MSNDTAO / МЗНДТВО

7-ми МЗНДТВО Конгрес
Македонското Здружение за Нефрологија, Дијализа, Трансплантација и Вештачки Органи со меѓународно учество
и
ISN поддржан КМЕ курс, одобрен од ERA

7th MSNDTAO Congress
Macedonian Society of Nephrology, Dialysis and Artificial Organs with International participation
and
ISN supported CME course with ERA endorsement

"From Prevention to Best Treatment Options in CKD"
&
IPNA teaching course

IPNA International Pediatric Nephrology Association
GREAT CARE FOR LITTLE KIDNEYS. EVERYWHERE

"Rare Diseases in Pediatric Nephrology"
04-07 April 2024

Skopje, N. Macedonia
Venue: Holiday Inn hotel Skopje
https://mzndtvo.com.mk

Содржина / Content

WELCOMING ADDRESS OF THE PRESIDENT

As President of the Congress and on behalf of the International and Local Organizing Committee it is my great privilege to welcome you to the 7th Congress of the Macedonian Society of Nephrology, Dialysis, Transplantation and Artificial Organs (MSNDTAO) with International Participation and International Pediatric Nephrology Association (IPNA) Teaching Course "Rare Diseases in Pediatric Nephrology" to be held in Skopje, N. Macedonia, 04-07 April, 2024.

The Congress is supported by the International Society of Nephrology (ISN) and the ISN Course "From Prevention to Best Treatment Options in CKD" will follow at the last days of this extraordinary event. The event is also ERA endorsed. This Congress is certainly a special occasion for those who work for the development of Nephrology, in education, research and professional development. It will be an occasion to meet, to listen, to discuss, to share information and to plan for the future.Also, the IPNA teaching course will take place alongside these events, emphasizing the challenges that our youngest patients are facing and present the new treatment options for this most vulnerable population.

The Scientific Committee of the Congress has paid great attention to various topics in the field of Nephrology and the treatment of chronic renal disease. The invited speakers, all well-known distinguished international experts and scientists, are coming from different parts of the Balkans and the world. During the Congress, issues will be discussed through a state-of-the-art presentations and mini lectures involving Clinical Nephrology, Hypertension, Nephrolithiasis, Urinary tract infections, Adult dominant polycystic kidney disease, Prevention and treatment of Chronic Kidney Disease, Renal Replacement Therapy (Hemodialysis, Peritoneal Dialysis, Kidney Transplantation). In depths exchange of the knowledge within dedicated sessions will be at the chapters on Vascular Accesses (creation, surveillance and management of complications, both medical and surgical), Immunosuppressive treatment in Clinical nephrology and Kidney transplantation, etc.

I am deeply convinced that this event will be of an exceptional importance for the region, considering that we will be able to see all the international achievements and the most up-to-date methods used in the Nephrology field. I certainly hope that this rich variety of speakers and activities will provide fresh impetus for advancements in education as well. I am confident, too, that we'll further proceed with our well established regional friendly spirit or even get stronger bonds among us all, nephrologists who share the common goal of improvement in the Nephrology sphere.

Thus, we'll be able to propose to our health decision-makers introduction of proven state of the art procedures in the prevention and treatmentof kidney disease, which will improve the quality of life of our patients.

WELCOMING ADDRESS OF THE PRESIDENT

We have tried to provide learning opportunities from experts, but also, we invited many colleagues from the region to actively participate sharing their clinical experience and research.

We are exceedingly counting on your active involvement to foster and exalt the clarification of the chosen scientific topics.

The host city Skopje will introduce its rich cultural places, historic tradition, mixture of old and modern architecture. It is the capital and largest city in the Republic of North Macedonia, with more than a quarter of the population of the country, as well as the political, cultural, economic and academic centre of the country.We would encourage you to take a walk along our river "Vardar", stroll along the narrow streets of the Old Bazaar, which is the biggest bazaar preserved in the Balkans today, Kale fortress, and certainly visit St. Pantelejmon church and admire the fresco "Lamentation of Christ", bearing the first signs of the Renaissance and the Matka canyon. Great traditional food and unique Macedonian wine, hospitality of the people, beautiful landscapes are the main reasons for each visitor to have unforgettable stay in Skopje.

I hope to see you here in Skopje in April to enjoy the Congress that we hope will be of interest to you and to simultaneously enjoy a pleasant welcoming city full of attractions.

Sincerely,

Prof. Goce Spasovski,
President of the Congress

НАУЧНИ ИНФОРМАЦИИ / SCIENTIFIC INFORMATION
ОРГАНИЗАЦИСКИ ОДБОР / ORGANISING COMMITTEE

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Директор на IPNA едукацискиот курс / Director of the IPNA Teaching Course
Претседавач на научниот одбор / Chair of the Scientific Committee

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(Поканети предавачи / Invited speakers)

Raymond Vanholder (Belgium)
Andrzej Wiecek (Poland)
Dimitris Goumenos (Greece)
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Merita Rroji (Albania)
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MSNDTAO / МЗНДТВО

Congress MSNDTAO, 04-07 April, 2024, Skopje, N. Macedonia

April 04th, 2024 - Thursday

Opening Ceremony 19:00-20:30 (Great conference hall)

Presidential and welcome address

Goce Spasovski -	Congress President - MSNDTAO - activities over the years
Velibor Tasic -	Welcome address from MSNDTAO pediatric nephrologists
Biljana Angelova –	Rector of the University Sts Cyril and Methodius
SvetozarAntovic -	Dean of the Medical Faculty, University of Skopje
Zivko Popov –	President of the Macedonian Academy of Sciences and Arts
19:30 – 20:00	Opening lecture - **Raymond Vanholder:** Green nephrology
20:00 -	Social program

20:30 - WELCOME COCKTAIL - exhibition hall

April 05th, 2024 - Friday

08:00 **Registration opens**

08:30-10:10 **Chronic Kidney Disease progression & treatment**
Chairs: Andrzej Wiecek & Nada Dimkovic

08:30-8:50 -	CKD: current status - **Raymond Vanholder** (Belgium)
08:50-9:10 -	Advances in the management of CKD - **Mustafa Arici** (Turkey)
09:10-9:30 -	Classical and non-classical risk factors for cardiovascular compli cations in patients with chronic kidney disease - **Andrzej Wiecek** (Poland)

09:30-9:50 - All about new anemia therapy - HIF stabilizers – **Nada Dimkovic** (Serbia)

09:50-10:10 - Association between the genetic polymorphisms and the response to erythropoietin therapy in dialysis patients with anemia **Pavlina Dzekova Vidimliski** (N. Macedonia)

10:10-10:30 - Coffee break

10:30-11:00 – Mini symposium ALKALOID *Health above all*

Scientific Symposium – European guidelines for arterial hyper tension 2023 - pharmacological treatment - Prof. **Magdalena Otljanska** (N. Macedonia)

11:10-12:50 – Hypertension & Diabetes as risks for CKD

Chairs: Mustafa Arici & Gjulsen Selim

11:10-11:30 - Uncontrolled hypertension and chronic kidney disease - **Biljana Gerasimovska** (N. Macedonia)

11:30-11:50 - Optimal Blood Pressure for Renoprotection – **Mustafa Arici** (Turkey)

11:50-12:10 - Mineralocorticoid receptor inhibitors and the kidney - **Vladimir Tesar** (Czech Republic)

12:10-12:30 - Impact of chronic kidney disease on diabetic foot syndrome in patients with diabetes type 1 and type 2 - **Igor Nikolov** (N. Macedonia)

12:30-12:50 – OP - Coenzyme Q10 in patients with kidney diseases **S. Danailova 1,2, P. Petrov1,2, S. Staykova1**,2, 1Clinic of Nephrology, University Hospital "St. Marina" – Varna, 2 Medical University " Prof. Dr. Paraskev Stoyanov" – Varna

13:00-13:45 - Lunch - Scientific Symposium BAYER

Scientific Symposium -" Kidney and heart dialogue" – Prof. **Goce Spasovski**, Doc. **Irena Rambabova Bushljetik**, Prof. **Lidija Popovska** (N. Macedonia)

13:45-14:00 – Lunch break

14:00-15:20 - Kidney Transplantation – Clinical issues

Chairs: Ioannis Boletis & Mirjana Lausevic

14:00-14:20 - Discarded kidneys: do we all agree on the right direction? - **Mary Darema** (Greece)

14:20-14:40 - Kidney transplantation in highly sensitized patients - **Galina Severova** (N. Macedonia)

14:40-15:00 - The improvement in Greek transplant program – where it started and where it's going? - **Ioannis Boletis** (Greece)

15:00-15:10 – OP - Late complications after kidney transplantation: malignancy and IgA nephropathy recurrence
I.Marinova, V, Yordanova, B.Zlatkov, J. Filipov, M. Petrova, L. Hristova, A.Iliev, P.Megerov, A.Hatzipantelis, M.Stefanov, P.Angelova, R. Grigorova, S. Slavova, E. Paskalev; Department of Nephrology and Transplantation; University Hospital "Alexandrovska"- Sofia, Bulgaria

15:10-15:20 – OP - Comparison of glomerular filtration rate obtained by nuclear measurement method vs. estimated mathematical equations in kidney recipients from deceased donors.
Z. Sterjova Markovska1, I. Rambabova Bushljetik1, L. Trajceska1, G. Severova1, J. Usprcov1, A. Canevska1, A. Peshevska2, T. Makazlieva2, E. Rambabova3, S. Krstevska Balkanov4, G. Spasovski1. 1University clinic of Nephrology, 2Institute of Pathophysiology and Nuclear Medicine, Faculty of Medicine, University Ss. Cyril and Methodius, Skopje, 3University Goce Delcev, Shtip, 4University clinic of Hematology, N. Macedonia

15:30-16:15 - Scientific Symposium – **KOCH**
Prof. **Burak Kocak** – Robot - assisted kidney transplantation
Prof. **Caner Susal** – The future of Kidney transplantation – Immunologist's perspective

16:15-16:40 - Coffee break

16:40-17:30 -	**Rare diseases in nephrology** **Chairs: Merita Rroji & Irena Rambabova Bushljetik**
16:40-17:00 -	Chronic interstitial nephritis in agricultural communities (CINAC) - **Marc De Broe** (Belgium)
17:00-17:20 -	Beyond Traditional Management: Pioneering Therapeutic and Diagnostic Developments in ADPKD - **Merita Rroji** (Albania)
17:20-17:30 –	OP - Fabry disease – characteristics for the Bulgarian population **I. Marinova, B. Zlatkov, J. Filipov, M. Petrova, L. Hristova, A. Iliev, P. Megerov, A. Hatzipantelis, V. Yordanova, M. Stefanov, P. Angelova, R. Grigorova, S. Slavova, E. Paskalev** Department of Nephrology and Transplantation, University Hospital "Alexandrovska" - Sofia, Bulgaria
17:30-18:00 –	**Scientific Symposium – A1** Satellite Symposia Amicus Pharma I - "Multidisciplinary approach in Fabry Disease" Prof. **G. Spasovski**, MD (N. Macedonia) and Prof. **O. Bushljetik**, MD (N. Macedonia)
18:10-18:40 –	**Scientific Symposium – A2** Satellite Symposia Amicus Pharma II - "Unmet need in a HUS and PNH" Assoc. Prof. **M. Mitrovic**, MD (Serbia) and spec. **N. Abazi-Emini**, MD (N. Macedonia)

April 6th, 2024 - Saturday

08:00	**Registration opens**
08:30-9:30	**Clinical Nephrology, CVD and Diabetes – an update** **Chairs: Dimitris Goumenos & Vladimir Tesar**
08:30-8:50 -	Current management of Lupus Nephritis – **Ioannis Boletis** (Greece)
08:50-9:10 -	Features of CVD in CKD - **Ziad Massy** (France)
09:10-9:30 -	How to prescribe Metformin to patients with CKD2-4? - **Marc De Broe** (Belgium)

09:40-10:25 – **Scientific symposium - BOEHRINGER**
Scientific Symposium – How far we have advanced in the treatment of chronic kidney disease?
Doc. Dr. **Irena Rambabova Bushljetik**, Prof. Dr. **Tatjana Milenkovic**, Prof. Dr. **Goce Spasovski** (N. Macedonia)

10:25-10:45 - **Coffee break**

10:45-11:30 - **Scientific symposium - ALKALOID**
Scientific Symposia: From acetate to citrate, advantages and benefits - Doc. Dr. **Brankica Terzic** (Serbia)

11:40 – ISN supported and ERA endorsed CME course "FROM PREVENTION TO BEST TREATMENT OPTIONS IN CKD" (6th April 2024) - Registration

11:40-11:45 – **Opening of the course - ISN presentation**

11:45-13:00 – **Prevention in CKD progression and management**
Chairs: Raymond Vanholder & Andrzej Wiecek

11:45-12:10 - **Dimitris Goumenos**: An update of the human kidney disease progression

12:10-12:35 - **Goce Spasovski:** Prevention in the CKD progression

12:35-13:00 - **Vladimir Tesar:** Chronic heart failure and the kidney

13:00-14:00 - **Lunch – Scientific Symposium - GB**

GENESIS Satellite Symposium: "Advances in the diagnosis and management of Primary Hyperoxaluria Type 1"

- "Primary hyperoxaluria type 1 - clinical phenotypes in children and adults", Prof **V. Tasic**, N. Macedonia
- "Updates in the diagnostic pathways and management of PH1 in pediatric patients", Prof **C. Stefanidis**, Greece

- "Preliminary experience of siRNA therapy in PH1 pediatric patients in North Macedonia", Dr **N. Abazi Emini**, N. Macedonia
- "The clinical value of RNAi therapeutics in PH1: focus in the adult population", Prof **E. Rusu**, Romania
- Q&A

14:00-14:30 - **Lunch break**

14:30-15:45 – **CKD and DKD – treatment strategies**
Chairs: Ziad Massy & Fernando Macario

14:30-14:55 - **Fernando Macario**: Advancing CKD Care: Innovative Strategies for Enhanced Patient Value

14:55-15:20 - **Vladimir Tesar**: SGLT2 inhibitors vs GLP-1ra in the treatment of diabetic kidney disease

15:20-15:45 - **Raymond Vanholder**: Home hemodialysis

16:00-17:15 – **Kidney transplantation**
Chairs: Mary Darema & Goce Spasovski

16:00-16:25 - **Lionel Rostaing**: Maintenance immunosuppressive: what are the best options in 2024?

16:25-16:50 - **Jadranka Buturovic Ponikvar**: Nonadherence after kidney transplantation in adolescents and young adults: medical and ethical challenges

16:50-17:15 - **Lionel Rostaing**: Incompatible kidney transplantations: a winding road leading to success

17:15-17:20 – **Closing remarks**

17:20-17:40 - **Coffee break**

17:40-18:50 – **Kidney transplantation under special circumstances**
Chairs: Zivko Popov & Jadranka Buturovic Ponikvar

17:40-18:00 - Kidney transplantation within COVID epidemy - **Saso Dohcev** (N. Macedonia)

18:00-18:20 - Pregnancy in kidney transplant recipients – **Mirjana Lausevic** (Serbia)

18:20-18:40 - Are there anesthesiological considerations that can improve kidney graft survival? - **Aleksandra Gavrilovska - Brzanov** (N. Macedonia)

18:40-18:50 - OP - Factors affecting Covid antibody response in kidney transplant and dialysis patients. **Selmani B1, Seferi S1, Duraku A1, Greca E1**. Department of Nephrology, Dialysis and Transplantation, UHC "Mother Theresa", Tirana, Albania

17:40-18:40 – CKD and RRT complications (I) – Small hall – SKALA II

Chairs: Velibor Tasic & Svetlana Pavleska Kuzmanoskas

E-Poster session

1. Navigating the compexities of MPGN associated with scleroderma: a clinical insight.
Elda Cule1, Merita Rroji2
1. Hygeia Hospital Tirana, Albania 2. University Hospital"Mother Tereza" Tirana, Albania

2. Acute interstitial nephritis requiring hemodialysis as a primary presentation of covid-19 infection: a case report.
V. Çadri1, E. Rista2, N. Pasko1, E. Rabeta1, K. Saliaj1, I. Rrugeja3, M. Ikonomi3, A. Strakosha1
1. Department of Nephrology, University Hospital Center "Mother Teresa", Tirana, Albania 2. Department of Nephrology, Hygeia Hospital, Tirana, Albania 3. Department of Pathological Anatomy, University Hospital Center "Mother Teresa", Tirana, Albania

3. The role of renal biopsy in acute kidney injury.
P. Megerov, B. Zlatkov, Zh. Filipov, M. Petrova, I. Marinova, A. Hadzipantelis, V. Yordanova, M. Stefanov, E. Pascalev.
Nephrology and transplantation clinic, University hospital "Aleksandrovska"

4. Predictive factors for the occurrence of post-traumatic acute kidney injury.
N. Pasko, E. Rista, V. Kaloshi, V. Cadri, M. Plaku, A. Strakosha.
Service of Nephrology, UHC Tirana, Albania

5. Serum visfatin as a non-traditional biomarker in chronic kidney disease.
P. Petrov 1,2, S. Danailova1,2, S. Staykova1,2. 1Clinic of Nephrology, University Hospital "St. Marina" – Varna, 2Medical University "Prof. Dr. Paraskev Stoyanov" - Varna

6. Dapagliflosin in complex therapy of patient with CKD, DM and HF.
R. Chakarova, M. Yordanov, G. Bozova, R. Robeva.
Clinic of nephrology, Military Medical Academy, Sofia

7. Colchicine toxicity in a dialysis patient: a case report.
E. Rista1, V. Cadri2, K. Saliaj2, E. Hoxha2, B. Dyrmishi1, A. Strakosha 2, N. Thereska1
1. Department of Nephrology, Hygeia Hospital, Tirana, Albania 2. Department of Nephrology, "Mother Theresa" Tirana, Albania Contact Author: Department of Nephrology, Hygeia Hospital, Tirana, Albania

