European Society of Paediatric Clinical Research

29th MEETING

Book of Abstracts

Vocational College of Hospitality and Tourism Maribor

October, 21st–22nd 2021

Department of Paediatrics, University Medical Centre Maribor
Faculty of Medicine, University of Maribor, Slovenia

Editor

Nataša Marčun Varda

International Scientific Board

Jan Lebl (Czech Republic)
Ludmila Podracka (Slovakia)
Tivadar Tulassay (Hungary)
Radvan Urbanek (Germany)
Nataša Marčun Varda (Slovenia)

Local Organising Committee

Nataša Marčun Varda
Martina Filipič
Rebeka Gerlič
Sonja Golob Jančič
Mirjam Močnik
Tadej Petek

Publisher

University Medical Centre Maribor, Ljubljanska 5, 2000 Maribor, Slovenia
(Funding by the Slovenian Research Agency Project J3-1762)

Printing

Dravski tisk, Maribor

Circulation

90 copies

CIP - Kataložni zapis o publikaciji
Univerzitetna knjižnica Maribor

616-053.2:001.891(082)

EUROPEAN Society of Paediatric Clinical Research. Meeting (29 ; 2021 ; Maribor)

European Society for Paediatric Clinical Research : 29th meeting : book of abstracts : October, 21st-22nd 2021, Maribor, Slovenia / [organizers Department of Paediatrics, University Medical Centre Maribor [and] Faculty of Medicine, University of Maribor] ; [editor Nataša Marčun Varda]. - Maribor : University Medical Centre, 2021

ISBN 978-961-6575-64-5
COBISS.SI-ID 80521731

CONTENTS

Department of Paediatrics, University Medical Centre Maribor

Faculty of Medicine, University of Maribor

European Society of Paediatric Clinical Research

Quod serimus, metimus, quod damus, accipimus.

(Latin phrase)

WELCOME LETTER

It is our pleasure, honour and privilege to invite you to Maribor for the 29th meeting of the European Society of Paediatric Clinical Research (ES-PCR), a traditional scientific conference of young paediatricians, researchers and their tutors in paediatrics. For almost three decades, it has connected the participants from several Central European countries, enabled young researchers and colleagues to briefly present their research work and provided international contacts, cooperation and friendship.

We are delighted to welcome you again to the city of Maribor after a seven-year gap, and after a one-year meeting postponement due to the COVID-19 pandemics. We would like to thank all of you for your active participation as well as the efforts you have made to keep alive our conference with its 30-year tradition.

We are pleased that, despite still not having the optimal epidemiological situation, the conference attendance is so high. The last two years have been full of uncertainty and a testing time for all of us as individuals and as humanity but at the same time it has been an opportunity to think about what is important in life. We hope and believe that with joint efforts and prudent action we will manage to limit the looming danger of the next disease waves burdening our lives and limiting professional meetings, work and much-needed personal socialising.

The scientific programme includes a full spectrum of oral presentations of high quality from different fields of paediatrics as well as a considerable number of posters with poster debate. The meeting also features a state-of-the-art lecture covering the field of basic medical research as well as a lecture on COVID-19 in children.

After the scientific programme, on Friday evening, all participants are warmly invited to attend a social event with organised transportation directly from the lecture hall to the beautiful venue of a local winery for the conference dinner.

We hope that you will find time to enjoy the unique atmosphere of Maribor and strike up some friendships. The beautiful city of Maribor offers wonderful scenery in the old city centre, a 400-year-old vine, stunning views from the Pohorje hill and charming wine routes and landscape in the vicinity.

We sincerely hope that we will all work together to keep the conference tradition with a stimulating scientific spirit and the values that we have promoted over many years.

We wish you a successful scientific conference with interesting discussions, identified questions for future research, optimism and new challenges as well as many pleasant moments during the social events. We warmly welcome you to Maribor!

Prof. **Radvan Urbanek**, MD
Founder of the ES-PCR Conference

Prof. **Nataša Marčun Varda**, MD, PhD
Conference President

PROGRAMME

October 21, 2021, 8 p.m. WELCOME DINNER FOR PROFESSORS AND MENTORS

October 22, 2021

8.00– 8.45 Registration

8.45– 9.00 Welcome address and introduction (Radvan Urbanek, Nataša Marčun Varda)

SCIENTIFIC PROGRAMME

9.00–11.00 **Section I** Chairs: Monika Csoka, Jan Lebl

9.00– 9.15 **In vitro characterization of the DNA-binding affinity of the WT1 transcription factor mutants found in children with steroid-resistant nephrotic syndrome**
Bezdíčka M, Kaufman F, Křížová I, Dostálková A, Rumlová M, Seeman T, Vondrák K, Fencl F, Zieg J, Souček O (Prague)

9.15– 9.30 **Characteristics of MIS-C patient cohort in Slovenia**
Emeršič N, Zajc Avramovič M, Avčin T (Ljubljana)

9.30– 9.45 **Growth plate genes are invaluable growth regulators: a study on 55 children with short stature from consanguinity**
Amaratunga SA, Hussein Tayeb T, Elbova L, Dusatkova P, Pruhova P, Lebl J (Prague)

9.45–10.00 **Prospective study on MMR booster vaccine in children with rheumatic diseases treated with DMARDs and/or biologics**
Bizjak M, Dasoula F, Balažiová B, Adrović A, Maritsi DN, Dallos T, Kasapcopur O, Toplak N, for Pediatric Rheumatology European Society (PReS) Vaccination working party (Ljubljana)

10.00–10.15 **Bioimpedance measurement and cardiovascular risk factors in children**
Golob Jančič S, Močnik M, Švigelj M, Marčun Varda N (Maribor)

10.15–10.30 **Effects of asthma bronchiale and its treatment on cardiovascular system**
Budinskaya K, Svačinová J, Svízela V, Nováková Z (Brno)

10.30–10.45 **Carotid-femoral pulse wave velocity and radial-carotid pulse wave velocity measurement with central hemodynamic data analysis**
Močnik M, Marčun Varda N (Maribor)

10.45–11.00 **Specialized and asymmetrical processing of vowels in newborns**
Urbanec J, Kremláček J, Chládková K, Skálová S (Hradec Kralove)

11.00–11.30 Coffee break

11.30–13.30	**Section II**	Chairs: Nataša Marčun Varda, Antal Dezsofi
11.30–11.45	**Novel treatments and outcomes of retinoblastoma in Hungary** Klaus L, Maka E, Csóka M (Budapest)	
11.45–12.00	**Prediction of adverse skin reactions during anti-TNF therapy for inflammatory bowel diseases in children** Kazeka D, Hradsky O, Bronsky J (Prague)	
12.00–12.15	**Transitional elevation of anti-tissue transglutaminase antibodies in children with type 1 diabetes without coeliac disease** Muzslay E, Hamory E, Herczeg V, Toth-Heyn P, Luczay A (Budapest)	
12.15–12.30	**Use of total parenteral nutrition in children with cancer** Matejčić M, Ružman I, Brgodac E, Roganović J (Rijeka)	
12.30–12.45	**Comparison of efficacy between penicillin and broad-spectrum beta-lactam antibiotics in the treatment of community-acquired pneumonia in children** Cugmas M, Jerele E, Berce V (Maribor)	
12.45–13.30	**State of the Art Lecture (Assoc. Prof. Dr. Uroš Maver)** In vitro human cell based models – an important tool to boost translation of research to clinical practice	
13.30 –14.30	Lunch	

14.30–17.05 **Section III** Chairs: Ludmila Podracka, Tivadar Tulassay

14.30–14.45 **Role of PARK7 in the peritoneal dialysis associated fibrosis**
Veres-Székely A, Lévai E, Szebeni B, Szász C, Pap D, Pajtók C, Reusz G, Szabó AJ, Vannay A (Budapest)

14.45–15.00 **Vitamin D in pediatric patients with obesity and hypertension**
Radulović Ž, Polak Zupan Z, Tomazini A, Marčun Varda N (Maribor)

15.00–15.15 **Excess sodium chloride induces inflammation and profibrotic response in peritoneal cells**
Pajtók C, Pap D, Veres-Székely A, Szebeni B, Lévai E, Szabó AJ, Vannay A, Tulassay T (Budapest)

15.15–15.30 **Perinatal asphyxia induced acute and long-term renal damage in a rat model**
Lakat T, Hosszu A, Molnar A, Toth AR, Demeter K, Varga ZK, Kelemen H, Szabo AJ, Denes A, Szabó M, Mikics E, Fekete A (Budapest)

15.30–15.45 **The role of extracellular DNA (ecDNA) in pathomechanism of kidney disease**
Gaál Kovalčíková A, Janovičová Ľ, Vlková B, Celec P, Podracká Ľ (Bratislava)

15.45–16.00 **New therapeutic opportunities in the treatment of acute kidney injury**
Pap D, Pajtók C, Veres-Székely A, Szebeni B, Lévai E, Reusz G, Szabó AJ, Vannay A (Budapest)

16.00–16.15 **Clinical presentation of Slovenian cohort of children with congenital anomalies of kidney and urinary tract (CAKUT)**
Zapušek J, Zagradišnik B, Marčun Varda N (Maribor)

16.15–16.30 **Follow-up ABPM and carotid-femoral pulse wave velocity results in pediatric kidney transplant recipients**
Végh A, Mayer Z, Bárczi A, Cseprekal O, Kis E, Reusz GS (Budapest)

16.30–16.45 **The role of IL-24 in the pathomechanism of tissue remodeling**
Veres-Székely A, Pap D, Onody A, Rokonay R, Szebeni B, Pajtók C, Lévai E, Szabó AJ, Vannay A (Budapest)

16.45–17.05 **Invited Lecture (Petra Prunk Križanec)**
Coronavirus disease (Coronavirus disease 19) in children

