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Abstracts (Part 2) from the Congress of the Central European Diabetes Association (CEDA), June 6–8, 2024 in Palermo (Italy)

The 2024 CEDA Annual Congress was organized by Prof. Manfredi Rizzo in Palermo, Italy. There were more than 400 attendees coming from 36 countries, namely from Europe, North Africa, the Middle East and the USA.
There were 8 joint symposia in collaboration with various scientific societies, including EASD and ESC, as well as 15 scientific sessions, 6 plenary lectures, 1 lunch workshop, 8 sponsored symposia and 9 sessions with oral presentations. All accepted abstracts are published in the previous (Part 1)and this issue of Diabetes, Stoffwechsel und Herz (Part 2).

P01

The efficacy of SGLT-2i and GLP-1 RA on glycemic and weight control in patients with t2dm — a real-life clinical practice study

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Introduction: Obesity and type 2 diabetes mellitus (T2DM) are frequently associated and are part of the non-transmissible chronic disease pandemic. Weight loss is essential in obtaining glycemic control and preventing long-term complications. A benefit of the recently developed classes, SGLT2i and GLP-1 Ra, beyond their CV protection, is providing better glycemic control associated with weight loss.

Materials and methods: A retrospective observational study enrolled 389 patients with T2DM with a mean age of 58 years, 39% females, with a mean HbA1c of 7.44%±0.3 and mean weight of 95.7±18.4 kg, who were treated with standard of care treatment of T2DM and evaluated at the baseline visit (V0M), six months visit (V6M) and 12 months visit (V12M), were divided into three groups, respectively, SGLT2i, GLP-1 Ra, respectively, metformin, in order to compare the metabolic efficacy, by reaching a body weight reduction (BWR)>5% and a HbA1c<7%.

Results: Comparing V6M and V12M with V0M, 49% vs 53% (Ist group), 15% vs 22% (IInd), 13% vs 19.8% (IIIrd) had (BWR)>5% and 55% vs 59.3% (Ist), 56% vs 55.2% (IInd), 54% vs 57.7% (IIIrd) had HbA1c<7%.

Discution: In our study, however, the results obtained were in accordance with the literature's data. An important limitation is the lack of quantification of diet and physical activity.

P02

Efficacy of oral semaglutide in a real-world setting – at what cost?

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Background and aim: Oral semaglutide is a practical and effective option for the treatment of type 2 diabetes. In randomized clinical trials, it improved glycemia and reduced body weight, with a modest profile of undesired effects. The aim of

the present analysis was to explore the effectiveness and frequency of undesired effects with oral semaglutide in a real-world setting. Methods: Consecutive patients with type 2 diabetes who were introduced to oral semaglutide from April 2022 to February 2023 were included in the analysis. Glycaemic parameters, body weight and clinical characteristics were assessed at the introduction of oral semaglutide and at the follow-up visit.

Results: 150 people with type 2 diabetes (72 women and 78 men) were included, the mean age was 59.7 ± 1.7 years. Treatment with oral semaglutide at doses 7 or 14 mg significantly decreased HbA1c (up to -1.8%, P<0.01) and glucose values (up to -3.1 mmol/l, P<0.01). Body weight decreased to -10.6 kg (P<0.05) with oral semaglutide 14 mg. Oral semaglutide was introduced mainly to patients receiving 2 or 3 antihyperglycemic oral drugs. Importantly, in 15.7% of the patients, oral semaglutide treatment was discontinued due to undesired gastrointestinal effects; these patients were not included in the further efficacy analysis.

Conclusion: In real-world clinical settings, oral semaglutide improved glycaemic parameters and decreased body weight, as expected from randomized clinical trials. However, the dropout rate was higher than in clinical trials settings due to unwanted gastrointestinal effects. This scope should be further addressed to maintain good adherence to therapy.

P03

Glycaemic control and patient satisfaction in type 1 diabetes introduced to an advanced hybrid closed-loop insulin pump – real-world data

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Background and aim: An insulin pump with an advanced hybrid closed-loop (AHCL) system (Medtronic MiniMed 780G) allows better glycaemic control in type 1 diabetes. The influence of an insulin pump with an AHCL system on glycaemic parameters, hypoglycemia occurrence, and overall satisfaction was investigated in people with type 1 diabetes in a real world setting.

Methods: 50 people with type 1 diabetes who transitioned to a new insulin pump with an AHCL system and had previously used older insulin pumps were included. The glycaemic parameters before and after the adoption of the new pump were compared, together with the insulin pump data. A standardised questionnaire assessed patient satisfaction.

Results: After the adoption of the insulin pump with the AHCL system, significant glycaemic improvements were observed: mean TIR increased by 16.8 % or 4 hours (P<0.001); average TAR decreased by 13.7 % or 3.2 hours (P<0.001); HbA1c decreased by 0.4 % (P<0.05). The incidence of mild and severe hypoglycemia was reduced. Most of the study participants (94%) were satisfied or very satisfied with the new insulin pump. Its automatic operation and glucose self-correction were highlighted as the main advantages, while frequent alerts from the system were mentioned as a drawback.

Conclusions: The use of an insulin pump with an AHCL system provides relief to people who manage type 1 diabetes, leading to better glycaemic control and a reduced incidence of hypoglycemia, while expressing high satisfaction with its use in a real world setting.

P04

Diabetes mellitus in a patient with compensated hepatic cirrhosis – a case report

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Background: Insulin resistance (IR) is the major factor in the increasing prevalence of diabetes mellitus (DM). IR may result from various hepatic diseases, including chronic hepatitis C and alcoholic or fatty liver disease, leading to DM.

Patient information: A 61-year-old male without hereditary diabetes was admitted to the National Institute of Diabetes, Nutrition, and Metabolic Diseases "N.C Paulescu" Bucharest for altered basal glycemia (120 mg/dl). His medical history included advanced viral chronic liver disease (HBV+ HDV + HCV co-infection) with portal hypertension (splenomegaly, secondary thrombocytopenia, small oesophagal varices post-banding), biliary lithiasis, and obesity. There was no previous history of diabetogenic medication.

Patient's findings: Anthropometric measurements revealed moderate obesity, with a calculated body mass index (BMI) of 38,5kg/m2. His abdominal circumference of 126 cm was an element of metabolic syndrome, along with arterial hypertension (TA=159/84mmHg). The lipid profile and hepatic and renal function were within normal ranges. Although there was persistent thrombocytopenia (61.000/ul), the liver disease was compensated (class A Child-Pugh score, 5 points).

Diagnostic assessment: Laboratory tests revealed a basal glycemia of 157mg/dl and HbA1c=5.9% (without anemia). The oral glucose tolerance test (OGTT) was diagnostic for DM, with serum glucose of 333mg/dl at 1 hour and 354 mg/dl at 2 hours, respectively.

Intervention: We have proposed a dietary intervention for the next three months which will include complex carbohydrates with a low glycemic index, good-quality proteins, Omega 3, 6, 9 fatty acids, fibers, and adequate hydration. Following this period, we will conduct a follow- up to prepare the patient for hepatic transplantation. If the hepatic function remains compensated, insulin resistance could be addressed with metformin or thiazolidinediones. If needed, the patient could benefit from an insulin regimen. Liver transplantation is expected to improve glucose tolerance and insulin resistance in two-thirds of the patients.

Follow-up and outcome: The short-term prognosis is favorable, while the long-term prognosis is determined by the evolution of the liver injury and the patient's adherence to the clinician's recommendations.

Discussions: Patients with hepatogenous diabetes need a more comprehensive approach, taking into account that hepatic disease and DM share a bidirectional relationship. It affects vulnerable patients whose adherence is influenced by their comorbidities. Also, we have limited therapy for this category of patients, with significant variability in metabolic control.

	Baseline	6 months	12 months	18 months	60 months	p=
Body weight (kg)	85±21	80±16	80±24	82±25	82±22	0.6239
CV (cm)	108±4	104±1	102±4	101±4	98±1	0.0429
BMI (kg/m2)	31±1	29±1	30±2	30±2	30±2	0.8731
Glycemia (mmol/l)	8.9±1.6	6.8±3.0	6.6±3.0	6.8±2.8	6.8±1.3	<0.0001
HbA1c (%)	8.7±0.6	6.4±1.1	6.6±1.2	6.4±1.4	6.7±0.3	<0.0001
TC (mmol/l)	4.6±1.9	3.9±0.6	4.0±0.2	4.0±0.8	4.1±2.8	0.0294
TG (mmol/l)	1.5±0.4	1.2±0.02	1.4±0.7	1.32±0.01	1.4±1.0	0.3957
LDL-C (mmol/l)	2.8±1.5	2.1±0.4	2.2±0.1	2.2±0.9	2.4±1.9	0.0168
HDL-C (mmol/l)	1.10±0.20	1.17±0.18	1.16±0.02	1.21±0.12	1.22±0.07	0.0387
cIMT (mm)	0.98±0.21	0.88±0.14	0.85±0.07	0.81±0.35	0.82±0.14	<0.0001

P06 – Tab. 1

Conclusions: Our report would be a wake-up call for clinicians to change their practice and improve the management of patients with hepatogenous DM.

Keywords: diabetes mellitus, hepatic disease, insulin resistance.

P05

Prevalence of chronic kidney disease in people with type 2 diabetes in outpatient clinic (community health center koper)

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Chronic kidney disease in people with diabetes – diabetic nephropathy, represents huge medical burden with high morbidity and mortality rates. The exact prevalence of the disease is not known, nor in Slovenia, nor in the world. The diagnosis is present when the glomerular filtration rate (GFR) is under 60 ml/min or with the presence of albuminuria in two out of three samples in last 90 days. We performed retrospective analysis to see the prevalence of the disease among our patients with diabetes type 2 and their treatment. We compared the data collected in the year 2022 with the data collected in the year 2023. The prevalence for the year 2022 was 33,6%, in the year 2023 58,2%. The percentage of patients that were prescribed renoprotective medication, e.g. metformin, sodium-glucose cotransporter-2 inhibitors (SGLT- 2) or glucagon like peptide 1 receptor agonist (GLP-1 RA) was for the year 2022 75,3%, a year later already 90,4%. With the study, we also examined the percentage of diabetes disease complications as well all antihiperglycemic treatments that were used for our patients.