8. Optimizing heart failure management in ESRD:
a case study on valsartan/sacubitril therapy in dialysis patients.
Elda Cule1, Merita Rroji2
1.Hygeia Hospital, Tirana, Albania 2.University Hospital "Mother Tereza", Department of Nephrology, Tirana, Albania I

9. Chyloperitoneum in peritoneal dialysis secondary to calcium antagonists: a clinical case.
P. Megerov, B. Zlatkov, Zh. Filipov, M. Petrova, L. Hristova, I. Marinova, A. Hadzipantelis, V. Yordanova, M. Stefanov, P. Angelova, E. Pascalev.
Nephrology and transplantation department, Alexandrovska hospital, Sofija, Bulgaria

10. Autologous peripheral stem cell transplantation in morphologically verified renal AL – amyloidosis.
Q. Dimieva - Dineva1,2, S. Danailova1,2, P. Petrov1,2, S. Staykova 1,2.
1Clinic of Nephrology, University Hospital "St. Marina" – Varna, 2Medical University "Prof. Dr. Paraskev Stoyanov" – Varna

11. Prevalence and association of risk factors for the occurrence of sarcopenia in patients on chronic hemodialysis program.
Z. Dimitrijević, J. Randjelović, K. Paunović, E. Kostić, B. Mitić.
Clinic for nephrology, University Clinical centerNiš, Serbia

12. Montreal Cognitive Assessment as screening instrument for cognitive impairment in chronic kidney disease patients. **Marinela Knežević.**
Clinic of Neurology, Military Medical Academy, Belgrade, Serbia

April 7th, 2024 - Sunday

8:30-9:35 –	**Vascular accesses** **Chairs: Rafael Ponikvar & Petar Dejanov**
8:30-8:45-	Vascular access for hemodialysis in elderly - **Vladimir Pushevski** (N. Macedonia)
8:45-9:05-	Nephrologists with surgical skills: creating and repairing

arteriovenous fistula and graft - **Rafael Ponikvar** (Slovenia)

9:05-9:20 - The use of blood flow rate as predictor for successful creation and maturation of arteriovenous fistula - **Nikola Gjorgjievski** (N. Macedonia)

9:20-9:35 – OP - Follow up of the different vascular access modalities in hemodialysis - **Petar Dejanov** (N. Macedonia)

9:40-11:35 – CKD, RRT and KTx (I)

Chairs: Irena Rambabova Bushljetik & Lada Trajceska

Oral presentations

1. The impact of hyperuricemia and high body mass index on patients with contrast associated acute kidney injury after primary percutaneous coronary intervention.
V. Çadri1, L. Toska1, E. Rista2, N. Pasko1, M. Barbullushi1, A. Dibra3,A. Strakosha1
1. Department of Nephrology, University Hospital Center "Mother Teresa", Tirana, Albania 2. Department of Nephrology, Hygeia Hospital, Tirana, Albania 3. Department of Cardiology-Intensive Care Unit, University Hospital Center "Mother Teresa", Tirana, Albania Contact Author: Department of Nephrology, University Hospital Center "Mother Teresa", Tirana,

2. Anca-associated vasculitides – a big chalenge to treat. Our single-center tertiary care experience. **V. Yordanova, M. Stefanov, I. Marinova, P. Megerov, J. Filipov, B. Zlatkov, M. Petrova, A. Iliev, L. Hristova, A. Hatzipantelis, P. Angelova, R. Grigorova, E. Paskalev.**
Department of Nephrology and Transplantation, Aleksandrovska Hospital.

3. Factors associated with anemia in kidney transplant patients.
P. Megerov, J. Filipov, B. Zlatkov, I. Marinova, M. Petrova, A. Hatzipantelis, E. Paskalev.
Clinic of nephrology and transplantation, UMHAT "Alexandrovska" – Sofia, Bulgaria.

4. Coronavirus disease- 19 (covid- 19) affect graft function in kidney transplant patients.
Severova G, Nikolov I, Trajceska L, Dzekova-Vidimliski P, Sterjova MarkovskaZ, Karanfilovski V, Sulejman S, Rambabova - Bushljetik I and Spasovski G.
University Clinic of Nephrology, Un. Sts Cyril and Methodius, Skopje, N. Macedonia

5. Tuberous sclerosis complex – characteristic for Bulgaria.
M. Stefanov, I. Marinova, P. Megerov, V. Yordanova, J. Filipov, B. Zlatkov, M. Petrova, A. Iliev, L. Hristova, A. Hatzipantelis, P. Angelova, R. Grigorova, S. Slavova, E. Paskalev.
Nephrology and transplantation clinic, University hospital "Aleksandrovska"

6. Diagnostic and treatment challenges of Fabry disease in North Macedonia.
N. Gjorgjievski1, V. Karanfilovski1, P. Dzekova-Vidimliski1, G. Severova1, T. Arsov2, P. Dejanov1, G. Selim1, G. Spasovski1, I. G. Nikolov1.
1University Clinic of Nephrology, Faculty of Medicine, University Ss. Cyril and Methodius in Skopje, North Macedonia, 2Faculty of Medical Sciences, University Goce Delcev in Shtip, N. Macedonia.

7. Predictors of valvular calcification in ESRD patients undergoing hemodialysis.
E. Rista1, V. Cadri2, K. Saliaj2, E. Cule1, E. Hoxha2, S. Malaj1,
1Department of Nephrology, Hygeia Hospital, 2Department of Nephrology, " Mother Theresa" Hospital, Tirana, Albania.

8. Peritoneal dialysis in Bulgaria.
S. Krivoshiev1, E. Paskalev2, A. Osichenko3, S. Staykova4.
1Dialysis Clinic, University Hospital "Tsaritsa Joanna – ISUL", Sofia, Bulgaria, 2Department of Nephrology and Transplantation,University Hospital "Alexandrovska", Sofia, Bulgaria, 3Department of Nephrology and Transplantation,University Hospital "Alexandrovska", Sofia, Bulgaria, 4Department of Nephrology and Dialysis, University Hospital "Sv. Marina", Varna, Bulgaria.

9. Individualized approach to dialysate electrolyte concentration.
N. Smokovska. Diaverum, N. Macedonia.

10. Comparison between different methods of calculating KT/V and URR in evaluating haemodialysis adequacy.
J. Usprcov, V. Pushevski, Z.Shterjova-Markovska, A. Karanfilovik, A. Canevska-Taneska, S.Filipovski, L. Trajceska, I. Rambabova Bushljetik.
University Clinic ofNephrology, Un. Sts Cyril and Methodius, Skopje, N. Macedonia

11. Efficacy and tolerability of direct-acting antivirals in hemodialysis patients with chronic hepatitis C.
V. Tomanoski, G. Gjorgjievska, V. Krecova, M. Nakovska, A. Andonoski, J. Zvezdakovska, A. Kachakova, S. Kepeska, M. Micajkova-Panova, G. Kjamili, Sh. Jagupi, L. Veseli, N. Trifunovska.
NefroPlusHaemodialysis units, N. Macedonia

11:35-11:50- **Coffee break**

11:50-13:35 – **CKD and RRT complications (II)**
Chairs: Zvezdana Petronijevic & Vesna Ristovska

E - Poster session

1. The importance of renal biopsy in patients with diabetes mellitus.
V. Ristovska, P. Dzekova-Vidimliski, Z. Sterjova-Markovska, M. Milenkova-Bogojevska, B. Memedi, G. Stefanoska-Taskoska, A. Stojanoska-Severova, Z. Janevski.
Department of Nephrology, Medical Faculty, University "Sts. Cyril and Methodius" Skopje, N. Macedonia

2. The role of electron microscopy in diagnosis of glomerular diseases.
V. Ristovska1, P. Dzekova Vidimliski1, G. Petrusevska2.
1Department for Nephrology, 2Institute of Pathology, Medical Faculty, University Sts Cyril and Methodius, Skopje, N. Macedonia

3. Adrenal crisis due to Addison's disease presenting acute renal failure: a rare presentation.
1N. Eftimovska–Otovikj, 1E. Poposka, 1B. Popovska, 1E. Nikolova, 2I. Mickovski,
1General City Hospital 8 Septemvri –Skopje, N. Macedonia; 2Faculty of medical sciences University ,GoceDelcev" Stip, N. Macedonia

4. Case report: acute kidney injury secondary to myxedema accompaning rhabdomyolysis.
1N. Eftimovska–Otovikj, 1E. Poposka, 1B. Popovska, 1E. Nikolova, 2I. Mickovski, 1R. Miloshevska
1General City Hospital 8 Septemvri –Skopje, N. Macedonia;
2Faculty of medical science University ,GoceDelcev" Stip, N. Macedonia

5. Case study of woman presenting with bilateral kidney tumors: Birt-Hogg-Dube syndrome.
N. Eftimovska–Otovikj, E. Poposka, B. Popovska, E. Nikolova, O. Ristevski.
General City Hospital 8 Septemvri –Skopje, N. Macedonia

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A. Stojanoska Severova, N. Gjorgjievski, M. Milenkova Bogojevska, G. Severova, P. Dzekova-Vidimliski, I. Rambabova Bushljetik, V. Ristovska, G. Spasovski.
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7. Association of autosomal dominant polycystic kidney disease and abdominal aortic aneurysm. **Z. Shterjova Markovska1, I. Rambabova Bushljetik1, G. Severova1, L. Trajcevska1, I. Nikolov1, V. Karanfilovski1, S. Sulejman1, J. Usprcov1, Z. Janevski1, A. Canevska1, A. Karanfilovikj1, S. Krstevska Balkanov2, G. Spasovski1.**
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Lj. Naunovska, V. Karanfilovski, I. Zafirova, A. Stojanoska Severova, M. Milenkova Bogojevska, P. Dzekova-Vidimliski, V. Ristovska, S. Suleyman, Z. Sterjova Markovska, I. Rambabova Bushljetik and G. Severova.
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9. Hemorrhagic fever with renal syndrome and coexisting pulmonary syndrome: unusual presentation of Hantavirus infection.
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10. Mixed pulmonary infection in a patient with successfully treated recurrence of Focal Segmental Glomerulosclerosis on kidney allograft.
G. Severova, V. Karanfilovski, S. Suleyman, Z. Sterjova Markovska, I. G. Nikolov, L. Trajceska, G. Selim, Z. Petronijevic, A. Karanfilovik, A. Canevska Tanevska, B. Bexheti, V. Trajkovska, B. Andonovska, I. Rambabova Bushljetik and G. Spasovski.
University Clinic of Nephrology, Skopje, N. Macedonia.

11. Chronic hyperkalemia in chronic kidney disease.
A. Memeti, S. Sulejman, A. Karanfilovik, V. Karanfilovski, A. Stojanoska, Z. Sterjova, M. Milenkova, J. Usprcov, A. Spasovska, Z. Janevski, A. Canevska1, L. Trajceska, I. Rambabova Bushljetik
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12. Annual change of estimated GFR in healthy individuals.
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14. A case report: severe hypokalemic paralysis in young adult -renal disease or not.
A. S. Vasilova, A. Karanfilovikj, M. M. Bogojevska, A. C. Taneska, B. Bexheti, A. Memeti, S. P. Kuzmanoska, Z. Petronijevikj, B. Gerasimovska, Gj. Selim, I. Rambabova Bushljetik
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15. Encouraging self-administration of erythropoietin by creating information brochure for predialysis CKD patients.
A. Karanfilovikj, L. Trajcheska, S. Sulejman, A. Canevska Taneska, M. M. Bogojevska, A. Spasovska Vasilova, Z. Shterjova Markovska, J. Usprcov, V. Karanfilovski, A. Stojanoska Severova, Z. Janevski, A. Memeti, S. Filipovski, B.Bedzeti, I. Rambabova Bushljetik.
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16. Hemodialysis patient with an abdominal aortic aneurysm-case report.
K. Petrova, M. Nedelkoska, N. Misovska. Diaverum, N. Macedonia

17. Uncommon co-occurrence: endogenousCushing's syndrome in a systemic lupus erithematosus patient undergoing haemodialysis.
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18. Bardet-Biedl syndrome – a rare case with hearing loss
Z. Petronijevic1, V. Tasic2, J. Ćomić3, J. Hoefele3
1University Clinic for Nephrology, 2University Children's Hospital, Faculty of Medicine, Ss Cyril and Methodius University of Skopje, Skopje, N. Macedonia, 3Instituteof Human Genetics, Klinikumrechts der Isar, Technical University of Munich, Germany

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A. C. Taneska, Z. Petronijevikj, B. Bexheti, I. R. Bushljetikj, A. Karanfilovikj, Gj. Selim
University Clinic for Nephrology, Faculty of Medicine, Ss Cyril and Methodius University of Skopje, Skopje, N. Macedonia

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J. Neskovski1, N. Camili1, D. Apostoloski1, M. Krstevska2, S. Trimcheska1
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21. Short term treatment of chronic hyperkalemia with oral potassium binder in chronic kidney disease patients.
S. Sulejman, A. Karanfilovik, A. Stojanoska, M. Milenkova, J. Usprcov, B. Kolonja, I. Salkoski, H. Minovska, A. Memeti, A. Spasovska.
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13:35 - **Closing remarks & certificates distribution**

СОРАБОТНИЦИ / CONTRIBUTORS

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AACE–American Association of Clinical Endocrinology; ADA–American Diabetes Association; ESC–European Society of Cardiology; ESH–European Society Hypertension; KDIGO–Kidney Disease Improving Global Outcome.

Референци: 1. Збирен извештај за карактеристиките на лекот Kerendia, 03.2023. **2.** American Diabetes Association. Diabetes Care 2023;46(Suppl 1):S191–S202. **3.** Blonde L, et al. Endocr Pract 2022; 28:923–1049. **4.** Rossing et al. KDIGO. Kidney Int 2022;102:S1–S127. **5.** McDonagh TA, et al. Eur Heart J 2023;doi:10.1093/eurheartj/ehad195. **6.** Mancia G, et al. J Hypertens 2023: doi:10.1097/H-JH.0000000000003480. **7.** American Diabetes Association Professional Practice Committee. Diabetes Care 2023;46(Suppl 1):S158–S190. **8.** Marx N, et al. Eur Heart J 2023;00:1–98.

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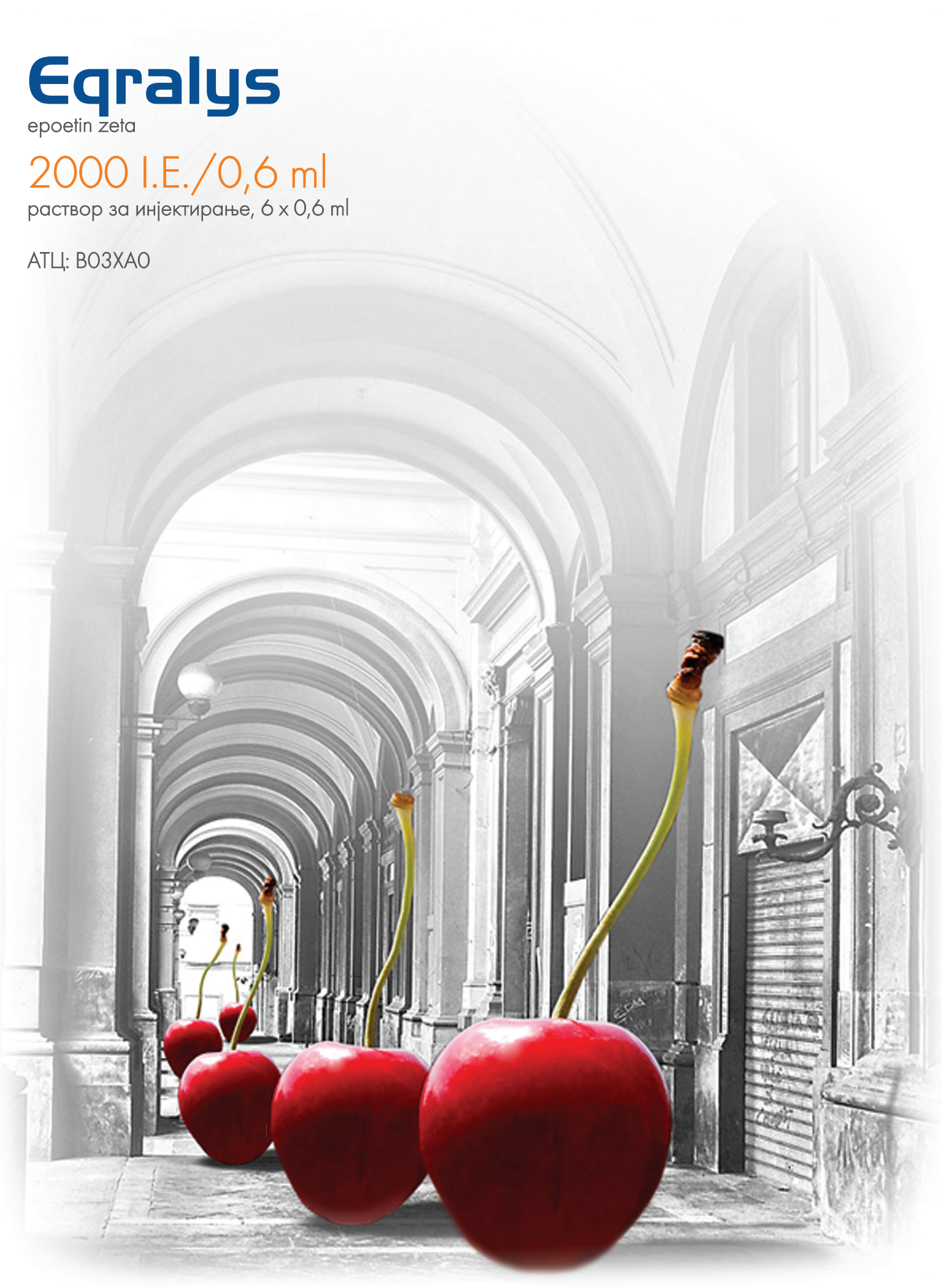

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ASSOCIATION BETWEEN THE GENETIC POLYMORPHISMS AND THE RESPONSE TO ERYTHROPOIETIN THERAPY IN DIALYSIS PATIENTS WITH ANEMIA

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Introduction. The polymorphism of the angiotensin-converting enzyme (ACE) gene and interleukin-1 beta (IL-1b) gene could be associated with resistance in the treatment of anemia in dialysis patients with recombinant human erythropoietin (rHuEPO). The study aimed to evaluate the association between the ACE and IL-1b gene polymorphism and the response to rHuEPO therapy in dialysis patients with anemia.