17.05–17.30 Coffee break

17.30–18.40	**Section IV – Poster Session**	Chairs: Jelena Roganović, Radvan Urbanek
17.30–17.35	**Comparison of clinical and laboratory characteristics of paediatric patients with Kawasaki disease and MIS-C: a single center experience** Petek T, Hertiš Petek T, Marčun Varda N, Berce V (Maribor)	
17.35–17.40	**Monitoring the health status of a selected group of children and adolescents in an Obesitology clinic** Rafčíková N, Šťastná J, Dostálová Kopečná L, Nováková N (Brno)	
17.40–17.45	**Prevalence and problems of diaper dermatitis in infants** Tomše P, Mičetić Turk D, Maver U, Marčun Varda N (Maribor)	
17.45–17.50	**The influence of genetic and environmental factors on the occurence of autoimmune gastroenterologic diseases in children** Jezeršek J, Kokalj S, Huber E, Dolinšek J, Mičetić Turk D (Maribor)	
17.55–18.00	**Continuous non-invasive hemodynamic monitoring of neonates undergoing hypothermia** Balog V, Vatai B, Kátai LK, Trinh S, Szabó M, Jermendy A (Budapest)	
18.00–18.05	**The impact of comorbidities on the severity of atopic dermatitis in children** Marhold T, Delopst V, Berce V (Maribor)	
18.05–18.10	**The incidence of the diabetic ketoacidosis in new onset type 1 diabetes during the first wave of COVID-19 pandemy** Vatamány-Einbeck A (Budapest)	
18.10–18.15	**The importance of arterial compliance measurements in screening of cardiovascular and renal disease of children** Cossutta I, Čas K, Esih M, Marčun Varda N (Maribor)	
18.15–18.20	**Effects of hormonal contraception on cardiovascular system** Pírek O, Budinskaya K, Nováková Z (Brno)	
18.20–18.25	**The treatment of children with rare kidney diseases in the Department of Paediatrics Maribor** Koščak J, Golob Jančič S, Marčun Varda N (Maribor)	
18.25–18.30	**Gluten degrading oral and gut bacteria in adolescents with coeliac disease** Kukovičič A, Dolinšek J, Janežič S, Rupnik M, Seničar T (Maribor)	
18.30–18.35	**Transient erythroblastopenia of childhood and COVID-19 infection: a case report** Šimić D, Brajenić N, Roganović J (Rijeka)	
18.35–18.40	**Tubulointerstitial nephritis and uveitis syndrome in an adolescent female** Petek T, Frelih M, Marčun Varda N (Maribor)	
18.40–18.45	Closing remarks	
18.45–23.00	Social event with conference dinner and awards for the best presentation	

ORAL PRESENTATIONS

IN VITRO CHARACTERIZATION OF THE DNA-BINDING AFFINITY OF THE WT1 TRANSCRIPTION FACTOR MUTANTS FOUND IN CHILDREN WITH STEROID-RESISTANT NEPHROTIC SYNDROME

Bezdíčka M[1], Kaufman F[2], Křížová I[2], Dostálková A[2], Rumlová M[2], Seeman T[3], Vondrák K[3], Fencl F[3], Zieg J[3], Souček O[1]

[1]Vera Vavrova Lab/VIAL, Department of Paediatrics, Second Faculty of Medicine, Charles University and Motol University Hospital, Prague, Czech Republic

[2]Department of Biotechnology, University of Chemistry and Technology, Prague, Czech Republic

[3]Department of Paediatrics, Second Faculty of Medicine, Charles University and Motol University Hospital, Prague, Czech Republic

AIM OF THE STUDY

Nephrotic syndrome is one of the most common glomerulopathies in children. Approximately one third of children with steroid-resistant nephrotic syndrome (SRNS) carry pathogenic variants in one of the nowadays almost 70 causative genes. The WT1 gene, being one of the most frequent ones and coding the transcription factor WT1, is known to cause SRNS, which may be associated with disorder of sex development and nephroblastoma (i.e., Denys-Drash syndrome). This study aimed to characterize the DNA-binding affinity of WT1 mutants.

PATIENTS AND METHODS

Eight distinct exonic WT1 variants were found in the national genetic database of children with SRNS. Wild type and mutant WT1 proteins were produced and the binding affinity of these proteins to the EGR1 DNA target sequence was analysed by microscale thermophoresis.

RESULTS

Whereas three WT1 mutants (p.Arg439Pro, p.His450Arg and p.Arg463Ter) showed decreased binding affinity, other three mutants (p.Gln447Pro, p.Asp469Asn and p.His474Arg) revealed increased binding affinity and two mutants (p.Cys433Tyr and p.Arg467Trp) showed no change of binding affinity when compared to the affinity of the wild type WT1. No correlation was found between the binding affinity and the phenotype.

CONCLUSIONS

The WT1 mutants found in children with SRNS presented with variable DNA-binding affinity, with no association with the phenotype of the patients. Further investigation is needed to clarify the impact of the WT1 mutants on gene expression and changes in the numerous target-signalling pathways. This might help to discover the underlying mechanisms and potentially allow for individualised treatment of the so far unfavourable disease prognosis.

CHARACTERISTICS OF MIS-C PATIENT COHORT IN SLOVENIA

Emeršič N, Zajc Avramovič M, Avčin T

Department for Allergology, Rheumatology and Clinical Immunology,
University Children Hospital Ljubljana, Ljubljana, Slovenia

AIM OF THE STUDY

To report the characteristics of patients with MIS-C in a cohort study in Slovenia.

PATIENTS AND METHODS

This is a prospective study of patients with MIS-C, admitted from March 2020 to January 2021 to University Medical Centre Ljubljana, Slovenia. The inclusion criteria were meeting the WHO criteria, and serology was used to confirm SARS-CoV-2 infection.

RESULTS

Twenty-three patients (14 male) were enrolled and prevalence of MIS-C was 5.8/100 000 persons younger than 19 years of age. Two patients were treated in ICU and none died. Four patients had symptomatic SARS-CoV-2 infection, all had positive serology. Troponin was elevated in 15/20 (75%) patients during the disease course. Six patients (30%) had elevated pancreatic enzymes, 1 patient developed asymptomatic acute pancreatitis. All had elevated levels of D-dimer with no signs of thrombosis. All patients received IVIG and systemic corticosteroids. Four patients (20%) received high dose methylprednisolone pulse therapy. Biologic therapy with anakinra was started in 2 patients. Nineteen patients (19/20, 95%) received acetylsalicylic acid and prophylactic anticoagulation was prescribed in 15/20 (75%) of patients. At the last follow-up visit all patients had normal laboratory parameters of inflammation, troponin, pro-BNP, D-dimer values and normal heart function.

CONCLUSIONS

A very high incidence of MIS-C, estimated 5.8/100 000 persons under the age of 19 with a predominantly cardiac involvement but very good outcome was noted in European Caucasian population in Slovenia.

GROWTH PLATE GENES ARE INVALUABLE GROWTH REGULATORS: A STUDY ON 55 CHILDREN WITH SHORT STATURE FROM CONSANGUINITY

Amaratunga SA[1], Hussein Tayeb T[2], Elbova L[1], Dusatkova P[1], Pruhova S[1], Lebl J[1]

[1]Department of Paediatrics, 2nd Faculty of Medicine, Charles University in Prague and University Hospital Motol, Prague, Czech Republic

[2]Department of Paediatrics, Sulaimani University, College of Medicine, Sulaimani, Iraq

AIM OF THE STUDY

To broaden our knowledge about genes causing short stature by studying a unique cohort of consanguineous children.

PATIENTS AND METHODS

Fifty-five children (height <-2.3 SDS at first examination) were included in the study. Five non-related patients were subsequently excluded due to the diagnosis of non-monogenic conditions. The remaining probands were analysed by Whole Exome Sequencing (WES). After data analysis, selected potentially pathogenic variants were confirmed using Sanger sequencing and evaluated by the ACMG guidelines.

RESULTS

A monogenic cause of short stature was elucidated in 17/35 (47%) probands analysed thus far. 10/17 variants were in growth plate genes and 9/17 were novel.

CONCLUSIONS

58% probands harboured a pathogenic variant in genes involved in the regulation and function of chondrocytes and the growth plate. These results further strength the concept that growth plate genes play a crucial role in growth regulation.

Acknowledgments: This research is funded by GA-UK grant number 340420 and AZV NV18-07-00283.

PROSPECTIVE STUDY ON MMR BOOSTER VACCINE IN CHILDREN WITH RHEUMATIC DISEASES TREATED WITH DMARDS AND/OR BIOLOGICS

Bizjak M[1], Dasoula F[2], Balažiová B3, Adrović A[4], Maritsi DN[2], Dallos T[3], Kasapcopur O[4], Toplak N[1], for Pediatric Rheumatology European Society (PReS) Vaccination working party

[1]Department of Allergology, Rheumatology and Clinical Immunology, University Children Hospital Ljubljana and Medical Faculty Ljubljana, Ljubljana, Slovenia

[2]Second Department of Paediatrics, "P.&A. Kyriakou" Children's Hospital, National and Kapodestrian University of Athens, Athens, Greece

[3]Department of Paediatrics, Comenius University Medical School in Bratislava, National Institute of Children's Diseases, Bratislava, Slovakia

[4]Department of Paediatric Rheumatology, Istanbul University-Cerrahpasa, Istanbul, Turkey

AIM OF THE STUDY

To prospectively evaluate safety and long-term immunogenicity of Measles, Mumps, Rubella (MMR) booster vaccine in children with rheumatic diseases treated with immunosuppressive therapy.

PATIENTS AND METHODS

This is an ongoing multinational, multicentre prospective study. Patients with immune-mediated diseases treated with DMARDs and/or biologics with stable disease were included if they were scheduled, according to their national vaccination program, to receive 2nd dose of MMR vaccine. Safety was monitored by tracking infection with vaccine or wild-type viruses, possible adverse events, and disease activity before and after vaccination. Protective antibodies were measured before and at predetermined time points after vaccination.

RESULTS

By the end of September 2021, 24 patients from 4 centres were included (Greece, Slovakia, Slovenia, and Turkey). Most patients had juvenile idiopathic arthritis. Median age at diagnosis was 4.3 years, at 1st dose of MMR vaccine 1.2 years and at 2nd dose 7.9 years. At the time of 2nd vaccination, 15 patients were treated with biologics (9 of them concomitantly received methotrexate (MTX) and 2 corticosteroids) and 9 with MTX. There were no disease flares, vaccine strain infections or serious adverse events after vaccination. Six patients reported mild local or systemic reactions. Protective antibodies against measles and mumps were positive in 8/10 patients 2-3 months after 2nd dose.

CONCLUSIONS

In our cohort the 2nd dose of MMR vaccine was safe, but not always immunogenic. However, the number of included children is currently too small to draw any firm conclusions and long-term immunogenicity remains to be determined in the future.

BIOIMPEDANCE MEASUREMENT AND CARDIOVASCULAR RISK FACTORS IN CHILDREN

Golob Jančič S[1], Močnik M[1], Švigelj M[2], Marčun Varda N[1,2]

[1]Department of Paediatrics, Unit for Paediatric Nephrology and Hypertension, University Medical Centre Maribor, Maribor, Slovenia

[2]Faculty of Medicine, University of Maribor, Maribor, Slovenia

AIM OF THE STUDY

The aim of our study was to evaluate correlations between body composition, measured with bioimpedance (BIA), and several clinical parameters with focus on cardiovascular risk factors.

PATIENTS AND METHODS

Two hundred and six children and adolescents (120 male, 86 female) have been prospectively included in this study. BIA measurement has been performed in all participants. During the hospital work-up, several clinical parameters, such as anthropometric measures, laboratory and ultrasound findings were obtained and correlated to body composition parameters.

