Can catestatin be used as an alternative or addition to cardiac remodeling ultrasound traditional criteria in patients with essential hypertension?

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Essential hypertension (EH) is one of the most important risk factor for major cardiovascular diseases and remains one of the most important medical and social problems in the world. Left ventricle hypertrophy, caused by chronic increased blood pressure, is an important independent risk factor for sudden death, myocardial infarction, stroke and other cardiovascular complications.

Catestatin is a peptide, belonging to the buffer system "catecholamines-catestatin" and changes of its concentrations contribute to early EH pathogenesis.

The aim of the research was to evaluate correlations of catestatin concentrations with cardiac remodeling ultrasound traditional criteria in patients with EH of different cardiovascular risk.

Material and methods. The study included 180 male patients in age from 30 to 50 years with a diagnosis of EH, who signed an informed consent to participate in the study. Patients were divided into 4 groups – group 1 (n=28) – EH of an average risk of cardiovascular complications (CVC), group 2 (n=76) – EH of a high risk of CVC, group 3 (n=31) – EH of very high risk of CVC and the group of control – 45 almost healthy men with normal and optimal blood pressure. Transthoracic echocardiography and sonography of the brachiocephalic trunk arteries were performed.

The results. Intra-group analysis of the data revealed a statistically significant negative correlation of catestatin concentrations and carotid intima-media thickness of the common carotid artery on the left in group 2 (r=0,246; p=0,040). In patients with EH catestatin and left ventricle end-diastolic volume correlations were revealed (r=0,827; p=0,011). Intra-group correlation analysis revealed a statistically significant correlation of catestatin concentrations and left ventricle posterior wall thickness (r=0,523; p=0,045), interventricular septum thickness (r=0,523, p=0,045) in diastole in group 2; with left ventricle posterior wall thickness (r=0,258; p=0,035) and interventricular septum thickness (r=0,254; p=0,038) in systole in group 3.

Correlation analysis of the data discovered a statistically significant negative relationship between catestatin concentrations and left ventricle remodeling (r=0,171, p=0,042). In patients with normal heart geometry, statistically significant (p=0,04) higher concentrations of catestatin were obtained in comparison with patients with left ventricle remodeling (9,05±5,12 vs. 7,49±3,62 ng/ml, respectively).

The conclusion. The decrease of catestatin concentrations in patients with EH of a high and very high risk of CVC is associated with cardiovascular remodeling, mediated by hypertension. Catestatin can be used in addition to cardiac remodeling ultrasound traditional criteria in patients with essential hypertension.