Key words: diabetic kidney disease, prevalence, type 2 diabetes

P06

Long term effects of liraglutide on glyco-metabolic parameters, small dense low-density lipoproteins and cimt in patients with type 2 diabetes: 5 years prospective real-world study.

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Background: Liraglutide has several non-glycemic effects, including those on plasma lipids and lipoproteins, contributing to its cardiovascular benefit; however, the long-term effects of liraglutide on CV risk markers are still limited. Here we investigated whether the reduction in glycemic and metabolic parameters, with particular focus on Small Dense Low-Density Lipoproteins and cIMT, could be maintained in T2DM subjects under routine clinical practice. Methods: Sixty-two patients with T2DM (31 men, 31 women; mean age ± standard deviation 61±9 years) without prior history of a major CV event and naïve to incretin-based therapies were treated with liraglutide (1.2 mg/day) as add-on therapy to metformin (1500–3000 mg/day) for 5 years. Laboratory analyses included the assessment of lipoprotein subclass profile by gel electrophoresis (Lipoprint; Quantimetrix Corp., Redondo Beach, CA, USA). Carotid intima-media thickness (cIMT) was assessed by Doppler ultrasonography. Statistical analyses included the paired t test, Spearman correlation and multiple regression analysis. Results: The addition of liraglutide to metformin monotherapy resulted in significant reductions in fasting glycemia, hemoglobin A1c, body mass index, waist circumference, total cholesterol, triglycerides and low-density lipoprotein (LDL)-cholesterol, as well as in cIMT (Table). There was an increase in the large LDL-1 subfraction, with a concomitant reduction in atherogenic small dense LDL-3 and LDL-4 subfractions. Correlation analysis revealed a significant association between changes in cIMT and changes in small dense LDL-3 subfraction (r=0.501; p<0.0001). Multivariate analysis, including all of the measured anthropometric and laboratory parameters, revealed that only changes in the small dense LDL-3 subfraction were independent predictors of changes in cIMT (p<0.0001). Conclusion: Long-term liraglutide treatment in real world settings effectively maintained the reduction of several glyco-metabolic parameters in T2DM subjects as the reduction of cIMT. Our findings are the first to show that the vascular benefit of liraglutide in patients with T2DM is associated with reductions in atherogenic small dense LDL. This effect is independent of

glycemic control and body weight reduction and may represent one of the key mechanisms by which liraglutide is able to reduce cardiovascular events.

Keywords: Cardiovascular Risk, Carotid Intima-Media Thickness, Liraglutide, Lipoproteins, Small Dense Low-Density Lipoproteins, Type 2 Diabetes.

P07

A nutraceutical containing chlorogenic acid and luteolin improved hepatic and cardiometabolic parameters in subjects with metabolic syndrome: A 6 month randomized, double-blind, placebo-controlled study.

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Background: Metabolic syndrome (MetS) is defined as the coexistence of several risk factors of metabolic origin (with insulin resistance as the usual common pattern) that elevate the risk for cardiometabolic diseases. The objective was to evaluate the effects of 6 months of supplementation with Altilix®, containing chlorogenic acid and its derivatives, and luteolin and its derivatives, on cardiovascular risk and hepatic markers in subjects with metabolic syndrome (MetS). Methods: A randomized, double-blind, placebo-controlled study was performed in 100 subjects with MetS with a follow-up period of 6 months; 50 subjects were randomized to Altilix® (26 men and 24 women, mean age 63 ± 8 years) and the other 50 to placebo (28 men and 22 women, mean age 63 ± 11 years). Anthropometric, cardiometabolic, and hepatic parameters were assessed at baseline and at the end of follow-up. Carotid intima- media thickness and endothelial function were assessed by doppler ultrasound and by flow- mediated dilation of the brachial artery, respectively. The presence and degree of non-alcoholic fatty liver disease (NAFLD) was assessed by the fatty liver index (FLI), and subjects were divided into three subgroups: (1) without NAFLD; (2) with borderline NAFLD; and (3) with NAFLD. Results: After 6 months of Altilix® supplementation, we found a significant improvement vs. placebo in most of the evaluated parameters, including body weight (–2.40% (95% CI –3.79, –1.01); $p < 0.001$), waist circumference (–2.76% (95% CI –4.55, –0.96); $p = 0.003$), HbA1c (–0.95% (95% CI –1.22, –0.67); $p < 0.001$), plasma lipids, FLI (–21.83% (95% CI –27.39, –16.27); $p < 0.001$), hepatic transaminases, flow-mediated dilation (10.56% (95% CI 5.00, 16.12); $p < 0.001$), and carotid intima-media thickness (–39.48% (95% CI –47.98, –30.97); $p < 0.001$). Further, the improvement in cardiometabolic variables was independent of the degree of hepatic steatosis. Conclusion: Altilix® supplementation improved hepatic and cardiometabolic parameters in MetS subjects. Altilix® supplementation was a beneficial approach in the management of hepatic and cardiometabolic alterations in MetS subjects.

Keywords: Cardiovascular Diseases, Metabolic Syndrome, Non-Alcoholic Fatty Liver Disease, Diabetes Mellitus, Type 2, Dietary Supplements.

P08

Metabolic profiling of peripheral blood mononuclear cells respiration within high-risk prediabetes clusters

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Prediabetes clusters, particularly clusters 5 and 6, offer insights into mechanisms of early diabetes-related complications and increased mortality risk. Cluster 5, uniquely, presents elevated diabetes risk. We hypothesize that lower mitochondrial oxidative capacity in cluster 5 relates to impaired insulin sensitivity compared to cluster 6. Using peripheral blood mononuclear cells (pBMCs) allows for non-invasive assessment of mitochondrial function, potentially serving as an early marker for patient classification based on diabetes development. Males from the Heidelberg Diabetes Complications Study were categorized into controls (n=8), cluster 5 (n=6) and cluster 6 (n=7). Citric acid cycle-linked respiration of pBMCs was measured using high-resolution respirometry. In cluster 6, respiration was significantly increased compared to both cluster 5 (1.3-fold) and controls (1.5-fold). The respiratory control ratio (RCR) exhibited no differences, while the leak control ratio (LCR) increased significantly in cluster 6 compared to cluster 5 and controls. Clusters 5 and 6 showed a 1.5-fold significant increase in insulin AUC post-oral glucose tolerance test (OGTT) compared to controls. Cluster 5 displayed a significant increase in glucose AUC post-OGTT compared to controls (1.5-fold) and cluster 6 (1.3-fold). In conclusion, cluster 6 exhibited elevated pBMC mitochondrial respiration, which could result from increased insulin sensitivity compared to cluster 5. The absence of RCR differences between clusters suggests no intrinsic mitochondrial defect in cluster 5, but reduced insulin-induced mitochondrial biogenesis. Increased mitochondrial respiration in cluster 6 may lead to higher oxidative stress, supported by an elevated LCR. Further experiments, including assessing oxidative stress, are needed to confirm this association.

P09

Long term effects of liraglutide in type-2 diabetic patients with vs. without steatosis at baseline: 5 years prospective real- world study.

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Background: Nonalcoholic fatty liver disease (NAFLD) is frequently seen in type 2 diabetes subjects (T2DM) and associated with increased cardio-metabolic risk. Several studies showed that liraglutide is safe, well tolerated, and has a certain benefit on NAFLD. We assessed if, after long-term treatment, the effects of liraglutide on glyco-metabolic

	With steatosis at baseline (n=17)			Without steatosis at baseline (n=14)			
	before liraglutide therapy	after liraglutide therapy	p=	before liraglutide therapy	after liraglutide therapy	p=	p= (between groups)
BMI	36±18	31±6	0.2467	30±4	29±4	0.1112	0.3144
Weight	86±17	82±19	0.0257	83±15	81±14	0.0545	0.3929
Waist circumference (cm)	110±15	99±14	<0.0001	106±12	96±10	<0.0001	0.5486
Glycemia (mmol/l)	8.2±3.2	6.7±1.9	0.0595	9.7±3.1	6.9±1.5	0.0006	0.6928
HbA1c (%)	8.6±0.8	6.8±0.7	<0.0001	8.9±1.1	6.5±0.5	<0.0001	0.8169
Total cholesterol (mmol/l)	4.5±1.8	4.1±0.9	0.3297	4.8±1.2	4.2±1.1	0.0957	0.3156
HDL-cholesterol (mmol/l)	1.07±0.28	1.13±0.24	0.0017	1.14±0.28	1.32±0.35	0.0069	0.7321
LDL-cholesterol (mmol/l)	2.7±1.8	2.3±0.7	0.3674	3.0±1.0	2.5±0.9	0.1269	0.2608
Triglycerides (mmol/l)	1.6±1.0	1.4±0.6	0.4275	1.4±0.4	1.3±0.5	0.6725	0.9129
cIMT (mm)	1.0±0.2	0.8±0.1	0.0247	1.0±0.2	0.9±0.1	0.0359	0.2205

P09 – Tab. 1

parameters, including a marker of subclinical atherosclerosis, cIMT, could differ in T2DM subjects with steatosis versus those without steatosis at baseline. Methods: This prospective 5 years real-world study included 31 T2DM subjects (19 men and 12 women; mean age: 60 ± 17 years), naïve to incretin-based therapies, without prior history of a major CV event and treated with metformin only. Liraglutide (1.2 mg/day) was given as add-on to stabile dose of metformin (1500-3000 mg/day). cIMT was measured by B-mode real-time ultrasound, while the presence of steatosis was assessed by ultrasound. The cohort of patients was subdivided in those with steatosis (n=17) and those without steatosis (n=14). Results: Paired t-test and ANOVA were performed. After 5 years of liraglutide treatment, anthropometric and glycemic parameters improved, as well as a good metabolic control was achieved in both groups (Table), although statistical significance was not reached for all parameters. On the other hand, cIMT reduced significantly in both groups. Conclusions: The improvements of assessed glyco-metabolic parameters were seen in both groups with and without steatosis at baseline, including significantly reduced cIMT. However, no significant differences were found for all parameters in the inter-group analysis. These data indicate on an effective CV prevention by liraglutide treatment in T2DM subjects regardless of the presence of diabetic complications. Although it remains to be established by larger studies, these findings support the potential use of liraglutide in populations at increased CV risk and without diabetes.

Keywords: Cardiovascular Risk, Carotid Intima-Media Thickness, Liraglutide, Non-Alcoholic Fatty Liver Disease, Type 2 Diabetes.

