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ONLINE

Congress of the Central European Diabetes Association (FID-CEDA)

June 10-12, 2021
Budapest, Hungary

FINAL PROGRAMME **ABSTRACT BOOK**

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SANOFI

Invitation to the Congress of the Central European Diabetes Association (CEDA), Budapest, 10-12 June, 2021

Hungary belongs to the classical Danube countries and was a founding member of the FID (Federation of International Danube Symposia on Diabetes Mellitus; now CEDA). Professor Imre Magyar, the founder and first President of the Hungarian Diabetes Association contributed to the founding of FID as well. In 1971 and in 1981, Professor Imre Magyar also served as the organizer of the annual scientific FID meetings in Hungary.

It was a privilege for me when Professor Helmut Schatz invited me to organize a third FID meeting in Hungary. Fortunately, the meeting organized in June 2012 was highly successful, with more than 450 participants. The number of international participants exceeded the number of those coming from Hungary.

For the present meeting, I hoped that we could organize it as a face to face, or at least a hybrid meeting. However, due to the extension of the pandemic regulations in Hungary, finally it will be a virtual meeting. Nonetheless, around 30 participants will be able to follow the presentations projected in three separate rooms simultaneously.

The Hotel Aquincum on the shore of the Danube in Buda has been chosen as the congress hotel. Many aspects of clinical diabetology will be covered by the scientific program. As neuropathy has been my area of research for 40 years, a somewhat longer session on neuropathy has been organized, summarizing data on pathogenesis, diagnosis and treatment of different aspects of diabetic neuropathy. Moreover, precision diabetology, new diabetes technologies, COVID-related issues, different aspects of cardiovascular risk associated to diabetes, the latest data of the nationwide study in Hungary, as well as other aspects of diabetology will be reviewed by the lecturers.

We would like to kindly invite all current and future members of CEDA/FID to the Annual Scientific Congress of the Central European Diabetes Association in 2021 in Budapest.

Budapest, 20 May 2021

Prof. Peter Kempler

President of the Hungarian Diabetes Association
President Elect of the Central European Diabetes Association

GENERAL INFORMATION

ORGANIZATION

President: Prof. Dr. Thomas M. Stulnig, Austria

Vice President: Prof. Dr. Erifili Hatziagelaki, Greece

President Elect: Prof. Dr. Peter Kempler, Hungary

General Secretary: Prof. Dr. Christian Herder, Germany

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TECHNICAL IMPLEMENTATION

The FunkyMedia company is responsible for the technical implementation for the FID/CEDA online stream and the virtual abstract presentation.

REGISTRATION

The online registration fee includes: participation in the online scientific program, a downloadable, online programme and abstract book.

Virtual participants can follow the meeting via a link.

WEBSITE

Website of the conference:
https://portalapp.congressworks.eventsair.com/VirtualAttendeePortal/fid/fid-ceda/login

WHEN WILL THE ONLINE CONGRESS BE AVAILABLE?

The online platform will be open from 10th June until 12th June, 2021 for the registered participants. If you have missed the live session or would like to watch it again, the recording will be available till 12th August, 2021 on the congress platform. Your login will be valid until that date. We kindly ask you to login well in advance to familiarize yourself with the event portal.

HOW TO JOIN THE ONLINE CONGRESS?

Registered participants will receive personal login details via email a few days prior to the congress. Please note that you can log in only from one device at a time, parallel login from two or more devices is not possible.

Notification email will be sent from either no-reply@eventsairmail.com or mail@eventsairmail.com, please check your inbox and also your junk mail. To make sure to get the login details, we recommend to add these two e-mail addresses to your mailbox as reliable senders, to avoid it considering them as spam.

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DAILY PROGRAM

THURSDAY, 10TH JUNE

13:00 – 13:30	**Opening ceremony –** Béla Merkely, Rector, Semmelweis University Thomas Stulnig, President of CEDA Peter Kempler, President of the Local Organizing Committee, President Elect of CEDA
13:30 – 14:45	**New technologies in diabetes** Chair: Michael Roden, Germany; Nebojsa Lalic, Serbia
13:30 – 13:50	Michael Roden, Germany Precision Diabetology - Novel Subtypes of Diabetes
13:50 – 14:10	Nebojsa Lalic, Serbia The role of technology in diabetes treatment: glucose sensing in focus
14:10 – 14:30	Tomasz Klupa, Poland "Do It Yourself" hybrid closed loop systems: challenges, risks and opportunities
14:30 – 14:45	Discussion
14:45 – 15:30	**State of the Art lecture** Chair: Peter Kempler, Hungary; Thomas Stulnig, Austria Ferenc Oberfrank, Hungary The dilemmas of medicine in the 21st century
15:30 – 16:00	**COFFEE BREAK**
16:00 – 17:40	**Clinical aspects of diabetes** Chair: Maciej Malecki, Poland; Werner Waldhäusl, Austria

