The historical control group consists of patients who underwent retransplantation in 2009-2010 (n = 62) when restricted antigens were not defined. The study group underwent retransplantation in 2011 (n = 26). Restricted antigens were defined as mismatched HLA antigens in previous transplantation against which the recipient recently produced DSA. DSA were detected using Luminex technology and kidney grafts were allocated only if recipient had Luminex DSA negative against previous donor´s antigens.

RESULTS:

From all 97 patients awaiting the retransplantation in 2011, the positive Luminex DSA against previous donors was found in 72 patients. 26 patients underwent retransplantation and from those 17 patients had at least 1 HLA antigen restricted for allocation. There was a significantly lower incidence of DGF in 2011-study group as compared to historical group (23 vs. 53%; p = 0,0106), but the rejection occurrence in both groups was similar (AMR: 19 vs. 26%; p = 0,5926, TCMR:23 vs. 13%; p = 0,3372). There was a tendency towards better 6 months graft survival the study group (96 vs. 82%; p = 0.1005).

CONCLUSIONS:

The implementation of restricted antigens in the allocation system might improve the outcome of kidney retransplantation but such statement must be confirmed in larger prospective study.

AB11

INCREASED PLASMA MMP-2, TIMP-1, TIMP-2 AND URINE CCL2, IL-6, AND MMP-2 CONCENTRATIONS IN PROTEINURIC RENAL TRANSPLANT RECIPIENTS IN LONG-TERM OBSERVATION

Oktawia Mazanowska[1], Marcelina Żabińska[2], Dorota Kamińska[3], Magdalena Krajewska[3], Przemysław Biecek[4], Paweł Chudoba[5], Dariusz Patrzałek[5], Maria Boratyńska[3], Marian Klinger[3]

[1] *Department of Nephrology and Transplantation Medicine of Wroclaw Medical University, Poland - Wroclaw*
[2] *Wroclaw Medical University - Wrocław*
[3] *Department of Nephrology and Transplantation Medicine of Wroclaw Medical University, Poland*
[4] *Institute of Applied Mathematics and Mechanics, University of Warsaw, Poland*
[5] *Department of Vascular, General and Transplant Surgery of Wroclaw Medical University, Poland*

INTRODUCTION:

Chronic allograft injury(CAI) is the most frequent cause of kidney graft loss, and the clinical feature significantly associated with graft loss is proteinuria.

The aim of the study was to assess the usability of MMPs/TIMPs, IL-6 and CCL2 in proteinuric renal transplant recipients (RTR). Material and methods150 stable RTR and 37 healthy volunteers as controls, were assessed for plasma and urine MMP-2, MMP-9, TIMP-1, TIMP-2, IL-6 and CCL2. Investigated factors were assessed by ELISA, and urine concentrations were standardized to urine creatinine (uCr). The Mann-Whitney U test was applied, and differences with $p < 0,05$ were considered statistically significant.

RESULTS:

1. RTR compared with controls had significantly increased plasma and urine concentrations of IL-6 (p = 1,8e-0,5 and p = 0,0001), MMP-9 (p = 0,0015 and p = 0,003), TIMP-1 (p = 2,2e-16 and p=3,4e-05), TIMP-2 (p = 0,003 and p = 0,02), respectively, as well as lower plasma MMP-2 (p = 7,5e-06) and urine CCL2 (p = 3,3e-05).

2. RTR with impaired graft function (eGFR < 40 ml/min/1,73m2) compared with RTR with preserved graft function (eGFR > 60 ml/min/1,73m2) had higher proteinuria (p = 0,003) and calculated daily proteinuria (protein-to-creatinine ratio) (p = 0,01), respectively.

3. Proteinuric RTR compared with no-proteinuric RTR had higher median plasma concentrations of: MMP-2 (228 vs 204 ng/ml, p = 0,02), TIMP-1 (173 vs 142 ng/ml, p = 0,0001), and TIMP-2 (99 vs 87 ng/ml, p = 0,0007), as well as higher median urine concentrations of CCL2 (60 vs 35pg/mg uCr, p = 0,02), IL-6 (1,7 vs 0,5 pg/mg uCr, p = 3,3e-07) and MMP-2 (mean 2,0 ± 4,5 vs 0,1± 0,2 ng/mg uCr, p = 2,6e-07).

CONCLUSION:

In renal transplant recipients increased plasma MMP-2, TIMP-1, TIMP-2 and urine CCL2, IL-6, MMP-2 concentrations were associated with proteinuria.

AB12

INFLUENCE OF GLOMERULAR VOLUME OF KIDNEY DONOR ON KIDNEY ALLOGRAFT EXCRETORY FUNCTION IN LONG TERM OBSERVATION

Katarzyna Kwiecień[1], Henryk Karkoszka[1], Magdalena Szotowska[1], Marcin Adamczak[1], Andrzej Wiecek[1]

[1] *Department of Nephrology, Endocrinology and Metabolic Diseases, Medical University of Silesia, Katowice, Poland*

INTRODUCTION:

Various pathological factors, as well as, aging lead to decrease of nephrons number. Hyperfiltration with increase of glomerular volume determine adaptation of kidney excretory function to human body metabolic demand.

AIM OF THE STUDY:

The aim of the study was to evaluate the influence of mean glomerular volume (MGV) of kidney donor on kidney allograft long term excretory function (eGFR).

METHODS:

Analyzed group consisted of 66 kidney recipients [28F/38M, age 45 (41-47) years] in which preimplantation kidney biopsies were performed ("zero biopsy") and which survive one year with functioning kidney allograft. MGV was estimated in "zero biopsy" specimens. MDRD formula was adapted to calculate eGFR. Statistical analysis was performed using Kaplan-Meier curves, Spearman test and uni-variance analysis with *post-hoc* Fisher LSD test. Results are presented as median and 95% CI.

RESULTS:

Significant negative correlation between MGV and eGFR in 72 months after kidney transplantation was found (R=-0.49, p=0.04). Analyzed group was divided according MGV into terciles (<3.85 x 106; 3.88-5.04 x 106; >5.05 x 106 µm3, respectively). Patients from these terciles significantly differ with respect to eGFR (p=0.04) in 72 months after kidney transplantation [55.0 (41.1-76.7); 40.3 (29.7- 54.4); 34.2 (27.0-45.9) ml/min, respectively]. Significantly (p=0.01 and p=0.03) higher eGFR have been found in tercile 1 and 2 in comparison to tercile 3. Endpoint of the study (eGFR<30ml/min) was achieved by 6 (27.3%); 3 (13.6%) and 8 (36.4%) patients from these terciles, respectively (2 vs. 3 tercile; HR= 1.93; p=0.03).

CONCLUSION:

Kidney donors MGV above 5.05 x 106 µm3 may participate in the deterioration of the transplanted kidney excretory function in long term observation.

