Diana Minukhina , Tetiana Zaikina , Abena Nkansa Koampah

Association between plasminogen activator inhibitor type 1 and cardiohemodynamic's parameters in patients with myocardial infarction and type 2 diabetes mellitus

Kharkiv National Medical University Department of Internal Medicine No.2, Clinical Immunology and Allergology named after academician L.T.Malaya

Kharkiv, Ukraine

Scientific advisor: MD, PhD, Prof. Babadjan V.D.

According to the modern scientific researches, acute myocardial infarction (AMI) complicates the processes of cardiohemodynamics, especially in patients with type 2 diabetes (type 2 DM). Based on this, we analyzed the correlations between plasminogen activator inhibitor-1 (PAI-1) and levels of cardiohemodinamic's parameters in patients with acute myocardial infarction with ST-segment elevation and 64 concomitant type 2 diabetes mellitus. There are studies that point to involvement of plasminogen activator inhibitor type 1 in the regulation of tissue fibrosis by inactivation of matrix metalloproteinases, which affect the progression of left ventricular dysfunction, and in turn play a role in myocardial factor remodeling and transforming growth factor - beta with antifibrotic and anti-inflammatory effects in the area of damaged myocardium.

Aim. To analyze the association between plasminogen activator inhibitor-1 and cardiohemodinamic's parameters (final diastolic volume, final systolic volume, final diastolic diameter, final systolic diameter, interventricular septm thickness, left ventricle posterior wall thickness and ejection fraction) in patients with acute myocardial infarction and type 2 diabetes mellitus.

Materials and methods. The study included 73 patients with AMI and type 2 DM (among them 43 men and 30 women, mean age 62.73 ± 1.39 years), 57 patients with AMI without type 2 DM (among them 43 men and 14 women, mean age 63.97 ± 1.47 years). ). Level of PAI-1 was carried out by immunoassay using commercial test systems Technoclone PAI-1 ELISA Kit (Austria). Mathematical computer processing of results was carried out using the software package "Statistica 6.0" (StatSoft Inc., USA).

Results. In our study was found correlations between the plasminogen activator inhibitor type 1 and the parameters final diastolic volume (r=0,41; р<0,05), final systolic volume (r=0,58; р<0,05), final diastolic diameter (r=0,71; р<0,05), final systolic diameter (r=0,58; р<0,05), interventricular septm thickness (r=0,70; р<0,05), left ventricle posterior wall thickness (r=0,54; р<0,05) and a feedback relationship with ejection fraction (r=-0,49; р<0,05).

Conclusions. The nature of the obtained connections may be due to the involvement of plasminogen activator inhibitor type 1 in the regulation of tissue fibrosis and remodeling of myocardium. Thus, impaired carbohydrate metabolism in type 2 diabetes mellitus in patients with AMI leads to negative changes in geometry, mass, systolic and diastolic function of the left ventricle, which should be evaluated as structural and hemodynamic predictors of possible cardiovascular complications and heart failure.