16:00 – 16:20	Dániel Végh, Hungary Oral health and diabetes
16:20 – 16:40	Jan Skrha, the Czech Republic Forty years of experience with insulinoma patients
16:40 – 17:00	Dénes Páll, Hungary Treatment of hypertension in diabetes
17:00 – 17:20	Maciej Malecki, Poland Treatment of diabetes mellitus in the elderly
17:20 – 17:40	Discussion
17:40 – 18:40	**Sanofi-Aventis symposium** **Simple, convenient, and patient friendly– task for modern insulin-based treatment** Chair: Maciej Malecki, Poland
17:40 – 17:45	Maciej Malecki, Poland Introduction – Simplification of insulin regimen to improve pts compensations rate and QoL
17:45 – 18:00	Martin Haluzík, the Czech Republic Simplification of insulin regimen – from complex regimen to FRCs
18:00 – 18:15	Florian Kiefer, Austria Simplification from premix to BOT treatments – a clinical and patient's perspective
18:15 – 18:30	Cristian Serafinceanu, Romania Simplification in patients with chronic kidney disease
18:30 – 18:40	Maciej Malecki, Poland / All Discussion / Take home messages

Friday, 11th June

8:30 – 10:30	**Diabetic neuropathy**
	Chair: Peter Kempler, Hungary; Tamás Várkonyi, Hungary
8:30 – 8:50	Nikos Papanas, Greece Praediabetic neuropathy
8:50 – 9:10	Christian Herder, Germany The role of inflammation in the pathogenesis of diabetic neuropathy
9:10 – 9:30	Tamás Várkonyi, Hungary Gastrointestinal motility in diabetes – any connection between symptoms and findings?
9:30 – 9:40	Anna Körei, Hungary Do we still need all five standard tests in the diagnosis of cardiovascular autonomic neuropathy?
9:40 – 10:00	Peter Kempler, Hungary Pathogenetic oriented therapy of diabetic neuropathy
10:00 – 10:30	Discussion
10:30 – 11:00	**COFFEE BREAK**
11:00 – 12:40	**Novo Nordisk symposium**
	Mapping the patient's journey across cardiometabolic risk and complications exposure
	Chair: Peter Kempler, Hungary
11:00 – 11:05	Peter Kempler, Hungary Welcome and Introduction

11:05 – 11:15	Nebojsa Lalic, Serbia Modern management of T2DM: the role of Semaglutide on glycemic control
11:15 – 11:25	Anastasios Koutsovasilis, Greece Cardiometabolic health in the time of pandemic: why is so important?
11:25 – 11:35	Daniel Aradi, Hungary Diabetes and cardiometabolic risk: the mechanisms of ASCVD and the lessons from the CAPTURE study
11:35 – 11:45	Nóra Hosszúfalusi, Hungary Residual inflammatory cardiovascular risk in T2DM: Semaglutide efficacy beyond glucose regulation
11:45 – 11:55	Martin Haluzík, the Czech Republic The central role of GLP-1RAs in weight and appetite regulation
11:55 – 12:05	Cristian Guja, Romania Translating scientific evidence into clinical practice
12:05 – 12:40	Peter Kempler, Hungary & All Panel Discussion and Conclusions
12:40 – 13:50	**LUNCH BREAK**
13:50 – 15:05	**COVID-related issues** Chair: Manfredi Rizzo, Italy; Helmut Schatz, Germany
13:50 – 14:10	Anca Pantea Stojan, Romania Death by SARS-CoV 2: a Romanian COVID-19 multi-centre comorbidity study
14:10 – 14:30	Manfredi Rizzo, Italy COVID-19, Diabetes and Obesity
14:30 – 14:50	Helmut Schatz, Germany Metformin, Raloxifen, Vitamin D for COVID-19?

14:50 – 15:05	Discussion
15:05 – 15:30	**COFFEE BREAK**
15:30 – 17:10	**Clinical sciences**
	Chair: Nanette Schloot, Germany; Zdravko Kamenov, Bulgaria
15:30 – 15:50	Zdravko Kamenov, Bulgaria Diabetes and menopause
15:50 – 16:10	Gyula Petrányi, Cyprus Polycystic ovary syndrome, insulin resistance, and metformin
16:10 – 16:30	Nanette Schloot, Germany New insights in type 1 diabetes: pathogenesis and prevention trials
16:30 – 16:50	Angelo Avogaro, Italy Therapeutic approaches to target both micro- and macrovascular disease in patients with type 2 diabetes
16:50 – 17:10	Discussion
17:15 – 18:15	**Executive Committee Meeting (Closed session)**

Saturday, 12th June

8:30 – 9:30	**General Assembly**
9:30 – 10:30	**Boehringer-Ingelheim symposium**
	SGLT-2 inhibitors for early diabetes patients - Pros & Cons Debate
9:30 – 9:35	Peter Kempler, Hungary Introduction
9:35 – 9:50	Thomas Stulnig, Austria Yes – SGLT2i should be used in early T2D patients
9:50 – 10:05	Peter Kempler, Hungary No – SGLT2i should not be prioritized in early T2D patients
10:05 – 10:20	Audience Open discussion with audience
10:20 – 10:30	Closing comments
10:30 – 11:00	**COFFEE BREAK**
11:00 – 12:40	**Cardiovascular risk in diabetes**
	Chair: Thomas Stulnig, Austria; István Wittmann, Hungary
11:00 – 11:20	István Wittmann, Hungary Risk of morbidity and mortality in patients with type 2 diabetes treated with sodium-glucose cotransporter-2 inhibitor and/or dipeptidyl peptidase-4 inhibitor: a nationwide study
11:20 – 11:40	György Jermendy, Hungary Changes in trends of epidemiological data (incidence, prevalence, mortality) among people with pharmacologically treated T2DM between 2001 and 2016 in Hungary

11:40 – 12:00	Thomas Stulnig, Austria Cardiovascular risk reduction in diabetes: are all needs met?
12:00 – 12:20	Erifili Hatziagelaki, Greece The efficacy of new antidiabetic drugs beyond glucose regulation
12:20 – 12:40	Discussion
12:40 – 13:50	**LUNCH BREAK**

Thursday, 10th June - Saturday, 12th June

available throughout the Congress **E-POSTER SESSION**

Chair: Tomasz Klupa, Poland; Jan Skrha, the Czech Republic

Within the session the authors have the opportunity to present their work by a short Powerpoint presentation on the Online Platform. The authors can present their e-posters between 5 minutes to 15 minutes. Each online presentation has a Discussion Forum where participants can write questions and the authors can answer them. Speakers/authers are asked to follow up the occuring questions during the event and to answer them.
The official language of the E-Poster Session is English.