P10

Metabolic associated steatotic liver disease in type 2 diabetes mellitus – an observational study

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Background: Metabolic Associated Steatotic Liver Disease (MASLD) has become the leading cause of liver disease worldwide, and its trend is maintained given the high prevalence of metabolic syndrome conditions (obesity, type 2 diabetes mellitus (T2DM), hypertension, dyslipidemia, etc.). The diagnosis is challenging because of the need for a practical, inexpensive, and widely available tool in the clinic. Therefore, a non-invasive test was proposed to evaluate steatosis, such as the Fatty Liver Index (FLI) score. The fibrosis-4 Index (FIB-4), AST to Platelet Ratio Index (APRI), and FORNS index are commonly used to assess fibrosis scores. One of the risk factors for the progression of MASLD is represented by the presence of metabolic syndrome. Triglyceride-glucose (TyG) index was associated with the metabolic syndrome and can be proposed as a proxy for the quantification of insulin resistance. Aim of the Study: This study aims to evaluate the relationship between the severity of MASLD evaluated with non-invasive markers for fibrosis (FIB-4, APRI, and FORNS index) and the degree of insulin resistance.

Material and Methods: Between 1st January 2022 and 1st March 2024, we evaluated 134 patients with T2DM and MASLD, hospitalized at The National Institute of Diabetes, Nutrition, and Metabolic Diseases „N. Paulescu" Bucharest. After obtaining the informed consent, clinical and paraclinical data were collected and further analyzed.

Results and Discussions: The group's characteristics were: 58.99% male, with a mean age of 59.29± 12.58 years, with a mean duration of diabetes of 8.7 ±8.8 years. The majority of them were overweight or with obesity (69.7%), and also had other elements of insulin resistance (mean HDL-c of 42.76 ± 12.36 mg/dL,

total cholesterol 184.96 ±59 mg/dL and HbA1c of 9.54 ±2.4%). Regarding the treatment, 71% were prescribed metformin, and 52.8% of them were using insulin. Only 20.6% had GLP-1 analogs and 16.3% had SGLT inhibitors. Among those evaluated, only 3.5% had an FLI score of fewer than 30 points, while 82.6% scored more than 60 points. Regarding the fibrosis non-invasive tests, 11% of the patients had an APRI score above the cut-off as well as 9% for the FORNS index, and 35% obtained more than 1.3 for FIB-4. Therefore, patients with values above the cut-off should be referred to speciated hepatological centers. We subdivided the patients by the FLI score into three groups (> 60, 60-30; <30) according to the risk of the development of MASLD. Using a regression model, we observed that the Ty/G index, is a significant predictor of the FLI with positive coefficients of 0.417, indicating a positive association with it. Also, a statistically significant association was observed between a higher FLI score (>60) and the administration of metformin as well as insulin.

Conclusion: The non-invasive tests for the evaluation of hepatic steatosis or fibrosis, remain an easy-to-use tool for evaluating patients at high risk for the progression of MASLD, especially in a tertiary center. As an indicator of insulin resistance, the Ty/G index, in combination with other markers can be proposed as an accessible parameter in identifying patients at increased risk of having advanced or progressive disease.

Keywords: Metabolic Associated Steatotic Liver Disease (MASLD), type 2 Diabetes Mellitus, non-invasive marker, Triglyceride-glucose (TyG) index.

P11

Evaluating apolipoprotein profiles: Advancing cardiovascular disease risk assessment in type 2 diabetes mellitus

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Introduction: This research evaluates the effectiveness of lipid markers in predicting cardiovascular risk among Type 2 Diabetes Mellitus (T2DM) patients. We compare LDL cholesterol, the non-HDL/HDL cholesterol ratio, and the apolipoprotein B/apo A1 ratio to identify the most significant indicators of coronary heart disease (CHD) risk.

Methods: We analyzed 103 T2DM patients from the National Institute of Diabetes in Bucharest, considering demographics, body composition, and a wide range of blood parameters. Cardiovascular risks were assessed using both the UKPDS risk engine and the ASCVD risk calculator and analyzed with SPSS.

Results: The study group consisted of 103 patients with T2DM, of which 37% were female, with an average age of 58 ± 9 years. The average HbA1c was 7.35±1.35, TC was 186±53.41 mg/dL, LDL cholesterol was 102±36.20 mg/dL, and the non-HDL/HDL-cholesterol ratio was 3.25±1.57. The apoB/apoA1 ratio stood at 0.71 ± 0.24. The average risks for CHD and stroke were 17±12.65% and 12±17.50%, respectively. Analysis showed the strongest association between the ApoB/ApoA1 ratio and CHD risk, followed by the non-HDL/HDL-cholesterol ratio with CHD risk and LDL cholesterol with CHD risk. No significant relationships were found between stroke risk, fat mass, or lipid metrics.

Discussion: Our findings underscore the importance of the ApoB/ApoA1 ratio in forecasting CHD risk, surpassing conventional markers such as LDL cholesterol. This suggests that a multitude of intricate factors influence cardiovascular outcomes in T2DM, a crucial insight for our professional colleagues in the field.

Conclusion: The ApoB/ApoA1 ratio emerges as a crucial biomarker for cardiovascular risk in T2DM, advocating for its integration into clinical evaluations. Source(s) of research support: This study was financially supported by the Association for Renal-Metabolic & Nutritional Studies and the University of Medicine and Pharmacy "Carol Davila" in Bucharest. We acknowledge and appreciate their contributions.

Ethical Committee Approval: This study was conducted in full compliance with ethical standards and received approval from the Ethical Committee of the University of Medicine and Pharmacy "Carol Davila", Bucharest.

P12

Obesity without diabetes and glycemic variability: Results of ogv trial

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Background: The relative insufficiency of insulin secretion and/or insulin action causes diabetes. However, obesity and type 2 diabetes mellitus can be associated with an absolute increase in circulating insulin, a state known as hyperinsulinemia.

Pourpose: In our study we evaluated the non diabetic patients with obesity with Glunovo® to evaluate the glycaemic variability in this population

Methods: 100 patients with obesity admitted to cardiology units were enrolled consecutively. Glunovo® was applied to each enrolled patient for 7 days. Obesity was evaluated like a BMI >30 At the end of the glycaemic monitoring were calculated for each patient the glycaemic variability and the incidence of hyperglycaemia and hypoglycaemia. Glycaemic variability refers to a blood glucose value of ≥ 200 mg / dL or ≤ 59 mg / dL detected more than 3 times in a day for at least 4 days. The inclusion criterion was the presence of obesity while the only exclusion criterion was the presence of diabetes diagnosis. Overall, 55 males and 45 females were enrolled with a mean age of 58.3 years (38-80 years). All patients underwent a timely glucose measurement at admission which excluded the presence of hyperglycaemia. No potentially hyperglycaemic drugs were added to the treatment during the hospital stay. Continuous glucose monitoring was performed as an integral part of the hospitalization diagnostic routine.

Results: All patients enrolled concluded the analysis, detecting the glycaemic variability, the point glycaemia values and the estimated glycated haemoglobin value. A glycaemia ≥200 mg/dL was found in 75 patients (75%) while a high glycaemic variability was found in 81 patients (81%). A blood glucose value 7%. 23 of the patients who had at least 3 punctual glucose values ≥200 mg/dL were prescribed an oral glucose load curve, which in 100% of cases con-

firmed the diagnosis of diabetes. No statistically significant differences were found based on age group or sex. In the control group, consisting of 10 patients without DHF undergoing continuous glucose monitoring at one of the participating cardiology units, an unknown hyperglycaemia was found in only 1 patient (10%) and a glycaemic variability in only 1 patient (10%).

Conclusions: Our experience suggests an incidence of hyperglycaemia and glycaemic variability more then 75% in patients affected by obesity

P13

From guidelines to diagnostic and therapeutic care pathway (pdta): "Diabetes is important to us at giglio hospital"

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Background: In line with the 2023 National Intersocietal Guidelines for managing diabetes or hyperglycemia in non-critical settings (SIMI-AMD-SID-FADOI-SIGG-ANIMO), the G. Giglio Hospital's Internal Medicine Ward in Cefalù has pioneered an outpatient service for diabetic patient follow-up post-discharge, facilitating direct access within one month after discharge. This initiative reflects a strategic response to the increasing need for structured diabetes management in hospital settings.

Materials and Methods: We evaluated 102 patients (62.7% male, 37.3% female), with a mean age of 72 years hospitalized at Giglio Hospital between february and october 2023. Among these patients, 40.2% had been hospitalized in Cardiology or Cardiac Rehabilitation Units for a Major Adverse Cardiac Events (MACE), and 52.9% had been hospitalized in Internal Medicine for sepsis or respiratory failure (50% each). Pre-admission, 31% of the patients were not aware to be diabetics (diagnosis confirmed through HbA1c at the first day of recovery), while 69% had already a diagnosis of diabetes. Among these last ones, only 1% pre-admission was treated with GLP1RA and 10.8% with SGLT2i, while 46.1% was treated with SU and 32.4% with insulin both on BOT or BB scheme (3.7% of patients on both insulin and SU, 2.9% on both insulin and SGLT2i). Average HbA1c during hospitalization was 8.7%.

Results: Our management approach during the hospital stay resulted in an increasing use of GLP1RA (Oral Sema) and SGLT2i (Dapa or Empa) treatments from 64.71% and 66.67% given during recovery (or within one month after discharge), to 74.75% and 82.18% at 6 months follow-up, respectively. This shift led to a significant progressive decrease in Insulin Requirement (IR) (in patients previously treated with insulin, average IR was 40.5 UI pre- admission and 29.68 UI at six months: an average IR reduction of 26.71%) and to an average HbA1c reduction of 2.01% (from 8.7% to 6.7%) with 38.83% of patients experiencing a significant HbA1c reduction (>2%) at 6 months follow-up. According to the 2022 National SID-AMD Guidelines for managing of type 2 diabetes, SU were deprescribed in 100% of the patients who were treated before hospital stay.

Conclusions: Giglio Hospital's dedicated pathway for diabetes management post-discharge has significantly enhanced patient outcomes and therapeutic adherence, demonstrating substantial improvements in glycemic control, steadily decreasing insulin dependence.