AB13

OUTCOME OF 75 PREGNANCIES IN 57 RENAL TRANSPLANT RECIPIENTS

Barbora Řepová[1], Ondřej Viklický[1], Marcela Burgelová[1], Eva Pokorná[1], Josef Cindr[1], Hana Musílková[1]

[1] *IKEM - Prague*

INTRODUCTION:

Renal transplantation has been used to treat end stage renal failure since the 1950s. First successful pregnancy in this group has been reported in 1958. Pregnancy itself is not contraindicated in renal transplant recipients under certain conditions. The opposite is associated with a risk for graft function and child.

METHODS:

This is a single-centre retrospective observational study investigating the outcome of 75 pregnancies in 57

renal transplant recipients from Transplant Center of IKEM, Prague. Primarily, we were interested in the effect of pregnancy and delivery on short and longterm renal allograft function. Secondly, we looked for birth weight, frequency of pre-term labour, complications during pregnancy.

RESULTS:

The mean serum creatinine did not rise significantly during the pregnancy except for patients with worse renal function before the pregnancy (serum creatinine above 150 µmol/L). Of all pregnancies, 50 (67.7%) were preterm. Caesarean delivery occurred in 64 (87%) in pregnancies. The mean birth weight was 2 391g, intrauterine growth retardation (IUGR) occurred in 11 (14%) of newborns.

CONCLUSION:

Pregnancy does not appear to have any adverse effect on the long - term graft survival, but patients with baseline serum creatinine of above 150 µmol/L have an increased risk of progression of allograft dysfunction resulting from the pregnancy. The offsprings suffer from lower birth weight, but they do not seem to have more congenital diseases.

AB14

ANALYSIS OF GLOMERULAR GENE EXPRESSION PROFILES DURING THE TIME COURSE OF MURINE SELECTIVE ENDOTHELIAL INJURY AND REGENERATION

Claudia Schwarzenberger[1], Ludger Klein-Hitpass[2], Bettina Knapp[3], Lars Kaderali[3], Christian P. Hugo[1], Bernd Hohenstein[1]

1 *Division of Nephrology, Department of Internal Medicine III*
2 *Institute of Cell Biology, University Duisburg-Essen*
3 *Institute of Medical Informatics and Biometry*

PURPOSE:

Many cellular mechanisms during endothelial injury (EI) and orchestration of repair are poorly understood. Furthermore, there is a lack of therapeutic options to interfere with EI or promote subsequent repair. To further explore cell responses to injury/during repair, we applied a gene profiling approach after selective renal EI model in mouse kidney.

METHODS:

Selective EI was induced in left kidneys of 24 C57Bl/6J mice. For each sample, 2 kidneys were pooled and glomeruli were extracted with nearly 100% purity 4h, 1d, 3d or 5d after disease induction. Glomerular RNA was isolated immediately. For each time point, 3 pooled samples underwent Affymetrix-based chip-analysis. Six wild-type mice served as 24h controls.

RESULTS:

More than 150 genes demonstrated a more than 10fold increase in gene expression, whereas up to 100 genes showed at least 5 to 10fold decrease. Analysis of expression patterns showed regulation of distinct pathways involved in mechanisms of cell survival, apoptosis and inflammation. Analysis of single gene profiles showed potential targets to interfere with EI. Thereby, enhanced expression of platelet associated genes such as P2Y12r as well as C3ar1/C5ar1/C3 genes was found. We also determined significant changes in expression of MMP-9, NOS/ADMA and many inflammatory molecules (all genes: $p<0.01$).

CONCLUSION:

The present study identified pathways involved in EI/repair in a selective renal EI model. This shows the orchestration of injury/repair and also depicts distinct genes. These profiles will help to develop strategies to interfere with injury/promote repair and to identify new therapeutic targets.

AB15

THE PEROXISOME PROLIFERATOR-ACTIVATED RECEPTOR-GAMMA - BINDING SITE PAL3 PLAYS A ROLE IN THE TRANSCRIPTIONAL CONTROL OF HUMAN RENIN GENE IN VIVO

Peter Lachmann[1], Vladimir T. Todorov[1]

[1] *Laboratory for Experimental Nephrology, Department of Nephrology, University Clinic Carl Gustav Carus, Tu Dresden*

The nuclear receptor transcription factor Peroxisome Proliferator-Activated Receptor-gamma (PPARγ) is an important regulator of renin gene expression. The PPARγ-dependent stimulation of renin production is considered to play an essential role in the pathogenesis of arterial hypertension during obesity. The human renin gene has a unique upstream PPARγ binding sequence, the Pal3 site.

The aim of this study was to investigate the role of the Pal3 sequence in the regulation of the human renin gene *in vivo* in a transgenic mouse model.

We used transgene coplacement to generate two transgenic mouse lines carrying the complete human renin gene with either the native Pal3 site (hPal3 line), or with an inactivated Pal3 site (mPal3 line). The expression of human renin as well as the expression of the endogenous mouse renin, which served as internal control, was studied in hPal3 and mPal3 lines by immunofluorescent staining and quantitative PCR.

Human renin colocalized with the endogenous mouse renin in the renal juxtaglomerular (JG) cells of hPal3 mice, as expected. In the kidneys of mPal3 mice, human renin was expressed in some but not all JG cells positive for mouse renin. We also observed that glomeruli with JG cells expressing mouse renin were completely devoid of human renin in the mPal3 strain. Human renin mRNA levels were generally lower in the mPal3 mice in comparison with the hPal3 mice. Thus, the mPal3 mice appear to produce less human renin than the hPal3 mice.

We conclude that the mutation of the human renin Pal3 sequence results in a decrease of human renin expression in transgenic mice. Our data strongly suggests that the Pal3 sequence is necessary for the cell-specific expression of the human renin gene *in vivo*.

AB16

A NEW APPARATUS FOR STANDARDIZED RAT KIDNEY BIOPSY

Holger Schirutschke[1], Simon Parmentier[1], Sandy Walther[1], Christian Hugo[1], Bernd Hohenstein

[1] *Department of Nephrology and Hypertension, University of Dresden, Germany*

Until now, no standardized method for laboratory rat kidney biopsy has been established (during an open surgical procedure). Therefore, an easy to use core biopsy instrument was developed. In the present study we wanted to know, if this biopsy tool allows extraction of adequate biopsy specimens without provoking secondary kidney damage during a course of two consecutive kidney biopsies.

Eighteen Lewis rats were randomized into two groups. Nine rats underwent right unilateral nephrectomy and subsequent biopsy of the left kidney using our new apparatus (biopsy). Nine rats underwent unilateral nephrectomy and subsequent sham operation of the left kidney (ctrl.). At day 7, a second kidney biopsy / sham biopsy was performed. Bodyweight, blood pressure, proteinuria and serum creatinine were measured after 6 weeks. Animals were sacrificed subsequently and kidneys were removed for histology.