RESULTS

Body composition parameters were significantly associated with anthropometric measurements, systolic blood pressure, insulin levels, serum creatinine, urate, liver function tests, triglycerides, cholesterols and apolipoproteins, homocysteine, vitamin D and proteins in 24-hour urine. Body composition differed between boys and girls, between participants with hepatic steatosis and normal liver parenchyma as well as between left ventricular hypertrophy and normal left ventricular wall. Interestingly, body composition did not correlate with diastolic blood pressure, pulse wave velocity and intima media thickness.

CONCLUSIONS

Several clinical parameters are associated with body composition in children. Obesity and body composition play an important role in development of other cardiovascular risk factors, not dependent on fat mass alone, and the latter might be used for cardiovascular risk determination.

EFFECTS OF ASTHMA BRONCHIALE AND ITS TREATMENT ON CARDIOVASCULAR SYSTEM

Budinskaya K, Svačinová J, Svízela V, Nováková Z

Department of Physiology, Faculty of Medicine, Masaryk University, Brno, Czech Republic

AIM OF THE STUDY

Asthma is a chronic airway inflammatory disease that gradually affects not only lungs but also extrapulmonary tissues. Over time asthma can have potential systemic impact on all organ systems, especially the cardiovascular system. That is why the aim of our study was to evaluate functional and structural changes in cardiovascular system in asthmatic children and healthy controls.

PATIENTS AND METHODS

We measured asthmatic children (group A: 59 participants) and control group (group C: 57 participants) of the same age. The A group received appropriate treatment (blockers of H1 receptors, corticosteroid or agonist of β2 adrenal receptor). All respondents were divided into three age subgroups (12–14, 15–16, 17–18 years old) for reflection of age-dependent changes in the cardiovascular system. For each respondent we measured Systolic (SBP) and Diastolic (DBP) blood pressure (Omron, HEM-907-E, Japan). Then with Sphygmocor (AtCor Medical, Australia) and VaSera (Fakuda Denshi, Japan) devices cardiovascular parameters were estimated such as Pulse Wave Velocity (PWV), Cardio Ankle Vascular Index (CAVI), and central Buckberg index (SEVR).

We used Statistica 13.5 for statistical analysis of the data.

RESULTS

No gender differences were found in all evaluated parameters. In all age groups we found significant difference in PWV and SEVR.

CONCLUSIONS

We can conclude that asthma bronchiale and its treatment changed the properties of vessels in children comparing to the healthy group, as well as parameters of cardiac function.

Funding: This research was funded by Masaryk University as grant project no. MUNI/A/1246/2020.

CAROTID-FEMORAL PULSE WAVE VELOCITY AND RADIAL-CAROTID PULSE WAVE VELOCITY MEASUREMENT WITH CENTRAL HEMODYNAMIC DATA ANALYSIS

Močnik M[1], Marčun Varda N[1,2]

[1]Department of Paediatrics, Unit for Paediatric Nephrology and Hypertension, University Medical Centre Maribor, Maribor, Slovenia

[2]Faculty of Medicine, University of Maribor, Maribor, Slovenia

AIM OF THE STUDY

Pulse wave velocity (PWV) is a novel method of vascular elasticity evaluation. The gold standard is the carotid-femoral PWV (cfPWV) measurement, which can be technically difficult and time-consuming in children. The software allows measurement among other arteries. The goal of our prospective pilot study was to compare different measurements among other arteries to find out, if the measurement can be performed in a simplified version with comparable results to cfPWV.

PATIENTS AND METHODS

Forty-six children were analysed using SphygmoCor Cardiovascular Management Suite® and PWV was measured in three different ways: cfPWV in the lying position, radial-carotid PWV (rcPWV) in the lying position and in the most simplified version, rcPWV in the sitting position. PWV results and pulse wave analysis with central hemodynamic data were collected.

RESULTS

T-paired test was used for the comparison of the velocities and central hemodynamic data analysis. Statistically important differences were found between cfPWV and both rcPWV (with $p<0.0001$ for both comparisons), meanwhile there was no significant difference between rcPWV in the lying or sitting position ($p=0.562$). Analysis of central hemodynamic data (augmentation index, subendocardial viability ratio, end systolic pressure, central systolic pressure and central diastolic pressure) showed little differences between measurements; there were two statistically significant differences between subendocardial viability ratio ($p=0.005$) and central diastolic pressure ($p=0.005$) when central hemodynamic data of radial-carotid measurements lying and sitting were compared.

CONCLUSIONS

The site of measurement significantly affects PWV result and can not be interchangeable. On the contrary, the position of the child does not affect PWV, but could be important in hemodynamic data analysis.

SPECIALIZED AND ASYMMETRICAL PROCESSING OF VOWELS IN NEWBORNS

Urbanec J[1,2], Kremláček J[1,3], Chládková K[4,5], Skálová S[6]

[1]Department of Pathological Physiology, Medical Faculty in Hradec Králové, Charles University, Hradec Kralove, Czech Republic

[2]Paediatrics Department, Havlíčkův Brod Hospital, Havlíčkův Brod, Czech Republic

[3]Department of Medical Biophysics, Medical Faculty in Hradec Králové, Charles University, Czech Republic

[4]Institute of Phonetics, Faculty of Arts, Charles University, Prague, Czech Republic

[5]Institute of Psychology, Czech Academy of Sciences, Prague, Czech Republic

[6]Paediatrics Department of University Hospital in Hradec Králové, Charles University, Hradec Kralove, Czech Republic

AIM OF THE STUDY

This study should investigate whether native-language tuning occurs already for individual vowels and compare newborns' processing of auditory differences in vowels and non-speech stimuli. We focused on 2 types of vowel and non-speech contrasts cued by duration and spectral properties to demonstrate a developmental advantage for duration-cued contrasts.

PATIENTS AND METHODS

Newborns' neural responses were measured by electroencephalogram (EEG) to 3 consonant-vowel syllables [fɛ], [fa], [fɛ:], and to 3 non-speech inharmonic tone sounds by a roving-standard sequences. We compared the newborns' ERPs to different types of standards and the mismatch responses (MMR). EEG was recorded in 1–3/2019 by 120 full-term, 1-to-3 days old sleeping infants listening 2 blocks of syllables or tones. ERPs to the standard stimuli were measured as area under curve (AUC) at 2 intervals, 200–400 ms after stimulus onset and 250–450 ms after offset. MMR were quantified as AUC in a 180–380 ms window after stimulus onset.

RESULTS

The ERPs showed that the newborns process auditory differences both in speech and non-speech stimuli, the speech stimuli might be processed in a more-integrated fashion. The MMRs to duration and spectral changes in the speech stimuli were more negative and left-lateralized than the MMRs to non-speech stimuli thereby indicating a more mature stage of speech processing. Both types of contrasts displayed a processing asymmetry whereby change in one direction elicited a stronger MMR than a change in the other direction: this finding resembles the asymmetries that have been found in adult speech perception and that can be (partly) attributed to phonological processing.

CONCLUSIONS

In summary, our results suggest that newborns display attunement to (at least some) segmental information in the speech signal, even in absence of prosodic information, suggesting that the acquisition of speech sound categories could start before birth.

Figure 1: EEG recording.

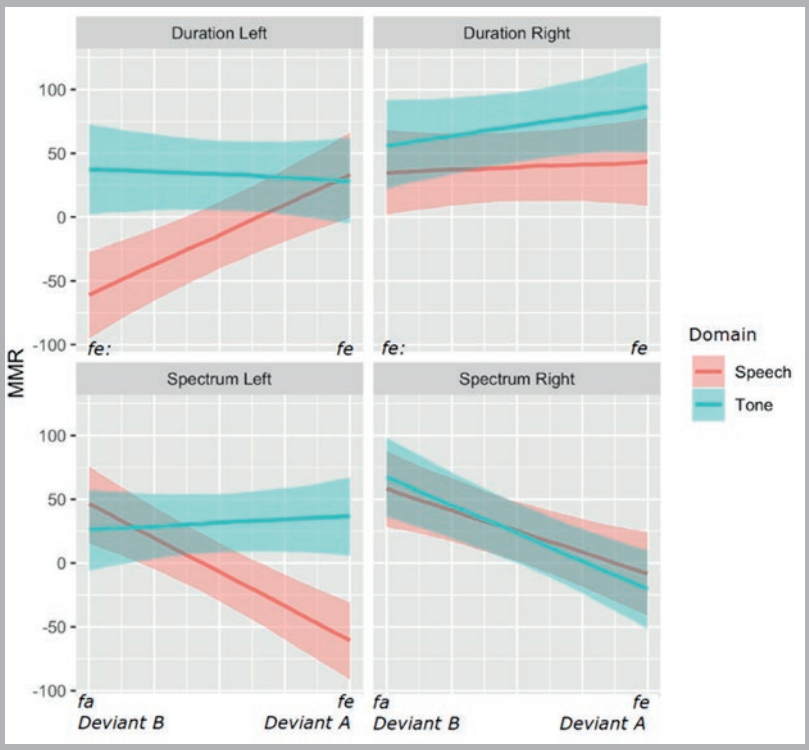

Diagram 1: MMR is more mature (negative and left-lateralized) for vowel than for tone deviants. Within vowels, there is also an asymmetry between the two deviant types: [fe] -> [fe:] larger MMN than [fe:] -> [fe]; [fa] -> [fe] larger MMN than [fe] -> [fa].

NOVEL TREATMENTS AND OUTCOMES OF RETINOBLASTOMA IN HUNGARY

Klaus L, Maka E, Csóka M

2nd Department of Pediatrics, Semmelweis University, Budapest,Hungary

AIM OF THE STUDY

Retinoblastoma is the most common intraocular malignancy in childhood.

In Hungary we diagnose 4–5 new cases a year. The disease is caused by germ cell or somatic mutation of the RB1 gene. The primary goal of treatment is to save the lives of children, which follows vision and globe savage. Our study aims to compare the results of children treated with modern therapy in one centrum with previous data before centralization.

PATIENTS AND METHODS

Between 1997 and 2020 we processed the data of 118 children treated with retinoblastoma in Hungary. 35 children had bilateral and 83 unilateral malignancy. The average age was 18 months. A systematic search was conducted using online cancer register and patient documentations.

RESULTS

Initially, systemic chemotherapy and radio/brachytherapy were the only treatments with serious side effects. Since 2015 intra-arterial chemotherapy (IAC) has become the primary treatment for retinoblastoma, which can be combined with intra-vitreal (IVC) and intra-cameral chemotherapy (ICC). In 5 years, 19 children received 52 IAC, 10 children were treated intra-vitreally 55 times, in three cases ICC was also used. In this period the number of enucleations decreased from 64% to 33%.