P14

Lysosomic acid deficiency – an underdiagnosed cause of dyslipidaemia and liver dysfunction

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Introduction: Lysosomal acid lipase (LAL) is essential for the hydrolysis of cholesterol esters and triglycerides in cells. LAL deficiency (LAL-D) is a rare autosomal recessive disease, characterized by the deposition of cholesterol esters and triglycerides in the liver and other organs. LAL-D is often a rapidly progressive disease, with fast progression to cirrhosis or need for liver transplantation within a few years. We describe the case of a patient at advanced age with an atypical presentation of LAL-D.

Methods: A 64-year-old woman, with normal body mass index, underwent cholecystectomy due to gallstone disease. Because the macroscopic appearance of the liver resembled cirrhosis, a biopsy was performed during surgery. The patient had high serum aminotransferase levels, high levels of low-density lipoprotein (LDL)-cholesterol and triglycerides, and low high- density (HDL)-cholesterol levels as well as history of liver steatosis in ultrasound.

Results: Liver biopsy revealed steatosis and severe bridging fibrosis with large clusters of foamy histiocytes in portal spaces. After excluding other causes, LAL-D was suspected. Plasma LAL activity was low [2.3 nmol/mg protein/min (normal >18.7 nmol/mg protein/min)], a finding compatible with LAL-D. Treatment with sebelipase alfa, a recombinant human lysosomal acid lipase, was administered.

Conclusions: This case of LAL-D stands out because of the way the diagnosis was made (incidental finding during routine cholecystectomy), the age of diagnosis and the indolent course of the disease, which remained undiagnosed for many years. In any patient with dyslipidemia, impaired liver biology, liver steatosis, with either normal or reduced body mass index, LAL-D should be included in the differential diagnosis.

P15

Identification of a novel lipase maturation factor 1 (LMF1) frameshift mutation in a patient with familial hyperchylomicronemia syndrome (fCS)

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Background: Familial chylomicronemia syndrome (FCS) is a rare (~1:106) autosomal recessive disorder characterized by

very high triglyceride levels and episodes of acute pancreatitis. FCS is caused by variants in genes associated with the catabolism of circulating triglyceride-rich lipoproteins, including LPL, APOC2, APOA5, GPIHBP1, and LMF1. LMF1 is involved in lipoprotein, endothelial and hepatic lipase maturation and its gene mutations account for only 1% of FCS. We describe a patient with a novel mutation in LMF1 gene.

Methods: A 61-year-old man of Turkish origin was admitted because of relapsing episodes of acute pancreatitis, hepatosplenomegaly and very high triglycerides (2600 mg/dL). After ruling out secondary factors of hypertriglyceridemia, a clinical diagnosis of FCS was made.

Results: Genetic testing revealed a homozygous mutation in the gene encoding LMF1: c.709_721delTGCATGGACTTCC (p. Cys237Thrfs*71) in chromosome 16p13.3. The p. Cys237Thrfs*71 mutation results in frameshift changes, resulting in premature termination and expression of truncated protein. It is a novel mutation that has not been reported either in the literature or in the population database gnomAD.

Conclusions: We report a novel pathogenetic mutation (p. Cys237Thrfs*71) in the LMF1 gene as a cause of FCS.

P16

The impact of gender, race, and socioeconomic factors on mortality and amputation risk in diabetes: A review of longitudinal studies

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Background: Diabetes and diabetic foot disease (DFD) is a common, severe and challenging complication of poor management of diabetes mellitus. DFD is a major cause for diabetes- related lower-extremity amputations. The latter are associated with significant morbidity and mortality. They result in major emotional and financial burden for patients, their families, as well as for the healthcare system.

Aim: To investigate the influence of gender-related factors, i.e. patients´ sex and race, and socioeconomic status, on diabetes-related lower-extremity amputations and/or the mortality rates after amputation.

Methods: We conducted a search of the PubMed/Medline database using specific MESH terms. Longitudinal observational studies published in English in high-impact journals (Q1-Q2 ranking) from 2018 to 2023 that reported on amputation risk and mortality associated with DFD with regard to sex, race, and socioeconomic factors were included.

Results: Sixteen papers were included in this review. Studies indicated an increased risk of amputation or amputation related mortality for male gender (n = 7/12 studies addressing this aspect) and ethnic minorities (n = 6/7). Higher amputation rates and mortality-related risk factors were consistently linked with lower socioeconomic status (n = 7/7).

Conclusion: These results imply the necessity of targeted interventions and healthcare strategies that address disparities focusing on vulnerable groups. Such strategies may contribute to diminish the burden of DFD and support efforts in promoting overall health equity in diabetes care.

P17

Screening of diabetic retinopathy using a non-mydriatic fundus camera with the utilization of artificial intelligence software

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The study focuses on the utilization of modern technologies employing artificial intelligence in screening of diabetic retinopathy in patients with diabetes mellitus type 1 and type 2, gestational diabetes, and specific forms of diabetes.

We used a non-mydriatic camera DR-Splus® with a fundus imaging system utilizing TrueColor Confocal technology from iCare, Finland, and the software product RetCAD™ from Thirona, the Netherlands, certified as class IIa. The camera and the software employ artificial intelligence to analyze color fundus images for the presence of diabetic retinopathy and age- related macular degeneration.

We examined 403 adult diabetics as part of regular screening at a diabetic outpatient clinic from January to March 2024. In the type 1 diabetes mellitus group, diabetic retinopathy was not detected in 8 (42.1%) patients, mild retinopathy was present in 4 (21.1%) diabetic patients, and moderate retinopathy in 3(15.8%), severe 3 (15.8%), proliferative 0 (0%). In the type 2 diabetes mellitus group, diabetic retinopathy was not detected in 229 (69.1%) patients, mild retinopathy was present in 69 (18.6%), moderate in 30 (8.1%), severe in 9 (2.4%), and proliferative in 0 (0%) diabetic patients. No retinopathy was detected in the gestational diabetes and specific forms group.

Digital non-mydriatic cameras using artificial intelligence software increase the availability of diabetic retinopathy screening. The findings from the study of our monitored group of patients confirm that new technologies utilizing artificial intelligence offer an effective option for screening of diabetic retinopathy with the possibility of early diagnosis and prevention of severe complications.

P18

Association of stiff-person syndrome with latent autoimmune diabetes in adults (lada)

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Backgrounds and Aims: Stiff person syndrome (SPS) is a rare progressive and often underdiagnosed immune-mediated disorder of the central nervous system characterized by progressive rigidity and triggered painful spasms of predominantly axial and proximal limb muscles. The condition has an insidious onset with gradual worsening over time and, if left untreated, can lead to perma-

nent disability and mortality [Alexandra Muranova; Elena Shanina, 2023].

History of SPS Diagnose: March 2020- normal EMG January 2022- motor unit activity November 2022- lumbar puncture- GAD antibodies (+)

Patient Information: The 48-year-old patient, diagnosed with Stiff-Person syndrome (SPS) since 2020, is presenting for clinical-metabolic and therapeutic evaluation in the context of elevated fasting glycemic values. Her medical history reaveled- hypertension, factor V Leiden trombophilia and Basedow-Graves disease.

Patient's Findings:
- Difficulty walking
- Falling due to sudden spasms
- Chronic generalized pain
- Increased thirst and urinary incontinence
- No retinopathy present
- Without hydronephrosis
- Right kidney stone- asymptomatic
- Blured vision
- Spastic dysarthya
- Left crural ataxia
- Urinary incontinence
- Anxiety and agoraphobia
- High blood pressure
- Normal BMI
-

Biochemical Evaluation: HbA1c= 7.9 %, HDL-cholesterol= mg/dl, LDL-cholesterol= mg/dl, creat= 0.70 mg/dL, eGFR= 87ml/min/1.73m2; RAC= 0.8mg/g crea; TSH = 1.77 uUI/ml; peptid-C= 0.086ng/ml, anti-GAD antibodies in serum= 784 IE/ml, HOMA-IR=normal, APTT (R)=0.95 ratio.

Immunology Revealed:
- Potassium Channel Antibodies- negative
- Anti-AMP Antibodies- negative
- Onconeural antibodies- negative
- Extended myositits panel- negative
- GAD antibodies in cerebral spinal fluid- positive
- GAD antibodies in serum- positive

Diagnosis:
- Latent Autoimmune Diabets in Adults secondary Stiff-Person syndrom
- While most patients with T1DM do not develop SPS, the majority of patients with anti-GAD-positive and SPS will develop T1DM.
- The diagnosis of LADA was based on GAD antibodies and adult age of onset.
- The diagnosis of SPS was based on the classic clinical findings, positive GADA, and suggestive ancillary investigations.

Tratment:
- 22 units degludec and 8-8-8 units of fast aspart
- Apixaban 5 mg 1 tablet/day
- Angiotensin-converting enzyme inhibitors 5 mg 1 tablet/day
- Thiamazole1 tablet/day
- Diazepam 10mg 2 tablets/day
- Human immunoglobulin 10 mg/ 100 ml- daily for 5 days, then monthly

Evolution: The evolution of the patient was favorable with the improvement of paravertebral stiffness and the disappearance of painful muscle spasms. Also, the glycemic values reached the therapeutic targets and the treatment for the associated diseases was adjusted.

Conclusions:
- the importance of the clinical recognition of LADA
- implementation of screening diagnostic tests when there is an autoimmune pathology
- all patients who do not fit the typical type 2 DM profile should be further investigated.

P19

Use of bioactive glass in diabetic foot infection complicated by osteomyelitis: A case report

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We describe the case of a 71-year-old man referred to our Department of Internal Medicine- Diabetic foot clinic in Palermo, Italy. He was affected by type 2 diabetes mellitus, distal and symmetrical motor sensory polyneuropathy, and chronic ulcer apical-dorsal of the first toe on the right foot with a low tendency to healing, complicated by infection and osteomyelitis. The standard radiological examination showed a pathological fracture of the distal phalanx and erosion of the proximal phalanx of the first toe of the right foot. Despite two months of standard-of-care treatment (sharp debridement, removal of infected soft tissues and bone fragment, complete offloading) associated with empirical antibiotic therapy first and targeted antibiotic therapy based on the culture of bone samples (positive to gram-negative bacteria) afterward, there was no healing. In consideration of these findings, we performed a second surgical treatment that was aimed to remove the infected residual bone (proximal phalanx) and fill the gap. So we applied 2.5 ml of S53P4 Bioactive Glass (Bonalive) as a bone substitute; the surgical wound was sutured with severed stitches. After just six days, at post-intervention follow-up, the surgical wound remained orderly without inflammation signs, and the X-ray showed a radiopaque agglomeration at the proximal phalanx. After one month, the lesion healed. Based on our experience, bone substitutes could, therefore, be a valid option for osteomyelitis treatment in diabetic foot patients.