At the end of the experiment, no statistically significant differences for bodyweight (biopsy: 388 ± 23 g, vs. ctrl.: 375 ± 21 g, n.s.), blood pressure (biopsy: 135/80 ± 35/15 mmHg, vs. ctrl.: 130/80 ± 30/15 mmHg, n.s.), proteinuria (biopsy: 0,58 ± 0,15 mg/dl vs. ctrl.: 0,55 ± 0,07 mg/dl, n.s.) and serum creatinine (biopsy: 35,10 ± 9,57 µmol/l vs. ctrl.: 36,56 ± 3,58 µmol/l, n.s.) were found.

PAS staining of longitudinal kidney sections showed only minimal tissue damage adjacent to the taken cores. Samples contained 57 ± 28 (n=36) glomerular cross sections per biopsy, thereby representing a statistically relevant sample size.

The present study results demonstrate the absence of any potential side effects in regard to kidney function, blood pressure and bodyweight. Histological damage was marginal and a representative sample size was provided. In future experiments, this new biopsy apparatus will decrease the number of laboratory rats needed for experiments and will improve the statistical value of experimental data due to coherent samples.

AB17

TRANSCRIPTOME OF ISCHEMIA/REPERFUSION INJURY AND ROLE OF TUBUAR DAMAGE IN DELAYED KIDNEY GRAFT FUNCTION

Mariana Wohlfahrtova[1], Irena Brabcova[2], Filip Zelezny[3], Peter Balaz[4], Alena Loderer ova[5], Eva Honsova[5], Libor Janousek[4], Peter Wohlfahrt[1], Ondrej Viklicky[1]

1 *Department of Nephrology, Transplant Centre, Institute for Clinical and Experimental Medicine, Prague, Czech Republic*
2 *Transplant Laboratory, Transplant Centre, Institute for Clinical and Experimental Medicine, Prague, Czech Republic*
3 *Department of Cybernetics, Faculty of Electrical Engineering, Czech Technical University, Prague, Czech Republic*
4 *Department of Transplant Surgery, Transplant Centre, Institute for Clinical and Experimental Medicine, Prague, Czech Republic*
5 *Clinical and Transplant Pathology Department, Transplant Centre, Institute for Clinical and Experimental Medicine, Prague, Czech Republic*

INTRODUCTION AND AIMS:

Delayed graft function (DGF) as a consequence of ischemia/reperfusion injury (IRI) negatively influences the outcome of kidney transplantation. Little is known about molecular changes during cold organ storage and after reperfusion. The aim of this study was to evaluate intrarenal transcriptome during ischemia reperfusion injury and identify genes that might have impact on delayed graft function development.

METHODS:

To investigate changes of the intrarenal transcription profile during IRI, three sequential graft biopsies were performed in each allograft prior and during the transplantation (baseline donor biopsy at the time of organ retrieval, pre-implantation and 30 minutes post-implantation biopsy). The intragraft expression of 92 target genes known to be implicated in the pathogenesis of ischemia-reperfusion injury was measured using quantitative real-time RT-PCR (2-ΔΔCt) method in DGF (n=9) and primary function patients (n=26).

RESULTS:

While the cold storage didn´t lead to significant changes of evaluated gene transcripts, reperfusion caused the up-regulation of 16 genes which play a role in enhanced activation of innate and adaptive immune responses (T- cell, B- cell, Toll-like receptor signaling pathway, antigen processing and presentation, cytokine- cytokine interaction, etc.) and apoptotic programs. Despite the molecular signs of inflammation burden in reperfusion, no histopathological changes associated with I/R injury were observed. Lower expression of netrin-1 (NTN1) was found in donor and postimplantation biopsies of grafts with delayed graft function ($p<0.05$). Multivariate logistic regression revealed that higher tubular atrophy score (ct) together with lower expression of netrin-1, survival factor that facilitates recovery from ischemic injury, might predict delayed graft function development (ROC AUC=0.89).

CONCLUSIONS:

Transcriptome analysis of kidney allograft revealed the burden of immune and apoptotic programs in spite of absence of histopathological abnormalities associated with I/R injury. The rate of tubular damage was shown to play a role in graft function development.

AB18

TOLERANCE MARKERS IN KIDNEY TRANSPLANTATION: PROSPECTIVE STUDY

Eva Krystufkova[1], Irana Brabcova[1], Petra Hribova[1], Peter Wohlfahrt[2], Mariana Wohlfahrtova[1], Janka Slatinska[3], Birgit Sawitzki[4], Hans-Dieter Volk[4], Petra Reinke[5], Ondrej Viklicky[1]

1 *IKEM, Transplant Laboratory*
2 *IKEM, Department of Preventive Cardiology*
3 *IKEM, Department of Nephrology*
4 *Charité University Medicine, Institute of Medical Immunlogy*
5 *Charité University Medicine, Berlin-Brandenberg Center for Regenerative Therapies (BCRT)*

BACKGROUND:

Recently, several molecular signatures of tolerant patients who were off immunosuppression were identified. In this prospective study we evaluated such biomarkers in kidney transplant recipients treated with CNI based triple immunosuppression.

METHODS/MATERIALS:

Using a quantitative real-time RT-PCR, mRNA expression of 11 genes associated with transplantation tolerance or with rejection was prospectively monitored in the peripheral blood of 67 kidney transplant recipients at POD 0, 7, 14, 21, 28, 60, 90 and month 6 and 12. Graft biopsy was done upon clinical presumption of acute rejection (case biopsy) and at day 90 after transplantation (protocol biopsy). Expression patterns of tolerant genes were prospectively monitored and compared between patients with or without acute rejection in peripheral blood and case biopsy specimens (available form 16 patients). Generalized linear model with gamma distribution for repeated measures adjusted for induction therapy was used for statistical analysis of longitudinal data and Mann-Whitney test for case biopsy data.

RESULTS:

From 68 prospectively monitored patients 33 patients were free of acute rejection at first year while 14 patients experienced acute rejection and 20 patients borderline changes. Three B cell-related genes, CD79B, *MS4A1* and *TCL1A*, showed constantly higher blood expression levels in rejection-free patients and borderline changes group as compared to rejection group ($P<0.05$, $P<0.0001$, $P<0.0001$ and $P<0.05$, $P< 0.05$, $P<0.0001$ respectively), while *TMEM176B* expressions were lower in rejection-free group ($P<0.05$, $P>0.05$). Significantly higher case biopsy expression levels of *MS4A1* and *TCL1A* and lower of *TMEM176B* were observed in rejection-free patients compared to rejection group (all $P<0.05$).

CONCLUSION:

Our study has confirmed the role of several molecular biomarkers of tolerance in real life settings also in patients treated with standard immunosuppression.