CONCLUSIONS

New techniques have improved children's quality of life, while side effects have clearly been milder. Centralization was essential for treatments that required experienced team and close collaboration. It also created the possibility of personalized management due to the routine genetic tests.

PREDICTION OF ADVERSE SKIN REACTIONS DURING ANTI-TNF THERAPY FOR INFLAMMATORY BOWEL DISEASES IN CHILDREN

Kazeka D, Hradsky O, Bronsky J

Department of Paediatrics, 2nd Faculty of Medicine,
Charles University in Prague and Motol University Hospital, Prague, Czech Republic

AIM OF THE STUDY

In our previous retrospective study cutaneous adverse effects were identified in 39%. Higher risk was associated with infliximab therapy, which was also associated with higher risk of atopic dermatitis flare. The aim was to identify predictors of non-infectious cutaneous adverse effects of therapy with tumour necrosis factor inhibitors (anti-TNF) in paediatric patients with inflammatory bowel diseases (IBD).

PATIENTS AND METHODS

Paediatric IBD patients on biological therapy will be included. Baseline characteristics of patients including history of atopy and cutaneous conditions will be collected. Patients will be followed up prospectively in Czech national registry of IBD patients on biological therapy. Clinical data regarding type of cutaneous complication, its extent and influence on patient's quality of life and treatment course will be collected. Using multiple Cox-regression models we will try to find the best combination of risk factors to predict cutaneous complications of anti-TNF therapy.

RESULTS

In multicentre prospective study 150 patients are currently included. Based on data obtained on inclusion 40% of patients experienced at least one dermatologic complication of anti-TNF therapy prior to enrolment. Majority of lesions (55.5%) being psoriasiform exanthema. Preliminary analysis concerning association of cutaneous complications with risk factors will be presented.

CONCLUSIONS

Cutaneous adverse effects of anti-TNF therapy are more prevalent in paediatric IBD patients than in adult ones. Prospective study is needed in order to define predictors of cutaneous adverse effects and risk of anti-TNF therapy cessation.

TRANSITIONAL ELEVATION OF ANTI-TISSUE TRANSGLUTAMINASE ANTIBODIES IN CHILDREN WITH TYPE 1 DIABETES WITHOUT COELIAC DISEASE

Muzslay E, Hamory E, Herczeg V, Toth-Heyn P, Luczay A

1st Department of Paediatrics, Semmelweis University, Budapest, Hungary

AIM OF THE STUDY

The frequent association of type 1 diabetes mellitus (T1DM) with coeliac disease (CD) is well known. Occurrence of transitional elevation of anti-tissue transglutaminase (tTG) antibodies at the diagnosis of T1DM was reported in some studies in the last decade. In these cases the anti-tTG antibodies returned to normal without gluten-free diet. Our aim was to asses the frequency of transitional elevation of anti-tTG in our T1DM patients.

PATIENTS AND METHODS

The study included 503 patients with T1DM. Descriptive statistical analysis was done and the time of appearance, extent, frequency and type of elevated anti-tTG antibodies were examined. Patients without diagnosed CD continued gluten consumption.

RESULTS

The proportion of children with diagnosed CD was 12.5%. We detected transitional anti-tTG elevation in 48 cases (10.9%). Temporary elevated antibody levels were measured 71 times. The elevation of the IgA antibody was more frequent than the elevation of the IgG antibody (54 vs 5). The median level of anti-tTG elevation was one and a half times higher than the upper limit of normal range. Temporary elevation lasted for 1–7 years.

CONCLUSIONS

The frequency of temporary elevated anti-tTG levels is considered high. Our study confirms the recommendation that in case of moderate (less than ten times higher of upper limit of normal range) anti-tTG levels with lack of clinical symptoms, control antibody measurement is necessary with ongoing gluten consumption.

USE OF TOTAL PARENTERAL NUTRITION IN CHILDREN WITH CANCER

Matejčić M, Ružman L, Brgodac E, Roganović J

Department of Paediatrics, Clinical Hospital Centre Rijeka, Rijeka, Croatia

AIM OF THE STUDY

To present our experience in total parenteral nutrition (TPN) use in children with malignant diseases.

PATIENTS AND METHODS

We retrospectively analysed the data from the medical records of paediatric oncology patients receiving TPN in the period from 2013 to 2018.

RESULTS

Forty-one patients (23 females and 18 males) with malignant diseases were included in the study. The mean age was 8,4 (±5.6) years (range 0.4 to 22.6 years). There were 99 applications of parenteral preparations, with an average of 2.4 applications per patient. The TPN was given via central venous line in all patients. The most common indications to start the TPN were significant weight loss (42.4% of all applications), oral mucositis (22.2%), paralytic ileus (11.1%), inability/refusal of oral intake (9.1%), protracted diarrhoea (7.1%), malnutrition at diagnosis (4%), and abdominal surgery (2%). Patients with osteosarcoma had the greatest need for TPN (7.5 applications per patient), followed by patients with non-Hodgkin's lymphoma (5.5 applications per patient), neuroblastoma (4 applications per patient), soft tissue sarcoma (3.5 applications per patient), and patients with brain tumour (3 applications per patient). The average duration of TPN nutrition was 7.1 days, ranging from 1 to 24 days. The assessment of nutritional condition demonstrated a significant weight gain in our group of patients. Side effects were noticed in 3% of all TPN applications.

CONCLUSIONS

TPN is a standard component of supportive treatment in paediatric oncology patients. Complications of TPN are mild and rare, but regular clinical and laboratory monitoring is mandatory.

COMPARISON OF EFFICACY BETWEEN PENICILLIN AND BROAD-SPECTRUM BETA-LACTAM ANTIBIOTICS IN THE TREATMENT OF COMMUNITY-ACQUIRED PNEUMONIA IN CHILDREN

Cugmas M[1], Jerele E[2], Berce V[1]

[1]Department of Paediatrics, University Medical Centre Maribor, Maribor, Slovenia

[2]General Hospital Novo Mesto, Novo Mesto, Slovenia

AIM OF THE STUDY

Bacterial community-acquired pneumonia (CAP) is still a common cause of morbidity in the developed world. It is mostly caused by Streptococcus pneumoniae. The resistance of pneumococci to penicillin is increasing worldwide. However, most guidelines still recommend treatment with narrow-spectrum antibiotics. Therefore, we compared the efficacy of intravenous treatment with penicillin and broad-spectrum beta-lactam antibiotics in children with CAP.

PATIENTS AND METHODS

Our prospective study included 136 children hospitalised with bacterial CAP, diagnosed with lung ultrasound. Patients were treated intravenously either with penicillin G or broad-spectrum beta-lactam antibiotic monotherapy. The white blood cell (WBC) count and C-reactive protein (CRP) were determined in venous blood at admission and after two days of treatment. The time interval from the initiation of antibiotic therapy to the permanent defervescence was recorded.

RESULTS

87 (64.0%) patients were treated with penicillin G and 49 (36.0%) with broad-spectrum beta-lactam antibiotics. The median time from the initiation of antibiotic therapy to the persistent defervescence was 5 hours in the penicillin-treated patients and 8 hours in the broad-spectrum group ($p=0.18$). There was no significant difference between the two groups regarding the effect on the fall in CRP. The fall in the WBC count was more pronounced in the penicillin-treated group ($p < 0.01$).

CONCLUSIONS

We have shown that penicillin is at least as effective as broad-spectrum antibiotics in the treatment of bacterial CAP in children. Despite the increasing resistance of bacteria to antibiotics, clinicians should still adhere to national guidelines, which recommend the use of penicillin and other narrow-spectrum beta-lactams in the treatment of bacterial CAP in children.

ROLE OF PARK7 IN THE PERITONEAL DIALYSIS ASSOCIATED FIBROSIS

Veres-Székely A[1,2], Lévai E[1], Szebeni B[1,2], Szász C[1], Pap D[1,2], Pajtók C[1], Reusz G[1], Szabó AJ[1,2], Vannay A[1,2]

[1]1st Department of Pediatrics, Semmelweis University, Budapest, Hungary

[2] ELKH-SE Pediatrics and Nephrology Research Group, Budapest, Hungary

AIM OF THE STUDY

In our experiments, we investigated the effect of PARK7 on peritoneal thickening.

PATIENTS AND METHODS

Peritoneal dialysis effluents (PDE) were collected from children treated with peritoneal dialysis (PD), in which PARK7 was determined by Western blot. Parietal mesothelial cells (HPMC) and peritoneal fibroblasts (pFB) were isolated from the peritoneum of children with PD. These cells were treated with PDE and effect of PARK7 was modified using a drug that enhances its activity. Cell viability and proliferation were determined by MTT and LDH assays, and gene expression changes were determined by real-time RT-PCR. Impact of PARK7 binding compound on peritoneal thickening was investigated in CG treated C57BL/ 6J mice.

RESULTS

PARK7 was present in PDEs, peritoneal tissue, HPMCs, and pFBs as well. PDE altered the phenotype of HPMCs, decreased the expression of cell-coupling structures, which was compensated by inducing PARK7 activity in vitro. In addition, PARK7 modification decreased the proliferation of activated pFB cells. In vivo, CG treatment induced strong peritoneal thickening and increased connective tissue production, which was moderated by modification of PARK7 activity.

CONCLUSIONS

Based on our results, PARK7 may became a novel therapeutic target to maintain the long-term PD efficacy.

Acknowledgments: 20382-3/2018 FEKUTSTRAT; K125470; STIA-KFI-2020(61830-96319); ÚNKP-20-3-I-SE-49; FIKP(61830-69271); TKP2020-NKA-09; TKP2020-NKA-13,NKFI-124549.

VITAMIN D IN PEDIATRIC PATIENTS WITH OBESITY AND ARTERIAL HYPERTENSION

Radulović Ž[1], Polak Zupan Z[1], Tomazini A[1], Marčun Varda N[1,2]

[1]Faculty of Medicine, University of Maribor, Maribor, Slovenia

[2]Department of Paediatrics, Unit for Paediatric Nephrology and Hypertension, University Medical Centre Maribor, Maribor, Slovenia

AIM OF THE STUDY

The aim of our study was to find potential differences in vitamin D levels between different groups: overweight children with hypertension, normal-weight children with hypertension, overweight children and control group. We also wanted to determine whether there are correlations between vitamin D levels and other clinical and laboratory parameters, to evaluate the need for substitution.

PATIENTS AND METHODS

We measured serum vitamin D levels and different other laboratory parameters in all groups. We took anthropometric measurements (body weight, height, body mass index (BMI)) and observed patients' blood pressure. The results were analysed with SPSS statistic tool with the use of independent t-test, Pearson correlation test and multi-variate analysis of variance (MANOVA).