1. **Are there ECG parameters representing cardiac repolarization influenced by the presence cardiovascular autonomic neuropathy in type 1 diabetes during exercise?**
   Viktor Horváth, Hungary; Gergely Szabó, Hungary; Emese Szelke, Hungary; Péter Szelke, Hungary; Anna E. Körei, Hungary; Magdolna Békeffy, Hungary; Ádám Tabák, Hungary; Péter Kempler, Hungary

2. **Cerebral and peripheral microcirculation in T2DM and obesity, influence of neuropathy and C-peptide level**
   Miklós Káplár, Hungary; Regina Esze, Hungary; Márton Mikó, Hungary; Zita Képes, Hungary; Sándor Somodi, Hungary; György Paragh, Hungary; Péter Kempler, Hungary; Miklós Emri, Hungary; Ildikó Garai, Hungary

3. **Is there any indication for plasmapheresis and opioid therapy in the treatment of diabetic neuropathy? – a case report**
Anna E. Körei, Hungary; Karolina K. Schnabel, Hungary; Dóra Tordai, Hungary; Magdolna Z. Békeffy, Hungary; Erika Gulyásné Gáspár, Hungary; Zsuzsanna Putz, Hungary; Ildikó Istenes, Hungary; Orsolya Vági, Hungary; Noémi Hajdú, Hungary; Péter Kempler, Hungary

4. **Interplay between CXCL chemokine family and matrix metalloproteinase-2 (MMP-2) in streptozotocin induced diabetic rat heart**
Krisztina Kupai, Hungary; Szilvia Török, Hungary; Nikoletta Almási, Hungary; Gábor Szebeni, Hungary; Tamás Várkonyi, Hungary; Zsuzsanna Valkusz, Hungary; Anikó Pósa, Hungary; Csaba Varga, Hungary

5. **Comparison of erectile dysfunction prevalence among novel diabetes subgroups**
Haifa Maalmi, Germany; Christian Herder, Germany; Gidon J Bönhof, Germany; Klaus Strassburger, Germany; Oana-Patricia Zaharia, Germany; Wolfgang Rathmann, Germany; Volker Burkart, Germany; Julia Szendroedi, Germany; Michael Roden, Germany; Dan Ziegler, Germany

6. **Follow up of cardiovascular autonomic neuropathy in insulin pump-treated type 1 diabetic patients**
Sándor Magony, Hungary; Szabolcs Nyiraty, Hungary; Katalin Fehértemplomi, Hungary; Bettina Tóth, Hungary; Fruzsina Pesei, Hungary; Andrea Orosz, Hungary; Csaba Lengyel, Hungary; Peter Kempler, Hungary; Tamás Várkonyi, Hungary

7. **The effect of autonomic neuropathy on the frequency of hypoglycaemia in type 1 and insulin-treated type 2 diabetic patients**
Szabolcs Nyiraty, Hungary; Bettina Tóth, Hungary; Fruzsina Pesei, Hungary; Andrea Orosz, Hungary; Csaba Lengyel, Hungary; Péter Kempler, Hungary; Tamás Várkonyi, Hungary

8. **Insulin resistance and 25 hydroxy-vitamin D levels in women with thyroid diseases**
Roxana Adriana Stoica, Romania; Cristian Guja, Romania; Anca Pantea-Stoian, Romania; Raluca Ioana Ștefan-van Staden, Romania; Ioana Popa-Tudor, Romania; Simona Diana Ștefan, Romania; Robert Ancuceanu, Romania; Cristian Serafinceanu, Romania; Constantin Ionescu-Tîrgoviște, Romania

9. **Factors influencing survival in diabetic patients with end-stage chronic kidney disease undergoing hemodialysis during Covid-19 pandemic: focus on malnutrition**
   Roxana Adriana Stoica, Romania; Anca Pantea Stoian, Romania; Mihai Corban, Romania; Cristian Serafinceanu, Romania; Constantin Ionescu-Tîrgoviște, Romania

10. **Farming, compared to walking and sports, is more efficient on metabolic parameters and level of depression in Transilvanian, type 2 diabetes patients**
    Monica Szabó, Romania; Bernadett Berecki, Romania; Rozália Balogh, Romania

11. **10 years follow-up of cardiac and diabetes-specific complications in young type 1 diabetic patients**
    Bettina Tóth, Hungary; Fruzsina Pesei, Hungary; Kálmán Havasi, Hungary; Szabolcs Nyiraty, Hungary; Árpád Kormányos, Hungary; Andrea Orosz, Hungary; Csaba Lengyel, Hungary; Attila Nemes, Hungary; Péter Kempler, Hungary; Tamás Várkonyi, Hungary