SUPPORTED BY:

IGA MZCR NS 10517-3/2009

AB19

THE MUTATIONAL ANALYSIS OF THE ACTN4 GENE IN PATIENT WITH FOCAL SEGMENTAL GLOMERULOSCLEROSIS USING HRM METHOD

Markéta Šafaříková[1], Jana Reiterová[1], Jitka Štekrová[2], Lena Obeidová[1], Milada Kohoutová[2], Vladimír Tesař[3]

[1] *Institute of Biology and Medical Genetics, First Faculty of Medicine, Charles University in Prague; General University Hospital in Prague, Czech Republic First Faculty of Medicine, Charles University in Prague; General University Hospital in Prague, Czech Republic [2]Institute of Biology and Medical Genetics, First Faculty of Medicine, Charles University in Prague; General University Hospital in Prague, Czech Republic*

[3] *First Faculty of Medicine, Charles University in Prague and General University Hospital in Prague, Czech Republic*

Nephrotic syndrome (NS) is characterized by proteinuria, hypalbuminemia and edemas. There are four most important genes that condition the formation of hereditary nephrotic syndrome in adult patients (*ACTN4*, *CD2AP*, *NPHS2* and *TRPC6*). The gene *ACTN4*, which encodes protein a-actinin 4, is responsible for the autosomal dominant form of focal segmental glomerulosclerosis (FSGS).

The mutational analysis of the gene *ACTN4* was performed on the set of 48 patients with FSGS/MCD. To investigate the prevalence and possible effect of some substitutions found in FSGS/MCD patients we were also looking for these changes in 154 patients with IGA nephropathy (IgAN) and 55 patients with membranous glomerulonefritis (MGN). 140 unrelated healthy males and females without history of renal disease or abnormal urinary findings were studied as controls. High resolution melting (HRM) analysis and sequencing selected samples were used during this mutation detection. It was found 20 exonic and intronic substitutions in the set of patients with FSGS/MCD. We found unpublished substitution 2242A>G (p.Asn748Asp) that could have causal associations with FSGS. This change was identified in one patient. It was 59 years old woman with FSGS and positive family history. Her age of onset of nephrotic syndrome was 54 years. This substitution was found neither in healthy controls nor in patients with gAN and patients with MGN. Exon 19 seems to be a variable region due to amount of found polymorphisms. In this exon we also found unpublished substitution c.2393G>A (p.Gly798Asp). This change was in 60 years old woman with IgAN. But it was in neither in healthy controls nor in patients with FSGS/MCD and patients with MGN.To conclude, the ACTN4 mutations are not a frequent cause of FSGS in Czech adult patients. Nevertheless identified mutations can influence the therapy and prognosis after transplantation in affected patients.

Supported by the grant project PRVOUK- P25/LF1/2.

AB20

THE INFLUENCE OF SOME POLYMORPHISMS ON DEVELOPMENT OF AA AMYLOIDOSIS

Zuzana Potyšová[1], Romana Ryšavá[1], Vladimír Tesař[3], Jitka Štekrová[2]

[1] *Department of Nephrology, Charles University in Prague, First Faculty of Medicine and General Teaching Hospital, Prague, Czech Republic - Prague*

[3] *Department of Genetics, Charles University in Prague, First Faculty of Medicine and General Teaching Hospital, Prague, Czech Republic*

BACKGROUND:

Available data suggest an association between presence of AA (secondary) amyloidosis and MCP-1 (monocyte chemoatracttant protein-1) and MIP-1 (macrophage inflammatory protein-1 alpha) genes polymorphisms and an impact of polymorphisms in exon 3 of SAA 1 (serum amyloid A 1) gene on the incidence of AA amyloidosis in different populations.

METHODS:

DNA and serum specimens of patients with AA amyloidosis (43), rheumatoid arthritis (RA) without amyloidosis and healthy control group (100) were investigated by using PCR, RFLP and ELISA methods. Kruskal-Wallis and -square tests were used for statistical data evaluation.

RESULTS:

Significantly more frequent occurrence of 1.1/1.1 genotype in SAA 1 was recorded in AA amyloidosis group compared to RA group as well as in control group ($p<0.001$). Distribution of neither 1.1/1.1 genotype nor another ones did not vary among RA and control group. No significant difference in distribution of another genes was recorded among all three groups. Serum concentration of SAA was statistically significantly higher in AA amyloidosis group and also in RA group compared to healthy controls ($p<0.001$). Serum concentration of MCP-1 was statistically significantly higher in AA amyloidosis group compared to RA group ($p<0.05$). Concentrations of MIP-1 were markedly higher in both groups of patients compared to healthy controls (borderline to statistical significance).

CONCLUSIONS:

Homozygosity of the 1.1 haplotype in SAA1 gene could be a risk factor for development of AA amyloidosis in Caucasian population. Our unique findings of higher serum concentration of MCP-1 in the AA amyloidosis group compared to RA group could advert to riskiness of another factors. This could have therapeutic consequence earlier and more assertive therapy of underlying diseases in patients with appropriate genotype in order to prevent or interfere with occurrence of AA amyloidosis.

AB21

VARIABILITY OF COGNITIVE PERFORMANCE DURING HEMODIALYSIS: STANDARDIZATION OF COGNITIVE ASSESSMENT

Susanne Tholen[1], Ekatharina Kusmenkov[2], Stefan Chmielewski[2], Christoph Schmaderer[2], Marcus Baumann[2], Uwe Heemann[2], Hans Förstl[3], Timo Grimmer[3]

1 *Abteilung Für Nephrologie, Klinikum Rechts der Isar*
2 *Department of Nephrology, Klinikum Rechts der Isar der Technischen Universität München, Munich, Federal Republic of Germany*
3 *Department of Psychiatry and Psychotherapy, Klinikum Rechts der Isar der Technischen Universität München, Munich, Federal Republic of Germany*

BACKGROUND:

Up to 70% of hemodialysis patients aged 55 years and older have moderate to severe chronic cognitive impairment. Cognitive impairment interferes with the capacity for self-care, informed decision-making, medication, fluid and dietary compliance in hemodialysis patients. We investigated whether conditions of cognitive testing in hemodialysis patients using the Montreal Cognitive Assessment (MoCA) affect the test results.

METHODS:

Twenty-six hemodialysis patients of two dialysis centers were included in the study. Five alternative variations of the MoCA were tested before, during and after hemodialysis.

Additionally, tests before and after were performed in the dialysis room or alone with the patient in a separate room. Tests were performed in weekly intervals. As comparison Mini-Mental State examination (MMSE) was performed.

RESULTS:

The mean age of the patients was 64.8± 6.1 years. Seventeen patients (66%) were male. The mean duration on hemodialysis was 45±38 months. Mean overall MoCA score was 23.8±3.2 suggesting mild cognitive impairment, whereas MMSE score was 27.2±1.8 suggesting no impairment throughout the cohort.

MoCA score significantly differed between conditions. “Before hemodialysis” revealed the highest MoCA score as compared to “during hemodialysis” or “after hemodialysis” ($p<0.05$). The setting in the “separate room” had higher MoCA score as compared to the “dialysis room” ($p<0.05$).