Methods. The study investigated 69 patients on dialysis with anemia treated with recombinant human erythropoietin for 12 months. Genotyping of ACE and IL-1b polymorphism was done in all study patients at the initiation of the study. The patient's demographic characteristics, dialysis vintage, and laboratory parameters were also evaluated as factors associated with rHuEPO resistance. The erythropoietin resistance index (ERI) was calculated as the weekly rHuEPO dose per kg of body weight, divided by the hemoglobin (Hb) concentration in g/dl.

Results. The Hb ≥110 g/l was registered in 37 (53,6%) patients. Patients with Hb ≥110 g/l were characterized by significantly higher serum levels of albumin, cholesterol, and iron than those with Hb <110 g/l. The serum level of the CRP, the weekly dose of rHuEPO, and ERI were significantly higher in patients with Hb < 110 g/l compared to patients with Hb≥110 g/l. The ERI value ≥10 IUkg/ weekly/g/dl was present in 27 (39,1%) patients. The serum levels of ferritin and CRP, and weekly dose of rHuEPO were significantly higher in patients with ERI value ≥ 10 IU kg/weekly/g/dl compared with the patients with ERI value <10 IUkg/weekly/g/dl. There was no significant association between the ERI and polymorphism of the ACE and IL-1b genes in study patients.

Conclusion. The polymorphism of the ACE and IL-1b genes was not significantly associated with the response to erythropoietin therapy in dialysis patients with anemia. Iron deficiency, malnutrition, and inflammation were associated with anemia and resistance to erythropoietin therapy in dialysis patients.

UNCONTROLLED HYPERTENSION AND CHRONIC KIDNEY DISEASE

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Uncontrolled hypertension contributes to development of chronic kidney disease through several putative mechanisms: salt retention, activity of the sympathetic nervous system, RAAS system and vascular changes. According to data from ERA EDTA registry for Macedonia, hypertension was the main reason for CKD in 25.8% from 926.5 per million population patients requiring renal replacement therapy. It is yet unknown to what extent hypertension contributes to CKD in all stages.

To estimate the impact of uncontrolled hypertension on development of chronic kidney disease in Republic of N. Macedonia, Schlessinger criteria for diagnosis of hypertensive kidney disease were applied on patients who consulted as inpatients and outpatients for CKD at the Department of Nephrology in the period of 10 years. Data for these patients were further matched for inclusion in previous projects (data from the project on Risk factors for hypertension: 3000 patients with hypertension followed by general practitioners in 2005), data on renal biopsies and data from ERA EDTA for Macedonia.

Of all patients admitted for CKD and hypertension at the Department of Nephrology, only 2% of patients had renal biopsy consistent with nephroangiosclerosis. Uncontrolled hypertension was found in 50% of all CKD patients, as predecessor of kidney disease. Although uncontrolled hypertension was found in 70% of all patients included in the project on risk factors, only 2% of them consulted in the Department of nephrology for chronic kidney disease. Therefore, uncontrolled hypertension is probably not the only factor that triggered chronic kidney disease.

IMPACT OF CHRONIC KIDNEY DISEASE ON DIABETIC FOOT SYNDROME IN PATIENTS WITH DIABETES TYPE 1 AND TYPE 2

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Diabetes mellitus (DM) is a chronic metabolic disease characterized by microvascular and macrovascular complications. Diabetic foot syndrome (DFS) is a complex heterogeneous condition associated with symptoms and signs of neuropathy, ischemia and infection. Chronic kidney disease (CKD) have been identified as strong predictive risk factor for the development of foot ulceration and a pre-cursor for amputation. In this study we determined the influence of metabolic factors as well as the degree of renal disease in DM1 and DM2 patients for timely identification of progression and influence on foot ulceration.

Retrospective study in patients with DM1 and DM2 attending the ambulatory (or day hospital) diabetes center in the period of one year. A total number of 555 DM1 and 2312 DM2 were studied. In results from all patients DM1 (8.64%) and DM2 (14.31%) had risk score for ulceration 1-3 according IWGDF; DM1 (40.9%) and DM2 (61%) had a CKD, according KDOQI. We found that eGFR is strongly associated with the grade of DFS ($p<0.01$), albuminuria was significantly higher in patients with stage 2 and 3 of DFS ($p<0.01$) and blood pressure was also higher in these patients. There was a negative correlation between eGFR and the presence of DFS in patients with DM1. Multiple logistics regression analysis showed that there was a significant association between the presence of DFS and eGFR.

In this study we found a strong correlation between the stage of CKD and risk score for foot ulceration in patients with type 1 and type 2 diabetes.

KIDNEY TRANSPLANTATION IN HIGHLY SENSITIZED PATIENTS

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Introduction. Faced with the problem of a shortage of organs for transplantation and long waiting lists, transplantation in highly sensitized patients is a particular problem. Several alternative options to receive a transplant exist for these patients, including additional priority in regular allocation, special programs based on allocation through acceptable antigens, kidney paired donation programs, desensitization protocols, or a combination of the latter two. Our aim was to make a summer of guideline and to share our experience in enabling kidney transplantation in highly sensitized patients.

Material and methods. Using the guideline from the European Society of Organ Transplantation working group and Kidney Disease Improving Global Outcome for management of kidney transplant patients with anti HLA antibodies and comparison of practice across Europe for sensitized patients, we summary the definition of sensitization and strategies for access to kidney transplantation for highly sensitized patients. As the number of patients on our national waiting list for kidney transplants increased, so did the number of patients who developed anti-HLA antibodies. Sensitization was most often due to red blood cell transfusions, pregnancy or previous transplantation. Patients had developed anti-HLA antibodies, determined with the Luminex technique, from Class 1 and 2, both donor nonspecific and donor specific, as well as consistently positive Complement- dependent cytotoxicity (CDC) crossmatches with potential related and unrelated donors. To improve their organ availability, we have implemented the rule to give priority if the cross match was negative.

Results. On several occasions, highly sensitized patients from the waiting list who were eligible for recipients based on blood groups and allowed number of HLA mismatches were called. Four of them, tree women (age 34, 44 and 52) and one men (age 56), with previously positive cross match, have received an organ, from a deceased donor, with a negative cross match before transplantation. They had successful transplantation and good function of the grafts. No episodes of humoral rejection were noted.

Conclusion. Prioritizing highly sensitized patients on the waiting list for kidney transplantation from a deceased donor, with a negative cros match, may be the only opportunity for organ access and the key to successful transplantation.

BEYOND TRADITIONAL MANAGEMENT: PIONEERING THERAPEUTIC AND DIAGNOSTIC DEVELOPMENTS IN AUTOSOMAL DOMINANT POLYCYSTIC KIDNEY DISEASE

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Introduction. The discussion on the talk have to go through a diagnostic advancement, such as proteomic profiling, by delving deeper into the therapeutic interventions currently at the forefront of ADPKD management. The main points have to include:

Innovations in Pharmacological Treatments. The introduction of tolvaptan, a vasopressin V2 receptor antagonist, marked a significant milestone as the first pharmacological treatment approved for ADPKD. Tolvaptan's ability to slow the rate of kidney volume growth and decline in kidney function presents a promising avenue for disease management despite concerns regarding its side effects and the necessity for alternative therapies. Furthermore, ongoing clinical trials are

exploring the potential of other agents, including mTOR inhibitors and somatostatin analogs, to address the multifaceted nature of cyst development and growth.

Metabolic Reprogramming. Emerging evidence suggests that targeting the metabolic abnormalities in ADPKD may offer a novel therapeutic angle. Strategies such as AMP-activated kinase activators and dietary interventions, including caloric restriction and ketogenic diets, are under investigation for their potential to slow disease progression by addressing the dysregulated metabolism characteristic of ADPKD cystic cells.

Nonpharmacological Approaches. Besides pharmacological interventions, nonpharmacological strategies are crucial in managing ADPKD. These include blood pressure control, lifestyle modifications such as increased hydration and dietary adjustments, and managing pain and urinary tract infections. Such interventions are vital for improving the quality of life and potentially slowing disease progression in ADPKD patients.

Future Perspectives. The current trajectory of ADPKD treatment is toward more targeted therapies that can modulate specific pathways involved in cystogenesis. Advances in genetics and a deeper understanding of the disease's molecular mechanisms pave the way for developing precision medicine approaches. This includes gene therapy and treatments tailored to individual genetic profiles, offering the potential to significantly alter the disease's impact on patients. In conclusion, the treatment of ADPKD is witnessing a paradigm shift, moving from symptomatic management to targeted therapy and individualized care strategies. These developments hold promise for slowing disease progression and improving the quality of life for those affected by ADPKD. The ongoing research into pharmacological and nonpharmacological interventions, alongside advancements in understanding ADPKD's genetic and molecular foundations, fuels optimism for future therapeutic breakthroughs.

UPDATES ON UREMIC TOXINS

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IL

Chronic Kidney Disease (CKD) is a progressive and silent chronic disease. It is associated with various complications, cardiovascular, hematological, neurological, and skeletal complications, and high morbidity and mortality. Traditional risk factors alone do not explain this excess risk, leaving room for specific risk factors related to CKD. Indeed, during CKD, the decrease in glomerular filtration capacity induces the retention of many metabolites. These solutes accumulating in the body then take the name of "uremic toxins". Uremic toxins exert their biological actions via the induction of an inflammatory state and an oxidative stress affecting different cell types, leading to harmful effects in different systems. A better understanding of these toxins' roles in the elevated prevalence various complications among CKD patients might facilitate the development of targeted treatments. I will summarize new evidence on the mechanisms by which uremic toxins may favor the occurrence of these complications in CKD.

NONADHERENCE AFTER KIDNEY TRANSPLANTATION IN ADOLESCENTS AND YOUNG ADULTS: MEDICAL AND ETHICAL CHALLENGES

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Chronic active humoral rejection and nonadherence were reported among dominant causes of kidney graft failure. Dramatic increase in graft loss was described among adolescents and young adults (17-24 years). This sensitive period, in addition to factors associated with physical and psychological development and maturation, includes transition from pediatric to adult care. Posttransplant regimen in general is demanding and complex, making adherence to it even more challenging.

If transplanted kidney is lost due to nonadherence, young patients are faced with the need for a second graft. Some patients may at least temporarily benefit if staying on dialysis rather than pursue for transplantion. Medical approach to mitigate nonadherence may include tailored use of belatacept in EBV+ kidney graft recipients. Ethical approach may also be demanding. If living donor is considered for second kidney transplantation (after the first was lost for nonadherence), the balance should be found when providing explanatory duty to future donor between the potential donor's right to receive information that may affect their decision to donate, and recipient's right to privacy. More detailed information in nonadherence after transplantation in general may also be necessary for the future nonspecific living kidney donors, to be aware that their »gift of life« could be waisted.

To conclude, young age and previous nonadherence are most important risk factors for future nonadherence. Individual assessment (case by case) for re-transplant, both medical and ethical, is essential when evaluating nonadherent patient for second kidney transplantation. In pediatric

patient, special focus is necessary during the transition period from pediatric to adult care.

ARE THERE ANESTHESIOLOGICAL ONSIDERATIONS THAT CAN IMPROVE KIDNEY GRAFT SURVIVAL?

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Patients with end-stage kidney disease have benefited from kidney transplants as the chosen course of therapy in our country since 1977. As kidney transplantation has become more successful, the criteria for patient selection have been extended. Patients receiving dialysis are now candidates for transplantation, including the elderly and those with significant medical comorbidities. Anesthesiologists play a crucial role in the success or failure of these challenging operations. Anesthesioloical considerations have a role in optimizing surgical outcomes, but they also play a role in providing acceptable analgesia treatment for recipients of renal transplants. This involves minimal nephrotoxicity, preservation of physiological homeostasis, and satisfactory pain relief. As far as we are aware, there isn't presently an agreement or set of guidelines for managing analgesia and anesthesia preoperatively and postoperatively in renal transplant surgery. Different hospitals had different management approaches. The literature has documented a wide range of tactics and methods as well. There is a dearth of evidence-based analgesia treatment in this complex patient cohort due to the large number of clinical research studies that examine analgesia management but do not include recipients of renal transplants. A combination of general and regional anesthesia is typically used to treat these individuals. A lot of anesthesiologists steer clear of regional anesthetics because they worry about coagulation disorders in patients with kidney illness. Additionally, because of comorbidities, anticoagulant medication should be used prior to surgery. Anticoagulant medication should also be used during and after surgery to improve graft survival. Nowadays, anesthesiologists prefer regional anesthetic techniques guided by ultrasound since they are less likely to cause complications and are simpler to do when performed by qualified medical professionals. It must be emphasized that clinical guidelines present the best evidence available to experts, but following guideline recommendations will not necessarily result in the best outcome. Guidelines can never replace clinical expertise when making treatment decisions for individual patients, but rather help to focus decisions.

NEPHROLOGISTS WITH SURGICAL SKILLS: CREATION AND REPAIRING OF AV FISTULAS AND GRAFTS

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In University Medical Centre Ljubljana the first AV fistula was created by nephrologist 50 years ago, on January 9, 1974. Since then 8,862 AV shunts, AV fistulas, AV grafts, salvage procedures and reconstructions were performed by nephrologists with surgical skills. In some reports 85% of access surgeries were performed by nephrologists in Italy, 26% in Japan. Long lasting tradition in the field of vascular access for hemodialysis patients was reported in Northern Macedonia where nephrologists were taking care for vascular access since 1976 till now.

Since 2018 till 2023 more than 210 surgeries were performed per year in our Department of nephrology, 244 surgeries in 2023. Native AV fistulas were at the top with 55.9% -64%, grafts with 6.1%-13.6% and various interventions (including thrombectomies) 25-36.2%.

In the group of 33 thigh grafts created by nephrologist primary and secondary patency rate were comparable to the data from the literature (78%, 74%, 66%, 56% and 52%, from the 1st till 5th year).

Immediate success rate after salvage procedures of thrombosed AV fistulas and grafts (n=286) was 90.2%.

Median primary patency rate of 111 AV fistulas was 2.64 years, immediate success rate of thrombectomy was 93.8% and the best secondary patency rate was after thrombectomy and reanastomosis, 73% after 1st year.

Mean primary patency rate for grafts (n=55) was 604, 342 and 1,557 days for arm, forearm and thigh grafts, respectively. Immediate success rate after thrombectomy was 78% and 1 - year secondary patency rate was 76%.

Emergency surgical procedures were performed in case of infection, threat of rupture of fistula wall, steal syndrome and large hematoma after inadvertent puncture of the artery. Growing aneurysms were reduced in size and aneurysmoraphy was performed.

In 214 elderly hemodialysis patients AV fistula was placed in 75% and catheters in 46%. One – year AV fistula survival was 90%.

In the group of 170 very old patients (>80 years) (data from RRT registry of Slovenija) only 22% began dialysis with Av fistula, but after 1 year had been rising to 47%. Multivariate Cox regression

analysis revealed that only age and having been seen by nephrologist predicted patient´s mortality.
There were several papers which revealed favorable results of surgery performed by nephrologists, particularly because of their dedication and continuous care for their patients.

ОРАЛНИ ПРЕЗЕНТАЦИИ / ORAL PRESENTATIONS

COENZYME Q10 IN PATIENTS WITH KIDNEY DISEASES

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Introduction. Coenzyme Q10 (CoQ10) is a fat-soluble, vitamin-like quinone. Its levels are high in organs with high metabolism such as the heart, kidneys and liver as it acts as an energy transfer molecule. It an important factor in mitochondrial metabolism.

Causes that can result in a decrease in its levels are aging, genetic factors, medications (e.g. statins), cardiovascular disease (CVD), kidney disease, and others. CoQ10 has antioxidant and anti-inflammatory properties. Mitochondrial respiratory chain (MRC) dysfunction, oxidative stress and inflammation are causes involved in the pathogenesis of kidney disease. Plasma CoQ10 concentrations are decreased in this group of patients.

Methods. In this narrative review, we observed the effect of coenzyme Q10 in kidney disease. We searched for English, peer-reviewed studies using keywords and terms related to "kidney disease," "coenzyme Q10" and "oxidative stress".

Results. CoQ10 is known to have the ability to restore electron flow in MRC, increase cellular antioxidant capacity and mediate inflammation. Its intake may have therapeutic effects in the treatment of patients with kidney disease, reduce adverse cardiovascular events, improve mitochondrial function, and reduce oxidative stress.

Conclusions: Studies published to date report that CoQ10 may have promising results in reducing the severity of existing kidney disease and improving quality of life in patients.

LATE COMPLICATIONS AFTER KIDNEY TRANSPLANTATION: MALIGNANCY AND IgA NEPHROPATHY RECURRENCE

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Introduction. Kidney transplantation (KT) is an renal replacement therapy for advanced chronic kidney disease (CKD). It is applied to patients on dialysis. Pre-emptive KT is also possible in cases of CKD stage 4-5, prior to start of dialysis.