RESULTS

Hundred and seventy-five children were included, aged between 5 and 18 years. 57 were healthy (group A), 41 normal weight with hypertension (group B), 44 overweight with hypertension (group C) and 33 overweight (group D). The results showed statistically significant difference in values of vitamin D between all groups – A and B ($p=0.003$), A and C ($p=0.000$), A and D ($p=0.000$), B and D ($p=0.043$), B and C (0.030), except for groups C and D ($p=0.830$). There were statistically significant correlations between vitamin D and BMI ($r=-0.196$, $p=0.010$), systolic pressure ($r=-0.190$, $p=0.002$), diastolic pressure ($r=-0.149$, $p=0.050$), homocysteine ($r=-0.208$, $p=0.007$), triglycerides ($r=-0.196$, $p=0.011$) and apolipoprotein A1 ($r= 0.222$, $p=0.007$).

CONCLUSIONS

The pilot study showed significant differences in serum vitamin D levels between all groups of children, apart from groups C and D. These results, combined with statistically significant correlations between vitamin D and systolic and diastolic blood pressure suggest the need for monitoring and potential substitution of vitamin D in paediatric patients with hypertension and/or overweight.

EXCESS SODIUM CHLORIDE INDUCES INFLAMMATION AND PROFIBROTIC RESPONSE IN PERITONEAL CELLS

Pajtók C[1], Pap D[1,2], Veres-Székely A[1,2], Szebeni B[1,2], Lévai E[1], Szabó AJ[1,2], Vannay A[2], Tulassay T[1,2]

[1]1st Department of Paediatrics, Semmelweis University, Budapest, Hungary

[2]ELKH-SE Pediatrics and Nephrology Research Group, Budapest, Hungary

AIM OF THE STUDY

Peritoneal scarring is the main cause of technical failure in peritoneal dialysis patients. High dietary salt intake (NaCl) was reported to induce peritoneal fibrosis due to accumulation of sodium in the peritoneal membrane, however, the underlying mechanisms are not clear. Our aim was to investigate the effect of high salt environment on the pathomechanism of peritoneal fibrosis.

METHODS

The effect of high NaCl concentrations was investigated in vitro on the changes of inflammation and fibrosis related gene expression in human primary mesothelial cells (HPMC), human primary peritoneal fibroblasts (HPF), human endothelial cells (HUVEC), human peripheral immune cells (PBMC), respectively. The ex vivo effect of high salt loading was also investigated on peritoneal tissue samples of mice.

RESULTS

High salt loading induced epithelial-mesenchymal transition in HPMCs evidenced by decreased epithelial marker E-cadherin and increased mesenchymal marker α-SMA and SNAI1 expressions. Increased salt environment also resulted in elevated profibrotic growth factor TGF-ß, PDGF-B or CTGF expression in HPMCs, HUVECs and PBMCs. High salt induced the MCP-1 and IL-1β expression of HUVECs and PBMCs. In addition, high sodium induced the fibronectin and collagen production of HPFs. The ex vivo experiments also demonstrated that high salt environment induce profibrotic changes in peritoneal tissue samples.

CONCLUSIONS

Our results demonstrated that increased peritoneal sodium concentration induces profibrotic changes in the main effector cells of peritoneal fibrosis.

Funding: This study was supported by grants K125470, 20382-3/2018 FEKUTSTRAT, 2020-4.1.1- TKP2020, NKFI 124549, STIA-KFI-2020.

PERINATAL ASPHYXIA INDUCED ACUTE AND LONG-TERM RENAL DAMAGE IN A RAT MODEL

Lakat T[1,2], Hosszu A[1,2], Molnar A[1], Toth AR[1,2], Demeter K[3], Varga ZK[4], Kelemen H[2], Szabo AJ[2,5], Denes A[6], Szabó M[2], Mikics E[4], Fekete A[1,2]

[1]SE "Lendület" Diabetes Research Group, Budapest, Hungary

[2]1st Department of Paediatrics, Semmelweis University, Budapest, Hungary

[3]Behavioral Studies Unit, Institute of Experimental Medicine, Budapest, Hungary

[4]ELKH-Laboratory of Translational Behavioural Neuroscience, Institute of Experimental Medicine, Budapest, Hungary

[5]SE Paediatrics and Nephrology Research Group, Budapest, Hungary

[6]ELKH-Laboratory of Neuroimmunology, Institute of Experimental Medicine, Budapest, Hungary

AIM OF THE STUDY

The aim of our study was to determine acute, mid- and long-term renal damage following perinatal asphyxia and to identify the pathways involved in the pathomechanism. We also aimed to investigate susceptibility to ischemia/reperfusion (I/R) injury that occurs in the adulthood following PA.

PATIENTS AND METHODS

7-day-old male Wistar rats were placed into asphyxic chambers (4% O_2; 20% CO_2; N_2) for 15 mins. Serum and kidney samples were collected after 24 h, 6 weeks and 6 months. In a second experiment 35 min bilateral renal ischemic insult was performed on control and PA rats aged 6 months. Serum levels of creatinine were determined. Expression of tubular injury (Kim1, Ngal), hypoxic (Hif1a) inflammatory (Il1a, Il1b, Il6, Tnfa), angiogenic (Vegf), and profibrotic markers (Tgfb, Pdgfb, Ctgf, Col3a1) were investigated.

RESULTS

Expression levels of Kim1 and Ngal increased, inflammatory, hypoxic, angiogenic, profibrotic and fibrotic pathways were activated in the kidney at 24 h following PA. Expression of renal Col3a1 increased at 6 weeks and 6 months following PA. Serum level of creatinine was elevated in adult rats. PA rats were more susceptible to renal (I/R), confirmed by increased expression of tubular injury, inflammatory, hypoxic and profibrotic markers compared to controls.

CONCLUSIONS

Acute and long-term renal impairment was observed after PA. These results may justify the need for clinical follow-up and novel treatment strategies for possible kidney damage. The molecular pathways described here are potential targets for therapeutic intervention. Birth asphyxia may increase sensitivity to renal injury even in adulthood.

Funding: OTKA (FK124491, PD131637, K135398), 2020-4.1.1.-TKP2020-(6183069269, 6183169273), KDP-2020/1019145, ÚNKP-20-4-II-SE-13.

THE ROLE OF EXTRACELLULAR DNA (ecDNA) IN PATHOMECHANISM OF KIDNEY DISEASE

Gaál Kovalčíková A[1], Janovičová Ľ[2], Vlková B[2], Celec P[2], Podracká Ľ[1]

[1]Department of Paediatrics, National Institute of Children's Diseases and Faculty of Medicine, Comenius University, Bratislava, Slovakia

[2]Institute of Molecular Biomedicine, Faculty of Medicine, Comenius University, Bratislava, Slovakia

AIM OF THE STUDY

Kidney diseases represent a serious clinical problem and enormous socio-economic burden. Serum creatinine and urea are the most commonly used markers for assessing renal function. A major disadvantage of "conventional" markers is their late increase that could be detected only in higher stages of kidney disease with advanced reduction of renal function. Therefore, many studies are focused on finding new biomarkers reflecting the initial degree of renal impairment. A potential early marker might be ecDNA, which has been established, especially in prenatal diagnostics or oncology. ecDNA enters the circulation from disintegrated cells during process of apoptosis, necrosis or the inflammatory process – NETosis during which neutrophils actively release their DNA. Several studies have demonstrated the prognostic ability of ecDNA in various serious diseases. Thus, the aim of our study was to assess concentrations of ecDNA in various animal models of kidney disease and to find out whether changes of ecDNA correlate with creatinine concentrations i.e. with kidney function.

PATIENTS AND METHODS

In this study, 90 adult male Wistar rats were used. To induce acute kidney injury (AKI), bilateral nephrectomy (BNx), ischemia-reperfusion injury (IRI), and glycerol nephropathy (GLY) were used. Blood samples were collected 48 hours after AKI induction. Chronic kidney disease (CKD) was induced by 5/6 nephrectomy (NEPH). Blood samples were collected after 6 months.

RESULTS

Successful induction of AKI and CKD was confirmed by significantly higher plasma creatinine and urea concentrations in rats with kidney disease compared to corresponding healthy controls ($p < 0.05$). The ecDNA concentration was significantly higher in BNx rats compared to sham group ($p < 0.05$). Animals in the GLY, IRI and NEPH group had higher ecDNA concentration than rats in corresponding control group, but this increase was not statistically significant ($p > 0.05$). In BNx and IRI animals, the concentration of ecDNA correlated with plasma creatinine (BNx $r = 0.60$; $p < 0.05$; IRI $r = 0.76$; $p < 0.01$).

CONCLUSIONS

Our results indicate that concentration of ecDNA significantly increases only in model of severe renal impairment (BNx model) suggesting that remaining kidney function in rats with GLY, IRI or NEPH is sufficient for its filtration by kidneys. We hypothesize that sharp decrease in renal function is required to manifest significant changes in plasma concentration of ecDNA. Further better-founded animal and clinical studies are needed to elucidate to detailed mechanisms of ecDNA degradation in plasma and urine.

Acknowledgments : This study was supported by the VEGA Grant 1/0079/20.

NEW THERAPEUTIC OPPORTUNITIES IN THE TREATMENT OF ACUTE KIDNEY INJURY

Pap D[1,2], Pajtók C[1], Veres-Székely A[1,2], Szebeni B[1,2], Lévai E[1,2], Reusz G1, Szabó AJ[1,2], Vannay A[1,2]

[1]1st Department of Paediatrics, Semmelweis University, Budapest, Hungary

[2]ELKH-SE Pediatrics and Nephrology Research Group, Budapest, Hungary

AIM OF THE STUDY

Acute kidney injury (AKI) associated with various clinical situations including cardiac arrest, sepsis or organ transplantation has a high risk of morbidity and mortality. Despite the significant burden there is no specific therapeutics against AKI, therefore our goal was to identify potential therapeutic targets and disease-modifying compounds.

PATIENTS AND METHODS

We investigated the role of Parkinson's Diseases 7 (PARK7) and its pharmacological activation on oxidative stress (H_2O_2) induced tubular epithelial cell (HEK-293) injury, and bacterial lipopolysaccharide (LPS) and H_2O_2 induced activation of immune cells (PBMCs) in vitro. We also examined the effect of PARK7 activation on following ischemia/reperfusion-(I/R) or LPS-induced AKI in vivo.

RESULTS

Our results showed that PARK7 activation decreased the H_2O_2-induced apoptosis of HEK-293 cells and reduced the H_2O_2- or LPS-induced production of inflammatory cytokines including IL1B, IL6, TNFα of PBMCs in vitro. Consistent with this, PARK7 activation decreased the inflammation and improved the renal function of mice with I/R or LPS induced AKI in vivo.

CONCLUSIONS

Our results showed PARK7 plays a protective role in AKI through its anti-apoptotic and anti-inflammatory effects. Moreover, our study revealed that pharmacological activation of PARK7 is a promising opportunity in the treatment of AKI.