Conclusion:

Diagnosis of mild cognitive impairment in hemodialysis patients is dependent on the choice of test and the setting in which the testing is performed. Due to the detected variability we suggest a standardization of the procedure using the MoCA test and the condition with highest MoCA score which is reflected by a test before hemodialysis and being alone with the patient in a separate room.

AB22

CREATION OF ARTERIOVENOUS FISTULAE IN DIALYSIS NESTORS ABOVE 80 YEARS OLD

Tomasz Gołębiowski[1], Ewa Wątorek[1], Mariusz Kusztal[1], Krzysztof Letachowicz[1], Waldemar Letachowicz[1], Katarzyna Madziarska[1], Hanna Augustyniak-Bartosik[1], Magdalena Krajewska[1], Wacław Weyde[1], Marian Klinger[1]

[1] *Department of Nephrology and Transplantation Medicine, Wroclaw Medical University, Poland*

INTRODUCTION AND AIMS:

As life expectancy has improved, the population of elderly patients initiating renal replacement therapy (RRT) is growing. Elderly patients are referred lately for the initiation of RRT; receive less arteriovenous fistulae (AVF) and more catheters and grafts. Age is mentioned as a factor of AVF primary failure. We aim to present our experience in AVF creation in octogenarians.

METHODS:

Between 2006-2011 years 39 patients (23 women) aged 85.9±2 years were admitted to initiate RRT. The reason for end-stage renal disease was mainly ischemic nephropathy in 20 patients (51%). Permanent vascular access for haemodialysis, AVF or tunnelled catheter, was created by nephrologists. Temporary dialysis catheters were implanted in the situation of uremic emergency.

RESULTS:

AVF was attempted in 34 of 39 patients (87.2%). Primary AVF function was observed in 21 patients (54%), functional AVF was created in 24 cases (61.5%). In 5 patients tunnelled catheter was implanted primarily. From the whole group 8 patients (20%) initiated haemodialysis with fistula and 23 patients (59%) with temporary catheter used for the mean time of 35±58 days. The remained started dialysis with tunnelled catheter, implanted primarily or in case of AVF failure. Mean duration of haemodialysis was 20.8±19.45 months and mean time of AVF use was 15.9±20.2 months. 15 patients (38%) are still dialyzed using AVF for 31±18.8 months. Five patients (13%) died with functioning AVF. Cumulative proportional survival of AVF (Kaplan-Meier) at month 12, 42 and 50 were 81.5% (SE 0,084), 58.2% (SE 0,151), and 29.1% (SE 0,219), respectively.

CONCLUSIONS:

Vast comorbidity requires individual approach in AVF creation in elderly dialysis population. Accounting this, cumulative 1 year AVF patency comparable to younger population can be achieved. The statement: each patient is a candidate for AVF can be applied also to the eldest, growing population of haemodialysis patients.

AB23

LOW GDP PERITONEAL DIALYSIS REGIMEN HAS A BENEFICIAL EFFECT ON PLASMA LEVELS OF PROINFLAMMATORY LIGANDS OF RECEPTOR FOR ADVANCED GLYCATION END PRODUCTS

Anna Pöpperlová[1], Sylvie Opatrná[1], Marta Kalousová[2], Tomáš Zima[2]

[1] *Dept. of Medicine I, Charles University Medical School and Teaching Hospital Pilsen, Czech Republic*
[2] *Institute of Medical Biochemistry and Laboratory Medicine, 1st Faculty of Medicine, Charles University in Prague; General University Hospital, Prague, Czech Republic*

BACKGROUND:

Intraperitoneal glucose degradation products (GDP) load from instilled peritoneal dialysis (PD) solutions has recently been shown to directly influence systemic advanced glycation end products (AGEs) levels. AGEs exert part of their effects after engagement with the receptor for AGEs (RAGE). We studied the effect of three PD regimen that differ in GDP load on plasma and effluent levels of s-RAGE and its proinflammatory ligands: extracellular newly identified RAGE (EN-RAGE) and high mobility group box-1 protein (HMGB-1).

METHODS:

PD regimen with high GDP load (glucose-lactate PD fluid, D; n=8) was compared with a low GDP load (glucose-bicarbonate/lactate with icodextrin exchange for overnight dwell, E; n=9) and a very low GDP load (glucose-bicarbonate/lactate, P; n=16).

RESULTS:

D group demonstrated higher plasma EN-RAGE levels, 77.8 ng/mL, vs. both E, 11.2, $p<0.001$ and P, 27.0, $p<0.001$ as well as higher plasma HMGB1 levels, 2.2 ng/mL vs. both E, 1.1, $p<0.01$ and P, 1.5, $p<0.01$. Plasma s-RAGE did not differ between the three PD regimen used. Peritoneal clearance of s-RAGE and EN-RAGE was higher with E compared to both D and P ($p<0.001$ resp. $p<0.01$). In the whole PD patients´ group, those with dialysate-to-plasma creatinine ratio (D/Pcr) > 0,65 tended to have higher s-RAGE plasma levels ($p= 0.056$); and those with CRP level above median demonstrated higher HMGB-1 and EN-RAGE ($p<0.05$ for both).

CONCLUSIONS:

A lower intraperitoneal GDP load is associated with decreased plasma levels of EN-RAGE and HMGB1 thus possibly reflecting reduced systemic AGEs generation. Peritoneal transport characteristics, microinflammation as well as the capability of icodextrin to increase removal of middle molecular weight substances might also exert an effect on plasma RAGE ligands levels.

AB24

ALBUMIN LOSS AS A SIGNIFICANT SIDE EFFECT IN EXTRACORPOREAL IMMUNOADSORBTION

Lukas Kielberger[1], Jaromir Eiselt[1], Martin Kacer[1], Michal Vostry[2], Tomas Reischig[1]

[1] *1st Department of Internal Medicine, Charles University Medical School, Pilsen, Czech Republic*
[2] *Department of Clinical Biochemistry and Hematology, Charles University Medical School, Pilsen, Czech Republic*

INTRODUCTION AND AIMS:

Immunoadsorbtion is an extracorporeal elimination method based on removal of plasmatic immunoglobulins (Ig) by cyclic washing of patient plasma through immunoadsorbtion columns. In our centre staphylococcal protein A columns (Immunosorba®) were used. Aim of our analysis was to quantify the severity of albumin loss and to assess possible steps in the procedure setup to reduce this side effect.

METHODS:

We followed kinetics and the loss of plasma proteins, albumin respectively, in 3 kidney transplant patients with biopsy proven chronic humoral rejection receiving series of immunoadsorbtion treatments (29 procedures in total). Concentrations of immunoglobulins and albumin were measured in patients´plasma during the course of treatment. The waste of albumin per procedure was measured in the washed-off fluid. Protein electrophoresis of samples from all segments of the plasmatic circle was performed to show the protein spectrum in each of these compartments. We compared protein losses in procedures with standard v.s increased loading volume per column per 1 cycle (200 ml vs. 250 ml).