Methods. Between January 2021 and January 2022, 662 kidney transplant recipients were followed up at the Department of Nephrology and Transplant, University Hospital "Alexandrovska". Thirty-eight patients (5.8%) were diagnosed with and treated for malignancy. Of these, seven (18.4 %) died due to complications associated with malignant disease. The male to female ratio was 26/12. The mean age at diagnosis was 56 (±16) years. Mean time from KT to diagnosis of malignancy was 12 years. The most common types of neoplasia were skin cancers (basal cell carcinoma, squamous cell carcinoma, and melanoma) and lymphoproliferative disorders (Hodgkin and non-Hodkin lymphoma), which showed a much higher incidence than general population.

Our research demonstrates a strong association between the risk of developing a oncologic disease, the age of the recipient, the duration of the post-transplant period and the type of immunosuppressive therapy administered. There is also a strong predisposition for specific types of tumors in comparison to the general population.

IgA nephropathy (IgAN) is a glomerular disease characterized by diffuse mesangial deposits of immunoglobulin A (IgA). IgAN is the most common type of glomerular disease worldwide. Patients with IgAN are generally suitable for kidney transplantation, as they tend to be younger and have less comorbidities.

Results. The diagnosis of IgAN was confirmed in 48 patients out of a total of 297 patients with a primary diagnosis of glomerular disease. In the study group, IgAN is the most common histomorphologically identified glomerular disease. Thirty-one (64.58 %) of the patients were transplanted from deceased donor, 17(35.42 %) - from a living donor.

Recurrent glomerulonephritis is the third most common cause of graft loss after acute allograft rejection and chronic allograft injury. In 16(33.33 %) of the patients kidney biopsy was performed. A second biopsy was performed in 4(8.33 %) of the patients. Recurrence of IgA nephropathy was demonstrated in 8(16.67 %) patients. Recurrence is found approximately 11.1 years after the kidney transplantation.

Conclusion. Risk factors for recurrence are: younger age of the patient at the time of diagnosis, rapid progression of the primary IgAN, high concentration of serum IgA and galactose-deficient IgA-I, IgA-soluble CD89 complex, immunosuppressive therapy with two drugs, absence of Mycophenolate mofetil from the drug regimen.

COMPARISON OF GLOMERULAR FILTRATION RATE OBTAINED BY NUCLEAR MEASUREMENT METHOD VS. ESTIMATED MATHEMATICAL EQUATIONS IN KIDNEY RECIPIENTS FROM DECEASED DONORS

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Introduction. Glomerular filtration rate (GFR) is a crucial indicator of kidney function and is essential for the diagnosis, monitoring, and management of various renal conditions. Nuclear medicine methods play an important role in accurate assessment of GFR. The aim of this study is to make a comparative analysis of measured-mGFR in kidney recipients from deceased donors obtained by three plasma sample method (TPSM) after i.v. application of [99mTc]Tc-DTPA.as a reference method vs. estimated-eGFR by using the mathematical equations: Chronic Kidney Disease Epidemiology Collaboration (CKD EPI) 2021 and Modification of Diet in Renal Disease (MDRD).

Methods: A comparative analysis in 26 subjects enrolled (16 male/10 female) was made by obtaining mGFR value using TPSM with "slope- intercept" nuclear method (NM) and eGFR was calculated by using mathematical equations: CKD epi 2021 and MDRD.

Results. The average age of the subjects was 42.84 ± 10.94, respectively. For the mean (±SD) of the mGFR values obtained with TPSM as reference method and GFR calculated by mathematical equations (CKD epi and MDRD) were 50.46±16.25, 57.84±18.73, 49.94± 16.25, respectively. Our study revealed a very strong positive significant correlation between TPSM as a reference method and CKD epi $p<0.001$; r 0.831, MDRD <0.001; r 0.842, respectively. Comparative analysis with ANOVA test between TPSM, CKD epi and MDRD showed standard error 3.18; 3.67; 3.18 respectively, with p value 0.184 with no significant statistical difference between them.

Conclusion. The TPSM method showed a very strong correlation with the mathematical equations (CKD epi and MDRD) and can be routinely used for obtaining precise GFR values in clinical practice. The challenge to accurately calculate GFR without a gold standard remains. No single method can be taken as a valid one to assess GFR, hence these methods have to be compared and validated with a gold standard.

FABRY DISEASE – CHARACTERISTICS FOR THE BULGARIAN POPULATION

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Introduction. Fabry disease is a progressive X-linked recessive storage disorder caused by deficient activity of alpha-galactosidase A(alpha-Gal A), with the resultant accumulation of globotriaosylceramide and other glycosphingolipids. Severely affected patients have either no or very small amounts of detectable enzyme activity. Milder variant phenotypes have been described in which detectable though markedly decreased enzyme activity is present. Recent advances in direct enzyme replacement therapy for Fabry disease require the establishment of diagnostic and management guidelines for this rare genetic disease. The heterogeneity and complexity of this disorder and the expense of enzyme replacement regimes call for update of current national guidelines for its management.

The average frequency of the disease for Bulgaria is 1:100,000. The first described case was in 1963. It was the first-time hearing impairment was reported in the literature. Histomorphology of renal involvement was assessed in 1976. Enzyme replacement therapy is available since 2007. In 2016, an expert center for Fabry disease was established. Local guidelines were adopted in 2017. To date, there are 70 patients with confirmed diagnosis in Bulgaria. Twenty-three patients (23) are undergoing enzyme replacement therapy, 17 are under observation, 21 are living abroad, 9 have died. The Department of Nephrology and Transplantation is an expert centre for Fabry disease in Bulgaria, included in the European reference network for the disease. The unit conducts screening, diagnosis, treatment and follow-up of patients with FD. Routine collaboration with many other specialties (cardiologists, neurologists, ophthalmologists, dermatologists and others) is also performed. It has a long-term clinical experience with the disease ~20 years.

The goal of this review is to summarize the data from clinical trials and published materials about treatment of Fabry disease in order to establish consensus principles for diagnosis, follow-up and treatment of these patients in our country.

FACTORS AFFECTING COVID ANTIBODY RESPONSE IN KIDNEY TRANSPLANT AND DIALYSIS PATIENTS

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Introduction. The recent pandemic taught us that patients on Renal Replacement Therapy (Hemodialysis, Peritoneal Dialysis, Kidney transplant recipients) are at risk for severe COVID-19 because of compromised immune system.
Methods. This study's aim was observing the antibody response after COVID-19 infection, vaccination and to determine the factors affecting their response.
115 participants were enrolled; 64 on dialysis and 51 kidney transplant recipients. All patients were vaccinated with 2 doses of Pfizer BioNTech and three serologic tests were taken every 3 months. After Covid-19 confirmed infection, the antibody response rate was 94.3% for dialysis patients and 87% for transplanted patients. Following two m-RNA vaccine doses, the seroconversion rate was 55% and 52% respectively.
The factors that negatively influenced the dialysis patients' response included advanced patient age, dialysis vintage, low BMI, low albumin, lymphopenia, hyperPTH, high ferritin and decreased Urea Reduction Rate ($\rho<0.005$).
Results. For kidney transplant recipients, short transplant vintage, lymphopenia, high tacrolimus, and decreased GFR, negatively influenced their seroconversion rate ($p<0.004$).
Dialysis vaccine responders had a longer antibody persistence, with >8 months duration. Meanwhile, kidney transplant recipients had earlier antibody waning, 15% antibody persistence in the eight-month period.
Conclusion. The factors influencing antibody response, efficacy and duration, must be taken into account when vaccination protocols are implemented. This study suggests considering a third vaccine dose or a booster for these patients.

FOLLOW UP OF THE DIFFERENT VASCULAR ACCESS MODALITIES IN HEMODIALYSIS

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Introduction. Vascular access (VA) creation for hemodialysis (HD) patients is known as time and money consuming. The aim of the study was to present our clinical experience for VA modalities in HD.
Methods. In the period of 2003-2023 were performed arteriovenous fistula (AVF) (n=6205), tunneled catheters (n=1276), femoral catheters (n=18419), subclavian catheters (n=1091), and jugular catheters (n=988). We also performed rare VA: femoral artery cannulation (n=15), neckless AV graft (n=2), saphenofemoral AV graft (n=3), vein azygos cannulation (n=4), translumbar catheterization in vena cava inferior (n=4), aneurismoraphy (n=30).
Results. Regarding permanent VA, AVF had lasting up to 20 years (83%). We created brachobasilic AV fistula in older and diabetic patients (n=42) with survival rate 80,1% after 3 months, 78.6% after 6 months and 69% after 12 months. The age, gender, HD vintage, diabetes mellitus comorbidity, and previous catheters were not significantly associated with brachobasilic AVF survival. Less lasting permanent VA were tunneled catheters (17%). For the temporary VA, femoral type was preferable as a first choice, and we increased jugular catheters instead of subclavian ones. The other temporary VA rare modalities were created to bridge until the creation of the next permanent VA.
Conclusion. We performed different VA modalities for HD, preferably AVF, as the intention was to achieve the long-lasting VA for the patient's longevity and good quality of life.

THE IMPACT OF HYPERURICEMIA AND HIGH BODY MASS INDEX ON PATIENTS WITH CONTRAST ASSOCIATED ACUTE KIDNEY INJURY AFTER PRIMARY PERCUTANEOUS CORONARY INTERVENTION

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Introduction. Contrast has become an integral part of diagnostic testing in modern medicine by impacting a higher frequency of contrast associated acute kidney injury (CA-AKI). This research aims to gather evidence on the effect of uricemia, and body mass index (BMI) on the development of CA-AKI in acute conditions like primary percutaneous coronary interventions (PCI).
Methods. A sample of 100 patients who underwent emergency PCI in Cardiology Intensive Care Unit/ UHCN-Tirana/Albania were enrolled and analyzed via binary logistic regression model.
Results. The CA-AKI occurred in 40% overall and in 60% of men. Mean age was 64.7 years. The odds of CA-AKI were significantly increased by 32.7-fold with chronic kidney disease and 4.6-fold with diabetes. Hyperuricemia and high BMI were significantly associated with 1.7-fold and 1.3- fold increase in the odds of CA-AKI, respectively. ROC analysis identified hyperuricemia with a cut-off value >7.75 mg/dl as an independent predictor of CA-AKI, with an AUC of 90.5%, 92.5% sensitivity, and 81.7% specificity.
Conclusions. CA-AKI is Achilles Heel of interventional cardiology. We revealed that the increase of uricemia and BMI doubles the risk for CA-AKI. Uricemia is showed as an important prognostic factor for development of CA-AKI.

ANCA-ASSOCIATED VASCULITIDES – A BIG CHALENGE TO TREAT. Our single-center tertiary care experience

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Introduction. Anti-neutrophil cytoplasmic antibody (ANCA)-associated vasculitis (AAV) is a serious systemic inflammatory disorder marked by necrotizing small- or medium-sized vasculitis and the presence of ANCAs in the serum. The prognosis of AAV is typically considered poor owing to severe consequences for several vital organ systems. Among these, the kidney is a critical organ that is heavily affected by AAV, comprising approximately 70% of cases in GPA and almost 100% in MPA. This observational retrospective cohort study aims to evaluate various patient characteristics in our small group of ANCA-associated vasculitis patients, to assess kidney function at diagnosis, on the 3rd, 6th, 12th, and 24th months and to identify the different predictors of renal and patient outcomes according to ANCA-MPO or ANCA-PR3 - positivity.

Methods. A total of 26 patients diagnosed with ANCA - associated vasculitis were followed up between January 2020 and February 2024 at the Nephrology and Kidney Transplantation Department in ALEXANDROVSKA Hospital. The mean age was 62.57 years (± 13.4), and the male-to-female ratio was 11/15. 19 (73.07%) patients were anti-MPO-positive, 6(23.07%) were anti-PR3 - positive, and 1 patient (3.84%) was both anti-MPO- and anti-PR3 - negative. 16(61.5 %) patients underwent kidney biopsy, which showed crescentic glomerulonephritis and features of diabetic nephropathy in one patient.

Results. The mean follow-up period was 33.52 (± 31.15) months, with the shortest and longest periods being 7 days and 96 months, respectively. The mean eGFR at the time of diagnosis was 16.13 ml/min/1.73 m^2, with all patients meeting the AKI KDIGO criteria for acute kidney injury.

On the 3rd month of follow up mean eGFR has slightly improved with 3,84 ml/min/1.73 m^2-19.97 ml/min/ 1.73. 6(23.07%) patients required hemodialysis because of severe uremia, 4(15.38 %) progressed to end-stage kidney disease (ESKD) - four were hemodialysis dependent and one patient had undergone kidney transplantation.

On the 6th month of follow up eGFR was stable with a mean value of 21.20 ml/min/1.73 m^2. We observed a slight improvement on the 12th and 24th months with a mean eGFR of 25.40 ml/min/1.73 m^2 and 26.48 ml/min/1.73 m^2 respectively.

Furthermore, we separated the patients according to ANCA positivity.

There were 19 patients in the ANCA-MPO group. The mean age was 61.9 years (±12.42), male to female ratio - 8/11. 5 (26.13%) had extrarenal features and 3 (15.7 %) had pulmonary involvement. Mean eGFR at the diagnosis was 16.91 ml/min/1.73 m^2. 4 patients died (21.05 %) - 2 because of vasculitis complications and 2 from severe SARS-COVID-19 infection. 7(36.8 %) patients required hemodialysis at the time of diagnosis and 4 of them (21.05 %) progressed to ESKD. 2 patients (10.52 %) had recurrence of the disease - the first one a year and a half and the other one three years after withdrawal of immunosuppression.

There were 6 patients in the ANCA-PR3 - group. The mean age was 62.66 years (±16.58), and the male to female ratio was 2/4. 5 of the 6 patients (83.33%) had extrarenal features. Mean eGFR at diagnosis was 12.21 ml/min/1.73 m^2.

Conclusion. Half of the patients died due to vasculitis complications. 5(83.33 %) patients required hemodialysis at the time of diagnosis. 1 patient died in the 6th month under unknown circumstances, and the remaining 4 patients showed improvement in kidney function and remained dialysis-free.

FACTORS ASSOCIATED WITH ANEMIA IN KIDNEY TRANSPLANT PATIENTS

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Intraduction. Renal anemia is a common complication of chronic kidney disease (CKD). The treatment of anemia in patients with CKD is a topic of growing interest and controversy. Anemia in kidney transplant patients has received relatively little attention in the literature, despite the high rate of recipients with anemia of 10-40% according to various studies. The pathogenesis of anemia in renal transplant patients is usually determined by many factors. Post-transplant anemia is a cause associated with a high risk of cardiovascular events, graft dysfunction and high mortality. Anemia is one of the most significant complications determining the quality of life of these patients. In order to optimize the treatment, the determination of the factors associated with anemia in kidney transplant patients is of the utmost importance.

Our objective was to determine the risk factors for the development of anemia in kidney transplant patients.

Methods. The study included kidney transplant patients, a contingent of the Clinic of Nephrology and Transplantation. 590 patients aged 46.5±12.66, female/male ratio - 1:1.3 were studied. Duration after kidney transplantation (KT) is from 3 month to 30 years. KT was performed by both deceased and living donor in a ratio of 1:1.8. All patient data are from regular follow-up in 2018.

Results. Patients with anemia were n=94 (16%), of which with severe anemia (Hgb <60) were n=4 (0.6%). Ratio m: f=1: 1.6. Mean age =47.0±12.60 y. Average duration of transplantation 10±7.5 years. Significantly reduced glomerular filtration rate (eGFR =37.24±19.414) was found in patients with anemia, as well as significantly higher proteinuria - 0.81± 0.669. Lower hemoglobin values were found at higher eGFR in women than in men. Significantly higher percentages of m-TOR inhibitors, Azathioprine and Allopurinol in patients with anemia compared to the general population.
Conclusion. Factors associated with significant anemia in KT patients are: female gender, graft function, immunosuppressive and adjunctive drug therapy.

CORONAVIRUS DISEASE- 19 (COVID- 19) AFFECT GRAFT FUNCTION IN KIDNEY TRANSPLANT PATIENTS

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Intraduction. During the COVID-19 pandemia, patients (pts) with transplanted kidney, were classified as a high-risk population due to continuous immunesuppressive therapy. Treatment of these patients was a big challenge and great experience. Aim: to share our experience with COVID-19 in kidney transplant pts in the R N Macedonia.
Methods. From March 2020 to March 2022, 64 patients with a transplanted kidney and a positive PCR test for SARS-CoV-2, with mild, medium and severe clinical manifestations, were included. All on previous triple maintenance immunosuppressive therapy, which includes (Corticosteroid, Calcineurin inhibitor Cyc/Tac and MMF). We analyzed the data for need of hospitalization, oxygen support or mechanical ventilation, the type and frequency of symptoms as well as the most common disturbances in laboratory findings. Also, the medical approach, the type of treatment and the need for hemodialysis. The function of the graft was evaluated through the data on the values of serum creatinine (μmol/L), glomerular filtration rate (GFR) calculated with the formula CKD epi, in three points D0 (at the last control before the disease), D1 (at the time of diagnosis) and D2 (one year later, for surviving patients). Proteinuria (quantitative and qualitative) was analyzed in two exact D0 and D2.
Results. The mean age of the patients was 46±12. Men were more affected than women (46:18 ,71% v.s.29%), even among deceased patients (8:5, 61% v.s.39%). The most frequent symptoms were cough, fever and fatigue (75%, 72% and 65%) respectively. Most of the patients 47(73%) needed hospitalization, 12(56%) of them on mechanical ventilation and 13 (20%) died. Increase in CRP, d-dimers and LDH were the most dominant (73%, 66% and 48%) respecttively. In 26(41%) pts an increase in serum creatinine was observed from D0 to D1, and 10 needed hemodialysis. The treatment approach consisted in modification of the immunosuppressive therapy, antibiotic therapy, high doses of methylprednisolone in 22 pts, covalent plasma in 8 pts and Remdesivir in 4 pts. Compared to survivors, deceased patients had higher baseline serum creatinine (173 v.s.143; p= 0.04). Regarding graft function, we observed a significantly higher serum creatinine at 1 year after the disease (161 vs. 143; p = 0.039) and a slight decrease in GFR (57 v.s.56; p = 0.29), respectively. The percentage of patients who developed proteinuria after one year also increased (29% v.s.34%).
Conclusion. COVID-19 affects graft function. Further follow-up at 3 and 5 years is needed for more precise results.