Funding: 20382-3/2018 FEKUTSTRAT; STIA-KFI-2020(61830-96319); ÚNKP-20-3-I-SE-49; FIKP (61830-69271); TKP2020-NKA-09; TKP2020-NKA-13, K125470; NKFI-124549.

CLINICAL PRESENTATION OF SLOVENIAN COHORT OF CHILDREN WITH CONGENITAL ANOMALIES OF KIDNEY AND URINARY TRACT (CAKUT)

Zapušek J[1], Zagradišnik B[2], Marčun Varda N[3]

[1]Department of Paediatrics, General Hospital Ptuj, Ptuj, Slovenia

[2]Laboratory of Medical Genetics, University Medical Centre Maribor, Maribor, Slovenia

[3]Department of Paediatrics, Unit for Paediatric Nephrology and Hypertension, University Medical Centre Maribor, Maribor, Slovenia

AIM OF THE STUDY

Congenital anomalies of kidney and urinary tract (CAKUT) are common pathology in paediatric nephrology and one of the important causes of chronic kidney disease in children. The aim of our study was to find out the clinical presentation of our children with CAKUT, their treatment and complications.

PATIENTS AND METHODS

From July 2018 to May 2020 a large clinical study was performed with cohort of CAKUT patients from the Northeast region of Slovenia. 324 CAKUT patients with all the relevant clinical data available, were included in the study and clinically screened. In addition, cohort included patients, in whom, after parent consent, a blood sample for DNA isolation was taken, allowing further genetic studies to be compared to phenotype findings. In all included children their clinical characteristics, diagnostic methods, treatment and complications were collected.

RESULTS

The most common CAKUT was vesicoureteral reflux (VUR), diagnosed in 273 children (84.2%), followed by hydronephrosis due to pyeloureteral junction stenosis in 76 children (23.4%), dilation of pyelon in 43 (13.3%), megaureter in 27 (8.3%), duplex collecting system in 19 (5.6%) and hypoplastic kidney in 12 included children (3.7%). All other CAKUT's together were present less frequently, diagnosed in 32 cases (9.9%).

Regarding diagnostics, ultrasound was done in 100% of patients, voiding cystourethrogram in 316 (97.5%) and dynamic renal scintigraphy in 22 (6.8%) of them. Urologist was consulted in 137 (42.3%) cases.

All cohort members were treated accordingly to their diagnosis and severity. Observation only was sufficient in 48 (14.8%) of patients, antibiotic prophylaxis was needed in 138 (42.6%), endoscopic treatment of VUR with injection of synthetic or natural materials (collagen, Vantris, Deflux) in 109 (33.5%) and classic surgical procedure in 29 (9%) patients. Complications were few, mainly before the year 2010. Reflux nephropathy was diagnosed in 19 patients (5.8%), hypertension in 17 patients (5.2%) and chronic renal disease in 11 (3.3%) of them.

CONCLUSIONS

The most common CAKUT, diagnosed in our patients, was VUR. Their diagnostic and treatment management were in accordance with the newest global standards. The complication rate was relatively low, especially in the last decade.

FOLLOW-UP ABPM AND CAROTID-FEMORAL PULSE WAVE VELOCITY RESULTS IN PEDIATRIC KIDNEY TRANSPLANT RECIPIENTS

Végh A[1], Mayer Z[1], Bárczi A[2], Cseprekál O[3], Kis É[4], Reusz GS[1]

[1]1st Department of Paediatrics, Semmelweis University, Budapest, Hungary

[2]Medical Imaging Centre, Semmelweis University, Budapest, Hungary

[3]Department of Surgery and Transplantation, Semmelweis University, Budapest, Hungary

[4]Gottsegen György Hungarian Institute of Cardiology, Budapest, Hungary

AIM OF THE STUDY

Chronic kidney disease has harmful impact on the cardiovascular system, leading to an increased cardiovascular (CV) risk. The most prevalent risk factor is hypertension, which when remaining uncontrolled, is associated with the development of end-organ damage, cardiomyopathy, and premature atherosclerosis. Given that cardiovascular disease is leading cause of mortality in renal transplant patients, treatment of hypertension and interventions on other modifiable risk factors, are key elements of care.

The aim of this study was to assess the prevalence of hypertension and of increased arterial stiffness in a paediatric renal transplant (RTx) cohort, to describe longitudinal changes in 24- hour blood pressures (ABPM) and pulse wave velocity (PWV), and to identify association between blood pressure, arterial stiffness, and graft function.

PATIENTS AND METHODS

Fifty-two children and young adults who underwent kidney transplantation before the age of 18 (median [IQR]: 10.79 [8.36-23.24] years) took part in this prospective study. The participants were evaluated regarding anthropometric data, laboratory, office and 24-h ambulatory blood pressure monitoring values and pulse wave velocity (PWV), a marker of arterial stiffness, at two time-points (median [IQR]: 2.53 [1.03-4.72] years and 9.3 [4.03-11.76] years following transplantation).

RESULTS

About 70% of the whole cohort had hypertension at both time-points. Office blood pressure measurement revealed that 45% and 37% of the participants had elevated blood pressure at the first and at the second follow-up, respectively. Based on ABPM, the rate of uncontrolled hypertension was at first 40% and later 43%.

A positive correlation was found between systolic and diastolic blood pressure and PWV Z-scores ($R=0.44$, $p=0.009$; $R=0.55$ $p=0.001$) at the second, but not at the first follow-up.

Patients with controlled hypertension had a tendency for better graft function at the long- term follow-up (mean ± SD: GFR controlled=74.09±32.44, GFR uncontrolled=49.6±23.13, $p=0.025$).

CONCLUSIONS

Despite renal transplantation reduces the global cardiovascular risk, multiple CV risk factors were present in our study population. We found a high prevalence of uncontrolled hypertension, nocturnal hypertension, non-dipping and masked hypertension. These results are in line with previous studies and highlight the importance of ABPM adequate blood pressure control in the care of KTx children as controlled hypertension was associated with significantly better maintained graft function and arterial stiffness on the long-term follow-up.

Funding: The study was supported by the Hungarian National Research, Development and Innovation Office grant NKFI-124549.

THE ROLE OF IL-24 IN THE PATHOMECHANISM OF TISSUE REMODELING

Veres-Székely A[1,2], Pap D[1,2], Ónody A[1], Rokonay R[1], Szebeni B[1,2], Pajtók C[1], Lévai E[1], Szabó AJ[1,2], Vannay A[1,2]

[1]1st Department of Paediatrics, Semmelweis University, Budapest, Hungary

[2]ELKH-SE Paediatrics and Nephrology Research Group, Budapest, Hungary

AIM OF THE STUDY

Recently, the possible impact of the members of IL-20 subfamily, including IL-24, was suggested in the regulation of inflammation and tissue repair processes. Here we aimed to investigate its biological role in the pathomechanism of various renal and intestinal diseases, associated with chronic inflammation and tissue remodelling.

PATIENTS AND METHODS

Expression of IL-24 was investigated in biological samples derived from paediatric patients with chronic kidney diseases (CKD), inflammatory bowel diseases (IBD) or coeliac disease (CD). Biological effect of recombinant IL-24 was investigated on renal and intestinal epithelial cells and fibroblasts. Experimental models of the related diseases were performed on wild type (WT) and IL-24 receptor knock out (KO) mice.

RESULTS

We found increased expression of IL-24 in samples derived from patients or mice affected with tissue injury and inflammation of kidney or gastrointestinal tract. IL-24 treatment resulted in increased production of pro-fibrotic growth factors in epithelial cells, moreover, induced fibroblast activation directly, revealed by elevated expression of fibrosis-related genes, morphological changes and altered cell motility. Similarly, we found reduced fibroblast accumulation and extracellular matrix deposition in KO mice compared to controls in the experimental animal models of renal and intestinal fibrosis.

CONCLUSIONS

Our findings suggest that IL-24 may play a significant role in the pathomechanism of tissue remodelling in the kidney and the gastrointestinal tract.

Funding: 20382-3/2018 FEKUTSTRAT; K125470; STIA-KFI-2020(61830-96319); ÚNKP-20-3-I-SE-49; FIKP(61830-69271); TKP2020-NKA-09; TKP2020-NKA-13; NKFI-124549.

POSTERS

COMPARISON OF CLINICAL AND LABORATORY CHARACTERISTICS OF PAEDIATRIC PATIENTS WITH KAWASAKI DISEASE AND MIS-C: A SINGLE-CENTER EXPERIENCE

Petek T[1,2], Hertiš Petek T[1,2], Marčun Varda N[1,2], Berce V[1,2]

[1] Department of Paediatrics, University Medical Centre Maribor, Maribor, Slovenia

[2] Faculty of Medicine, University of Maribor, Maribor, Slovenia

AIM OF THE STUDY

Kawasaki disease (KD) is a well-known acute vasculitis of childhood. The novel multisystem inflammatory syndrome in children (MIS-C) shares many similar features with KD. We aimed to compare characteristics of paediatric patients with KD and MIS-C at our institution.

PATIENTS AND METHODS

Retrospective chart review of KD and MIS-C patients, treated between years 2010 and 2021. Epidemiological, clinical, laboratory, heart and abdominal ultrasound data as well as given treatment and the need for intensive care unit (ICU) admission were analysed.

RESULTS

Twenty-four children (12 female) with KD (14 typical and 10 atypical), and 8 children (4 female) with MIS-C were analysed. KD patients, aged median 2 years, were younger than MIS-C patients, aged median 8.5 years ($p < 0.001$). More KD patients (79%) than MIS-C patients (38%) had a rash at presentation ($p = 0.028$), whereas only half of KD and all MIS-C patients presented with gastrointestinal complaints ($p = 0.011$). C-reactive protein ($p = 0.58$), leukocyte count ($p = 0.16$) and sedimentation rate ($p = 0.38$) values at diagnosis were similar between groups. A median interval of 5, 9, and 6 days ($p < 0.001$) elapsed between onset of febrile state and intravenous immunoglobulin administration in typical KD, atypical KD and MIS-C cases, respectively. 8% of KD and 25% of children with MIS-C necessitated ICU admission ($p = 0.217$).

CONCLUSIONS

Our results exemplify KD and MIS-C as two separate entities with some similar clinical features necessitating a distinct therapeutic approach.

MONITORING THE HEALTH STATUS OF A SELECTED GROUP OF CHILDREN AND ADOLESCENTS IN AN OBESITOLOGY CLINIC

Rafčíková N[1], Šťastná J[2], Dostálová Kopečná L[2], Nováková Z[1]

[1]Department of Physiology, Faculty of Medicine, Masaryk University, Brno, Czech Republic

[2]Department of Paediatrics, University Hospital, Children's Hospital Brno, Brno, Czech Republic

AIM OF THE STUDY

Childhood obesity has become a serious public health issue throughout the world. Currently, one in 6 children in the Czech Republic is overweight or obese. This work aims to evaluate the health status of a randomly selected group of paediatric patients of the Obesity Clinic, Children's Hospital, Brno.