RESULTS:

Albumin loss during a single treatment was 23,8 ± 4,2 g (mean± SD). Increase of loading volume per 1 cycle did not lead to significant decrease of albumin loss (0,44 vs 0,68 g of albumin per 1 cycle; p=NS). No Ig was detected in the return line. Increase of loading volume did not lead to decrease in efficaccy of the procedure when assessing the decrease of plasmatic IgG per procedure. Protein electrophoresis of the waste fluid showed occurence of all plasmatic proteins.

CONCLUSIONS:

During each cycle of immunoadsorbtion a small amount of patient´s plasma is flushed together with eluce into waste. This loss of plasmatic protein is not caused by poor selectivity of the column.

AB25

DISCRIMINATION OF AKI VERSUS CKD: ROLE OF URINARY ALPHA-1-MICROGLOBULINE/ALBUMIN RATIO

Martin Havrda[1], Jana Granatova[2], Jana Vranova[3], Zdenka Vernerova[4], Karolina Kratka[5], Alexander Kolsky[6], Ondrej Remes[5], Jiri Zabka[5], Milada Bolkova[7], Ivan Rychlik[8]

1 *University Hospital Vinohrady, Prague 10: 1st Department of Medicine*
2 *Department of Biochemistry, Thomayer Hospital, Prague*
3 *Third Faculty of Medicine, Charles University, Prague 10: Institute of Medical Biophysics and Informatics*
4 *University Hospital Vinohrady, Third Medical Faculty, Charles University, Prague 10, Institute of Pathology*
5 *University Hospital Vinohrady, Third Medical Faculty, Charles University, Prague 10: 1st Dpt. of Medicine*
6 *University Hospital Vinohrady, Third Medical Faculty, Charles University, Prague 10: Dpt. of Paediatrics*
7 *Thomayer Hospital, Prague 4, Department of Clinical Biochemistry*
8 *University Hospital Vinohrady, Third Medical Faculty, Charles University, Prague 10: 2nd Dpt. of Medicine*

INTRODUCTION AND AIMS:

Differentiation of AKI and CKD is based on clinical data, laboratory analysis and kidney imaging. Lack of informations can make diagnosis difficult. Markers of tubular injury, including the urinary alpha-1-microglobulin (A1m), might help. Analyses of urinary A1m concentrations gave unsatisfactory results. We hypothesised that urinary A1m/albumin (A1m/Alb) and A1m/creatinine (A1m/creat) ratio could be a better marker to distinguish AKI and CKD patients.

METHODS:

Retrospective analysis included all patients of the University Hospital Vinohrady, who had A1m/Alb, A1m/creat and PCR (protein/creatinine ratio) tested in January 2011-February 2012, if they had PCR > 15 mg/mmol. Clinical data were analysed and patients classified as AKI or CKD. AKI was related to infection (sepsis, pneumonia, pancreatitis), toxins, medications (ethylenglycole, aminoglycosides, ciprofloxacin, X-ray contrast media, analgesics), allergy, heart failure or myeloma. We used T-tests to compare the groups and ROC analysis to evaluate the discriminating power of variables.

RESULTS:

81 patients fulfilled inclusion criteria - 44 males, 37 females, age 3-82 (average 59 years). 25 patients

were classified AKI, 56 patients CKD. Groups differed in A1m/Alb (AKI 1,83 ± 1,89, CKD 0,19 ± 0,67, p < 0,000001) and A1m/creat (AKI 38,5 ± 39,1 mg/mmol, CKD 13,0 ± 13,8 mg/mmol, p = 0,00004). A1m/Alb ratio better discriminated between the groups (AUC = 0,937; 0,86 – 0,98) than A1m/creat (AUC = 0,751; 0,64 – 0,84). Cut-off value for A1m/alb > 0,2 indicated AKI with the sensitivity of 88% and specificity of 93%. There was a significant difference of PCR between the groups (AKI 153 ± 168 g/mol, CKD 453 ± 529 g/mol, p = 0,007).

CONCLUSIONS:

A1m/Alb ratio is a promising marker of acute kidney injury. In the retrospective study of patients with proteinuria, A1m/Alb > 0,2 indicated AKI with the sensitivity 88% and specificity 93%. A1m/Alb ratio can be helpful in the diagnosis of AKI.

AB26

CASE REPORT – LEAK OF THE PERITONEAL DIALYSATE TO THE PLEURAL CAVITY

Vít Motáň[1], V. Bednářová[1], Z. Hrušková[1], P. Konopásek[1], J. Hořejš[2], V. Tesař[2]

[1] *Department of Nephrology, General University Hospital and First Faculty of Medicine, Charles University, Prague, Czech Republic*

[2] *Department of Radiology, General University Hospital and First Faculty of Medicine, Charles University, Prague, Czech Republic*

INTRODUCTION

The CT peritoneography of the abdomen and pelvis - after instillation of a mixture of contrast material and dialysate - can detect the site of dialysate leakage and distinguish it from a hernia. In addition, it enables to follow the distribution of the dialysate in the abdomen and reveal important adhesions. Case presentation 42-year-old patient mentioned in his past history a car accident in 1994 with posttraumatic paresis of the phrenic nerve followed by paresis of the right part of the diaphragm. He was planned for the treatment by peritoneal dialysis.

The peritoneal catheter was implanted in August 2010. During a few weeks after beginning with peritoneal dialysis (PD), the increasing hyperhydration has occurred and it was necessary to start hemodialysis with high ultrafiltration. Patient had diuresis about 1500 mL, suffered from a light dyspnea and hypertension. During peritoneal equilibration test (PET) he was described as HA (high - average) transporter.

We discovered disorder in evacuation of the dialysate – after each exchange there was a retention of approximately 500 mL of fluid. X-ray examination of the thorax didn't clearly show hydrothorax on the right side. Hemodialysis procedures were necessary.

The 10th October 2010, we examined patient by CT peritoneography and a large defect in the right part of the diaphragm was discovered. This problem was consulted with other specialists (thoracic surgeons, radiologists). The defect had to be there for a long time – probably as a consequence of the car crash in 1994. The surgical intervention has been found very risky and with an uncertan result.

Therefore, we decided to remove peritoneal catheter and transfer the patient to the regular hemodialysis programme.

CONCLUSION

CT peritoneography is a useful method to evaluate dialysate leakage and catheter malposition in patients on CAPD. CT peritoneography can demonstrate a variety of complications of CAPD.