12. **Evaluation of the cardiovascular autonomic and peripheral sensory nervous systems' function in top athletes at conditioned and deconditioned states**
    Anna Vágvölgyi, Hungary; Attila Farkas, Hungary; Julianna Bernadett Tóth, Hungary; Mónika Szűcs, Hungary; Andrea Orosz, Hungary; András Varró, Hungary; Tamás Várkonyi, Hungary; Péter Kempler, Hungary; Csaba Lengyel, Hungary

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POSTER ABSTRACTS

1. ARE THERE ECG PARAMETERS REPRESENTING CARDIAC REPOLARIZATION INFLUENCED BY THE PRESENCE CARDIOVASCULAR AUTONOMIC NEUROPATHY IN TYPE 1 DIABETES DURING EXERCISE?

Viktor Horváth[1], Gergely Szabó[1], Emese Szelke[1], Péter Szelke[1], Anna E. Körei[1], Magdolna Békeffy[1], Ádám Tabák[1], Péter Kempler[1]

[1]Semmelweis University, Department of Internal Medicine and Oncology, Budapest

Introduction: Alterations of repolarisation markers in resting ECG (QT, QTc, Tpeak-to-Tend; TpTe) correlate significantly with ventricular arrhythmias. Among diabetic patients autonomic neuropathy is also a risk factor of malignant arrhythmias. In this case report we compared chanages of ECG repolarisation markers during ergometry among a healthy and an otherwise healthy type 1 diabetic (DM1) patient, as well as a type 1 diabetic patient with autonomic neuropathy (AN).
Methods: Age of the participants were similar (33-43 years) and so the diabetes duration among diabetic induviduals (18 and 20 years). Diabetics underwent standard neuropathy tests not earlier than six month prior to ergometry. The indication of the ergometry was undefined chest pain, the study was completed by using MDE Heidelberg ergometry system with modified Bruce protocoll. During the test we measured changes in heart rate (HR) QRS, QT, QTc and TpTe time.
Results: Compared to the controll and otherwise healty type 1 diabetic individual, patient with autonomic neuropathy produced a moderate increase in heart rate (ΔHR: controll=54/min; DM1=71/min, AN=36/min). Also, QT and TpTe times shortened moderately (ΔQT: controll=-63 msec; DM1=-99 msec; AN=-9 msec; ΔTpTe: controll=-44 msec, DM1=-42 msec, AN=-7 msec), but QTc time lenghtened (ΔQTc: kontroll=-39 msec; DM1=-56 msec; AN=45 msec). QRS duration did not change during any phase of the ergometry.
Conclusion: Our ergometry system may be helpful for evaluating cardiac complications related to autonomic neuropathy. Further involvment of patients is necessary to investigate whether the severity of autonomic neuropathy could correlate with the ECG markers of repolarisation.

2. CEREBRAL AND PERIPHERAL MICROCIRCULATION IN T2DM AND OBESITY, INFLUENCE OF NEUROPATHY AND C-PEPTIDE LEVEL

Miklós Káplár[1], Regina Esze[1], Márton Mikó[2], Zita Képes[2], Sándor Somodi[1], György Paragh[1], Péter Kempler[4], Miklós Emri[3], Ildikó Garai[2]

[1]*Internal Medicine, University of Debrecen, Debrecen, Hungary*
[2]*ScanoMed Ltd, Debrecen, Hungary*
[3]*Nuclear Medicine, University of Debrecen, Debrecen, Hungary*
[4]*Internal Medicine, Semmelweis University, Budapest, Hungary*

Microcirculation is damaged in diabetic patients and it has also been observed in obesity.
Our aim was to investigate the cerebral and peripheral microcirculation, peripheral neuropathy and to find any association between them and with C-peptide and VEGF levels in obesity and type 2 diabetes.
Participants (diabetic group: 16 female and 24 male, mean age: 50.9±6.9 year, BMI: 32.9±5.1 kg/m^2; obesity group: 18 female and 14 male, mean age: 51.4±1.0 year, BMI: 38.8±6.0 kg/m^2) were involved after a written consent was obtained.
Tc99m HMPAO dynamic SPECT/CT studies were performed to assess cerebral and peripheral microcirculation and neurometer was used to determine neuropathy.
Leg perfusion was significantly lower in the diabetic group ($p<0.001$) and it correlated with BMI (rho=0.36). According to the presence and severity of neuropathy a significant difference in lower limb microcirculation was detected independently of diabetes and obesity. Surprisingly the results in the severe neuropathy group were only non-significantly decreased compared to patients without neuropathy ($p=0.18$). However, significant differences between mild neuropathy and no neuropathy groups, nevertheless between mild and severe neuropathy groups were revealed ($p=0.036$ and $p=0.042$ respectively).
Regarding C-peptide level a significant difference between mild and severe neuropathy groups was found ($p=0.0066$).
The quantity of lower limb microcirculation correlated significantly and positively with C-peptide ($p<0.05$, rho: 0.29) but not with VEGF level. There was also positive correlation between C-peptide level and cerebral microcirculation ($p<0.05$, rho: 0.27).
C-peptide highly contributes to the changes of lower limb microcirculation in patients with neuropathy.

