BAND 30

Diabetes Metabolism and the Heart

Diabetes, Stoffwechsel und Herz

CVOT Summit 2021

FINAL PROGRAMME AND ABSTRACTS

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PS 2: Diabetes, NAFLD and lipid disorders

P 05

The impact of NAFLD on cardiovascular mortality in type 2 diabetes patients undergoing haemodialysis

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Background: The relationship between non-alcoholic fatty liver disease (NAFLD), end stage renal disease (ESRD) and cardiovascular risk is multidirectional. The presence of NAFLD increases the cardiovascular risk threefold in haemodialysis, and the cardiovascular disease (CVD) increases the risk for NAFLD. NAFLD is an interplay factor between CVD, malnutrition and inflammation in this fragile population.
Methods: We conducted an observational, prospective study lasting 12 months (June 2020–June 2021). The study included all patients with diabetes and ESRD who underwent 3 haemodialysis sessions per week at the National Institute of Diabetes, Nutrition, and Metabolic Diseases (INDNBM) N. C. Paulescu. An abdominal ultrasound was performed for screening. To not include patients with alcoholic fatty liver disease, patients who self-reported alcohol consumption were excluded. At the first and second visits we collected biological samples and calculated the hepatic steatosis index (HSI) score. We used Mann-Whitney U test to analyse the differences between the two groups based on NAFLD diagnosis. The final data analysis was performed using SPSS Statistics 20.0.
Results: Our study included 26 type 2 diabetes patients with a mean disease duration of 19.81 ± 8.4 years complicated with ESRD (mean duration of dialysis 3.88 ± 2.78 years). 58 % of the patients were diagnosed with ultrasound hepatic steatosis. In the univariate analysis, the HSI score correlated positively with body mass index (BMI) (Spearman coefficient 0.824; $p < 0.05$), positively with the fat mass (Spearman coefficient 0.564; $p = 0.03$), and negatively with age (Spearman coefficient −0.400; $p = 0.048$). HSI also correlated with fasting glycaemia and HbA_{1c} (Spearman coefficient 0.339 and 0.166, p = non-significant). There were significant differences at the first visit in terms of total cholesterol and HDL-C ($p = 0.033$ and 0.016, respectively). Regarding the causes of death, more than a quarter of the subjects, namely 27 % of them, died of COVID-19 before the 1-year follow-up. Cardiovascular causes represented 18 % of the total deaths. Survival analysis using the Kaplan Meier curve indicated a lower survival of patients with ultrasound-diagnosed hepatic steatosis.
Conclusions: The prevalence of NAFLD in type 2 diabetes and ESRD haemodialysis patients was 58 %, the majority of them having obesity class I. The HSI score correlated positively with BMI. Diabetic patients with ultrasound-diagnosed hepatic steatosis in haemodialysis had a lower survival rate.

P 06

Treatment of patients with NAFLD, type 2 diabetes mellitus and concomitant cardiac pathology

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Background: The positive effect of glucose-lowering drugs on the course of non-alcoholic fatty liver disease (NAFLD) is known, as well as the positive results of many multicenter studies examining a new class of drugs of sodium-dependent glucose cotransporter type 2 (SGLT-2) inhibitors on cardiovascular complications. Since NAFLD is extremely often accompanied by diseases of the cardiovascular system, this class of drugs was used for patients with NAFLD.

The aim of this study was to investigate the effect of SGLT-2 inhibitors on the course of NAFLD in patients with type 2 diabetes mellitus with concomitant coronary heart disease (CHD) and arterial hypertension (AH) compared with patients taking other antidiabetic drugs.
Methods: During the study, 38 patients with NAFLD, type 2 diabetes mellitus and concomitant CHD and AH were monitored. 56 % of those surveyed were women and 44 % were men. The average age of the subjects was 52.3 years. Patients were divided into two representative groups. The first group received metformin and an SGLT-2 inhibitor (empagliflozin or dapagliflozin). The second group received any other combination of glucose-lowering drugs and metformin. In both groups, the effect of treatment on the degree of steatosis and liver fibrosis, blood glucose levels, cardiovascular status, and change in body weight were assessed.
Results: The study found that in the group of patients taking SGLT-2 inhibitors there was a tendency of decreasing in the degree of steatosis without worsening the degree of liver fibrosis. These patients had fewer angina attacks by 5.3 %, and had a better controlled blood pressure – a decrease in systolic blood pressure by 7–12 mmHg, in diastolic blood pressure by 3–5 mmHg – which is in contrast to group 2. There was also a tendency to reduce the body weight of patients in the first group by 7–8 %, which contrasted group 2. In both groups, there was a compensation of glucose metabolism when a second glucose-lowering drug was added to the treatment.
Conclusion: Given the results of the study, namely the achievement of normoglycaemia and a positive effect on modified risk factors for cardiac complications in patients with type 2 diabetes mellitus (overweight, hypertension and a positive effect on the course of NAFLD), we can conclude that SGLT-2 inhibitors should be the drugs of choice for enhancing antihyperglycaemic therapy in the treatment of patients with NAFLD, type 2 diabetes mellitus and concomitant cardiac pathology.

P 07

Pancreatic steatosis and atherosclerotic process

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Background: The atherosclerotic process is closely related to steatosis of the liver and pancreas. The mechanisms by which this pathogenetic process occurs have not been studied. One of the hypotheses involves an increased synthesis of pro-inflammatory cytokines and the