AB27

HEPARANASE AS A NOVEL MARKER OF LUPUS NEPHRITIS ACTIVITY

Maciej Szymczak[1], Jakub Kuźniar[2], Wacław Kopeć[1], Zofia Marchewka[2], Marian Klinger[1]

1 *Department of Nephrology and Transplantation Medicine of Wroclaw Medical Univeristy, Wrocław, Poland*
2 *Department of Toxicology of Wroclaw Medical University, Wrocław, Poland*

INTRODUCTION AND AIM:

Heparanase is a beta-glucuronidase, that cleaves sugar chains of heparan sulfate proteoglycans. Heparan sulfate proteoglycans are essential components of glomerular basement membrane. Cleavage of glomerular basement membrane gives as a result setting free many biological substances connected with heparan sulfate proteoglycans. As a result of that changes glomerular basement membrane permeability increases and proteinuria may appear. The aim of this experiment was to assess the significance of heparanase in the pathogenesis of particular glomerulonephritis types.

METHODS:

The evaluation of heparanase activity in serum, urine, granulocytes of 59 patients with glomerulonephritis and in 19 healthy volunteers was processed. The patients with glomerulonephritis included the patients with: lupus nephropathy (17 patients), IgA nephropathy (12 patients), FSGS (focal and segmental glomerulosclerosis) (18 patients), mesangiocapillary glomerulonephritis (12 patients).

RESULTS:

The heparanase activity in granulocytes of patients with lupus nephropathy was higher than heparanase activity in granulocytes from healthy controls (p=0,02). The statistically important correlations between heparanase activity in urine and dsDNA r=0,51 (p=0,04), and between heparanase in urine and hemolytic activity of the complement r=-0,57 (p=0,03) in the patients with lupus nephropathy were observed.

CONCLUSIONS:

We indicated for the first time that in lupus nephritis increase in excretion of heparanase by granulocytes is observed. Heparanase in urine may become a sensitive indicator of lupus nephritis activity.

AB28

DETECTION OF CYTOKINES IN PATIENTS WITH LUPUS NEPHRITIS

Satu Sinikka Pesickova[1], Romana Rysava[2], Martin Lenicek[3], Marketa Fojtikova[4], Vladimir Tesar[2]

1 *Department of Nephrology, General University Hospital and First Faculty of Medicine, SUHLT Prague*
2 *Department of Nephrology, General University Hospital and First Faculty of Medicine, Charles University, Prague*
3 *Department of Clinical Biochemistry and Laboratory Diagnostics, First Faculty of Medicine, Charles University, Prague*
4 *Institute of Rheumatology, First Faculty of Medicine, Charles University, Prague*

BACKGROUND AND OBJECTIVES:

The imbalance of pro- and anti-inflammatory cytokines is involved in the pathogenesis of systemic lupus erythematosus (SLE), playing an important role in activation, differentiation and maturing of immune cells. The aim of the study was to assess the possible association between levels of selected pro- and anti-inflammatory cytokines (IL 1b, IL-6, IL-17, TNF α, and TGF 1b) and activity of lupus nephritis (LN).

METHODS:

The study was performed on 57 patients (median age 32 years, M:F ratio 0.21) with SLE diagnosed according to American College of Rheumatology criteria and LN, proved by renal biopsy. Patients were

recruited to study between 2005-2010. At the time of investigation, 46 subjects had activity of lupus nephritis (characterized by active urinary sediment and/or proteinuria ≥0.5g/day and/or worsened GFR >25% above baseline and/or hypocomplementemia C3).Following cytokines were measured: IL-1b, IL-6, IL-17, TGF-b-1, TNF α, by custom made array (RayBiotech). All samples were analyzed in quadruplicates.

RESULTS:

Levels of IL-17 were not higher in the patients with the activity of LN compared to individuals without active disease (8.5 vs. 22.9; p=0.24) as well as levels of IL 6 (3.3 vs. 4.3; p=0.65), IL 1b (1.5 vs. 1.5; p=0.67) and TNF α (1.5 vs. 4.82; p=0.72) and finally TGF 1b was not lower in patients with activity of LN (407.5 vs. 363.9; p=0.94). No correlation between serum levels of cytokines and the activity of SLE (as assessed by SLEDAI score) has been observed.

CONCLUSIONS:

In our pilot study, serum levels of IL 1b, IL-6, IL-17, TNF α, and TGF 1b in patients with active lupus nephritis seem not to be different from those of inactive patients.

Project was supported by grant of Czech Society of Nephrology, No 2008/01 and VZ RU, No 3402

AB29

LONG-TERM EFFECT OF RITUXIMAB ADMINISTRATION IN PATIENTS WITH ANCA-ASSOCIATED VASCULITIS

Zdenka Chocova[1], Zdenka Hruskova[1], Helena Mareckova[2], Barbora Svobodova[1], Eva Jancova[1], Vladimira Bednarova[1], Romana Rysava[1], Vladimir Tesar[1]

[1] *Department of Nephrology, First Faculty of Medicine and General Teaching Hospital, Charles University, Prague, Czech Republic*

[2] *Institute of Immunology and Microbiology, First Faculty of Medicine and General Teaching Hospital, Charles University, Prague, Czech Republic*

BACKGROUND/OBJECTIVES:

Rituximab (RTX), an anti-CD20 monoclonal antibody, has been proven an effective therapeutic option in ANCA-associated vasculitis (AAV) in recent randomized studies. In this study, long-term effects of rituximab administration on clinical parameters in AAV patients were evaluated.

METHODS:

From August 2005 to March 2012, RTX was administered to 17 patients with AAV: M/F 10/7; median age 38 yrs; PR3-ANCA 14x, MPO-ANCA 3x; median serum creatinine 99 μmol/L; 4 patients on dialysis; median cumulative dose of cyclophosphamide 16 g; refractory disease 15x, newly active disease 2x; repeated administration in 7 patients – 2x relapse, 5x preemptive dose. Patients were followed-up (FU) for a median of 21.5 months.

RESULTS:

At 3 months at least partial remission was achieved in 14/16 patients (87.5%) with FU longer than 3 months. Peripheral B cell depletion lasted for 3-42 months after RTX administration. There was a significant decrease in ANCA. Median levels of total IgG decreased but this was not associated with infectious complications. Rituximab was usually well tolerated, transient infusion reactions were observed in 1 patient, mild infections in 2 patients. Shortly after RTX treatment, one critically ill patient (in ICU at the time of RTX administration) died of sepsis. During FU 2 deaths of infection were observed in dialysed patients.

CONCLUSIONS:

In our experience, RTX is effective and quite safe therapeutic option for patients with AAV. Its administration leads to remission in most patients with AAV, including refractory disease.

AB30

PULMONARY INVOLVEMENT IN PATIENTS WITH ANCA – ASSOCIATED VASCULITIS – SINGLE CENTRE EXPERIENCE

Pavel Konopasek[1], Dagmar Altmanova[2], Zdenka Hruskova[1], Barbora Svobodova[1], Eva Jancova[1], Vladimir Tesar[1]

[1] *Dept of Nephrology, First Faculty of Medicine, Charles University, Prague, Czech Republic*
[2] *Dept of Radiology, First Faculty of Medicine, Charles University, Prague, Czech Republic*

INTRODUCTION:

Pulmonary involvement is a severe condition in patients with ANCA – associated vasculitis (AAV).