PATIENTS AND METHODS

We obtained data of 30 patients (15 boys and 15 girls) aged 8 to 18 years with a body mass index (BMI) value of 30 kg/m2 and higher. Their anthropometric parameters (weight, height, waist and hip circumference) and laboratory results (lipid spectrum, vitamin D) were recorded retrospectively. Patients visited the clinic in regular check-ups every 3–9 months since 2014.

RESULTS

In the first year of monitoring and going to the ambulance, weight and BMI values were rather higher, but we found a statistically significant reduction in BMI after one year ($p<0.05$). The average concentration of total and LDL cholesterol did not differ significantly compared to a healthy population, while the concentration of triacylglycerols, HDL cholesterol and vitamin D in our group was significantly different.

CONCLUSIONS

Our data show that regular visits to Obesity Clinic play an important role in the health of the child population. However, children obesity is a very complex issue for wider discussion.

Funding: Supported by grant: MUNI/A/1246/2020.

PREVALENCE AND PROBLEMS OF DIAPER DERMATITIS IN INFANTS

Tomše P[1], Mičetić Turk D[1], Maver U[1], Marčun Varda N[1,2]

[1]Faculty of Medicine, University of Maribor, Maribor, Slovenia

[2]Department of Paediatrics, University Medical Centre Maribor, Maribor, Slovenia

AIM OF THE STUDY

Diaper dermatitis is one of the most common skin diseases affecting newborns and infants in the first months after birth. This often raises the question of its effective prevention and appropriate treatment. The purpose of the research was to investigate the prevalence of diaper dermatitis in infants. In addition, the purpose was to determine whether children with diaper rash have a changed quality of life, to what extent, and in what way.

PATIENTS AND METHODS

The prospective study included 120 children who were hospitalized at the University Medical Centre Maribor and wore diapers at the time of the research (children aged 0 to 24 months). We prepared a questionnaire, which was filled out by parents or caregivers. The results were analysed and presented in the form of a condensed text, table or graph.

RESULTS

The responses showed that 40 (33.3%) children had diaper dermatitis. Children with diaper dermatitis were more likely to have soft stools and skin problems. There were noticeable differences in diaper change between children with diaper rash and those without it. Diaper dermatitis affected children by making them more irritated, and their caregivers by having to deal with the child more during that time.

CONCLUSIONS

Research has shown that diaper dermatitis is a common problem of infancy. It is often seen in children having soft stools and skin problems. It particularly affects the quality of life of children. Treatment is mostly local, and in a fifth of cases it also requires a visit to the doctor.

THE INFLUENCE OF GENETIC AND ENVIRONMENTAL FACTORS ON THE OCCURRENCE OF AUTOIMMUNE GASTROENTEROLOGIC DISEASES IN CHILDREN

Jezeršek J[1], Kokalj S[1], Huber E[1], Dolinšek J[1,2], Mičetić Turk D[1,2]

[1]Faculty of Medicine, University of Maribor, Maribor, Slovenia

[2]Department of Paediatrics, University Medical Centre Maribor, Maribor, Slovenia

AIM OF THE STUDY

This study aimed to investigate environmental and lifestyle factors that might influence the risk of development of Coeliac Disease (CD) in children.

PATIENTS AND METHODS

The quantitative approach was used to analyse data attained with an online survey, with the help of Slovenian Coeliac Society. During the study (January–June 2021) we received 149 correctly completed questionnaires. Descriptive statistical methods were used in SPSS software.

RESULTS

Of the total 149 responses 106 (71.1%) were female and 43 (28.9%) were male. The diagnosis was made before the age of 3 years in 46 (30.9%), and after that in 103 (69.1%) participants. 34 (22.8%) children were born in winter, 52 (34.9%) in spring, 32 (21.5%) in summer and 31 (20.8%) in autumn. Mode of delivery was vaginal in 118 (79.2%) and Cesarean section in 31 (20.8%) cases. 142 (95.3%) participants were breastfed. The length of exclusive breastfeeding was 4.9 months (SD 3.5). The overall duration of breastfeeding was 9.7 months (SD 9.0). Antibiotic treatment was prescribed in 107 (71.8%) cases. The most frequent infections during infancy were otitis in 87 (58.4%) and pharyngitis in 62 (41.6%) responses, meanwhile the most frequent cause for gastrointestinal infection was rotavirus in 39 (26.2%) cases. Serotype testing was done in 49 participants. HLA-DQ2 was present in 26 (53.1%), HLA-DQ8 in 4 (8.2%) and both in 19 (38.8%) children.

CONCLUSIONS

Our findings reveal an increased incidence of CD in the last years as well as the increased age at diagnosis. The factors that influence the development of CD were observed as Caesarean delivery, season of birth, duration of breastfeeding, infections during infancy and the use of antibiotics. Further research is required to develop effective preventive strategies.

CONTINUOUS NON-INVASIVE HEMODYNAMIC MONITORING OF NEONATES UNDERGOING HYPOTHERMIA

Balog V, Vatai B, Kátai LK, Trinh S, Szabó M, Jermendy A

1st Department of Paediatrics, Semmelweis University, Budapest, Hungary

AIM OF THE STUDY

To provide a comprehensive analysis of cardiovascular changes during rewarming.

PATIENTS AND METHODS

In a prospective, observational study, we examined 26 HIE neonates, who were treated with hypothermia in the 1st Department of Paediatrics, Semmelweis University. A hemodynamic monitor called ICON was used. We analysed the recorded data: heart rate (HR), stroke volume (SV), cardiac output (CO) continuously with a minute frequency. Neurological outcome was assessed at 2 years using the BSID II Scale. Good outcome was defined as >70 points on both the psychomotor and mental scale. We examined the cardiovascular changes separately in patients with good and poor outcomes.

RESULTS

Based on the neurological examination, 14 (54%) patients had good and 12 (46%) had poor outcome. During hypothermia, the HR of the good outcome group tended to be lower than that of the poor group (90 ± 19 / min vs. 104 ± 18 / min, p = 0.06), during rewarming, the HR increased significantly in both groups, and the difference between the two groups disappeared (140 ± 15 /min vs. 143 ± 20 /min, p = 0.06). Interestingly, the SV of the good outcome group was significantly higher during hypothermia (5.2 ± 1.2 ml vs. 4.0 ± 0.9 ml, p=0.01), and the difference narrowed by the end of the rewarming (5.3 ± 1.4 ml vs. 4.3 ± 1.3 ml, p=0.07).

CONCLUSIONS

Based on continuous hemodynamic monitoring, the increase in cardiac output observed during rewarming is due to an increase in heart rate and not in stroke volume.

THE IMPACT OF COMORBIDITIES ON THE SEVERITY OF ATOPIC DERMATITIS IN CHILDREN

Marhold T[1], Delopst V[1], Berce V[1,2]

[1]Faculty of Medicine, University of Maribor, Maribor, Slovenia

[2]Department of Paediatrics, University Medical Centre Maribor, Maribor, Slovenia

AIM OF THE STUDY

To identify comorbidities and risk factors that influence the severity of AD in children.

PATIENTS AND METHODS

We performed a cross-sectional study involving 52 children newly diagnosed with AD. The severity of AD was assessed with the SCORing Atopic Dermatitis (SCORAD) clinical tool. Levels of serum tryptase, zinc, selenium, and immunoglobulins A, G, M and E (IgA, IgG, IgM, and total IgE, respectively) were determined as well as allergen-specific E antibodies (IgE) to the most common allergens. DNA samples from venous blood were screened for the most common mutations in the filaggrin gene.

RESULTS

The median age of patients was 30 months. The median SCORAD index in patients with atopy was 47.8, compared to 27.2 in non-atopic patients ($p < 0.01$). We also found a significantly higher median SCORAD of 61.2 in patients with low serum IgM levels compared to 34.9 in patients with normal serum IgM levels ($p = 0.03$). A history of impetigo was also associated with a higher median SCORAD of 56.2 compared to 34.0 in patients without impetigo ($p = 0.01$).

CONCLUSIONS

Patients with AD and sensitisation to common allergens, low levels of IgM or a history of impetigo are at risk for more severe disease and, therefore, need more attention, meticulous skin care, proactive management and treatment of comorbidities, when possible.

THE INCIDENCE OF THE DIABETIC KETOACIDOSIS IN NEW ONSET TYPE 1 DIABETES DURING THE FIRST WAVE OF COVID-19 PANDEMY

Vatamány-Einbeck A

1st Department of Paediatrics, Semmelweis University, Budapest, Hungary

AIM OF THE STUDY

Our aim was to assess the impact of the restrictions according to the frequency of diabetic ketoacidosis (DKA) at time of type 1 diabetes (T1DM) diagnosis.

PATIENTS AND METHODS

Into our study, we included children, newly diagnosed with T1DM between 11. 03.–16. 06. 2021 at the 1st Department of Paediatrics. We separately assessed the 1., 2. and 3. month of the "state of emergency". Data were compared to the same time period of 2015–2019. Furthermore, we investigated the protective and risk factors of DKA.

RESULTS

During the investigation period 15 (9.00±3.77 years) children were newly diagnosed with T1DM, seven of them (9.21±4.36 years) with DKA. Regarding the HbA1c levels, there was a significant difference between the period of the first wave and 2015–2019 (13.70% vs 11.70%; $p<0.05$). The incidence of DKA was beyond the previous national data (7/15 vs 34/88). In the first month of the "state of emergency" the ratio of DKA was 3/3, in the second and third month 2/5 and 1/5, respectively.

CONCLUSIONS

During the first wave of COVID-19 pandemy the incidence of DKA in newly diagnosed children increased. Beside the restrictions the fear of pandemy, and the loaded health system might also have contributed to this elevation. It is important that in a comparable health care emergency we emphasize the early care needed symptoms with clear communication. It can help the patients to reach a doctor in time and prevent DKA.

THE IMPORTANCE OF ARTERIAL COMPLIANCE MEASUREMENTS IN SCREENING OF CARDIOVASCULAR AND RENAL DISEASE OF CHILDREN

Cossutta I[1], Čas K[2], Esih M[1], Marčun Varda N[1,3]

[1]Department of Paediatrics, University Medical Centre Maribor, Maribor, Slovenia,

[2]Health Care Centre Slovenj Gradec, Slovenj Gradec, Slovenia

[3]Faculty of Medicine, University Maribor, Maribor, Slovenia

AIM OF THE STUDY

Due to the rise of cardiovascular risk factors in Slovenian children, the aim of our pilot study was to obtain preliminary normal values of arterial vascular compliance parameters for the population of Slovenian children.

