mellitus (T2DM). The purpose of the study was to investigate whether serum levels of apelin predict HF with preserved ejection fraction (HFpEF) in patients with T2DM

Design and method: The study was retrospectively involved 76 T2DM individuals aged from 41 to 65 years (48 patients with overt HFpEF and 28 non-HFpEF patients). Healthy control group was consisted of 25 individuals matched with age and sex. Serum levels of N-terminal pro-brain natriuretic peptide (NT-proBNP), apelin, and high sensitive C-reactive protein (hs-CRP) were determined by ELISA

Results: Serum levels of apelin and NT-proBNP were significantly increased in patients with HFpEF (7.74 ng/mL, 95% CI = 6.31-8.25 ng/mL and 954.8 pmol/mL, 95% CI = 476.2-1764.3 pmol/mL, respectively) when compared with non-HFpEF diabetics (2.26 ng/mL; 95% CI = 1.70-2.90 ng/mL; and 113.5 pmol/mL, 95% CI = 75.4-144.9 pmol/mL, respectively) and healthy volunteers (1.52 ng/mL 95% CI = 1.12-2.13 ng/mL and 67.8 pmol/mL, 95% CI = 49.1-87.4 pmol/mL; respectively). Apelin levels correlated positively with body mass index (r = 0.32, P = 0.001), serum uric acid (r = 0.30, P = 0.016), HDL cholesterol (r = 0.28, P = 0.001), hs-CRP (r = 0.26, P = 0.001) and were negatively associated with ejection fraction (r = 0.34, P = 0.002), and age (r = -0.30, P = 0.001). The ROC curve showed that the best fitted cut-off point for the apelin to NT-proBNP ratio was 0.82 units (area under curve = 0.76; sensitivity = 69.5%, and specificity 94.2%, P = 0.001). In multivariate logistic regression analysis the apelin to NT-proBNP ratio < 0.82 × 10-2 units independently predicted (odds ratio = 1.44; 95% confidence interval: 1.18 – 2.77; P = 0.001) HFpEF in T2DM patients.

Conclusions: Apelin to NT-proBNP ratio < 0.82 × 10-2 was independent predictor for HFpEF in T2DM patients

DECREASED SERUM LEVELS OF IRISIN PREDICTED HEART FAILURE IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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Objective: Type 2 diabetes mellitus (T2DM) is a powerful risk factor for heart failure (HF) contributing to untoward clinical course of the condition. Although natriuretic peptides are validated biomarkers to rule out HF, the accuracy of them in prediction of HF in T2DM is not optimal. The aim of the study was to investigate whether serum irisin has additional discriminative capacity for HF in patients with T2DM.

Design and method: We prospectively included 183 T2DM patients with aged 41 to 65 years (153 patients with any phenotypes of HF and 30 patients without HF) in the study. The following criteria such as age > 18 years, established T2DM regardless of HF, and the levels of HbAc1 less 6.9% were used as inclusion ones. All patients underwent general examination, echocardiography and Doppler. The plasma levels of NT-proBNP and irisin were measured using ELISA

Results: The Receive Operation Characteristics curve analysis showed that the well-balanced cut-off point for serum concentration of irisin (HF vs non-HF) were 10.4 ng/mL (area under curve [AUC] = 0.96 (95% CI = 0.88 – 1.00), sensitivity = 81.0%, specificity = 88.0%; P = 0.0001). Cutoff point of NT-proBNP (HF vs non-HF) was 750 pmol/L (AUC = 0.96; 95% CI = 0.59 - 0.98; sensitivity = 72.7%, specificity 76.5%, p = 0.0001). Multivariate logistic model yielded that the serum levels of irisin < 10.4 ng/mL (OR = 1.30; P = 0.001) and NT-proBNP > 750 pmol/mL (OR = 1.17; P = 0.042), left atrial volume index (LAVI) > 34 mL/m2 (OR = 1.06; P = 0.042) remained to be strong predictors for HF, whereas LAVI did not. Add-on of irisin levels < 10.4 ng/mL to the predictive model constructed from NT-proBNP (> 750 pg/mL) significantly improved discriminatory potency of the whole model for HF.

Conclusions: We found that decreased serum levels of irisin significantly predicted HF in T2DM patients. This finding may open a new approach for HF risk stratification in T2DM patients.