P20

Pioglitazone and SGLT2 inhibitors: between therapeutic inertia and potential rediscovery

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Background: Thiazolidinediones are agonists of the PPAR-g nuclear receptor, which stimulation determines an increase in hepatic and skeletal muscle insulin sensitivity and improvement in beta-cell function. Among the side effects, weight gain is mediated through an increased renal sodium absorption and secondary fluid retention, due to mobilization of adipose tissue from visceral to subcutaneous fat and is responsible for an increased risk of heart failure. This is the most feared side effect of Piogli-

tazone, responsible for the therapeutic inertia linked to its prescription. Sodium-glucose cotransporter 2 inhibitors (SGLT2-i) fit into this scenario. Indeed, through the inhibition of renal glucose reabsorption, they determine an increase in osmotic diuresis, with a consequent reduction in circulating blood volume, and, at the same time, facilitate weight loss: this translates into a relevant cardio-renal protective properties and offers the possibility of a combination therapy with Pioglitazone.

Aim: Evaluate the safety and efficacy of the combination therapy with pioglitazone and SGLT2-i in diabetic patients at high cardiovascular risk.

Materials and Methods: We performed an overview of systematic literature searches across PubMed and Cochrane Central Register of Controlled Trials. Outcomes of interest included major adverse cardiovascular events (MACE), heart failure, renal kidney disease, reduction of blood pressure, BMI and HbA1c.

Conclusion: Combination of Pioglitazone with SGLT2-i compared to Pioglitazone alone, is associated with reduction of both cardiovascular risk and development of heart failure.

Key words: Pioglitazone, Sodiumglucose cotransporter 2 inhibitors, cardiovascular risk, heart failure.

P21

Jak-inhibitors (JAKi): A new opportunity over arthritis treatment

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Background: The connection between rheumatoid arthritis (RA), insulin resistance (IR), and type 2 diabetes mellitus (T2DM) is now clear. This is closely linked to the systemic inflammation. Moreover, glucocorticoids (GCs) tend to affect glycemic control adversely. The 2022 EULAR recommendations for RA suggest reducing and discontinuing GCs as quickly as possible. Considering GCs as a "bridging therapy" to control inflammation, drugs such as JAKi could allow us to reach this result. This paper evaluates glycemic compensation in RA and T2D treated with JAKi patients.

Methods and Results: Among 81 RA patients treated with JAKi, 10% was affected by T2DM. All data are expressed as median value/range for continuous variables and percentage for categorical ones. Main characteristics of the T2DM population were predominantly women (81%), with a median age of 58 (46-75), median duration of illness of about 13 (5-32) years, failure to one or more bDMARDs, with a moderate-severe disease activity at baseline (DAS- 28-PCR 3.9, 3.2-4.5). At time 0, HbA1c was within 7% in all patients. In this cohort, about 70% of patients were taking GCs (PDN 5 mg), and 42.8% of them were simultaneously taking csDMARDs. At T6, DAS-28-PCR was 2.05 (1.4-4.7), and 71% of patients completely discontinued GCs. Furthermore, a trend in glycated haemoglobin reduction was recorded (about 1.2%). At T12, all patients achieved clinical remission (DAS-28-PCR 1.8, 1-4.5), and the average HbA1c was 5%.

Conclusion: JAKi treatment quickly improves inflammatory disease activity, allowing discontinuation of GCs and thus achieving good glycemic control.

P22

Effectiveness and safety issues of the use of metformin during pregnancy in diabetic women: An overview of systematic reviews

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Background: Metformin represents a promising therapeutic option in the management of diabetes in pregnancy: it should allow an adequate glycemic control, favoring together a reduction of hypoglycemia, caesarean or preterm births, better control of maternal body weight and insulin requirements, especially in women with BMI > 30 kg/m2. However, insulin therapy is the most commonly used therapy for pregnant women with pre-existing type 2 diabetes (T2D) or gestational diabetes (GD).

Aim: From studies conducted on animal models in the first trimester it doesn't appear to be associated with teratogenic effects, since the drug, even if it crosses the placenta, is unable to transit into cells; from the second trimester, metformin is able to transit, causing alterations on metabolic pathways essential for fetal development. In recent years, although there isn't still solid evidence, some Systematic Review have been produced to investigate the role of metformin in pregnant women with diabetes.

Material and Method: Given this background, an extensive search of SCOPUS and PubMed was performed using the following string (metformin AND diabetes AND pregnancies) AND (systematic review [pt] or meta-analysis [pt]). The search string retrieved 91 manuscripts. Manuscripts regarding the role of metformin associated or not with insulin therapy in pregnant women with pre-existing T2D or GD.

Conclusion: This overview aims to explore the lights and shadows of metformin: both the benefits on glycemic and body weight control in pregnant women with diabetes as well as the possible pre- and post-natal complications on offspring.

P23

When does metabolic memory starts? Insights from the amd annals initiative

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Background and aims: Evidence on the potential long-term benefits on cardiovascular disease (CVD) obtained by achieving early more stringent glycated targets, i.e. HbA1c < 5.7%, is very limited to date, especially in real-world studies.

Materials and methods: Newly diagnosed type 2 diabetic (T2D) patients free of CVD at baseline were stratified according to the average HbA1c during the first 12, 24 and 36 months from diagnosis and the incidence of CVD in the following years was assessed. Overall, 251,339 subjects with T2D receiving care at over 300 diabetes clinics in Italy from January 2004 to December 2022 were identified in an Italian clinical registry, adopting three definitions of early exposure periods (0-1, 0-2 and 0-3 years). Mean HbA1c values during the exposure periods were categorized into HbA1c < 5.7%, 5.7-6.4%, 6.5-7.0%, 7.1-8.0%, and >8.0%. The outcome was the incidence of major cardiovascular events (composite of myocardial infarction, stroke, coronary or peripheral revascularization, and coronary or peripheral bypass).

Results: At multivariate Cox regression analysis, compared with mean HbA1c <5.7% during the first year after diagnosis, the increase in the risk of incident CVD was 24% (HR=1.24; 95%CI 1.13-1.35), 42% (HR=1.42; 95%CI 1.30-1.56), 49% (HR=1.49; 95%CI 1.36-1.64), and 56% (HR=1.56; 95%CI 1.42-1.72) for patients with HbA1c of 5.7%-6.4%, 6.5%-7.0%, 7.1%-8.0%, and >8.0%, respectively. The same trend was documented in all exposure periods. Conclusion: Our data support the need to safely achieve more ambitious glycemic targets, immediately after diagnosis, to reduce CVD risk in patients with T2D.

P24

Prevalence and clinical determinants of rapid egfr decline among patients with newly diagnosed type 2 diabetes: Insight of data from amd annals initiative.

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Background: Diabetic kidney disease is the most common cause of end-stage kidney disease (ESKD) in the western world. Rapid estimated glomerular filtration rate (eGFR) decline is an independent predictor of ESKD and death in the general population and in subjects with type 2 diabetes mellitus (T2D).

Aim: In a large sample of subjects with newly diagnosed T2D from the AMD Annals Initiative we investigated the prevalence and clinical determinants of rapid eGFR decline (eGFR decline > 5 ml/min/1.73 m2 per year at 3 years).

Methods: The eGFR trajectories were evaluated by applying a linear mixed model for repeated measures (LMMRM).

Results: Among 105,163 (57.7% M) subjects with newly diagnosed T2D, 13,587 (12.9%) subjects showed a rapid eGFR loss. The independent significant predictors were age, female gender, HbA1c, smoking, high baseline eGFR, albuminuria and retinopathy.

Conclusion: In conclusion, in a large sample of newly diagnosed T2D subjects we identified 12.9% of subjects with a rapid eGFR decline. Independent clinical and biochemical determinants of rapid eGFR decline such as age, female gender, HbA1c, high baseline eGFR, albuminuria and retinopathy were also described.

P25

Psoriatic arthritis clinical response to weight loss and GLP1: Case report

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Background: Psoriatic arthritis (PsA), a chronic inflammatory immune-mediated disease characterized by musculoskeletal inflammation, generally occurs in patients with psoriasis. PsA is frequently associated with obesity and diabetes mellitus (DM). A higher body mass index (BMI) is a risk factor for the development of PsA. It affects disease activity and therapy response, including disease-modifying anti-rheumatic drugs. Our previous research demonstrated an independent association between obesity and DAPSA score. We present a novel therapeutic approach to PsA in the case of a 66-year-old man affected by PsA and type 2 DM.

Case report: At the first visit to our outpatient clinic, the patient had a psoriasis area severity index (PASI) score of 10, dactylitis affecting the right thumb, DAS28 of 7.05, DAPSA of 64, BMI of 35 Kg/m2, waist circumference (WC) of 120cm. Evaluation of laboratory variables revealed an increase of VES (50 mm/h), PCR (10 mg/dL) and Hb1Ac (7.9%). We decided to treat it with a nutritional approach and GLP-1 AR without any rheumatic drug modification. At week 16, the PASI score was 5; DAS28 5.02; DAPSA 27; BMI was 30,2 Kg/m2; WC 105 cm; Hb1Ac 7.2%. At week 32, the PASI score was 0; DAS28 2,16; DAPSA 4; Hb1Ac 6,5%, BMI was 28,6 Kg/m2 and the WC 96cm.

Conclusion: This report shows the clinical efficacy of weight loss and improved glycemic control in patients with PsA and metabolic syndrome. Treatment of patients with type 2 DM and PsA should provide treatment with GLP1-AR before considering a therapeutic modification of rheumatological drugs.

P26

Screening for gestational diabetes development based on risk factors

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Gestational diabetes (GD) development is one of the most common complications during pregnancy. The prevalence varies in different countries and populations. It is speculated that OGTT should be performed only on women with high risk for GD when national program is nnot introduced.

Aims: The aim of the present study was to assess the predictive value of risk factors for GDM established by selective screening and to identify subgroups of women at a higher risk of developing GD.