3. IS THERE ANY INDICATION FOR PLASMAPHERESIS AND OPIOID THERAPY IN THE TREATMENT OF DIABETIC NEUROPATHY? – A CASE REPORT

Anna E. Körei[1], Karolina K. Schnabel[1], Dóra Tordai[1], Magdolna Z. Békeffy[1], Erika Gulyásné Gáspár[1], Zsuzsanna Putz[1], Ildikó Istenes[1], Orsolya Vági[1], Noémi Hajdú[1], Péter Kempler[1]

[1]Department of Internal Medicine and Oncology, Semmelweis University, Budapest

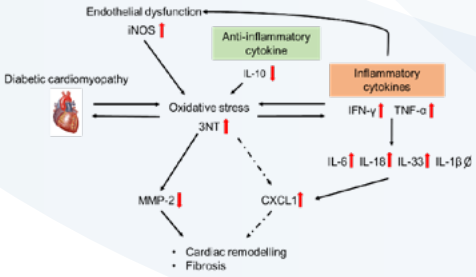
We report a 72-year-old patient with type 2 diabetes (T2DM), he was diagnosed withdiabetic neuropathy 30 years ago. During the years, he underwent coronarography, lower limb PTA and stent implantations several times due to macrovascular complications. This time, the patient was admitted to hospital because of poor glycaemic control (HbA1c:11%) and falls. To achieve better metabolic control in the obese patient (BMI: 39.2 kg/m2),we titrated doses of SGLT2-inhibitor and GLP-1 receptor agonist therapy. The patient hasalready been on combination therapy for severe painful diabetic neuropathy including both pathogenetically oriented (benfotiamine and alpha-lipoic acid) and symptomatic (duloxetineand pregabalin) treatment options. Despite, he still suffered from typical neuropathic pain. Onneuropathy examination, severe sensory impairment was confirmed on all extremities bydiminished current perception thresholds (CPT) measured by Neurometer (Neurotron Inc.), bythe Vibratip, Tiptherm, the monofilament, the tuning fork and thermal perception thresholdsdetected by Q-Sense (Medoc Ltd.). Moderate cardiovascular autonomic neuropathy was alsoproven. Based on the neuropathy studies, the frequent falls complained by our patient mighthave resulted from his severe distal sensorimotor neuropathy and orthostatic hypotension (32mmHg). As the so far administered fourfold combination therapy did not provide sufficientpain relief, the patient underwent plasmapheresis and opioid therapy was initiated withapproving result.Conclusions: Diabetic neuropathy may be characterized by extremely severe hypaesthesia andneuropathic pain simultaneously. Good glycaemic control is a cornerstone in the treatment ofdiabetic neuropathy. When treating painful diabetic neuropathy, both pathogeneticallyoriented and symptomatic therapy should be implemented. Besides, plasmapheresis and opioid supplementation should be considered for some patients.

4. INTERPLAY BETWEEN CXCL CHEMOKINE FAMILY AND MATRIX METALLOPROTEINASE-2 (MMP-2) IN STREPTOZOTOCIN INDUCED DIABETIC RAT HEART

Krisztina Kupai[1,2], Szilvia Török[1], Nikoletta Almási[1], Gábor Szebeni[3], Tamás Várkonyi[2], Zsuzsanna Valkusz[2], Anikó Pósa[1], Csaba Varga[1]

[1]Department of Physiology, Anatomy and Neuroscience, Faculty of Science and Informatics, University of Szeged, Szeged
[2]Department of Medicine, Medical Faculty, Albert Szent-Györgyi Clinical Center, University of Szeged, Szeged, Hungary
[3]Laboratory of Functional Genomics, Biological Research Centre, Szeged

Cardiovascular disease (CVD) is the most prevalent cause of morbidity and mortality in diabetic patients but the mechanisms are still not fully understood. The aim of the present study was to determine the role of chemokines, mainly C-X-C motif ligand (CXCL)/matrix metalloproteinase-2/nitosative stress axis in the development of diabetic cardiomyopathy.
Male Harlan rats were randomly assigned to control and diabetic group. Rats were injected with streptozotocin (STZ, 80 mg/kg, i.p) to induce type 1 diabetes or an equivalent volume of saline (control) and fed standard rat chow. Following 4 weeks after STZ injection heart were isolated and perfused for 10 min at Langendorff system. Different inflammatory cytokine levels (IFN,TNF,IL-1,6,10,18,33) and CXCL-1 as a chemokine were quantified using the Legendplex multiplex bead-based flow cytometric assay. Cardiac 3-nitrotyrosine (3-NT), nitrix oxide isoforms (NOS) by ELISA and MMP-2 activity using zymography technique were also assessed.
Our results show that all inflammatory citokines except IL1-beta increased while anti-inflammatory IL-10 decresed significantly ($p<0.05$) in diabetic rat heart. CXCL-1 was 1.4 fold increased during diabetes. From the three distinct NO synthase isoforms only inducible isoform (iNOS) level was increased (77.4 ±21.6 vs 47.88±17.1; $p<0.05$) compared to control group. According to increased iNOS level, impaired NO production, the oxidative stress marker 3-nitrotyrosine was markedly increased in the diabetic heart. This was accompanied by decreased cardiac MMP-2 activity (1038.7±160.1 vs683.2±79.5).
Endothel dysfunction, oxidative stress may able to activate CXCL-1 and recruit inflammatory cells from circulation to the myocardium. However, activated inflammatory cells promote the development of cardiomyopathy by inducing the expression and release of inflammatory mediators such as IL-6, 18 and 33. It has been reported that under pathological conditions, the interleukines can damage vascular endothelial cell causing oxidative stress and dysregulation in extracellular matrix degradation. This condition is featured by reduced MMP-2 activity which leads to cardiac fibrosis associated with diabetes.