CONCENTRATION OF CYSTATIN C AND ITS RELATIONSHIP WITH DAILY BLOOD PRESSURE MONITORING INDICATORS IN PATIENTS WITH ESSENTIAL HYPERTENSION

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Objective: Cystatin C (CysC) acts as an early and most informative marker of renal dysfunction. It has been proven that the indicator is a more sensitive marker of a decrease in glomerular filtration rate than creatinine.

Aim. To evaluate changes of cystatin C concentration and its relationship with daily blood pressure monitoring indicators in patients with hypertension.

Materials and methods. The study included 156 patients with stage II essential hypertension (EH) and 30 people without any cardiovascular pathology. All patients underwent an examination, which included: 1) general clinical examination; 2) ECG; 3) daily blood pressure monitoring (DM BP); 4) level of CysC.

The results. To form analysis groups based on the level of cystatin C, 3 categories of patients were conventionally selected: 1st - with a conditionally low (CL) level, 2nd - with an intermediate level, and 3rd - conditionally high (CH) level of CysC in the examined sample of patients with EH.

Having evaluated DM BP indicators depending on the level of CysC, it can be asserted that the average values of systolic and pulse BP at night were significantly higher in patients with a CH level of CysC, which was significantly different from the corresponding values in patients with intermediate and CL levels of CysC (148 vs. 140 and vs. 139 mm Hg, p<0.03; 70 vs. 60 and against 59 mm Hg, respectively, p<0.02). The analysis of the circadian regulation showed fundamental differences only in the daily profile of the night-peaker. 22.5% of patients with a CH level of CysS had nocturnal hypertension, which was significantly different from patients with an intermediate level of the indicator, which was 7.9% (p = 0.03).

Conclusions. A relatively high level of cystatin C (more than 1.37 mg/l) was associated with higher BP values, higher frequency of night-peaker. An intermediate level of cystatin C (1.00-1.37 mg/l) was associated with a higher frequency of registration of a non-dipper daily profile on BP. A relatively low level (less than 1.00 mg/ml) was associated with a higher frequency of registration of the daily profile dipper.

LIPOPROTEIN(A) AND CARDIOVASCULAR RISK IN HYPERTENSION: A RETROSPECTIVE STUDY

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Objective: Lipoprotein(a) [Lp(a)] has been shown to be a significant risk factor for cardiovascular disease (CVD) in the general population. However, its association with CVD risk in patients with hypertension remains unclear. This study aimed to compare the cardiovascular risk profiles of hypertensive patients with Lp(a) levels above and below 30 mg/dL.

Design and method: This retrospective study included 34,280 consecutive hypertensive patients from a single center. Patients were divided into two groups based on their Lp(a) levels: Group 1 had 25,719 patients with Lp(a) < 30 mg/dL, and Group 2 had 8,561 patients with Lp(a) > 30 mg/dL. Stroke, cerebrovascular accident (CVA), transient ischemic attack (TIA), acute myocardial infarction (AMI), coronary artery bypass graft (CABG) and percutaneous transluminal coronary angioplasty were compared between the two groups. Furthermore, risks such as Stroke risk, HeartScore, InterHeart, 5-year risk, 10-year risk, and deep vein thrombosis (DVT) risk were also compared.

Results: In the univariate analysis Group 2 (Lp(a) > 30 mg/dL) had significantly higher stroke rate (OR = 0.52, 95% CI [0.49, 0.63], p < 0.001), CVA (OR = 0.49, 95% CI [0.43, 0.55], p < 0.001), TIA (OR = 0.58, 95% CI [0.54, 0.63], p < 0.001), AMI (OR = 0.56, 95% CI [0.51, 0.63], p < 0.001), CABG (OR = 0.43, 95% CI [0.37, 0.52], p < 0.001) and PTCA (OR = 0.46, 95% CI [0.38, 0.55], p < 0.001) compared to Group 1 (Lp(a) < 30 mg/dL). Risk scores (Stroke risk, Heartscore, InterHeart, 5-year risk, 10-year risk and DVT risk) were also included in the univariate analysis where the difference is considered to be extremely statistically significant (p < 0.01). In the multivariate regression analysis the Lp(a) was the dependent variable and age, gender, glucose levels and total cholesterol levels were the independent variables. The correlation between the variables remained significant (p < 0.001).

Conclusions: Our findings suggest that Lp(a) levels above 30 mg/dL is associated with a higher risk of CVD in hypertensive patients. These results may have implications for the management and treatment of hypertensive patients with elevated Lp(a) levels.