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Studying the relationship of endothelial NO synthase gene polymorphism and endothelial dysfunction in patients with chronic heart failure

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Purpose: Examination of influence of inducible gene NO synthase (iNOS) and endothelial gene NO synthase (eNOS) polymorphism on endothelial function at patient with CHF.

Material and methods: 72 male patients at the age of 40 to 55 years old with postinfarction cardio sclerosis (PICS) have been examined. All patients were divided into two groups by functional class (FC) CHF in compliance with New York classification of cardiologists (NYHA) under conduction of test for 6 minutes walking (TSW): 1st group included 35 patients with CHF II FC and 2nd group included - 37 patients with CHF III FC by NYHA classification. Control group included 20 healthy volunteers. Vasomotion of brachial artery endothelium was assessed by D. S. Celemajer (1992) method on Acuson 128 apparatus (USA).

Results: Dysfunction of endothelium at CHF patients was connected with progressing of disease and characterized by reduce of endothelium-dependent vasoconstriction, which were more expressed at patients with III FC CHF. It was revealed that the amount of Glu polymorphous locus 298Asp eNOS gene in homozygous condition is associated with CHF severity. Homozygotes by Glu alleles of 298Asp eNOS gene showed more expressed failures of endothelium-dependent vasoconstriction in comparison with the same one at carriers of 298Asp alleles.

Conclusions: So, associative correlations of polymorphism of iNOS and eNOS genes with CHF severity flow have been established and polymorphism of eNOS (Glu298Asp) gene is associated with the failure of endothelium-dependent vasoconstriction