TUBEROUS SCLEROSIS COMPLEX – CHARACTERISTIC FOR BULGARIA

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Introduction. Tuberous sclerosis complex (TSC) is a rare, autosomal dominant genetic disease. Around 2 000 000 people worldwide have the diagnosis. It is associated with a genetic mutation in the TSC1 or TSC2 gene. The disease manifests itself with formation of tumors in the brain, skin, kidneys, lungs and heart. A specific conservative treatment exists with the mTOR-inhibitor Everolimus (EVE). The aim of the research is to evaluate the effect of the treatment with EVE on the course of the disease.
Methods. We present the course of the disease in 8 patients with TSC in the Nephrology and transplantation clinic, University hospital "Aleksandrovska" from 06.2018 to 08.2021. Treatment with EVE in doses of 2,5-10mg/daily was initiated for all of them during this period. We compare the calculated glomerular filtration rate (eGFR) and the results from computer tomography (CT) scans, magnetic resonance imaging (MRI) and abdominal ultrasounds before and after initiation of treatment.
Results. For the period there was a rise in eGFR with 15,46%, a reduction in the size of renal tumors with 8,66% and a reduction in the size of brain tumors with 9,43% on average compared to baseline.
Conclusion. For the period from 06.2018 to 08.2021 after initiation of treatment with EVE, the presented patients showed a rise in eGFR and a reduction in

tumor size on average, which lead to a significant improvement in the clinical status of the patients.

DIAGNOSTIC AND TREATMENT CHALLENGES OF FABRY DISEASE IN NORTH MACEDONIA

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Introduction. Fabry disease (FD) is a rare X-linked lysosomal storage disease caused by α-galactosidase A (α-Gal A) deficiency, a condition described over 60 years ago. The *r*educed or absent enzyme activity causes progressive and excessive lysosomal accumulation of globotriaosylceramide (lysoGb3) in various cells including vascular endothelium in the skin, kidneys, nervous system and heart, triggering inflammation and fibrosis. Due to the heterogeneous and variable clinical manifestations (especially in women) the diagnosis of a FD often involves review by 7-10 different specialists and the diagnosis is particularly challenging in countries with limited health resources.

Clinical Presentation. We present the first family with FD identified based on the clinical manifestations and confirmed with genetic testing in North Macedonia. The index case in the family was a 43-year old male with end-stage chronic kidney disease on hemodialysis, with a history of difficult to control neuropathic pain from childhood, intermittent abdominal cramps, anhidrosis and hypertension suggestive of FD. The constellation of the clinical presentation accompanied with similar symptoms in close family membres prompted biochemical testing for FD. Both α-Gal A activity and lysoGb3 levles were consistent with the diagnosis of FD. The diagnosis was confirmed by genetic test identifying a known pathogenic GLA gene variant in a hemizygous state - a missense substitution c.443A>G; p.Ser148Asn. Subsequent family studies identified several other hemizygous male and heterozygous carrier female relatives affected with this X-linked disorder. Our current effort is to provide adequate treatment with enzyme replacement therapy.

Conclusion. Here, we report the identification of the first family with FD in North Macedonia. Timely diagnosis and treatment of this condition requires higher awareness for FD linked to continuous medical education, research, and support from the government, private sector, nongovernmental and professional organizations.

PREDICTORS OF VALVULAR CALCIFICATION IN ESRD PATIENTS UNDERGOING HEMODIALYSIS

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Introduction. Chronic hemodialysis in ESRD patients is associated with an increased incidence of valvular calcification (VC), a significant cardiovascular risk factor. This study aims to investigate the prevalence and predictors of VC in this population.

Methods. A cohort of 167 ESRD patients on hemodialysis were analyzed via binary logistic regression to identify potential predictors of VC in this population.

Results. Of the cohort, 64.1% were male, with a mean age of 57.9±14.1 years and a mean dialysis duration of 6.1±4.1 years. Primary ESRD causes included DM (23.4%) and hypertensive nephrosclerosis (21%). The cohort shows an average Hb of 10.4±1.6 g/dL, Ca of 9.3±0.7 mg/dL, phosphorus of 5.4±1.6 mg/dL, PTH of 840±730 pg/mL. VC was noted in 65.9%, diastolic dysfunction in 79%, and left ventricular hypertrophy (LVH) in 67.1%, with a mortality rate of 16.8%. Age ($p<0.001$), diabetes ($p<0.001$), PTH($p<0.001$), phosphorus ($p<0.001$), and LVH($p<0.001$), were significant VC predictors. The binary logistic regression model, adjusted for age and DM, identified dialysis vintage ($p<0.001$, exp (B)=0.685, 95% CI: 0.562-0.834) and PTH levels ($p = 0.048$) as independent and significant predictors of valvular calcification, with LVH approaching significance ($p=0.080$, exp(B)=4.032, 95% CI:0.845-19.245).

Conclusion. Our study revealed that dialysis vintage, elevated PTH levels, and LVH are independent predictors of valvular calcification in ESRD patients on hemodialysis, suggesting the necessity of their rigorous management to improve patient prognosis.

PERITONEAL DIALYSIS IN BULGARIA

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The modern history of peritoneal dialysis in Bulgaria began in 1993 with the inclusion of the first patient on continuous ambulatory peritoneal dialysis (CAPD). Peritoneal dialysis was reimbursed since in 2010 - two years before hemodialysis. Currently, one day of CAPD is paid at 88.25 euros, and APD at - 111.8 euros. In 2019, there were 141 patients on peritoneal dialysis in Bulgaria, of which 110 were on CAPD. The number of new patients included is 41. As a result of the COVID 19 pandemic, the number of peritoneal

dialysis patients decreased sharply - on the one hand, 18 peritoneal dialysis patients died of COVID 19 in 2 years, and on the other hand - due to the limitation of planned operations, the number halved of newly enrolled patients.
Patients on peritoneal dialysis have 18 dialysis centres, of which 8 are private. Patients in the dialysis centres are between 1 and 20. Only 5 dialysis centres have more than 10 patients. At the end of 2023, there are 106 patients on peritoneal dialysis in Bulgaria - 83 on CAPD and 23 on APD. A glucose polymer solution was used by 61 of the patients. 16 of the APD patients are included in the Share source platform.
In the country, peritoneal catheters are placed in 4 surgical clinics. Preferred method is laparoscopic catheter placement.
The annual mortality rate for those treated with peritoneal dialysis (excluding those who died from COVID 19) over the last 4 years was between 11.6% and 13.3%. The second most common reason for dropping out of peritoneal dialysis is inadequate dialysis. Peritonitis accounts for less than 8% of reasons for switching to hemodialysis. No patient has died of peritonitis in the last 4 years. In the last 4 years, 8 patients treated with peritoneal dialysis have been transplanted.

INDIVIDUALIZED APPROACH TO DIALYSATE ELECTROLYTE CONCENTRATION

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Introduction. Hemodialysis (HD) is a life-saving therapy for end-stage renal disease (ESRD) patients, but one size does not fit all. Apart from tailoring dialysis parameters to suit the unique individual characteristics (e.g. age, comorbidities, residual kidney function, dietary habits), a patient-centered approach for dialysate electrolyte concentrations represents another opportunity, which could reduce some of the burdens by preventing complications such as excessive variation in blood pressure, arrhythmias, CKD-MBD, post-dialysis fatigue, and decreased quality of life. We aimed to assess whether the individualization could contribute to improvement in ABD, fluid intake, and IDWG decrease.
Methods. Single-center retrospective analysis was conducted, as a part of routine clinical care, in a total of 133 patients who were followed for 18 months. The average age of the cohort was 69.31 years (±12.49), average HD vintage was 51.94 months (±43.82). We were modifying patients' dialysate electrolyte concentrations, primarily of dialysate calcium (dCa^{2+}), and sodium (Na^{+}). The level of calcium content in the dialysis fluid was changed from various calcium content levels (1.5 mmol/L; 1.75 mmol/L) and set to 1.25 mmol/L in patients (48%) with ABD (iPTH <150 ng/ml). Furthermore, the level of dNa^{+} concentration was gradually changed, until a gradient between plasma and dialysis bath Na^{+} of -2 mEq/L was achieved. Plasma Ca^{2+}, phosphorus and Na^{+} levels were measured once monthly, iPTH quarterly before a dialysis session along with other parameters such as IDWG and blood pressure.
Results. The iPTH level was significantly changed (p=.00001), from 67.48 ng/ml (±32.85) to 150.38 ng/ml (±92.96). At study end, 24 out of 50 patients (48%) had iPTH level >150 ng/ml, p=.00001. The phosphate level changed from 1.29 mmol/L (±0.49) to 1.55 mmol/L (±0.48), p=.004. The alkaline phosphatase level significantly changed (p=.00002), from 82.61 IU/L (±49.5) to 118.71 IU/L (±50.23). The mean dNa^{+} concentration decreased non-significantly from 139.39±0.96 mmol/L to 138.99±3.18 mmol/L, p=0.13. The mean plasma Na^{+} concentration increased from 133.25±2.9 to 136.59±3.47 mmol/L, p<0.00001. While the mean IDWG% decreased non-significantly from 3.53±1.34%, to 2.74±1.35%, p=0.35, the proportion of patients with IDWG >5% decreased from 11.4% to 5.1%, p=0.15.
Conclusion. Changes in dialysis settings, such as lowering the calcium and sodium in dialysis fluid might improve the adynamic bone disease, a notable decrease in the proportion of patients with severe IDWG increase, thereby addressing a crucial cardiovascular risk factor in these patients. Our findings underscore the safety and potential benefits of an individualized approach to dialysate electrolyte concentration, encouraging further exploration for enhanced HD patient care and increased overall well-being.

COMPARISON BETWEEN DIFFERENT METHODS OF CALCULATING Kt/V AND URR IN EVALUATING HAEMODIALYSIS ADEQUACY

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Introduction. An increasing number of patients with chronic kidney disease (CKD) are in need of hemodialysis. Inadequate hemodialysis affects morbidity and mortality. KDOQI guidelines recommend that Kt/V shoud be kept above 1.2 or URR 65% for thrice weekly routine hemodialysis.The aim of this study was to compare the urea reduction ratio (URR),Kt/V estimation by Daugirdas Formula with the results measured by an Online Clearance Monitor (OCM).
Methods. Cross-sectional study was conducted on 15 patients on hemodiafiltration (HDF) with age 36-79 years, 4-hour hemodiafiltration sessions three times a week and hemodialysis experience ≥6 months,

using highflux dialyzers. Each patient blood flow rate was ≥350ml/min and dialysis flow rate was 500 ml/min. Each patient had an AVF as a vascular access. Kt/V was calculated by the OCM of the Nipro Surdial X machine (the hemodialysis machine automatically calculates the measured sodium ion clearance based on the plasma conductivity).

Results. A total of 80 sessions were assessed with a predominance of males 51% (8).

The mean URR was 78.4±10. Mean Kt/V values obtained with the Daugirdas formula were 1.9±0.19. Mean Kt/V delivered by machine (OCM) was 1.87±0.2. There was no significant difference between age, sex, comorbidities with adequacy of hemodialysis. The study showed that there was no significant difference between the URR and Kt/V calculated with the Daugirdas formula and the OCM in the evaluation of hemodialysis adequacy.

Conclusion. Online Clearance Monitor (OCM) can be used as a noninvasive guide in the real-time adjustment of the dialysis dose.

EFFICACY AND TOLERABILITY OF DIRECT-ACTING ANTIVIRALS IN HEMODIALYSIS PATIENTS WITH CHRONIC HEPATITIS C

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Introduction. Hepatitis C virus (HCV) infection is common in hemodialysis (HD) patients and is associated with increased morbidity and mortality. In recent years major progress in the treatment of HCV infection has been made with the entry into use of direct-acting antivirals (DAA), which target viral proteins, leading to increases in sustained virologic response (SVR) and a marked decrease in side effects. The aim of the study was to evaluate the efficacy and frequency of side-effects of DAA therapy in HD patients with HCV infection.

Methods. The multicentric prospective cohort study included 42 HD patients with HCV infection over the last two years. DAA therapy was administered according to HCV genotype and drug interactions considering guidelines for a period of 12 weeks (for HCV genotype 1: Elbasvir/Grazoprevir or Ombitasvir/ Paritaprevir/Ritonavir/Dasabuvir, and for HCV genotype 4: Elbasvir/Grazoprevir or Ombitasvir/Paritaprevir/ Ritonavir). The following clinical parameters at weeks 0, 4, 8, 12, and 24 (12 weeks after the completion of treatment with DAA) were analyzed: presence of side effects, PCR HCV titer (ref. range: <12 IU/ml negative), hemoglobin (Hgb-g/L), epoetin dose (IU/kg/week), alanine aminotransferase level (ALT-U/L), and gamma-glutamyl transferase level (GGT-U/L). Before treatment with DAA liver fibrosis score (F0-F4) was defined by Fibro scan and the patients with liver stiffness over 12,5 kPa (Fibrosis score F4) were considered cirrhotic, but only patients with compensated cirrhosis (Child-Pugh score class A) were treated. For statistical analysis chi-square test and combined analysis of variance for repeated measures were performed by IBM SPSS softwer. PCR HCV titer was analyzed with logarithmic transformation of data.

Results. Over the observed period 42 HD patients with HCV infection (25M and 17F) with the average age 56.78±11.6 years and average HD vintage 159±75 months were included in the study. Twenty-six patients (61,9%) were with HCV genotype 1 and 16 patients (38,1%) with HCV genotype 4. Ten patients (23,8%) were with compensated cirrhosis (F4 fibrosis score by Fibro scan). Three patients (7,1 %) had mild gastrointestinal side effects and only one patient (2,4%) discontinued the therapy during the first week due to intolerance to DAA. All 41 patients (100%) who completed 12 weeks DAA therapy were PCR HCV negative at 4 weeks of treatment and achieved rapid virologic response (RVR) and 12 weeks after the completion of treatment and achieved sustained virologic response (SVR12) that was statistically significant ($p<0.001$). In regard to PCR HCV titer before DAA therapy there was no statistically significant difference among HD patients according to cirrhotic status and HCV genotype. There was no statistically significant change of hemoglobin level and epoetin dose in HD patients during the DAA therapy. The ALT and GGT levels statistically significantly decreased at weeks 12 and 24 compared to week 0 in all treated patients with DAA (ALTweek0=35,2±21,7; ALTweek12=21,8±16,2; ALTweek24=23,5±13,1; $p< 0.001$ and GGTweek0=53,3±67; GGTweek12=18,6±6,8; GGTweek24=19,4±11,5; $p=0.042$ respectively). The therapy with DAA was equally effective in patients with compensated cirrhosis and in patients without cirrhosis and there was statistically significant decrease of ALT and GGT levels in both groups of patients ($p=0.002$ and $p<0.05$ respectively). In regard to HCV genotype DAA were equally effective in patients with HCV genotype 1 and in patients with HCV genotype 4 and ALT and GGT levels significantly decreased in both groups of patients ($p<0.001$ and $p<0.05$ respectively).

Conclusion. The therapy with DAA in HD patients with HCV infection was extremely effective and SVR12 was achieved in 100% of treated patients. The administered DAA were equally effective in patients with compensated cirrhosis and in patients without cirrhosis, and in patients with HCV genotype 1 and HCV genotype 4. The therapy with DAA was well tolerated, 7,1% of patients had mild side effects and 2,4% of patients discontinued the therapy due to intolerance.

ПОСТЕРИ / POSTERS

NAVIGATING THE COMPEXITIES OF MPGN ASSOCIATED WITH SCLERODERMA: A CLINICAL INSIGHT

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PP

Introduction. This case study aims to highlight a rare instance of membranoproliferative glomerulonephritis (MPGN) linked with active Scleroderma in an adult patient, a pairing seldom reported in medical literature. MPGN is typically associated with autoimmune conditions such as Lupus Erythematosus, autoimmune thyroiditis, and sclerosing cholangitis. Scleroderma is more commonly connected to renal crises, characterized by rapid progression to renal failure, microangiopathic hemolytic anemia, and severe hypertension. This report sheds light on an unusual MPGN case in a patient with active Scleroderma, expanding our understanding of its clinical manifestations.

Case Report. A 48-year-old woman, previously diagnosed with Hashimoto's thyroiditis and hypertension, presented with edema and significant proteinuria. She was under treatment with ACE inhibitors for hypertension and thyroxine for thyroid replacement therapy, with her thyroid function tests returning normal (TSH 3.2 mIU/L). Her symptoms, including fatigue, appetite loss, swollen ankles, and a rapid weight gain of 10kg in recent weeks, had begun two months prior. Upon admission, her blood pressure was 150/100 mmHg, with evident pretibial anasarca rated at 4(+). Laboratory analyses revealed marked proteinuria (4.2g/day), dyslipidemia, an elevated ESR of 70mm/h, BUN at 90, creatinine at 2.1 mg/dl, and albumin at 1.5 mg/dl. Kidney ultrasound findings were normal, as were levels of C3 and C4 complements, with negative hepatitis serologies. The immunological profile showed positive centromere and Scl-70 antibodies, leading to a scleroderma diagnosis after rheumatological consultation. A kidney biopsy indicated MPGN, hypercellularity, and double basement membranes, with notable sclerotic glomeruli, capsular drop lesions, and interstitial fibrosis. Treatment with mycophenolic acid and corticosteroids led to significant improvements within five months, including reduced proteinuria and normalized serum creatinine and albumin levels.