5. COMPARISON OF ERECTILE DYSFUNCTION PREVALENCE AMONG NOVEL DIABETES SUBGROUPS

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Aims: The novel diabetes subgroups differ in risk for complications but the risk for erectile dysfunction (ED) has not been investigated yet. Since inflammation is associated with ED, we hypothesized that the prevalence of ED is highest in the severe insulin-resistant diabetes (SIRD) subgroup which is characterized by an increased inflammatory state.
Methods: A total of 351 male participants from the German Diabetes Study with recent-onset diabetes (<1 year) were included. ED was assessed with the International Index Erectile Function questionnaire. Logistic regression was used to estimate associations between diabetes subgroups and the odds of ED adjusting for the variables used to define diabetes subgroups (age, BMI, HbA1c, HOMA2-B, HOMA2-IR and GAD antibodies) and hsCRP.
Results: The overall prevalence of ED was 23%. The presence of ED was highest within SIRD (52%), lowest within the severe autoimmune diabetes (SAID) (7%) and intermediate within the severe insulin-deficient diabetes (SIDD), mild obesity-related diabetes (MOD) and mild age-related diabetes (MARD) subgroups (31%, 18% and 29% respectively). Individuals in SIRD had 4.62 (95% CI, 1.21; 17.65) times greater odds of having ED than individuals in MOD. The odds of having ED were lower in SAID compared with SIDD (OR 0.11; 95% CI 0.01; 0.71) or SIRD (OR 0.09; 95% CI 0.01; 0.63).
Conclusion: The high prevalence of ED among men in SIRD suggests the role of insulin resistance in ED pathogenesis.

6. FOLLOW UP OF CARDIOVASCULAR AUTONOMIC NEUROPATHY IN INSULIN PUMP-TREATED TYPE 1 DIABETIC PATIENTS

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Abstract: Insulin pump treatment is considered in case of unstable glycemic control in type 1 diabetes (DM). The instability of glucose metabolism can facilatate the development cardiovascular autonomic neuropathy (CAN), while CAN may improve with the better glycemic control. Objectives: The aim of the study was to describe the characteristics of the cardiovascular autonomic function at initiation of insulin pump treatment and 2 months as well as 6 years later. Methods: 13 patients (7 women and 6 men) with type 1 diabetes were involved. their disease started in childhood or puberty (duration of DM at baseline: 16.5 ± 2.7 years, age at baseline: 27.8 ± 2 years). All patients received intensive insulin therapy right after their diagnosis until the insulin pump therapy. CAN was assessed at the first application of insulin pump and 2 months as well as 6 years later by cardiovascular reflex tests (CRT). Results: we found a correlations between the duration of DM and the impairment of CRT-s. Moderately severe AN was proven which decreased 2 months later (overall CAN score: 2.85±0.3 vs 1.23±0.3, $p<0.01$). The CAN score increased to the initial value by the 6th year of pump treatment (CAN score: 2.85±0.47). The change of CRT-s was not significant during the observational period. The mean HbA1c decreased by 0.7% after 2 months and became lower 6 years later. Conclusion: In type 1 diabetic patients a moderately severe CAN was detected at the initiation of insulin pump treatment. The severity of the parasympathetic involvement correlated with the duration of DM. A short-term insulin pump treatment might achieve some beneficial effect on the autonomic function, while a 6-year period delays the progression of CAN in type-1 diabetic patients.

7. THE EFFECT OF AUTONOMIC NEUROPATHY ON THE FREQUENCY OF HYPOGLYCAEMIA IN TYPE 1 AND INSULIN-TREATED TYPE 2 DIABETIC PATIENTS

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Background and aims: Autonomic neuropathy (AN) may play an important role in the pathogenesis of hypoglycemia, but the relationship between autonomic dysfunction and low glucose levels in the clinical practice is poorly documented. The aim of our study was to evaluate the incidence and severity of AN and to assess the risk and awareness of hypoglycemia in our patients with long-standing type 1 and insulin-treated type 2 diabetes (DM) with unstable glucose metabolism.
Materials and methods: 52 diabetic patients (40 type 1 and 12 type 2 insulin-treated DM patients, age: 46.4 ± 2.3 years, disease duration: 18.5 ± 1.5 years; HbA1c: 8.3 ± 0.2%; mean ± SE). 10 healthy subjects were included as controls. The five standard cardiovascular reflex tests were performed to determine AN. Tissue glucose values were monitored by subcutaneous continuous glucose monitoring (CGM) for 6 days.
Results: Significant AN was demonstrated in the patient group (AN score: 2.5±0.2 vs 09±0.2 $p<0.05$, heart rate change during deep breathing: 18.2±1.3 vs 32.6±3,8 beats/min, $p<0.01$; DM vs control). The mean frequency of hypoglycemic episodes measured with CGM over a 6-day period was 4.5±0.5, while 2±0.3 events were reported by the patients only. There was no correlation between AN and frequency of hypoglycemia awareness. The incidence of hypoglycaemia was not correlated with DM duration, but DM duration was associated with more severe AN (DM duration-AN: $r=0.29$, $p<0.05$). Higher HbA1c was found in patients with less hypoglycemia ($r=-0.30$, $p<0.05$) and with more severe AN ($r=0.51$, $p<0.01$).
Conclusion: Hypoglycaemic episodes are common in our long-standing type 1 diabetic and insulin-treated type 2 diabetic patients, but more than half of the episodes are silent. In this patient group, hypoglycaemia was less frequent in the presence of higher HbA1c. As a key finding, autonomic neuropathy associated with longer disease duration and higher HbA1c did not affect the frequency of hypoglycaemia awareness in this study.