Pulse wave velocity (PWV) measurement is a non-invasive technique that could contribute to assessing cardiovascular disease risk for preventive purposes.

PATIENTS AND METHODS

From April 2018 to June 2019, PWV measurements of 150 children between 8 and 18 years without associated diseases were performed in the Maribor area. We used the method of applanation tonometry for conducting PWV measurements. We analysed the obtained data with the R programming language, outlined the percentile diagram with LMS methodology, the curves were defined with the function based on "BCCGo" distribution.

RESULTS

We have confirmed that PWV values rise with age (rho = 0.387; $p < 0.001$). We calculated percentile values of PWV according to age with LMS method. Comparing PWV values, we found that they differ statistically ($H = 23.062$; $p < 0.001$). We also found out that the ratio between systolic and diastolic blood pressure weakly negatively correlates with PWV (rho values = -0.218; $p = 0.043$).

CONCLUSIONS

Preliminary age-dependent paediatric reference values of PWV were determined, and the usefulness of the method for preventive purposes due to its non-invasiveness and simplicity was confirmed. Testing on a larger sample of subjects is necessary with the aim of defining national reference values and using this method in monitoring the cardiovascular health of the Slovenian paediatric population.

EFFECTS OF HORMONAL CONTRACEPTION ON CARDIOVASCULAR SYSTEM

Pírek O, Budinskaya K, Nováková Z

Department of Physiology, Faculty of Medicine, Masaryk University, Brno, Czech Republic

AIM OF THE STUDY

Despite low concentrations of exogenous oestrogens in contemporary monophasic oral contraceptive pills (OCP), there is still a number of side effects. That is why the aim of this study was to detect negative impact of OCP on cardiovascular system.

PATIENTS AND METHODS

Twenty-four participants were divided into two groups – OCP+ group A (14 women; age: 21.0±1.3 y) and control group B (10 women; age: 21.5±1.5 y). Participants were divided into subgroups based on the phase of their menstrual cycle. Measurement devices VaSera (Fukuda Denshi, Japan) and SphygmoCor (AtCor Medical, Australia) were used. We measured systolic and diastolic blood pressure (SBP, DBP), Cardio-ankle vascular index (CAVI), carotid-radial pulse wave velocity (crPWV), and subendocardial viability index (SVI). We used Statistica 13.5 for statistical analysis of the data.

RESULTS

All of the measured cardiovascular parameters were considered physiological for both experimental groups. Following parameters showed statistically significant difference between groups A and B: DBP (75.5±5.1 mmHg vs. 62.0±8.1 mmHg; $p<0.01$), SVI (160.0±13.1% vs. 177.3±13.8%; $p<0.01$), crPWV (7.0±0.8 m/s vs. 6.6±0.7 m/s; $p<0.05$). Comparison of other cardiovascular parameters between the groups showed no significant differences.

CONCLUSIONS

Our results imply negative impact of OCP on cardiovascular health of their users. As both DBP and crPWV are affected mostly by the condition of peripheral arteries, we assumed that OCP affects mostly peripheral parts of the cardiovascular system. The significant decrease of SVI in OCP users also implies negative effects on the central part of the cardiovascular system.

Funding: This research was supported by grant project no. MUNI/A/1246/2020.

THE TREATMENT OF CHILDREN WITH RARE KIDNEY DISEASES IN THE DEPARTMENT OF PAEDIATRICS MARIBOR

Koščak J[1], Golob Jančič S[1,2], Marčun Varda N[1,2]

[1]Faculty of Medicine, University of Maribor, Maribor, Slovenia

[2]Department of Paediatrics, University Medical Centre Maribor, Maribor, Slovenia

AIM OF THE STUDY

The research aimed to review and analyse the data of patients with rare kidney diseases, treated at the University Medical Centre Maribor, and to compare them with the data from other centres, included in the European Rare Kidney Disease Registry (ERKReg).

PATIENTS AND METHODS

The study recruited 126 patients (68 men, 58 women) aged from birth to 23 years. The research was conducted with the help of the international registry ERKReg and the informational system of the University Medical Centre Maribor. Data were collected in an Excel computer program.

RESULTS

By the 6th of August 2021, 126 patients (58 women, 68 men) with rare kidney diseases were included in the study. The most common group of diseases were congenital anomalies of the kidneys and urinary tract (CAKUT) with 62.7% of patients, followed by glomerulopathies with 17.5% and familial cystic renal diseases with 13.4% of patients. All other groups accounted for less than 10% of patients. The most common diagnosis was vesicoureteral reflux. CAKUT was diagnosed on average at the age of 1.5 years. Most patients have grade one chronic kidney disease (63%). 10% of all included patients have been diagnosed with arterial hypertension, and half have been successfully treated with single antihypertensive drug. The most common indication for surgical treatment was vesicoureteral reflux. Overall, 33% of patients required surgery.

CONCLUSIONS

The study found that the prevalence of children with rare kidney diseases in the Podravska region is higher than the predicted prevalence in Europe and that there is a highly asymmetric distribution of individual diseases.

Acknowledgments: The research has been done using the data of our Affiliated Centre ERKNet Registry.

GLUTEN DEGRADING ORAL AND GUT BACTERIA IN ADOLESCENTS WITH COELIAC DISEASE

Kukovičič A[1], Dolinšek J[2], Janežič S[1,3], Rupnik M[1,3], Seničar T[1]

[1]Faculty of Medicine, University of Maribor, Maribor, Slovenia

[2]Department of Paediatrics, University Medical Centre Maribor, Maribor, Slovenia

[3]National Laboratory of Health, Environment and Food, Maribor, Slovenia

AIM OF THE STUDY

The aim of our study was isolation and comparison of gluten-degrading microorganisms (GDM) from feces and saliva of adolescent patients with coeliac disease (CD) and healthy controls (HC). We compared genomes of the same bacterial species isolated from samples of feces and saliva of the same individual.

PATIENTS AND METHODS

Feces and saliva were obtained from five CD patients (two female, three male) on gluten-free diet (GFD) and five HC (three female, two male) aged 13–18 years. Samples were inoculated on culturing medium with gluten as a major source of nitrogen. Colonies with lysis zone were further isolated in pure culture and identified using MALDI Biotyper (Bruker Daltonics). Whole genome sequencing (WGS) was performed on four strains that belonged to the same species and were isolated from sample of feces and saliva of the same individual.

RESULTS

In the CD group 15 GDM strains were isolated, three from feces and 12 from saliva. In contrast to the HC group, where 30 GDM strains were isolated (one was not identified): nine from feces and 21 from saliva, one GDM was isolated from both samples (saliva and feces).

Four bacterial species were isolated from feces and saliva of the same individual. WGS showed identical genomes only in L. rhamnosus.

CONCLUSIONS

We found that cultivable GDM are diverse and more often present in feces and saliva of HC than CD, which could be the effect of GFD the CD patients were on. Genomically identical lactobacilli were detected in saliva and in feces of the same individual.

TRANSIENT ERYTHROBLASTOPENIA OF CHILDHOOD AND COVID-19 INFECTION: A CASE REPORT

Šimić D, Brajenić N, Roganović J

Department of Paediatrics, Clinical Hospital Centre Rijeka, Rijeka, Croatia

AIM OF THE STUDY

Emphasize the importance of including transient erythroblastopenia of childhood in the differential diagnosis of anaemia in a previously healthy young child, aiming to avoid unnecessary diagnostic and therapeutic interventions, and describe the influence of SARS-CoV-2 virus infection on the course and outcome of the disease.

PATIENTS AND METHODS

A two-and-a-half-year-old girl was referred to the emergency hospital department due to severe anaemia. On admission, she was in good general condition, asymptomatic, with pale skin and mucous membranes, and no other abnormalities. Previous and family history were negative. Repeated findings confirmed isolated severe normocytic normochromic anaemia. Spontaneous recovery was observed. Intercurrent Covid-19 infection with associated neutropenia and thrombocytopenia affected the course but not the favourable outcome of the disease. Transient erythroblastopenia of childhood was diagnosed, with complications due to COVID-19 infection. The treatment was supportive. She was followed-up on an outpatient basis, until complete recovery of anaemia two months after hospitalization.

CONCLUSIONS

Transient erythroblastopenia of childhood is an acquired self-limiting disorder, characterized by anaemia and reticulocytopenia due to temporary suppression of erythropoiesis in a previously healthy child. The evaluation should be focused at excluding other causes of anaemia. Covid-19 infection does not affect a favourable outcome of the disease.

TUBULOINTERSTITIAL NEPHRITIS AND UVEITIS SYNDROME IN AN ADOLESCENT FEMALE

Petek[1,2], Frelih M[3], Marčun Varda N[1,2]

[1]Department of Paediatrics, University Medical Centre Maribor, Maribor, Slovenia

[2]Faculty of Medicine, University of Maribor, Maribor, Slovenia

[3]Institute of Pathology, Faculty of Medicine, University of Ljubljana, Ljubljana, Slovenia

AIM OF THE STUDY

Tubulointerstitial nephritis with uveitis (TINU) syndrome is a rare disease affecting mainly children and young women. Since its first recognition in 1975, more than 300 cases have been reported worldwide. However, a literature review of published case series to date is lacking.

PATIENTS AND METHODS

We describe a case report of an adolescent female in whom upon extensive work-up, including kidney biopsy, the diagnosis of TINU syndrome was confirmed. Secondly, we performed a literature review of published case series describing TINU syndrome.

RESULTS

A 14-year-old white girl with unilateral anterior uveitis and abnormal urinalysis was referred to our care in November 2018. Upon laboratory evaluation, marked elevation in erythrocyte sedimentation rate, mild elevation of serum C-reactive protein, mild normocytic anaemia, elevated serum creatinine, mild proteinuria, microalbuminuria, elevated values of alpha-1 microglobulin, and normoglycemic glycosuria were observed. Renal ultrasound and chest radiography were normal. Immunological screening was negative. Histopathology revealed focal tubulointerstitial nephritis with rare noncaseating granulomata, which confirmed a diagnosis of TINU. A literature review revealed a sum of 580 published TINU cases worldwide.

CONCLUSIONS

In patients presenting with uveitis and/or acute interstitial nephritis, a suspicion of TINU syndrome should be made, especially if young and/or female. In our case, even with histological features of important tubulointerstitial nephritis and noncaseating granulomata, the urinalysis showed only mild urine changes. Renal biopsy proved useful in guiding therapy. In most cases, with prompt ocular and systemic corticosteroid therapy, prognosis of TINU is favourable, despite occasional relapses.

THE MEETING WAS SUPPORTED BY

SWIXX BIOPHARMA

FERRING

CHIESI SLOVENIA

PHARMASWISS