Discussion. This case study presents a unique instance of membranoproliferative glomerulonephritis (MPGN) coexisting with active Scleroderma in an adult patient, a rare association in clinical practice. The diagnosis was challenging due to the overlapping symptoms of autoimmune conditions and required a comprehensive evaluation, including immunological screening and kidney biopsy. Treatment with mycophenolic acid and corticosteroids resulted in notable improvements, evidenced by decreased proteinuria and normalization of serum albumin and creatinine levels.

Conclusion. This case emphasizes the importance of considering MPGN in patients with Scleroderma presenting with renal symptoms and highlights the efficacy of targeted immunosuppressive therapy in managing this complex clinical scenario.

ACUTE INTERSTITIAL NEPHRITIS REQUIRING HEMODIALYSIS AS A PRIMARY PRESENTATION OF COVID-19 INFECTION: A CASE REPORT

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Introduction. Acute Interstitial Nephritis (AIN) is a common and reversible cause of Acute Kidney Injury (AKI) that sometimes may be underdiagnosed. AIN is recently recognized as one of the infrequent kidney involvements among patients with COVID-19.

Case report A 70-year-old man presented with macrohematuria, anuria, and persistent back pain after two weeks of fatigue and fever at home. Initial workup revealed increased serum creatinine (9.9mg/dl), severe leucocytosis (26400 u/L), mild anemia (Hgb-9.6g/dl), low C3-complement level, and low-molecular-weight proteinuria. IgM antibodies against the SARS-COV-2 confirmed prior infection with high titers. Despite supportive therapy, kidney function continued to deteriorate, and hemodialysis treatment was initiated. A kidney biopsy was performed after 10 days of hospitalization, delayed due to hemorrhagic risk, and it revealed interstitial infiltrates probably associated with Covid-19. Kidney function completely recovered after 2 weeks post-discharge and remained normal after 8 weeks of follow-up with only residual microhematuria remaining. Conclusion: Interstitial kidney disease is a rare finding in COVID-19 but it highlights the spectrum of SARS-COV-2 manifestation. Epidemiological history, serologic testing, and kidney biopsy should be considered in the work-up of patients with AIN of unknown etiology.

THE ROLE OF RENAL BIOPSY IN ACUTE KIDNEY INJURY

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Introduction: Acute kidney injury (AKI) is a heterogeneous, common, and in some cases, life-threatening condition. It is associated with significantly increased length of hospital stay, higher costs, mortality and morbidity. Performing a kidney biopsy is necessary to accurately diagnose diseases such as glomerulonephritis and tubulointerstitial nephritis, among other similar conditions. These conditions predispose patients to chronic kidney disease as well as AKI. Most epidemiologic studies describing AKI lack sufficient investigation of histological characteristics in these patients. Expanding the role of renal biopsies may provide new insight into the heterogeneity of pathogenetic mechanisms and therapeutic strategies. The societal benefits of research that leads to new strategies to prevent and treat AKI can be enormous. We aimed to analyze the histological findings in patients with AKI who underwent kidney biopsy (KB).

Methods. The study included patients, a contingent of Clinic of nephrology and transplantation, with AKI data according to the KDIGO criteria for AKI from 2012, in whom KB was performed. Exclusion factors are proven contrast-induced and drug-induced nephropathies. The data are from the period January 2018 to August 2024. All patients underwent laboratory and immunological tests, as well as KB with a histological result.

Results. Patients included in the study had evidence of oligoanuria, hematuria and proteinuria. Emergency hemodialysis was necessary for some of them. The most frequent histological results in patients with AKI data are: Focal-segmental glomerular sclerosis, Tubulointerstitial nephritis, Crescentic glomerulonephritis, IgA glomerulonephritis, Membranoproliferative glomerulonephritis.

Conclusion. KB provides useful information on renal histopathology in patients with AKI.

PREDICTIVE FACTORS FOR THE OCCURRENCE OF POST-TRAUMATIC ACUTE KIDNEY INJURY

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PP

Introduction. Post-traumatic Acute Kidney Injury (AKI), is a serious and potentially life-threatening condition that can result from several interrelated factors, often acting in combination. The objective of our study is to provide detailed insights into the epidemiological, clinical aspects, and predictive factors associated with the occurrence of post-traumatic acute kidney injury.

Methods. A prospective study was conducted for six months, including 87 patients with polytrauma hospitalized in the Intensive Care Unit. Renal function assessment was based on changes in serum creatinine and diuresis. AKI was defined according KDIGO criteria. Univariate and multivariate logistic regression methods were used to assess all potential confounders for the assessment of independent risk factors for AKI and patient mortality.

Results. 54% of the multiple traumatic patients developed AKI. The average age of patients who developed AKI was 60±19.8 years, p>0,5 and the sex ratio M/F was 3:1. Significant and independent predictive factors for DRA were: age ≥65 years (p<0.01), arterial pressure values ≥90mmHg (p<0.01), anemia in the first 24 hours (p<0.01) and the presence of chronic renal disease. Patients who developed AKI, 18/47 had significantly higher mortality than those with normal kidney function (p<0.01). After adjustment for other clinical prognostic factors, AKI was an independent risk factor for mortality. We found that advanced age, anemia and persistence of high values of creatinine on the 7th day were significant and independent predictive factors for mortality.

Conclusions. AKI is a frequent complication after trauma and is associated with prolonged hospital stay and increased mortality. Assessment of predictive factors in order to start early treatment may improve prevention of AKI in trauma patients and may help improve patient management in trauma care settings.

SERUM VISFATIN AS A NON-TRADITIONAL BIOMARKER IN CHRONIC KIDNEY DISEASE

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Introduction. Chronic kidney disease (CKD) is a progressive disease with increased cardiovascular morbidity and mortality. This significantly reduces life expectancy due to advanced atherosclerosis and premature death from cardiovascular disease (CVD). CVD is a state of subclinical systemic inflammation involving cytokines produced by adipose tissue. Visfatin is an adipocytokine and could be considered as a novel marker of endothelial dysfunction (ED). It has been suggested that visfatin levels increase with progression in the degree of CKD. This is due to either the chronic inflammation that CKD is associated with and/or hypoxia as a result of tubular necrosis, anaemia and reduced capillary blood flow.

Methods. 80 patients with CKD from the Clinic of Nephrology were observed, divided into two groups - pre-dialysis and on haemodialysis treatment. Different markers for endothelial dysfunction were studied.

Results. Visfatin levels significantly decrease in the presence of an inflammatory process in patients undergoing dialysis treatment. It levels negatively correlate with duration of dialysis treatment.

Conclusions. Serum visfatin could be considered as a new marker for increased mortality and prediction of

cardiovascular disease incidence in CKD patients. Further studies are needed to understand better the role of serum visfatin in CKD.

DAPAGLIFLOSIN IN COMPLEX THERAPY OF PATIENT WITH CKD, DM AND HF

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Introduction. Use of SGLT2 inhibitors is associated with reduction of the risk of hospitalization and death of any causes for patients with diabetes type 2, chronic kidney disease (CKD) and heart failure (HF).

Case report. A 76-year old obese male with a history of poorly controlled hypertension, diabetes type 2 and congestive HF. On physical examination, the heartbeat was markedly irregular with a rate of 80 beats/min. Arterial pressure was 150/80 mm Hg. The results from the blood and urine tests were as follows: Hb 106 g/L, ESR - 24 mm/h, CRP – 1.23 mg/L; INR – 4.5; creatinine- 229 μmol/L (eGFR 25 ml/min); fasting glucose –9.59 mmol/L; HbA1C –4.90 %; serum triglycerides –2.3 mmol/l; protein in 24-h urine collection –0.72 g; no pathological changes in urine sediment. Urine culture showed no bacterial growth. Ultrasound examination of the urinary system demonstrated bilaterally normal kidney size and thickness of renal parenchyma, no impairments in kidney drainage and grade I echogenicity of the renal parenchyma. No renal biopsy was carried out considering the significant cardiovascular risk. The established diagnosis was hypertensive nephropathy. The patient was started on lipid-lowering medication. Antihypertensive and anticoagulant therapy were reviewed and tailored out to suit the needs of the patient. A course of symptomatic treatment was carried out. Considering the impaired renal function, the presence of symptomatic heart failure and the poor glycemic control, Dapagliflozin 10 mg was added to the therapeutic regimen. At the end of the initial hospital stay we noted a mild reduction of the 24-h urine protein loss. Six-month follow-up revealed a more-than-twofold reduction in the 24-h proteinuria (0.72-0.30 g/24 h); significant decreases in the levels of serum creatinine (229-180 μmol/L) and urea (19.8-16.0 mmol/L); modulation of the levels of the fasting glucose (9.59-7.30 mmol/L) and HbA1C (4.90-5.69 %); and a weight loss of 5 kg.

Conclusion. The use of Dapagliflozin 10 mg in patients with CKD may confer benefits with regard to 24-h proteinuria, stabilization of kidney function, control of glycaemia and body weight. There is a temporal pattern to the deployment of the beneficial effects, the maximal effect becoming evident 3-6 months after the beginning of treatment.

COLCHICINE TOXICITY IN A DIALYSIS PATIENT: A CASE REPORT

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PP

Introduction. Colchicine is widely used for gout treatment but poses a significant risk for toxicity, especially in patients with kidney impairment. We present a case of colchicine toxicity characterized by leukopenia, rhabdomyolysis, and hepatotoxicity in a patient on chronic dialysis.

Case report. A 61-year-old male patient with a history of chronic dialysis, diabetes, hypertension, gout, anemia, and diabetic neuropathy, presented in the ER with fatigue, muscle pain, and diarrhea 2 days before prior presentation. Notably, the patient had self-administered colchicine 2x1 mg, for 3 consecutive days with no medical supervision. Laboratory findings revealed severe leukopenia (WBC 1450/μL), elevated liver enzymes (AST 165 U/L, ALT 205 U/L) and markedly elevated CPK (5350 U/L). Infectious diarrhea was ruled. The diagnosis of colchicine toxicity was established, leading to severe leukopenia, rhabdomyolysis, and hepatotoxicity. Treatment strategies included G-CSF for drug-induced agranulocytosis and prophylactic antibiotics. The patient developed pneumonia on the fourth day of hospitalization, which was managed with antibiotics for hospital-acquired pneumonia. He was discharged on the thirteenth, having made a full recovery.

Conclusion. This case emphasizes the need for cautious initiation of colchicine in patients with renal impairment, highlighting the importance of dose adjustment and rigorous monitoring through laboratory tests in the setting of severe kidney impairment, to prevent toxicity and ensure patient safety.

OPTIMIZING HEART FAILURE MANAGEMENT IN ESRD: A CASE STUDY ON VALSARTAN/SACUBITRIL THERAPY IN DIALYSIS PATIENTS

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PP

Introduction. Heart failure (HF) is a leading cause of mortality in patients with end-stage renal disease (ESRD) undergoing dialysis, accounting for nearly half of the deaths in this group. In our dialysis unit, the prevalence of heart failure is notably high, affecting 40% of patients. This report aims to describe the efficacity and safety of valsartan/sacubitril for an ESRD patient on dialysis therapy combined with HF with reduced ejection fraction.

Case report. We present the case of a 39-year-old male patient with a history of chronic membranoproliferative glomerulonephritis, confirmed via biopsy, and who has been on dialysis since 2018. His condition was complicated by worsening heart failure and resistant hypertension, leading to a postponement of planned kidney transplantation. Over the past year, he experienced severe chest distress, shortness of breath, difficulty climbing stairs, and nocturnal orthopnea. His blood pressure escalated to 180/100 mmHg, necessitating multiple admissions to the cardiology ward due to pulmonary overload, where he was diagnosed with severe heart failure. A treatment regimen was initiated, including valsartan/sacubitril 50mg twice daily, carvedilol 25 mg/day, spironolactone 25mg/day, lercanidipine 10mg twice daily, and doxazosin 8mg twice daily, alongside an adjustment in dialysis frequency to four times per week.

Discussion. Currently, three clinical trials are investigating the efficacy and safety of Angiotensin Receptor-Neprilysin Inhibitor (ARNI) treatment in patients with HF and ESRD on dialysis, with two focusing on significant clinical endpoints such as cardiovascular death and hospitalization for HF. Previous trials, including PARADIGM-HF and UK HARP-III, have demonstrated ARNI's superiority over enalapril and irbesartan in reducing cardiovascular mortality in patients with HF with reduced ejection fraction (HFrEF), alongside improvements in blood pressure and biomarkers like troponin I and N-terminal pro-B-type natriuretic peptide levels.

Conclusion. Valsartan/sacubitril has shown promising results in improving cardiac function and humoral markers in dialysis patients, particularly those with resistant hypertension and left ventricular dysfunction. Despite the ongoing debate regarding its use in ESRD patients on dialysis due to the scarcity of randomized controlled trials, our positive experience with this case supports its potential benefits. Managing heart failure in the hemodialysis population requires a multifaceted approach, including neurohumoral inhibition (ACE inhibitors, ARBs, ARNI, aldosterone antagonists, beta-blockers, statins) and precise fluid management to alleviate cardiac stress. This comprehensive treatment strategy has led to symptomatic improvement, enhanced exercise capacity, increased ejection fraction, and reduced NT-pro BNP levels, ultimately enabling the patient to become eligible for kidney transplantation.

CHYLOPERITONEUM IN PERITONEAL DIALYSIS SECONDARY TO CALCIUM ANTAGONISTS: A CLINICAL CASE

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PP

Chyloperitoneum is a rare complication of peritoneal dialysis (PD). Its causes can be traumatic and non-traumatic, due to neoplastic, autoimmune diseases and retroperitoneal fibrosis and in rare cases - medications. Arterial hypertension is a common comorbidity in patients with CKD G5, including PD patients. Calcium antagonists (CAs) represent a cornerstone in the treatment of hypertension. Recent publications have shown that CAs drugs are associated with chyloperitoneum in PD.

We present to you a 59-year-old man with end-stage renal disease (ESRD) due to FSGS. He has been conducting PD for a year and a half, and has been on automated PD for about a year. He has had arterial hypertension for over 10 years with suboptimal control in recent months, which is why lercarnidipine was added to the therapy. Eight months after the onset of PD, turbidity of the solution began, without abdominal pain, fever, or other clinical symptoms. From the studies performed on the dialysis solution and blood tests - within reference values and microbiological cultures were sterile. From the ultrasound examination, secondary disease was ruled out. When lercarnidipine was stopped the very next day the peritoneal solution was clear. Five months after this episode, after consultation with a cardiologist, lercarnidipine was added again, and on the third day of administration, turbidity of the solution was again observed. After stopping the medication, an improvement was observed already at the first shift, by the 24 hours we have a complete clarification of the solution. Even rarely, chyloperitoneum in peritoneal dialysis may be due to the administration of calcium antagonists.

AUTOLOGOUS PERIPHERAL STEM CELL TRANSPLANTATION IN MORPHOLOGICALLY VERIFIED RENAL AL - AMYLOIDOSIS

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PP

Introduction. Renal amyloidosis is a disease characterized by extracellular deposition of amyloid substance in various organs. According to the chemical composition of amyloid fibrils, primary - AL and secondary AA amyloidosis are considered. In Europe, the ratio of AL to AA is on average 2:1. The prevalence in the population is 1 in 75 000 people. In Bulgaria it appears alone as a result in histological examinations in 49%, in combination with primary glomerulonephritis or SLE 39%, and in combination with diabetic nephropathy 11%.

Methods: Clinical case of a man hospitalized in the Nephrology Clinic at University Hospital "St. Marina" Varna with the clinical and laboratory constellation of

nephrotic syndrome. After a kidney biopsy was performed, the presence of renal amyloidosis was found. We provided additional tests. Pathogenetic treatment with corticosteroids and Cyclophosphamide was performed. Given the recorded lack of clinical and therapeutic response, after consultation with a hematologist, a decision was made to perform an autologous peripheral stem cell transplantation, performed at the Hematology Clinic of the University Hospital ‚St. Marina'', Varna.

Results. A protocol with Melphalan administration, CD34 stem cell transfusion, growth factor, antibiotic therapy, prophylaxis with Acyclovir and Bisceptol, anticoagulant and symptomatic therapy was implemented.

Conclusion. As a result of multidisciplinary work and treatment between nephrologists and hematologists, three months later the patient showed complete clinical and laboratory remission of the disease.

PREVALENCE AND ASSOCIATION OF RISK FACTORS FOR THE OCCURRENCE OF SARCOPENIA IN PATIENTS ON CHRONIC HEMODIALYSIS PROGRAM

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PP

Introduction. Sarcopenia is a progressive syndrome of muscle strength and mass loss that severely affects patients' quality of life, often leading to disability and higher mortality rates. Uremic sarcopenia in chronic hemodialysis patients arises from immunological and hormonal changes, reduced protein intake and physical inactivity, causing negative nitrogen balance. The aim of the study was to investigate the prevalence and association of risk factors for the occurrence of sarcopenia in patients on a chronic hemodialysis program.

Methods. The cross-sectional study included 176 patients (106 males) undergoing chronic hemodialysis. We determined body composition using bioimpedance analysis and calculated the appendicular body mass index. Muscle strength was evaluated using a hand dynamometer to measure hand grip strength (HGS). Sarcopenia diagnosis followed the criteria of the Asian Working Group for Sarcopenia.

Results: The prevalence of sarcopenia in the entire cohort of patients was 26.13% (46 patients); the prevalence in males was 24.5%, and in females was 28.6%. Males with sarcopenia were older (64.0±10.3 vs. 55.2±13.4 years, p<0.001), had longer dialysis vintage (7.2±1.11 vs. 5.2±1.98 years, p<0.001), and had a higher percentage of body fat, poorer hemodialysis, and lower levels of albumin, calcium, and phosphorus compared to the male control group without sarcopenia (p<0.05 for all). In both genders with sarcopenia, statistically significantly higher values of CRP were observed (p<0.05). Multivariate analysis showed that older patients (OR 1.06, p=0.012) and those with lower levels of albumin (OR 0.65, p=0.02) and phosphorus (OR 0.08, p=0.04) in the blood had a higher risk of developing sarcopenia. Significant risk factors also included reduced dialysis efficiency (OR 0.09, p=0.04) and longer dialysis vintage (OR 1.01, p=0.03).