Material and methods: 1000 pregnant women between 24 and 28 weeks of gestation were recruited for the purposes of the study. They have undergone standard OGTT as part of screening program for GD in Clinical Center of Endocrinology. For GD diagnosis we have use the IADPSG criteria and logistic regression analysis for identifying significant risk factors.

Results: We found 28% (280) prevalence of GD. The application of the selective screening criteria would result in the execution of an oral glucose tolerance test (OGTT) in 55.1% of women and 24 (24.0%) cases of GD would not be detected due to the absence of any risk factors. The presence of relatives with diabetes type 2 increase 1,394 (p<0,034) risk for GD development. Furthemore, the presence of first line relatives with diabetes type 2 additionally increase the risk (OR 2.523 (p<0.001). Body mass index (BMI) between 25 and 29.9 kg/m2 before pregnancy increases the risk 1.629 (p<0.019), while BMI >30kg/m2 4,162 (p<0.0001). Women above 40 years of age have significantly higher risk (OR 2.83, p<0.0001) for GD development when compared to women between 30 and 39 years of age (OR 2.15, p>0.371). Other significant risk factors were higher random blood sugar (OR 3,883 (p<0.0001) and the need of assisted reproduction as method for conception (OR 2.123, p<0.001).

Conclusions: Screening for GD is obligatory. The lack of established national screening programnecessitates the active search for pregnant women at high risk for GDM development. Identifying major risk factors will categorize the women, who will benefit from performing OGTT and thus how reducing their risks, if having GD.

P27

Lada (latent autoimmune diabetes in adults) overlapping etiopathogenesis and treatment: New pharmacological approaches aimed at preserving β-cell function

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Background: LADA is a nosographic entity showing overlapping characteristics between type 1 and type 2 diabetes and a pathophysiological model of autoimmunity against pancreatic cells and initial requirement of insulin-therapy; for its diagnosis at least one type of anti-pancreatic islet antibody is required. LADA patients are extremely heterogeneous in genetic, phenotypic and immunological features, suggesting underlying wide variability in pancreatic β-cells destruction rate. It's important to discern which can be classified as "LADA" since there are subtle therapeutic implications. Due to misdiagnosis, these patients are often treated with therapies commonly used in T2DM, which might further worsen the autoimmune process accelerating β-cell loss, leading to a faster progression toward insulin dependency.

Methods: a sample of 10 patients (6 male 4 female, median age 45) diagnosed with LADA was treated with GLP1RA/degludec and the aim of this Real-world, intervention, prospective, longitudinal study was review diagnostic features of LADA, the state of Art regarding therapeutic strategies evaluating in six-month after the introduction of GLP1-RA associated with basal insulin efficacy on glycemic control (basal glycemia, HbA1c and TIR).

Results: This real world study showed efficacy on glycometabolic variables and reduction of pancreatic beta-cell depletion using c-peptide as laboratory marker.

Conclusions: even though well-established guidelines exist for the treatment of T1DM/T2DM, there is only little data regarding LADA and no clear management strategy has been defined yet. Treatment with GLP1RA/basal insulin may be an effective model for management of this overlapping disease.

Key words: type 1 diabetes, type 2 diabetes, autoimmunity, Glucagon-like peptide-1

P28

Prevalence of metabolic syndrome and type 2 diabetes mellitus in outpatients with psoriasis

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Background: Psoriasis is a chronic, systemic, immune-mediated disease characterised by the development of erythematous, indurated, scaly, pruritic and often painful skin plaques. Psoriasis pathogenesis is driven by proinflammatory cytokines and is associated with increased risk for comorbidities, including, but not limited to, psoriatic arthritis, metabolic syndrome (MetS), abdominal obesity, hypertension, atherogenic dyslipidemia, type 2 diabetes, insulin resistance, and nonalcoholic fatty liver disease compared with the general population.

Methods: We recruited all the consecutive outpatients referred to our outpatient dermatologic clinic in the Internal Medicine Unit. All the patients were 18 years or older and signed informed consent. Experienced dermatologists performed the dermatologic assessment. We collected comorbidities, and experienced internists performed a complete cardiometabolic assessment.

Results: 503 outpatients with psoriasis were recruited (mean age 55 yrs, 1Q-3Q 51-60), and 57 % were men. The prevalence of T2DM was 8.0%, while Mets resulted in 13%. The association with other clinical variables was explored using the regression technique, and multivariable corrections were made.

Conclusions: Emerging evidence suggests that psoriasis has multiple metabolic risk factors, genetic background, and pathogenic pathways. Our data confirm

literature data in a real-world setting. In conclusion, it is essential to recognise and treat psoriatic patients early with a multidisciplinary team to reduce the risk of metabolic disorders and related complications.

P29

Metabolic dysfunction-associated steatotic liver disease (MASLD) severity and related fibrosis in real-world outpatients from a tertiary hospital: Preliminary report of a controlled study on type 2 diabetic patients

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Background: MASLD is associated with systemic metabolic dysregulation caused by type 2 diabetes mellitus (T2DM), excess weight or other metabolic risk factors. The severity of MASLD is assessed through liver stiffness assessment with elastography. We aimed to evaluate the prevalence and severity of MASLD in real-world diabetic outpatients compared to a control group from a tertiary hospital.

Methods: We enrolled 213 consecutive patients for cardiometabolic evaluation. Patients with viral, autoimmune and alcoholic aetiology hepatitis were excluded. All the patients were divided into two groups: not diabetics (control group) and T2DM patients naïve from SGLT2-inhibitors or GLP1-RA (T2DM group). An ultrasound semiquantitative assessment of their steatosis severity (moderate-severe) through evaluating liver brightness and comparing liver parenchyma echoes to the renal cortex was performed. Furthermore, an ultrasound estimate of their fibrosis stage was performed through elastography.

Results: Median age and median Body Mass Index (BMI) were respectively 59 (48-66) and 27 (25-30) in the control group and 60 (51- 64) and 30 (27-32) in the T2DM group; moderate-severe steatosis resulted in 39% in the control group and 53.6% in the T2DM group ($p<0.05$); fibrosis and its severity resulted more frequent in T2DM. CONCLUSION: MASLD, its severity and related fibrosis are much more frequent in T2DM patients than in control. Our ongoing research aims to assess the effects of SGLT2 inhibitors/GLP-1RAs on fatty liver disease in T2DM patients with MASLD.

P30

Fever and hyperglycemia in a young patient: A case report

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Introduction: Type 1 diabetes mellitus (T1DM) is very common in children and adolescents and its etiopathogenesis is multifactorial: genetic predisposition, immune response and environmental factors. Epstein-Barr virus (EBV) infection plays a role in pathogenesis of T1DM. We describe a case of young man that developed T1DM after EBV infection.

Case report: A 17-year-old man presented to the Emergency Unit for abdominal pain, polyphagia, polydipsia and polyurea; he also complained fever (T°max 37.8°) a month before. Laboratory revealed leukopenia with neutropenia, lymphocytosis and hyperglycemia, while abdominal ultrasound showed hepatosplenomegaly with lymphadenomegaly, so he was admitted to our Medical Unit. We performed peripheral blood smear, flow-cytometry and total-body computed-tomography with contrast agent, that excluded oncohaematological diseases. Furthermore we performed Adenovirus, Cytomegalovirus, Morbillivirus, Coxsaxkievirus, HIV, SARS-CoV2, Salmonella Typhi, Rickettsia, Brucella, Leishmania serology, resulted negative. We also evaluated EBV serology that resulted initially in IgM VCA undetermined, IgG VCA and IgG EBNA negative, while later we found that IgM VCA turned negative and IgG VCA turned positive. Besides we found elevated value of glycated hemoglobin (HbA1c 13.1%), reduced value of c-peptide, autoantibodies to insulin, tyrosine phosphatase-like protein IA-2 and islet cell resulted negative, while autoantibodies to zinc transporter 8 and glutamic acid decarboxylase resulted positive.

Conclusion: Some evidences show that EBV may be a trigger of autoimmune diseases through molecular mimicry. The antibodies production against EBV-epitope can slatentize T1DM at the remission of infection. Therefore monitoring young patients with recent EBV infection should be mandatory for the early detection of T1DM.

P31

The association between telomere length and chronic kidney disease in patients with type 2 diabetes mellitus

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Background and aims: This study aim is to explore telomere length in patients with type 2 diabetes mellitus, both with and without chronic kidney disease, due to limited existing data.

Materials and Methods: Three patient groups were studied. The first group included 65 patients with T2DM and CKD (age – 70.9 ± 8.0 years, HbA1c - 7.1 ± 1.7%, estimated glomerular filtration rate (eGFR) - 44.0 ± 11.0 ml/min/1.73m², albumin/creatinine ratio (ACR) - 36.0 ± 74.0 mg/g (data are presented as mean ± SD). The second group included 25 patients with T2DM without CKD (age 53.2 ± 6.8 years, HbA1c - 7.6 ± 2.2, eGFR - 81.3 ± 12.2 mL/min/1.73m², ACR - 18.0 ± 9.7 mg/g). The third group included 15 patients without T2DM and CKD (age - 50.3 ± 3.8 years, HbA1c - 5.45 ± 0.3%, eGFR - 83.0 ± 22.8 mL/min/1.73m², ACR - 11.0 ± 4.4 mg/g). The data were compared using Student's t-test and correlation analysis.

Results: The T/S ratio, reflecting telomere length, was significantly higher in T2DM patients with and without CKD compared to controls: 0.989 ±0.767 in T2DM with CKD, 1.11 ± 0.789 in T2DM without CKD, and 0.535 ± 0.341 in controls ($p<0.05$ for T2DM groups vs. controls). There was no significant difference between T2DM patients with and without CKD and no correlation between telomere length and eGFR or ACR in any group.

Conclusion: We found that telomere length is longer in patients with T2DM. CKD is not associated with telomeres shortening.

P32

Evaluation of vitamin d status in bulgarian population with diabetic foot ulcer and at different risk categories for diabetic foot ulcer

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Aim: To assess vitamin D status in patients with diabetic foot ulcers and different risk categories for diabetic foot ulcer.

Material and methods: A total of 588 participants were enrolled in the study - 137 with T1D and 451 with T2D, median age 59.0 (IQR 49.0-67.0) years, mean BMI 29.8±6.7 kg/m2, median duration of diabetes 13.0(IQR 8.0-20.0) years, divided into 2 groups - 120 with diabetic foot ulcer and 468 without diabetic foot ulcer. Evaluation of the risk for diabetic foot in the group without foot ulcer was performed according to IWGDF risk stratification system, and the participants were divided into 4 risk categories (0 to 3). Neuropathy was assessed by 10 g monofilament, Rydel-Seiffer 128Hz tuning fork and temperature discrimination tool. Serum 25(OH)D was assessed by ECLIA method.