This is a single – centre retrospective observational study investigating serial HRCT findings in patients with new diagnosis of AAV presenting with pulmonary involvement.

METHODS:

20 patients (M/F 12/8; median age 58, range 29-84 years) with ≥ 2 HRCT scans at least 3 months apart were identified. 8 patients were diagnosed with microscopic polyangiitis, 12 patients with granulomatosis with polyangiitis, 8 patients had positive p ANCA , 11 c-ANCA , 1 patient was ANCA negative. Chest HRCT scan at the time of diagnosis (time 0), and CT scan at the time of clinical remission (median time 5 month after diagnosis, range 3-21 months) were retrospectively evaluated.

RESULTS:

CT findings included ground glass opacities, nodules, masses, lung consolidation, lymphadenopathy and diffuse pulmonary haemorrhage.

The most common baseline CT scan (time 0) findings were ground glass opacity - 17 patients (85%), nodules in 10 patients (50 %), diffuse pulmonary haemorrhage in 9 patients (45%), lymphadenopathy in 7 patients.

CT scan findings at the time of remission completely disappeared in 14 patients (70%), residual nodules were described in 3 patients, ground glass opacity in 2 patients and nodules and ground glass opacity in 1 patient.

CONCLUSION:

Chest HRCT scan is a useful method for assessment of pulmonary involvement.

In patients with AAV, repeated CT scan investigation can confirm remission of AAV, or help us to detect persistent pulmonary damage in patients resistant to therapy.

AB31

THE RETROSPECTIVE ANALYSIS OF 343 CZECH PATIENTS WITH IGA NEPHROPATHY-ONE CENTRE

Dita Maixnerová[1], Lenka Bauerová[2], Jelena Skibová[3], Romana Ryšavá[1], Jana Reiterová[1], Miroslav Merta[1], Eva Honsová[2], Vladimír Tesař[1]

[1] *Department of Nephrology, 1st Medical Faculty, Charles University, Prague*
[2] *Department of Pathology, 1st Medical Faculty, Charles University, Prague*
[3] *Institute for Clinical and Experimental Medicine*

BACKGROUND:

The aim of our study was to retrospectively analyse the clinical data and the histological findings of 343 patients(pts) followed up with IgA nephropathy(IgAN) in our department of nephrology.We have assessed the main demographic,clinical and histological data,and the medical treatment of IgAN pts.

METHODS:

Multivariate analysis was used to evaluate the effect of different variables on ≥50% increase of plasma creatinine level from baseline during a median follow-up of 4 years.

RESULTS:

In ourgroup of IgAN pts, the male gender(68%) predominated over female gender(32%).At the time of renal biopsy, the median age of IgAN pts was 32.3 (18-90) years, the median level of serum creatinine was 119 mmol/L and the medianlevel of proteinuria was 1.8 g/day. Most of the pts were found to have arterial hypertension (56.7%).The majority of the pts with arterial hypertension were treated with inhibitors of angiotensin-converting enzyme (80.4%) and the remaining pts (42.6%) were treated with angiotensin II receptor blockers.Fifty percent of the pts (170 pts) were treated of corticosteroids,21% of the pts(71pts) used a combined immunosuppressive treatment of corticosteroids and cyclophosphamide,8% of the pts(27 pts) took azathioprine,1.5% of the pts(5 pts) took cyclosporine and 1.5% of the pts(5 pts) were given mycophenolate mofetil. Hypertension at presentation, fibrointimal proliferation of arterial vessels, interstitial fibrosis and interstitial inflammation were shown to be associated with ≥50% increase of plasma creatinine level from baseline in univariate analysis ($P<0.05$ for hypertension and fibrointimal proliferation;$P<0.01$ for interstitial fibrosis and inflammation).Using stepwise logistic regression presenting proteinuria>2 g/day [odds ratio (OR)=2.24,$P<0.01$], tubular atrophy (OR=4.97,$P<0.01$) and damage of tubular epithelium (OR=1.78,$P<0.05$) were found as risk factors for ≥50% increase of plasma creatinine level from baseline.

CONCLUSION:

Our retrospective analysis found valuable information not only about the clinical, laboratory and histological findings in IgAN pts but also information about the risk factors influencing the progression of renal insufficiency.

AB32

POLYMORPHISMS IN THE VITAMIN D RECEPTOR GENE AND PARATHYROID HORMONE GENE IN THE DEVELOPMENT OF DIABETES MELLITUS AND DIABETIC NEPHROPATHY

Viera Železníková[1], M. Vedralová[1], Anna Kotrbova-Kozak[1], Hana Zoubková[1], M. Černá[1], I. Rychlík[1]

[1] *Krajská zdravotní, a.s. - Masarykova nemocnice Ústí nad Labem, o.z*

BACKGROUND:

Diabetic nephropathy is closely connected with higher prevalence of CKD-MBD, particularly with its adynamic form. The reasons for this epidemiology pattern are not entirely clear and thus certain genetic background is considered to play a role.

AIM OF STUDY:

To investigate 4 polymorphisms of VDR gene and 2 polymorphisms of the PTH gene with respect to the presence of DKD.

METHODS:

Patients (pts) were divided into 4 groups: 1/ DM1 (54 T1DM pts without nephropathy), 2/ DM2 (116 T2DM pts without nephropathy), 3/ DN (132 DM both type pts with diabetic nephropathy), and 4/ NDRD (47 pts with non-diabetic renal disease). The kontrol group was represented by 118 healthy blood donors without any signs of nephropathy nor diabetes. Criteria for the definitions of nephropathy type were applied according to usual clinical-laboratory findings. Distribution of genotypes of four polymorphisms in VDR gene i.e. TaqI (rs731236), BsmI (rs1544410), ApaI (rs7975232), FokI (rs2228570) and two polymorphisms of PTH gene, i.e. DraII (rs6256), BstBI (rs6264), were studied using PCR-RFLP.

RESULTS:

Comparison of DN group and healthy subjects identified statistically significant difference for FokI polymorphism in VDR gene (P<0,0004) and for BstBI polymorphism in PTH gene (P=0,023). Differences in DraII polymorphism distribution in PTH gene were statistically significant in each group of patients compared to healthy subjects. In DN patients, BBFFAATt combination of VDR gene was more frequent than in healthy subjects (P=0,046), and BbFFAaTt variant was more frequent than in DM2 patients (P=0,018). BBDD haplotype of PTH gene seems to be a presponding factor for diabetes itself (P=0,019).

CONCLUSION/APPLICATION TO PRACTICE:

We found that the polymorphisms in the vitamin D receptor gene and parathyroid hormone gene play a significant role in the development of diabetic nephropathy, while itwas not proven for NDRD.

Author's Index

Venue Floorplan