8. INSULIN RESISTANCE AND 25 HYDROXY-VITAMIN D LEVELS IN WOMEN WITH THYROID DISEASES

Roxana Adriana Stoica[1], Cristian Guja[1], Anca Pantea-Stoian[1], Raluca Ioana Ștefan-van Staden[2], Ioana Popa-Tudor[2], Simona Diana Ștefan[1], Robert Ancuceanu[3], Cristian Serafinceanu[1], Constantin Ionescu-Tîrgoviște[1]

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Insulin resistance has an increasing prevalence worldwide, thus pathogenic interconnections with other hormones are of interest. On one side, observational and randomised studies highlighted an improved insulin resistance (IR) after the vitamin D deficit is corrected. On the other side, a neutral relationship between them was observed. We designed a cross-sectional study that included all women presented in an Endocrinology Ambulatory Clinic in Bucharest for routine examination. The study included 353 patients diagnosed with thyroid pathology, with a mean age of 58.5 ± 13.7 years, most of them overweight (mean body mass index of 27.36 ± 4.87 kg/m-2), and a mean level of 25 hydroxyvitamin D (25 OHD) of 39.53 ± 15.73 ng/mL. The prevalence of IR was 30.31%. In univariate analysis, Homeostatic Model Assessement of Insulin Resistance variant 1 and 2 (HOMA-IR) and Quantitative Insulin Sensitivity Check Index (QUICKI) levels were not different between women with vitamin D deficit versus those with normal values. Also, there was no significant association between 25OHD and the response variables considered by us – body mass index, age, low and high-density lipoprotein cholesterol, triglycerides, magnesium, and thyroid function in the multivariate analysis. We observed a weak association between the high level of 25OHD and an increase in HbA1c and insulin resistance, but with no clinical relevance. Other modifiable or non-modifiable factors override 25OHD influence on IR in adult overweight women with a normal serum level.

9. FACTORS INFLUENCING SURVIVAL IN DIABETIC PATIENTS WITH END-STAGE CHRONIC KIDNEY DISEASE UNDERGOING HEMODIALYSIS DURING COVID-19 PANDEMIC: FOCUS ON MALNUTRITION

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Introduction: Since January 2019, an RNA viral infection with a pathogen from the family Coronaviridae, called coronavirus 2019 has spread rapidly around the globe. Patients with chronic diseases suffered either by direct exposure to infection, or indirectly through difficult doctor-patient interaction. Epidemiological studies have shown that patients with diabetes and Covid-19 infection had twice the mortality rate and risk of disease severity. Mortality was greatly increased among hemodialysis patients. **Materials and methods:** We conducted an observational, prospective cohort study lasting 6 months. The study included all patients with diabetes and chronic end-stage renal disease coming for weekly hemodialysis in the National Institute of Diabetes, Nutrition and Metabolic Diseases NC Paulescu. **Results:** Our study included 21 patients, of whom 7 were female and 14 were male, with a median age of 56 ± 16 years. The mean duration of diabetes was 20 ± 16.5 years, and the mean period of hemodialysis was 3 ± 2 years. During the 6 months of follow-up, there were 2 deaths caused by SARS-CoV2. No other deaths were reported. In the survival analysis, there were no differences between patients diagnosed with malnutrition by both bioimpedance, and hand grip test (HGT). **Discussion:** Previous studies have shown that the diagnosis of chronic kidney disease (CKD) since hospitalization for Covid-19, respectively the development of acute renal injury, are associated with increased mortality. Our study did not show a relationship between SARS-Cov2 mortality and malnutrition, as other authors have suggested. The result is influenced by the short follow-up period, the small number of patients included, a single determination of biological values, a single bioimpedance assessment, and also the optimal dialysis parameters. **Conclusions:** In our clinic there was a low mortality rate caused by SARS-CoV2 infection. Protein malnutrition assessed by bioimpedance does not appear to influence the mortality rate.

10. FARMING, COMPARED TO WALKING AND SPORTS, IS MORE EFFICIENT ON METABOLIC PARAMETERS AND LEVEL OF DEPRESSION IN TRANSILVANIAN, TYPE 2 DIABETES PATIENTS