Results: Median 25(OH)D level was 14.6 (IQR 9.6-20.9) ng/ml in the studied cohort. The diabetic foot ulcer group presented with significantly lower 25(OH)D level vs. non-foot ulcer group – 12.4 (IQR 8.5-18.4) ng/ml vs. 15.3 (IQR 10.0-21.2) ng/ml, p=0.005. The diabetic foot ulcer group demonstrated lower 25(OH)D level in comparison to risk category 0 - 12.4 (IQR 8.5-18,4) ng/ml vs. 16.1 (IQR 11.0 - 22.0 ng/ml), p=0.001. Comparison between risk category 3 and 0 showed borderline significance. There was no difference in 25(OH)D level between the other risk categories.

Conclusion: Patients with diabetic foot ulcers and those with a history of foot ulcer or amputation present with significantly lower 25(OH)D levels and therefore they need to be adequately supplemented.

P28

Exploring the relationship between insulin resistance and restrictive lung diseases in type 2 diabetes: A study on lifestyle interventions and risk factors

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Background: Restrictive lung diseases (RLD) represent a potential complication for patients with type 2 diabetes (T2D). Risk factors for this complication have been poorly researched in T2D subjects. The influence of lifestyle interventions reducing insulin resistance on RLD remains unclear.

Methods: A cross-sectional analysis included 191 subjects (T2D=101; prediabetes=40; healthy=50). Six- month follow-up was conducted in 54 T2D subjects after Fasting-Mimicking-Diet (n=14), Mediterranean diet (n=13) and without diet (n=27). RLD parameters (VC, TLC-B, TLCO) and metabolic parameters were statistically analyzed by performing correlation analysis and ANOVA cross-sectionally and longitudinally.

Results: T2D patients showed reduced VC (mean difference=-0.089; p=0.004) and TLC-B (mean difference=0.079; p=0.023) compared to healthy individuals. In Prediabetes, reduced VC (r=- 0.544; p=0.001) and reduced TLC-B (r=-0.458; p=0.008) was mainly associated with increased adipose tissue insulin resistance, while in T2D overall insulin resistance (HOMA-IR) was associated with RLD (VC: r=-0.359; p<0.001; TLC-B: r=-0.245; p=0.014). Additionally, increased MASLD-Scores (FLI, NAFLD-Score) were associated with RLD-parameters in T2D (all p-values < 0,05). The Fasting-Mimicking-Diet reduced significantly the risk factors HOMA- IR (Δ=-5.84/-4.09; p=0.002/0.014) and FLI (Δ=-13.83/-18.2; p=0.031/0.001) as compared to the other groups. However, RLD was not improved by this short intervention period, only two patients starting with RLD improved lung function above 80%.

Conclusion: Insulin resistance and presence of MASLD are associated with RLD in patients with pre- and type-2 diabetes. Therefore, patients at risk should be screened for RLD in the future. Short diet interventions could improve these risk factors, but long-term effects on RLD have not been assessed yet.

P34

Higher fasting glucose levels in helicobacter pylori positive diabetic patients from southern romania

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Background and aims: Helicobacter pylori (H. Pylori) infection has an unknown prevalence in certain Romanian regions. We aimed to estimate it in communities from Southern regions of Romania with limited access to health services.

Methods: We designed a cross-sectional study to include adult voluntary participants in the "Health in the neighborhood" medical assistance program. Clinical and biological parameters were assessed for each participant. An immunochromatographic assay for the qualitative detection of H. pylori stool antigen was used for testing.

Results: We have included 708 adult voluntary participants in 10 villages, 6 from Muntenia and Oltenia Regions (Southern Romania), 2 from Dobrogea and 2 from Moldova (2.4% of all village inhabitants). H. pylori prevalence in

Romanian Southern regions was 28.2%, 95%CI [24-32.6%], and overall was 27.1%, 95%CI [23.9-30.6%]. Fasting plasma glucose was lower in H. pylori positive normoglycemic patients (positive 89.9 mg/dl [68.3 – 99.8] vs. negative 91.7 mg/dl [58.9 – 99.9], p = 0.055, not significant) and prediabetic patients (positive 108.9mg/dl [100 – 123.6] vs. negative 108.4mg/dl [100 – 124.9]). In diabetic patients, fasting plasma glucose was higher in H. pylori positive individuals (positive 152.7mg/dl [128.5-345.9] vs. negative 140.9mg/dl [125.4- 305.4]).

Conclusions: H. pylori prevalence in communities from Southern regions of Romania with limited access to health services was 28.2%, 95%CI [24-32.6%]. Fasting plasma glucose was lower in H. pylori positive normoglycemic and prediabetic individuals and higher in diabetic patients.

Key words: Helicobacter pylori, fasting plasma glucose

P35

Screening for gestational diabetes development based on risk factors

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Gestational diabetes (GD) development is one of the most common complications during pregnancy. It is speculated that OGTT should be performed only on women with high risk for GD when there is no national program. Aims: The aim of the present study was to assess the predictive value of risk factors for GD established by selective screening and to identify subgroups of women at risk of developing GD.Material and methods: 1000 pregnant women between 24 and 28 weeks of gestation were recruited for the purposes of the study. They have undergone standard OGTT as part of screening program for GD in Clinical Center of Endocrinology. Results: We found 28% (280) prevalence of GD. The application of the selective screening criteria would result in the execution of an oral glucose tolerance test (OGTT) in 54% of women and 22 (22.0%) cases of GD would not be detected due to the absence of any risk factors. The presence of relatives with diabetes type 2 increase 1,5 (p<0,034) risk for GD development. Furthemore, the presence of first line relatives with diabetes type 2 additionally increase the risk (OR 2.63 (p<0.001). Body mass index between 25 and 29.9 kg/m2 before pregnancy increases the risk 1.7 (p<0.019), while BMI >30kg/m2 4,2 (p<0.0001). Conclusions: The lack of established national screening program necessitates the active search for pregnant women at high risk for GD. Identifying major risk factors will categorize the women, who will benefit from performing OGTT and thus how reducing their risks, if having GD.

P36

Cystic fibrosis-related diabetes: Diagnostic and therapeutic challenges of current management strategies in adult patients

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Introduction: Cystic fibrosis-related diabetes (CFRD) is the most prevalent among extrapulmonary complications of cystic fibrosis (CF). CFRD occurs primarily from insulin insufficiency due to pancreatic damage. It is characterized by intermittent postprandial glucose bursts that can remain undetected for varying lengths of time. Treatment of CFRD is based on insulin, while oral hypoglycemic agents remain underexplored in this setting. Suboptimally managed CFRD carries significant morbidity (decline in lung function, decrease in BMI, microvascular complications); therefore, reliable diagnostic and therapeutic strategies are of the utmost importance.

Methods: We reviewed the data registry of adult patients with CF in Ljubljana, Slovenia. Descriptive statistics were calculated.

Results: Of the total of 56 cases of CF (aged 32 (20, 69) years, 34% (19/56) have known CFRD, 7% IGT, 50% had no form of glucose intolerance detected by HbA1c or OGTT, and 9% have not been tested for glucose intolerance. Of the 19 CFRD individuals (aged 30.5±6.9 years), 12 receive MDII+CGM and 1 uses AID; the basal to prandial insulin ratio is 1:3; 2 are treated with repaglinide and 2 refuse any form of treatment. On average, glucose control in CFRD is good with a mean HbA1c 6,3±1,9%, TIR 71(65,88)%; while their mean BMI is 19,9±2,2 kg/m2, which is significantly lower than the BMI of non-diabetics 21.6±3.2 kg/m2(p=0.045).

Conclusions: The heterogeneity of management approaches, even in our small cohort, calls for the establishment of more refined screening and diagnostic methodologies, possibly based on CGM, as well as the exploration of new treatment strategies beyond insulin.

P37

Antidiabetic treatment decisions in patients admitted for acute myocardial infarction – an observational study

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We aimed to describe the real-life use of antidiabetic medication in patients with type 2 diabetes mellitus admitted for acute myocardial infarction (AMI). During eight months 83 subjects were consecutively admitted to an interventional cardiology center for AMI. The mean age was 66.54 ± 11.58 years with a mean duration of diabetes of 10.51 ± 8.33 years, and 20.48% being newly diagnosed. Most of them were males (61.45%), smokers (37.35%), or former smokers (30.12%). Regarding treatment frequencies: 45 subjects were treated with metformin, 22 with sulphonylurea (SU), 7 with dipeptidyl peptidase-4 inhibitors (DPP4i), 24 with sodium-glucose cotransporter 2 inhibitors (SGLT2i), and 29 subjects with insulin analog therapies. Morisky questionnaire at admis-

sion was used to evaluate antidiabetic treatment adherence. Thirty-nine percent of subjects had poor adherence to treatment. There were no significant differences between the treatment adherence groups regarding biological parameters, except for aspartate aminotransferase (p=0.032). In conclusion, metformin was the most frequent treatment in patients with type 2 diabetes mellitus admitted for AMI, followed by SGLT2i and SU. One-third of the patients had poor treatment adherence which is an important factor that could contribute to a considerable proportion of coronary heart disease events in patients with diabetes.

P38

Latent autoimmune diabetes in adults: Comparative analysis of automated insulin delivery and standalone cgm efficacy

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Introduction: Adult-onset autoimmune diabetes exhibits a spectrum of heterogeneity beyond the well-established distinction between classic adult-onset type 1 diabetes and latent autoimmune diabetes in adults (LADA). LADA is phenotypically diverse, including varying levels of insulin resistance and autoimmunity. The presence of various phenotypes in LADA hinders a one-size-fits-all management approach.

Methods: We reviewed the medical files of 75 LADA individuals and analyzed data on basic demographics and means and metrics of glucose control. The descriptive and group statistics were calculated.

