BAND 28

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Diabetes, Stoffwechsel und Herz

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FINAL PROGRAMME AND ABSTRACTS

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PS 2: Micro- and macrovascular comorbidities

P 07

The state of lipid, carbohydrate metabolism and function of cardiovascular system of patients with non-alcoholic fatty liver disease, overweight and obesity

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Rationale and objective: NAFLD is considered one of the manifestations of the metabolic syndrome. The aim of the study is to determine the relationship between insulin resistance and laboratory-instrumental signs of liver damage in patients with NAFLD.
Methods: We examined 168 patients with NAFLD. The diagnosis of NAFLD was made according to the recommendations of EASL, EASD, EASO 2016. Anthropometric parameters were measured in all patients, ultrasound of the liver was performed, cytolysis and cholestasis markers, lipid metabolism indicators were determined. Glucose, insulin and C-peptide levels were evaluated on an empty stomach and after 2 hours. The presence of insulin resistance was established by the level of the HOMA index. Correlation analysis was used to identify the correlation between different indicators with the calculation of the correlation coefficient (r) and its reliability (Pearson test and Spearman test). The statistical significance level was assumed to be $p < 0.05$.
Results: Among NAFLD patients, 27 % were diagnosed with non-alcoholic steatohepatitis. In 14.7 % of patients BMI values corresponded to excess body weight ($25 < BMI < 30\ kg/m^2$); in 39.7 % of patients obesity of degree I was ascertained, in 27.9 % the obesity of degree II and in 17.6 % degree III. The character of fat distribution corresponded to abdominal obesity. 23 % of patients had a history of coronary heart disease less than 10 years ago; more than 10 years ago in 11 % of patients, a history of myocardial infarction was present in 2 % of patients. Arterial hypertension was detected in 59 % of patients. At the same time, most patients had hypertension of degree II. Disorders of lipoprotein metabolism were detected in 51 patients examined. Hypertriglyceridaemia was more commonly reported, serum total cholesterol concentrations > 5.2 mmol/l were less frequently observed. The atherogenic coefficient was 3.5 units, indicating that there is a high probability of developing atherosclerosis and coronary heart disease. Disorders of carbohydrate metabolism were detected in more than half of patients with NAFLD, including more than 20 % of them with type 2 diabetes. The data obtained indicate that the mean fasting glycaemia in the patients we examined was increased. At the same time, they were characterised by high levels of insulin and C-peptide. A direct significant correlation was found between insulinaemia and body mass index ($r = 0.48$; $P < 0.05$), waist circumference ($r = 0.43$; $P < 0.05$), HOMA index ($r = 0.95$; $P < 0.05$) and serum C-peptide concentration ($r = 0.80$; $P < 0.05$). Serum C-peptide concentration correlated directly with body mass index ($r = 0.41$; $P < 0.05$), waist circumference ($r = 0.38$; $P < 0.05$), mean AT ($r = 0.40$; $P < 0.05$), HOMA index ($r = 0.40$; $p < 0.05$), insulinaemia ($r = 0.80$, $P < 0.05$), and fasting glycaemia ($r = 0.44$; $p < 0.05$). Correlation analysis showed that the left ventricular ejection fraction ($r = -0.43$; $P < 0.05$) and the left ventricular myocardial mass index ($r = -0.40$; $P < 0.05$) had an inverse correlation with the age of the patients. According to the instrumental examination, the dependence of the size of the left atrium, the thickness of the posterior wall of the left ventricle and the thickness of the interventricular septum on the degree of obesity were revealed. Also, the presence of diastolic dysfunction was revealed.
Conclusion: The most prognostically significant risk factors affecting the outcomes of NAFLD are the degree of obesity, the presence of coronary heart disease, the HOMA index value and HDL cholesterol levels.

P 08

Impact of EMpagliflozin on cardiac function and biomarkers of heart failure in patients with acute MYocardial infarction – the EMMY trial

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Rationale and objective: Sodium-glucose cotransporter-2 (SGLT-2) inhibitors are established antidiabetic drugs with proven cardiovascular benefit. Although growing evidence suggests beneficial effects on myocardial remodelling, fluid balance and cardiac function, the impact of empagliflozin initiated early after acute myocardial infarction (AMI) has not been investigated yet. Therefore, the impact of EMpagliflozin on cardiac function and biomarkers of heart failure in patients with acute MYocardial infarction (EMMY) trial was designed to investigate the efficacy and safety of empagliflozin in diabetic and non-diabetic patients after severe AMI.
Methods: Within a multicentre, national, randomised, double-blind, placebo-controlled, phase 3b trial we will enrol patients with AMI and characteristics suggestive of severe myocardial necrosis are randomised in a 1 : 1 ratio to empagliflozin (10 mg once daily) or matching placebo. The primary endpoint is the impact of empagliflozin on changes in NT-proBNP within 6 months after AMI. Secondary endpoints include changes in echocardiographic parameters, levels of ketone body concentrations, HbA_{1c} levels and body weight, respectively. Hospitalisation rate due to heart failure or other causes, the duration of hospital stay and all-cause mortality will be assessed as exploratory secondary endpoints.
Results: Results will provide the rationale for the conduct of a cardiovascular outcome trial to test the effect of empagliflozin in patients with AMI.
Conclusion: The EMMY trial will test empagliflozin in patients with AMI regardless of their diabetic status. The EMMY trial may therefore underpin the concept of SGLT-2 inhibition to improve cardiac remodelling, pre- and afterload reduction and cardiac metabolism regardless of its antidiabetic effects.

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