Conclusion. Sarcopenia is a common complication in patients on hemodialysis. Timely detection and identification of risk factors are crucial, along with implementing active and effective treatment measures.

MONTREAL COGNITIVE ASSESSMENT AS A SCREENIG INSTRUMENT FOR COGNITIVE IMPAIRMENT IN CHRONIC KIDNEY DISEASE

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Introduction. Cognitive decline exists in chronic kidney disease (CKD) population and is particularly severe in patients with stage 5 CKD, but the mechanisms underlying this relationship are unclear. For the time being, the Montreal Cognitive Assessment (MoCA) is used quite rare in chronic kidney disease (CKD) patients. Our objectives were to determine the prevalence of cognitive impairment in various population of CKD patients through a use MoCA test. In our study we compared score on MoCA with score on Mini-Mental State Examination (MMSE) which performed as referent test, to estimate whether there was a correlation.

Methods. In cross-sectional study, 207 CKD patients divided into four groups were evaluated: patients in stage 3 and 4 CKD (group 1), patients on hemodialysis (group 2), peritoneal dialysis (group 3) and kidney transplant recipients (group 4).

Results. According MoCA, at least mild cognitive impairment (score <26) was detected in 78.3% patients in group 1 versus MMSE (score <27) 66%, 82.9% in group 2 versus 53% with MMSE, 79.3% in group 3 versus 41% and 42% among transplant recipients versus MMSE 16%. The presented differences are statistically significant (p<0.001). Strong positive correlation was found between MoCA and MMSE scores (r=0,629; p< 0,001). Duration of CKD in patients were strongly associated with cognitive impairment on the MoCA (p=0.001; odds ratio=0.998,) as opposed to MMSE (p=0.09).

Conclusion. Based on study results, especially on the strong relationship between impairment on MoCA with duration of illness, the MoCA could be suggested as a brief screening test of cognitive impairment during the earlier stages of CKD. Validation of the MoCA for CKD patients should be taken into consideration.

THE IMPORTANCE OF RENAL BIOPSY IN PATIENTS WITH DIABETES MELLITUS

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Introduction. The diagnosis of diabetic kidney disease (DKD) is most often made clinically. However, there is growing awareness of the prevalence of non-diabetic kidney disease (NDKD) with or without concomitant diabetic nephropathy (DN) in patients with diabetes. Proteinuria and renal disfunction is common in patients with diabetes mellitus. In most of the cases diabetic nephropathy is the cause of that disfunction, but some of the cases present other non-diabetic renal disease. Renal biopsy in diabetic patients has presented variety of glomerular changes. Immunosuppresants used for treatment of the glomerular diseases may be associated with complications.

Case report. Herein, we review the prevalence and presentation of NDKD in diabetic patients, with a focus on glomerular lesions, and discuss the ways in which diabetes can affect the diagnosis and management of these conditions. Diabetic patients with glomerular disease represent a sizable patient population. We report on 2 cases with diabetes mellitus with non-diabetic kidney disease confirmed with renal biopsy. The first case was a 58-year-old man, admitted to our Department with a history of diabetes, with actual presence of fatigue, inapetence and edema and proteinuria 6 g/24 hours. Renal function was diminished, creatinine values were 226 micromol/l, with GFR 38 ml/min. Second case was a 53 year -old-man with edema, hypertension, atrial fibriloflater and breatlessness, was treated with cardiologic therapy, but the edema was still present. Creatinin value was 126 micromol/l and proteinuria was 4,36 g/l (11,94g/ 24hours). In both cases, renal biopsy was performed and the histopatologic analysis showed membrano-proliferaive glomeurlonephritis with presence of diabetic glomerulonephritis.

The patients were treated with corticosteroids as pulse therapy, cyclophosphamide, diuretics and after that the clinical signs were stabilized.

Conclusion. The authors suggest that the renal biopsy should be performed in diabetic patients with unusual features, such as proteinuria without other signs of diabetic disorders. Renal histology can be of fundamental importance to both treatment and prognosis of the disease.

THE ROLE OF ELECTRON MICROSCOPY IN DIAGNOSIS OF GLOMERULAR DISEASES

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Introduction. The renal biopsy is a diagnostic method to provide information on type, activity and the intensity of the disease. The crucial role that electron microscopy plays in diagnostic renal pathology is for ultrastructural examination of kidney biopsies, which is important for recognition of certain critical findings not detected by light microscopy. In many situations it provides additional important data necessary for proper treatment of the diseases. The value of the electron microscopy has been widely emphasized.

Methods. In order to establish the role of electron microscopy in diagnosis of glomerular diseases, we reviewed retrospectively 96 renal biopsies, done in the Department of Nephrology. All cases were analyzed by light microscopy, immunoflorescence and electron microscopy. Eight of the samples were not adequate for estimation. Also, the clinical feature and laboratory findings were evaluated.

Results. Electron microscopy contributed for diagnosis in 72 of the cases (75 %), confirming the preliminary diagnosis. The clinical and laboratory data and light microscopy findings were not enough for diagnosis in 24 cases (25 %). It can be considered that electron microscopy was diagnostic or essential for diagnosis in 25% of the cases, corresponding to diagnosis in 75 % of the cases and 100% of hereditary glomerulopathy.

Conclusion. The results showed that in 25% of glomerulopathies, the ultrastructural study provides important diagnostic information, Electron microscopy still remains a useful tool in the diagnosis of glomerular disease.

ADRENAL CRISIS DUE TO ADDISON'S DISEASE PRESENTING WITH ACUTE RENAL FAILURE: A RARE PRESENTATION

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Introduction. AKI as a result of an adrenal crisis due to Addison's disease has been rarely reported.

Case report. A 38-years-old man with past medical history of congenital adrenal insufficiency and bilateral orchiectomy presented to emergency confused, measured temperature 39C, abdominal pain two days prior to admission, followed by severe nausea and vomiting. Detailed history revealed that he wasn't taking fludrocortisone for few months. He had low BP (90/50mm Hg), HR 150/min, for which 2L of normal saline was given. Laboratory showed creatinine 393

μmol/L, BUN 12 mmol/L, sodium of 129 mmol/l, CK 3710 U/L, CK-MB 314 U/L, CRP 111, Le 22.7. Other laboratory results and urine were unremarkable. Pancultures were negative. Chest X-ray confirmed pneumonia. He underwent upper GI endoscopy due to melena, showing ulcus ventriculi Forrest III. High doses of hydrocortisone, antibiotics and aggressive intravenous fluids led to improved kidney function and eunatriemia within 10 days (creatinine 84 μmol/L, BUN 7.6 mmol/L, CK 133 U/L, CK-MB 25 U/L, Na 139 mmol/L, CRP 16.1). No underlying cause of this rhabdomyolysis was identified, so it was considered secondary to Addisonian crisis induced hyponatremia.
Conclusion. We report hyponatremia-induced rhabdomyolysis in adrenal crisis resulted with AKI and successfully resolved by conservative treatment.

CASE REPORT: ACUTE KIDNEY INJURY SECONDARY TO MYXEDEMA ACCOMPANING RHABDOMYOLYSIS

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Introduction. Acute kidney injury (AKI) occurring in hypothyroidism is uncommon, because association between hypothyroidism and AKI is rare.
Case report. A 64-year-old man presented with 2 weeks history of weakness, malaise, lack of appetite and oedema. PMH: hypertension and coronary stenting. Physical examination: grayish-brown dry skin, peripheral oedema, slow thought and speaking. Laboratory examinations: elevated CK (4158 U/l), CK-MB (683 U/l), creatinine (675 μmol/L), urea (35 mmol/L), AST (1671U/L), ALT (968 U/l) and LDH (1477 U/ml). Free T4 was very low (FT4:0.08 ng/dL) and thyroid-stimulating hormone was high (TSH:150 μIU/mL). Hypothyroidism-induced rhabdomyolysis resulted in AKI. Intravenous fluids, urinary alkalization and substitution with L-thyroxine initiation dose of 100 ug/d and corticosteroids (urbason 2x40 mg/d) were started. All hepatotoxic agents were removed. Forced diuresis with furosemide led to a progressive improvement in symptoms, but renal function worsened (urea 39.6 mmol/L, creatinine 841 μmol/L, K 4.5 mmol/L) requiring hemodialysis. Four hemodialysis sessions and thyroxine substitution led to partial recovery of renal function (creatinine 267 μmol/L, urea 21.9 mmol/L). Hepatic enzymes and CK fell to normal values and thyroid hormones increased (T3: 1,16 ng/dL with TSH:50.2 μIU/mL and anti TPO:1300 U/ml).
Conclusion. Hypothyroidism related AKI due to rhabdomyolysis is reversible, if correctly diagnosed. We describe a case of severe autoimmune hypothyroidism and AKI requiring hemodialysis, where thyroid hormone replacement resulted in partial restoration of the renal function.

CASE STUDY OF WOMAN PRESENTING WITH BILATERAL KIDNEY TUMORS: BIRT-HOGG-DUBE SYNDROME

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Introduction. Birt–Hogg–Dubé syndrome (BHD) is rare autosomal dominant genetic disorder caused by germline mutations in the folliculin (FLCN) protein gene, causing renal tumors, cutaneous fibrofolliculomas and lung cysts with or without spontaneous pneumothorax.
Case report. A 34-year-old woman with no medical history was admitted to nephrology department in our hospital due to urosepsis accompanied with high temperature 40oC, hypotension that lasted for 7 days and multiple white domeshaped papules on the scalp. Laboratory analysis confirmed increased inflammatory biomarkers (procalcitonin, C-reactive protein, fibrinogen) and positive urine and blood culture with isolated E. colli. After admission, renal ultrasound showed multiple mixed-density changes in both kidney suspected for renal abscess, which were confirmed by renal computed tomography. Under antibiotic therapy all inflammatory markers fell to reference range, but renal changes persisted. Magnet resonance was performed and bilateral renal cell carcionoma (RCC) or oncocytoma were suspected. Patient went under bilateral renal tumorectomy surgery. The multidisciplinary approach, including nephrology, radiology, dermatology and pathology department, set a working diagnosis of BHD syndrome, which was confirmed by genetic testing and histopatology (hybrid oncocytoma on left kidney plus clear cell RCC on right kidney) later.
Conclusion. We reported the case of woman who underwent renal tumorectomy due to BHD syndrome and no occurrence of other symptoms in the follow-up period of 1 year which highlighted the importance of multidisciplinary approach for diagnosis and treatment of BHD.

CHOLESTATIS ASOCCIATED WITH ACUTE PYELONEPHRITITS – CASE PRESENTATION

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Introduction. Cholestasis is a clinical syndrome characterized by disturbance in production, secretion or drainage of bile in the duodenum. The following is a presentation of a patient in whom sepsis caused intrahepatic cholestasis.

Case presentation. A 32-year-old patient, presented with pain in the right lumbar region, dysuric complaints, jaundice in the last 6-7 days and fever. Abdominal echo and UGT and laboratory biochemical findings, were in favor of pyelonephritis of the right kidney. Initial laboratory findings showed normocytic normochromic anemia. Hepatogram confirmed cholestasis. Virological analyzes did not confirm the existence of HbsAg positivity. Urine culture did not isolate pathogenic microorganisms. An echo of UGT showed enlarged right kidney with suspicion of abscess formation. A CT urography was also performed. Urologist was consulted for a possible nephrectomy, but conservative treatment was suggested. Patient was treated with parenteral antibiotics. After 3 weeks of hospitalization, a complete withdrawal of the inflammatory changes were achieved.
Discussion. Cholestasis caused by sepsis is a consequence of a functional disorder in the production of bile at the hepatocellular level. Proinflammatory cytokines and nitric oxide are responsible for the pathogenesis, which are produced by the Kupffer and sinusoidal cells of the liver, activated by the release of lipopolysaccharide, that is, bacterial endotoxin from the primary infectious focus. Treatment consists of eradication of the primary focus of infection.

ASSOCIATION OF AUTOSOMAL DOMINANT POLYCYSTIC KIDNEY DISEASE AND ABDOMINAL AORTIC ANEURYSM

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Introduction. Autosomal dominant polycystic kidney disease (ADPKD) is a systemic disease with multiple cysts in several organs. Formation of aneurysms of: the aorta, coronary and cerebral arteries are increasingly reported in the literature as extra-renal manifestations.
Case report. We report 77-year-old male with ADPKD and long-standing hypertension, admitted to our ward due to extreme weakness, malaise and abdominal pain with severe anemia and elevated serum levels of creatinine and urea. Treatments with hemodialysis and blood substitution were started. Abdomen echo-sonography showed hepatic cysts and polycystic kidneys. The cysts were filled with clear content, in the right kidney toward the upper pole, two larger cysts were notified and next to them a pulsatile cystic lesion was noted with hemorrhagic-filled content which was highly suspicious for an aneurismaticlly dilated abdominal aorta. CT angiography of the aorta showed dilated, tortuous aorta with advanced atherosclerosis along its entire length. The dilatation was evident in the descending part of the aorta, with infrarenal saccular dilatation before the bifurcation, that seemed to be thrombosed and next to it denser content was observed, probably older hemorrhagy, without imaging signs of acute extravasation of the contrast. Cardiovascular surgeon recommended coronography and coronary artery aneurisms were excluded. Unfortunantly the patient started to alternete with his consuosnes and brain CT angiography showed corticoreductive changes, no aneurism, extra-or intra-axial hemorrhage were observed. Due to the severe general condition, clinical assessment and advanced age of the patient, the case was declared as inoperable.
Conclusion. Due to hypertension and associated connective tissue disorders patients with ADPKD are prone to develop aortic aneurysms, and should be questioned as a frequent feature in such patients, hence early diagnosis and treatment decisions based on a risk–benefit analysis, remains the cornerstone of management.

ASSOCIATION BEETWEEN MEMBRANOPROLIFERATIVE GLOMERULONEPHRITIS AND COLORECTAL CA – CASE REPORT

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Introduction. Membranoproliferative glomerulonephritis (MPGN) is a rare glomerular disease characterized by mesangial hyper cellularity and thickening of the glomerular basement membrane (GBM). MPGN can be idiopathic or associated with malignancy, systemic immune complex disorders and chronic infections. It has rarely been associated with solid organ tumors, such as lung, gastric, breast or prostate cancer. Here, we report a patient with MPGN and coexisting colorectal carcinoma.
Case presentation. A 48-year old male presented with anemia, loss of weight, hypertension, acute kidney injury and nephrotic syndrome. The renal biopsy findings were compatible with type 1 MPGN. Anti-neutrophilic cytoplasmic antibody, antinuclear antibody, anti-GBM, serologic markers of hepatitis B and hepatitis C and tumor markers were negative. After ruling out secondary causes of MPGN, the patient was treated with pulse doses of methylprednisolone and a single dose of cyclophosphamide. However, due to worsening anemia and rectal bleeding, a colonoscopy was performed, which established a diagnosis of adenocarcinoma of the descending colon. The patient

was treated with left hemicolectomy, as well as oral corticosteroids.
Results. Within a year after cancer treatment the patient experienced complete resolution of the proteinuria and improvement of kidney function.
Conclusion. Although rare, MPGN can be associated with hematologic malignancies and solid organ tumors. The most common causes of secondary MPGN should be ruled out before starting specific treatment. In this patient, treatment of cancer has led to subsequent remission of nephrotic syndrome, which indicated that this association was not a coincidental but rather causal. In patients with a tumor and concomitant glomerulopathy which is suspected to be paraneoplastic in etiology, treatment of the underlying malignancy should be prioritized.

HEMORRHAGIC FEVER WITH RENAL SYNDROME AND COEXISTING PULMONARY SYNDROME: UNNUSUAL PRESENTATION OF HANTAVIRUS INFECTION

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Introduction. Hantavirus infections traditionally presented in two distinct syndromes, the so-called "Hemorrhagic Fever with Renal Syndrome" (HFRS) with the kidneys as main target organs, in contrast to "Hantavirus Pulmonary Syndrome" (HPS) with the lungs as main target organs. However, the numbers of reported HFRS cases with lung involvement and HPS cases with renal and/or hemorrhagic involvement are continuously growing, emphasizing the need to reconsider the paradigm of two different syndromes.
Methods. We described two cases of young males with Hantavirus infection who presented with fever, abdominal pain, thrombocytopenia, hemorrhage and acute kidney injury requiring hemodialysis treatment. Both cases followed an atypical clinical course with cardio-pulmonary affection and development of hypotension and acute respiratory distress syndrome (ARDS) with need of mechanical ventilation in one of the patients.
Results. Ultimately, both patients experienced gradual improvement of renal and cardio-pulmonary function, and developed no chronic complications.
Conclusion. Both syndromes caused by Hantavirus are immune-mediated and overactive immune response and endothelial dysfunction in various organs could lead to wide spectrum of clinical presentations and overlapping syndromes. Hantavirus should be considered as a possible etiological factor in patient presenting with pulmonary-renal syndrome.