Results: LADA patients (autoantibody positivity; 94% GADA, 49% anti-AI, and 55% anti-Zn) in our cohort were diagnosed at the mean age of 45 (21,78) years and their current age was 55 (22,89) years. The average total daily insulin dose was 0.57±0.2 U/kg of body weight. Body mass index (BMI) averaged at 27.2±5.4 kg/m2, HbA1c 7.0±1.9%, mean time in range (TIR) 63 (13,99) % was available for 59 people using different continuous glucose monitoring devices (CGM), CV 31.9±8.6%. At the most recent follow-up, the recorded HbA1c values were 6.2±2.4% vs. 7.2±4.7% in automated insulin delivery (AID; n=14); and standalone CGM groups (n=45), respectively. AID users had a statistically significantly higher TIR (73±14% vs. 60±18%) and a lower TBR (0.5±0.6 vs. 2.3 ±3.0%). Body weight adjusted insulin daily dose, BMI, and demographics did not differ between groups.

Conclusions: Closing the loop with AID outperforms the glucose control efficacy of standalone CGM even in adults with phenotypically untypical type 1 diabetes, LADA.

P39

Mir-221 and its potential role in cardiovascular risk

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Recent scientific studies suggest that microRNAs (miRNAs) play a crucial role in various biological systems, notably the cardiovascular system. The measurement of miRNAs in biological fluids is relatively straightforward, highlighting their potential as indicators for prognosis, risk assessment, or evaluating therapeutic responses.

In a prospective study, we included 20 patients with grade III obesity and type 2 diabetes who underwent metabolic surgery. These patients were evaluated 12 months post-operation. The primary aim was to investigate changes in miR-221 and its relationship to cardiovascular risk factors. Our findings revealed a moderate negative correlation between miR-221 levels and blood homocysteine levels, and a weaker correlation with leptin. Conversely, miR-221 levels showed a moderate positive correlation with C-peptide, TNF-α, and atherosclerotic cardiovascular disease (ASCVD) risk scores.

These correlations suggest that miR-221 may play a role in inflammatory processes and the development of cardiovascular diseases. Identifying such correlations is crucial for assessing the risk of these conditions and for formulating strategies for their prevention and treatment.

P40

The significance of outcomes of between type 2 diabetic and non-diabetic incident hemodialysis patients with functioning arteriovenous fistulas

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This study compared clinical outcomes of patient survival and arteriovenous fistula (AVF) patency between incident hemodialysis patients with and without type 2 diabetes mellitus .

In our clinic of hemodialysis we have divided the patients in two groups.Patients in T2DM in which we have 38 patients ,8 women and 30 men .Patients without diabetes , 31 women and 68 men .All the group of patients is about 137. The patients T2DM are divided in 22 patients with (AVF) and 16 with catheter. Other group is devided in 80 patients with (AVF) and 19 patients with catheter. The primary outcome was all-cause mortality, and secondary outcome was AVF patency. The T2DM and non-DM groups were retrospectively analyzed and compared with regard to long-term clinical outcomes. All-cause mortality (from time of AVF placement to death) was the primary outcome of interest, and the secondary outcomes were primary and secondary AVF patency. Patients in the T2DM group had a higher prevalence of hypertension (P = .02), smoking (P < .01), cardiovascular disease (P < .01), history of cerebrovascular accident (CVA) (P < .01), and peripheral arterial occlusive disease (P < .01) than those in the non-DM group. On Kaplan–Meier survival analysis, the overall survival and AVF patency rates were significantly higher in the non-DM group relative to the T2DM group (both P < .01).

Compared with patients in the non-DM group, patients in the T2DM group had a higher mortality rate and worse AVF patency rates.

P41

A novel off-target class effect of SGLT2 inhibitors – interaction with

monoamine oxidase in human atrial tissue

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Background & Aim: Catecholamine breakdown and the constant generation of hydrogen peroxide are carried out by mitochondrial enzymes known as monoamine oxidases (MAOs), Their role in oxidative stress in cardio-metabolic diseases has been shown by a growing body of research. Sodium-glucose-cotransporter 2 inhibitors (SGLT2i) protect the cardiovascular system via pleiotropic, partially elucidated mechanisms. The current study was aimed to investigate MAO contribution to cardiac oxidative stress in human atrial tissue and whether SGLT2i, dapagliflozin, and empagliflozin may reduce it.

Materials & Methods: Right atrial appendages were obtained from non-diabetic patients with mildly reduced ejection fraction heart failure (HFmrEF) scheduled for elective cardiac surgery and used for the evaluation of MAO expression (immune fluorescence and qPCR) and oxidative stress (dihydroethidium staining and ferrous oxidation xylenol orange assay). Experiments were performed after acute incubation (12 h; organ culture) with SGLT2i (dapagliflozin, empagliflozin; 1µM and 10 µM) in the presence of angiotensin 2 (Ang2, 100 nM), and glucose (Gluc, 400 mg/dL).

Results: MAO-A and MAO-B are expressed in human atrial tissue. Stimulation with Ang2 and Gluc increased MAO expression and oxidative stress. Incubation with both SGL2i was able to mitigate oxidative stress and downregulate MAO expression in stimulated samples.

Conclusion: In conclusion, MAO contributes to cardiac oxidative stress in conditions mimicking renin-angiotensin-aldosterone system activation and hyperglycemia, which can be targeted with SGLT2i, as a novel off-target cardiac effect of this class of potent antidiabetics. Key words: human atrial tissue, monoamine oxidase, oxidative stress, SGLT2 inhibitors

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Targeted knowledge transfer – development of the diabetes information portal diabinfo.de

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The diabetes information portal diabinfo.de was launched at the beginning of 2020. diabinfo.de is a collaborative effort by the German Diabetes Center (DDZ), Helmholtz Munich, and the German Center for Diabetes Research (DZD). The portal was initiated by the Federal Center for Health Education (BZgA). Funding comes from the BZgA, the Federal Ministry of Health (BMG), and the Federal Ministry of Education and Research (BMBF).

The portal provides up-to-date, neutral, quality-assured diabetes information in the three subportals, preventing diabetes, living with diabetes and information for professionals with a total of 245 background articles. Additionally, different formats (number) were developed like podcasts (44), coaching and animation videos (34), informational graphics (40), fact sheets (26), exercise plans (6), recipes (38) and quizzes (11). To support the target groups a couple of online user tools were developed like an information database, a diabetes cockpit and an inquiry portal. The editorial staff increases diabetes awareness through regular posts about new diabetes research results by the website and social media (Instagram). A large number of articles and formats are also available in English, Turkish, Polish, Russian and Ukrainian. The number of annual visits in 2020 was about 400,000, in 2023 the number was 2,6 million.

Editorial content of the platform was used to analyze the behavior and interests of the portal users, among other things. Most frequently visited background articles in 03/2024 were hyperglycemia and diabetic ketoacidosis (11,052 views), type 2 diabetes and nutrition (9,588 views), when to test for gestational diabetes? (8,690 views), hypoglycemia (7,853 views) and what is insulin resistance? (6,342 views).

The information portal will be expanded for other non communicable diseases, especially cardiovascular diseases and obesity.

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Syndemic approach for cardiometabolic diseases: The lesson from the cardiometabolic panel of international experts on syndemic COVID-19 (capisco)

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We are currently living in a post-COVID era, where we have successfully fighted against the coronavirus but, still, patients

with chronic diseases continue to have many barriers to access healthcare facilities and their regular control visits, as it was before the pandemic. This is particularly true for patients with cardiometabolic diseases, such as those with obesity and diabetes, who are still experiencing an increased number of complications and higher rates of mortality. In addition, increasing socio-economic disparities have come to the forefront in many populations during the pandemic, rendering people more vulnerable to economic, nutritional, social, and medical insecurity, particularly during prolonged periods of necessary government-imposed restrictions or even lockdowns. A syndemic approach needs to be adopted, given the strong interplay between cardiometabolic diseases and the socio-structural environment. The term syndemic emphasizes the relevance of biological, social, economic, and environmental factors in the health of individuals and populations. Physicians have an obligation to understand their patients' social, economic, and environmental situations and to utilize the tools available in existing health systems to improve their access to care. It is also expected that many health systems will continue to be under significant economic pressure, whichmay contribute to a reduced quality of care for patients with chronic conditions, such as those with cardiometabolic diseases. People with long COVID may experience a variety of symptoms such as chronic fatigue, shortness of breath, cough, chest pain, palpitations, headache, arthralgia, myalgia and weakness, insomnia, numbness, diarrhea, cognitive defects, rash, hair loss, imbalance and gait problems, memory and concentration defects and poor quality of life. Radiology plays an important role in the diagnosis and evaluation of long COVID patients by enabling the detection of complications in various organs, in particular involving the lungs, heart, nerves, abdomen, musculoskeletal systems and oral cavity.

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Relationship between different indicators of Insulin Resistance and new onset atherosclerosis cardiovascular disease in patients with familial hypercholesterolemia

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Background and aims: Triglyceride–glucose (TyG) index and metabolic score for insulin resistance (METS-IR) index has been identified as novel surogat markers for insulin resistance and previous studies demonstrated association between these markers and cardiovascular disease. The aim of this study is to analyse association between different markers of insulin resistance and lipid parameters with new onset atherosclerosis cardiovascular disease (ASCVD) in patients with familial hypercholesterolemia.

Methods: We analyse data from medical records of 322 patients with familial hypercholesterolemia (FH) treated with statins. From baseline and for the next 3 years, anthropometric measurements, lipids (total Ch, LDL-Ch, HDL-Ch, triglycerides), fasting plasma glucose, and insulin were determined. HOMA-IR, TyG index and METS-IR were calculated using different formulas. New onset ASCVD was recorded as myocardial infarction, coronary artery revascularization, angina pectoris, stroke or peripheral arterial disease.

Results: New onset ASCVD occured in 8.4% patients. Despite baseline HOMA-IR, TyG index and METS-IR were higher in patients with new onset ASCVD, only METS-IR was significantly different between the groups (patients with onset ASCVD vs. patients free of ASCVD) (OR 1.09; 95% confidence interval (CI) 1.03– 1.13, P=0.001). We we did not find statistical difference in total Ch, HDL-Ch, LDL-Ch, triglycerides between groups at baseline and after 3 years of follow up, although HDL-Ch tends to be lower in patients with new ASCVD (1.25±0.33 mmol/L vs. 1.43±0.58 mmol/L; p=0.07).

Conclusion: METS-IR as novel marker of insulin resistance was better predictor than TyG, HOMA-IR and lipid parameters for new onset ASCVD in patients with familial hypercholesterolemia.