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Background and aims: The beneficial effect of physical activity (PA) in type 2 diabetes (T2DM) is well established, however the impact of different types of PA on metabolism and mood was less investigated. Our goal was to investigate the influence of different PA categories in T2DM patients on metabolic parameters and depression in a mostly rural Transilvanian region.
Materials and methods: The cross-sectional, observational study was conducted in Mures County, a representative Transilvanian region. We recorded anthropometric, diabetes related data, and metabolic parameters. Habits of PA were recorded by using a questionnaire, referring to duration, intensity, type, frequency of activity. Mean physical activity index (PAI)/ week was calculated. The different types of PA were walking (1), farming/ working on field type activity (2), profession related activity (3) and sports or leisure physical exercise (4). Depression symptoms were evaluated using the Beck Inventory- Short Version.
Results: Study population included 412 T2DM patients; mean age was 63.17±10.05 years. The distribution of activity type chosen by patients was walking: 55.1%, farming: 31.3%, profession related activities: 10.3%, sports only in 3.3% of cases. PAI/week was the highest in the 2. and 3. group ($p<0.001$, CI 0.45-0.25). In those mainly gardening compared to those mainly walking BMI (27.68±4.7 vs. 29.78±5.6kg/m^2, $p<0.01$), waist circumference (98.0±17.1 vs. 105.0±17.2cm, $p<0.00$), HDL cholesterol (48.59±12.2 vs. 42.4±9.9mg/dl $p<0.01$), triglyceride (158.6±107.6 vs. 191.2±98.0mg/dl, $p<0.00$), depression score (10.18±6.6 vs. 18.9±11.4, $p<0.00$) and depression worsening score (9.6±5.7 vs. 13.2±8.9 $p<0.00$) was significantly better. HbA1c did not differ between the two groups.
Conclusion: In the studied region BMI, WC, HDL cholesterol, and level of depression were far better with farming or professional activities than with walking.

11. 10 YEARS FOLLOW-UP OF CARDIAC AND DIABETES-SPECIFIC COMPLICATIONS IN YOUNG TYPE 1 DIABETIC PATIENTS

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Introduction: The observation of the cardiac and microvascular conditions in type-1 diabetic patients supplies facts about the nature of the parallel progression. **Objectives:** The aim of our study was to characterize and follow-up the neuronal, renal, ophthalmic and cardiac complications during 10 years. **Materials and methods:** 21 young type 1 diabetic patients with long-term disease (age: 28.9±1.5 years, duration of DM: 13.5±1.7 years, HbA1c: 8.2±0.4%; BMI: 23.3±0.7; mean±SE) were involved. Autonomic neuropathy (AN) was assessed by cardiovascular reflex tests (CRT-s). The peripheral sensory function was detected with Neurometer. Cardiac morphology and function were measured with conventional and Doppler echocardiography. The urinary protein content, the kidney function and the state of the retina were also determined. The tests were started in 2008 and repeated 10 years later. **Results:** Left ventricular (LV) muscle mass increased prominently during 10 years (141±10 vs 172±11 g $p<0.05$, baseline vs follow-up, increased in 19 from 21 patients). From the CRT-s the heart rate response to breathing worsened frequently (25.5±2.4 vs 18.5±1.6 beats/min. $p<0.01$, decreased in 17 from 21 patients). The current perception threshold (CPT) of the large myelinated fibres at the peroneal nerve became higher in 14 from 21 patients (CPT: 3,18±0,4 vs 4,35±0,4 mA, $p<0,05$). All of the 17 patients with worsened heart rate response to breathing had an increase in the LV muscle mass as well. The urinary protein excretion and severity of retinopathy progressed less frequently (increase in protein excretion: in 11 from 21 patients, worsening retinopathy in 4 from 21 patients). **Conclusions:** Worsening of parasympathetic dysfunction and the increase in the left ventricular muscle mass were frequently found and these complications had a parallel progression in young type 1 diabetic patients. The progressive impairment of the large myelinated fibre function at the lower extremity was also a characteristic finding, while the kidney and retina was a less frequently altered during 10 years.

12. EVALUATION OF THE CARDIOVASCULAR AUTONOMIC AND PERIPHERAL SENSORY NERVOUS SYSTEMS' FUNCTION IN TOP ATHLETES AT CONDITIONED AND DECONDITIONED STATES

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Objectives: The aim of our work was to identify the cardiovascular autonomic and peripheral sensory nervous systems' changings in top athletes to the conditioned and the deconditioned state.
Patients and methods: Autonomic function was characterized by the five standard cardiovascular reflex tests while peripheral sensory system was studied by Neurometer assessing the current perception thresholds (CPT) at the median and peroneal nerves. 22 male soccer players, 12 female handball players, 13 female water polo players, and as controls 21 healthy women and 20 men were involved.
Results: The Valsalva ratio in conditioned soccer players (mean ± SD, athletes vs. controls: 1.71 ± 0.32 vs.2.15 ± 0.48; p =0.0018) and in conditioned handball players (1.63 ± 0.26 vs. 1, 87 ± 0.51; p = 0.0019) was lower than in controls. During the deconditioning period, the Valsalva ratio for soccer (1.7±0.34 vs. 1.94±0.43; p=0.025) and water polo players (1.71±0.54 vs. 2.66±0.27; p=0.007) was higher than their conditioned values. In the conditioned state, Neurometer showed higher CPT at the index at 2000 Hz and at 5 Hz in water polo players and in football players at 250 Hz-compared to controls. At the hallux at 2000 Hz football players had higher CPT compared to controls. During the deconditioning period, a decrease in the CPT on the index was found in football players at 5 Hz (73.2±20.25 vs. 57.1±29.06 mA; p=0.023), and in water polo players at 2000 Hz (229.6±44.43 vs. 169.38±70.33 mA; p=0.033) compared to their conditioned state.
Conclusions: The conditioned seasonal reduction in Valsalva ratio for handball and football players indicates sympathetic predominance. For football and water polo players, the higher Valsalva ratio during the deconditioning period indicates a decreased sympathetic tone. The decreased sensory threshold during the deconditioning period in football and water polo players may reflect an increased peripheral sensitivity.

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Notes


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