MIXED PULMONARY INFECTION IN A PATIENT WITH SUCCESSFULLY TREATED RECCURENCE OF FOCAL SEGMENTAL GLOMERULOSCLEROSIS ON KIDNEY ALLOGRAFT

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Introduction. A 36-years-old female with kidney failure due to Focal Segmental Glomerulosclerosis (FSGS) had kidney transplant from a living-related donor in 2017. The patient received standard triple maintenance immunosuppressive therapy and had stabile graft function during the follow-up. Four years after transplantation, the patient developed proteinuria and increased in serum creatinine. Renal transplant biopsy demonstrated changes consistent with recurrence of FSGS in the kidney allograft. The patient was treated with single dose of Rituximab and five therapeutic plasma exchanges. Few months after the treatment, the patient experienced complete remission with normalization of serum creatinine and proteinuria.
Case report. In November 2023, she was admitted in our Nephrology department, due to 10-days history of weakness, fever and productive cough with hemoptysis. The Computer Tomography scan of the lungs revealed bilateral ground-glass opacities with massive infiltration and cavitary lesion. The bronchoalveolar lavage (BAL) and pneumoslide were positive for Acinetobacter Species and Human Rhinovirus/ Enterovirus. The β-d-Glucan fungal antigen was highly positive, suggesting severe invasive fungal infection. To alleviate excess systemic inflammation “cytokine storm” the patient was treated with hemo adsorption (CytoSorb) with transitory hemodynamic stabilization and improved graft function. However, despite the therapy with parenteral wide-spectrum antibiotics, antiviral medication and antifungal drug (Caspofungin) the patient had continuous worsening with development of respiratory failure and need of mechanical ventilation.
Results. The patient died on the 15th day of hospitalization. In conclusion, rituximab and therapeutic plasma exchange is an effective treatment for FSGS recurring following kidney transplant.
Conclusion. On the other hand, infections remain the most important cause of death among kidney transplant patients. Infections in these patients are usually caused by multiple microorganisms and diagnosis can be challenging because the clinical presentation is non-specific and the diagnostic tools have limited sensitivity and specificity and must be interpreted in

the context of clinical settings. Management is difficult and mortality is very high despite the treatment.

CHRONIC HYPERKALEMIA IN CHRONIC KIDNEY DISEASE

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Introduction. Our aim was to investigate the need of a dietary intervention in our CKD patients.

Methos. 65 ambulatory CKD patients with chronic hyperkalemia were sampled for blood analyses and asked three questions: about knowing the potential harmful effect of high potassium in the blood, secondly about knowing of potassium rich foods and thirdly how they feel about having a leaflet with additional information on the subject. Patients were stratified into groups in respect of potassium level (mild <5.9; moderate 6-6.5 and severe ≥6.5 mmol/l).

Results. Mild hyperkalemia was found in 21(32%), moderate in 29(45%) and severe in 15(23%). Out of all, 35(54%) already knew about the harmful effect of high potassium blood. Knowledge about the potassium rich foods claimed 22(34%) of patients but most of them stressed they only knew 2-3 items. The positive response rate on the third question about needing a leaflet with information on this issue was 100%. In order to achieve careful reduction of potassium level without compromising the alkali and fiber intake a leaflet was prepared for the CKD patients.

Conclusion. Large proportion of CKD patients with hyperkalemia are in need of dietary intervention with written information in the form of an educational leaflet.

ANNUAL CHANGE OF ESTIMATED GFR IN HEALTHY INDIVIDUALS

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PP

Introduction. The aim of this study was to calculate the change of estimated GFR on annual level and its correlations in healthy individuals.

Methods. A retrospective observational study on 62 healthy subjects during 6 years was done. Annual creatinine was obtained from medical files. Calculation of the mean annual GFR change (δGFR) was done through the method of data smoothing. Comparative analyses of δGFR in relation to gender and obesity was done by non-parametric Mann-Whiney U test. P was considered significant if less than 0.05.

Results. Mean age of the study group was 39.5 years. Mean BMI was 26.3±3.81 kg/m^2, 13% were obese. The mean annual GFR fluctuated (101.8±5.56; 108.0 ±31.04; 102.8±18.28;103.2±20.49; 99.10±24.28; 103.55 ±20.74 mL/min/1.73m^2, respectively). The δGFR median value was 2.3 mL/min/1.73m^2 ranging from -23 to +20, and its correlations with age and BMI were insignificant. The δGFR did not differ significantly between genders and obese vs nonobese subjects (p= 0.577; p=0.768, respectively).

Conclusion. Annual GFR change wasn't correlated to age, gender and BMI. We found high variable eGFR levels and annual decline in presumed healthy persons. Thorough evaluation of the candidates for kidney donors, especially when applying the expanded criteria is mandatory.

REFERRAL TO NEPHROLOGIST AND KIDNEY FUNCTION DECLINE IN DONORS IN 5 YEARS OF FOLLOW UP

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Introduction. This study aims to analyze the five years follow up of kidney donors after explanation, encountering nephrologist referral.

Methods. In 75 donors eGFR were checked prior and annually after-donation. In a multivariate regression analysis, the reduction ratio (RR) of eGFR was explored as dependent variable. Cox regression analysis exploited mortality.

Results. Proportion of donors referred to nephrologist at the 12 months, declined up to 58%, ignoring medical checks showed ascending trend to 16% at the end of second year and 12% at the end of observational period. The nephrologist referral showed borderline significance (β = - 0.103, p=0.076) predicting eGFR 12 months reduction and obesity worsened the kidney function (β=0.600, p=0.001). In the multivariate analysis obesity emerged as most powerful predictor of mortality (HR 40.02; CI: [4.11-389), p=0.0001) with shorter survival (43.28±7.51 vs. 59.33±0.65, Log rank p=0.000), respectively.

Conclusions. The mortality and decline of renal function after donation are associated with nephrologist referral and other potentially modifiable factors, especially obesity. Improved protocols for pre-donation information, education and adequate after-donation follow up are mandatory to achieve better longevity and kidney function in these frail and precious individuals.

A CASE REPORT: SEVERE HYPOKALEMIC PARALYSIS IN YOUNG ADULT -RENAL DISEASE OR NOT

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Introduction. Hypokalemic paralysis is life-threatening syndrome with muscle weakness or paralysis from low potassium levels. Causes of hypokalemia vary, including renal and gastrointestinal losses.

Methods. A 26 years old patient was admitted in sopor-coma with vomiting, diarrhea and muscle weakness 3 days before admission. He was seen by a gastrologist, abdominal surgeon and infectiology specialist, acute abdominal involvement was excluded. Laboratory analyses showed normal CBC, urea 4mmol/L, creatinine 69umol/L, sodium 147mmol/L, potassium 1.6mmol/L, calcium 1.9mmol/L, chloride 119mmol/L, creatine kinase 713U/L, total protein 53g/L, albumin 35g/L, alkaline phosphatase 213.U/L. Blood gas analysis showed severe metabolic acidosis with pH 7.18, bicarbonates 16mmol/L. Diagnosis of hypokalemic paralysis was established. Treatment included intravenous potassium, bicarbonates, blood plasma supplementation, potassium saving diuretic. Hyperaldosteronism, use of medication or other drugs was excluded. 24-hour proteinuria suggested gastrointestinal loss of potassium with hypokaliuria. Renal ultrasound showed enlarged kidneys, increased renal parenchymal echogenicity with small calcifications in papilla. The patient had normal urine output. In the next 48 hours, serum potassium levels increased and normalized, with improvement in symptoms

Results. The patient was discharged in stable condition with recommendation for further gastrologic investigations.

Conclusion. Considering hypokalemia as a diagnosis is crucial in patients with acute weakness or paralysis. Early recognition, replacement therapy and determining the cause are important in managing hypokalemic paralysis.

ENCOURAGING SELF-ADMINISTRATION OF ERYTHROPOIETIN BY CREATING INFORMATION BROCHURE FOR PREDIALYSIS CKD PATIENTS

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Introduction. Patients with chronic kidney disease have a relatively deficient erythropoietin production, and this is one of the most significant causes of anemia in this group. The disorder starts to develop when the glomerular filtration rate drops below 60 mg/ml. In it's severe form, anemia decreases quality of life and increases the risk of cardiovascular diseases and mortality in this patients, so the implementation of prevention and control measures is recommended.

Methods. In our institution, 54 predialysis CKD patients, with average age 69,44±15, have been regularly followed and treated for anemia with subcutaneous administration of ESA, mostly on weekly basis. Considering the numerous comorbidities of this group of patients, in order to reduce frequent outpatient visits and improving the quality of life, 30 (60%) patients accepted to be educated on self-administration of EPO.

Results. We created an information brochure for patients, as an educational training material, with basic information about the medication, how to administer, side effects, contraindications and information about safe storage and disposal.

Conclusion. The benefits of education through the information brochure for self-application of EPO among the group of predialysis CKD patients are improved cardiovascular function and a more compliant patient enjoying an improved quality of life.

HEMODIALYSIS PATIENT WITH AN ABDOMINAL AORTIC ANEURYSM-CASE REPORT

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Introduction. Aortic aneurysm is a common disease in the general population. Patients with increased risk are smokers with arterial hypertension, hyperlipidemia or inflammatory process. Hemodialysis patients have most of these risk factors and have a higher chance of aortic aneurysm, but the frequency of representation is low.

Case report. We describe the case of 62 year old man with end stage renal disease (ESRD) on chronic hemodialysis since 2016. From the medical history, patient had arterial hypertension, HBV positivity and past COVID infection. Vascular access- AVF right forearm. He was smoker in the past. In January 2023 the patient had symptoms of severe pain in the left lumbar region. Elective echocardiography and CT scan of the aorta were performed with Dg:Aneurysm of the abdominal aorta-50 mm. The patient developed symptoms of malaise, difficulty breathing, fever and immobility. The quality of life decreased and the patient needed constant monitoring. In March23 the patient was hospitalized at the Cardiology Clinic, in a serious general health condition. Laboratory tests showed secondary anemia, high transaminases, inflammation, hypoalbuminemia and hyperlipidemia. The patient was treated conservative. In July23 the pa-

tient was hospitalized at the Clinic of Thoracic and Vascular Surgery, where surgical treatment of the aneurysm was performed. In the following months, the patient's quality of life improved, he was in good general health, hemodynamically stable during hemodialysis and the laboratory parameters return to reference values.

Conclusion. Aortic aneurysm is a very rare disease in hemodialysis patients. The disease can have a rapid evolution and a fatal outcome. That is why it's necessary to make screenings as a gold standard for early diagnosis and timely treatment. Monitoring and improvement of the quality of life after surgical treatment is significant for increasing survival in hemodialysis patients.

UNCOMMON CO-OCCURRENCE: ENDOGENOUS CUSHING'S SYNDROME IN A SYSTEMIC LUPUS ERITHEMATOSUS PATIENT UNDERGOING HAEMODIALYSIS

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Introduction. Systemic Lupus Erythematosus is an autoimmune disorder which causes many complications with major affection on the kidney function. Cushing syndrome can be endogenous or it can be iatrogenic by glucocorticoid excess especially in patients treated for autoimmune diseases. In this paper we are going to present a case of a 54 year old female patient with multisystemic affection caused by her primary autoimmune disease that was not controlled or treated. She presented with chronic kidney disease st. 5, on regular hemodialysis treatment, malignant hypertension, anemia, menstrual irregularities, two cerebrovascular incidents, secondary hyperparathyroidism, central obesity, hyperlipidemia.

Materials. The motive for diagnostic investigations was her complaint for abdominal pain, her specific physical appearance- moon face and central obesity, also her history of cerebrovascular insults and kidney failure. She was evaluated with abdominal CT, serum cortisol suppression test, SLE antibody panel.

Results. CT revealed right adrenal adenoma and bilateral kidney hypotrophy. Serum cortisol was not suppressed by low or high doses of dexamethasone. The SLE antibody panel revealed: Antinuclear antibodies-ANA positive; Anti dsDNA positive; Antiphospholipid antibodies (APL): Anticardiolipin and anti-beta 2GP1 antibodies positive.

Conclusion. Cooccurrence of Systemic Lupus Erythematosus and endogenous Cushing Syndrome is not common. This patient requires multidisciplinary evaluations and complex treatment of her primary autoimmune disease, and further laparoscopic procedures for her adrenal adenoma. This unique case highlights the importance of recognizing and managing rare co-occurrences in autoimmune disorders, emphasizing the need for individualized and collaborative care. Further research and clinical studies are warranted to better understand the underlying mechanisms and optimal therapeutic strategies for complex cases like this one.

BARDET-BIEDL SYNDROME – A RARE CASE WITH HEARING LOSS

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Introduction. Bardet-Biedl Syndrome (BBS) is a rare autosomal recessive disorder caused by primary cilia- dysfunction and it is characterized by a wide spectrum of clinical manifestations. Pigmentary retinopathy, polydactyly, obesity, learning disabilities, various degrees of intellectual disability, hypogonadism in males, renal abnormalities, nystagmus, speech disorders, developmental delay, polyuria/polydipsia, ataxia, are all common symptoms of this condition. It affects males and females equally. Beside clinical manifestation, genetic testing may assist in diagnosing the disorder in selected cases. This syndrome has been related to twenty-two different loci (BBS1-BBS22).

Case presentation. We report the case of a 26-year-old male individual with delayed diagnosis who is presented with multi-system manifestations: truncal obesity, polydactyl- bilateral postaxial polydactyly of the toes, severe visual impairment, cognitive deficit, chronic kidney disease grade 3A and conductive hearing loss which is unusual and not a typical symptom in BBS. The patient's kidney function is monitored regularly and treated to slow down its progression. Genetic testing showed mutations in BBS7 gene. Genetic testing showed a homozygous frameschift variant in the BBS7 gene (c.712_715del; p.Arg238fs).

Conclusion. As there is no specific treatment for BBS, multidisciplinary care is required to prevent avoidable morbidity and mortality.

LIFE-THREATENING ACUTE KIDNEY INJURY IN WEIL'S DISEASE - A RARE CASE WITH POSITIVE OUTCOME

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Introduction. Weil's disease is a rare, severe form of Leptospirosis, with a wide spectrum of possible

complications, including diffuse alveolar hemorrhage, meningitis, shock and kidney failure, demonstrating a high mortality rate.

Case presentation. We present a case of a 36 year male, admitted in our nephrology yard due to an occurrence of oliguric, hypokalemic acute kidney injury, jaundice, hypotension, epistaxis and dyspnea, complaining of abdominal pain, malaise, fever and diarrhea, 5 days prior admission. Laboratory findings revealed anemia, low platelets, isolated direct hyperbilirubinemia and high inflammatory markers. A performed CT scan of lungs indicated diffuse alveolar hemorrhage. Hemodialysis treatment and i.v antibiotics were initiated, for the severe hyperbilirubinemia, hemoperfusion and plasmapheresis were the choice of treatment. Obstructive jaundice, multisystem autoimmune and hematological diseases were excluded, and a high suspicion for infectious disease was raised, according to obtained data for consummation of untested water, raw food and animal contact. Microbiological cultures and tox-screen remained negative, same as serological tests for HSV, HIV, HBV, HCV, CMV, Hantan-virus and Crimean-Congo hemorrhagic fever. Based on modified Feine's criteria, in lack of available serology tests, patient was diagnosed and treated as Leptospirosis, after which regain full recovery of kidney, liver and lung function.

Conclusion. In the absence of immediate available serological and PCR confirmation tests, a prompt and fast diagnosis based on clinical and epidemiological judgement is substantial for early treatment and positive outcome.

EFFECT OF LESPEDEZA CAPITATA EXTRACT ON OPTIMAL KIDNEY NEPHRON FUNCTION AND SLOWING KIDNEY DISEASE PROGRESS

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Introduction. Chronic kidney disease (CKD) poses a significant global health challenge and places a substantial economic burden on healthcare systems. In our study, we investigated the impact of Lespedeza capitata extract on renal function and CKD progression.

Methods. We observed 30 patients (20 men and 10 women) with CKD from 2023 to 2024. Initially, these patients were at CKD stages I and II, with a glomerular filtration rate (GFR) ranging from 30 to 35 ml/min and serum creatinine levels between 150 and 255 mmol/l. The treatment regimen included correction of iron deficiency, management of hypertension, and regular CKD therapy.

Results. By 2024, patients treated with Lespedeza capitata (Nephrolesp) demonstrated improved renal function. Their GFR increased to 50–60 ml/min, and creatinine levels decreased from 115 to 135 mmol/l. Notably, urea levels decreased from 12 mmol/l to 9 mmol/l (24%), uric acid levels decreased from 356 mmol/l to 275 mmol/l (20%), and creatinine levels decreased from 255 mmol/l to 115 mmol/l (22%) in serum.

Conclusion. The renoprotective effect of Lespedeza capitata, combined with regular CKD therapy, contributed to optimal nephron functioning. Flavonoids present in Lespedeza capitata capsules play a crucial role in maintaining kidney health. Regardless of the etiopathogenesis of CKD, this balanced approach holds promise for slowing disease progression.

SHORT TERM TREATMENT OF CHRONIC HYPERKALEMIA WITH ORAL POTASSIUM BINDER IN CHRONIC KIDNEY DISEASE PATIENTS

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Introduction: The aim of our study was to analyse the efficacy of short-term administration of oral calcium polystyrene sulfonate (CPS) to treat hyperkalemia in non-dialysis CKD patients.

Methods: A prospective interventional study was conducted in 65 CKD patients with chronic hyperkalemia with a month of therapy. Patients were stratified into groups in respect of potassium level (mild <5.9; moderate 6-6.5; severe ≥6.5 mmol/l). Regression analysis was applied to investigate associations of hyperkalemia with different variables. Paired T-Test was used for comparative analysis of potassium levels before and after therapy.

Results: Patients mean age was 67 years, eGFR ranged between 8 to 52ml/min. More than half of patients presented with moderate or severe hyperkalemia.None of the demographic, clinical or pharmacological variables predicted potassium level. The comparative analysis with paired samples T-Test showed significantly lower potassium levels after one month of therapy (p<0.001). The portion of patients that were encountered for mild hyperkalemia significantly increased (21% vs. 59%, p<0.001) and conversely, the portions of those with moderate and severe hyperkalemia significantly decreased (29% vs. 3%, p<0.001; 15% vs, 3%, p<0.001), respectively.

Conclusion: Short term treatment of hyperkalemia with oral potassium binder is effective in non-dialysis CKD patients.