

THE BIOMARKERS OF MYOCARDIAL INJURY AND THE STATE OF METABOLIC OXYGEN-DEPENDENT REACTIONS IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION ACCOMPANIED WITH NON-ALCOHOLIC STEATOHEPATITES

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Patients with non-alcoholic steatohepatitis (NASH) are known to have high prevalence and severity of acute myocardial infarction (AMI) due to the synergism of pathogenetic mechanisms of metabolic syndrome, coronary artery disease and arterial hypertension. A constant growth of percentage of patients with AMI accompanied with NASH is observed recently all around the world.

The purpose of the research was to determine the severity of myocardial injury and the state of metabolic oxygen-dependent reactions in patients with AMI accompanied with NASH.

Methods. 76 patients with Q-AMI accompanied with NASH were examined (among them 45 men and 31 women; mean age $62,86 \pm 9,67$ years). The group of comparison included 31 patients with Q-AMI without liver pathology. The amount of troponin I, creatine kinase and myoglobin were determined in blood of all patients in 4, 12 and 24 hours after onset of chest pain. Also the data of liver ultrasound and liver biopsy in patients with NASH were analyzed. The state of metabolic oxygen-dependent reactions was determined by spectrophotometric method; the levels of malonic dialdehyde (MDA, $\mu\text{mol/l}$) and diene conjugates (DC, units of optic density) were analyzed.

Results. Increased levels of biomarkers of myocardial injury were determined in patients of both groups. However, patients with Q-AMI accompanied with NASH had reliably higher level of troponin I ($+24,6\%$, $32,8 \pm 3,05$ ng/ml, $p=0,008$) and creatine kinase ($+18,9\%$, $250,4 \pm 18,6$ units/L, $p=0,002$) than patients with Q-AMI without liver pathology. The myoglobin level differed insignificantly in studied groups ($+13,8\%$, $102,6 \pm 15,3$, $p=0,056$). It is well known, that the level of metabolic oxygen-dependent reactions reflects the activity of free-radical oxidization, which is an important mechanism for both myocardial and liver damage. Patients with Q-AMI accompanied with NASH had higher indexes of MDA ($+17,5\%$, $p = 0,019$) and DC ($+24,3\%$, $p = 0,007$) than those of comparison group. Also, a decreased activity of superoxide dismutase, catalase and ceruloplasmin was revealed in patients with Q-AMI accompanied with NASH ($-16,2\%$, $-21,6\%$, and $-5,7\%$ respectively, $p < 0,05$).

Conclusions. Patients with Q-AMI accompanied with NASH are prone to more significant myocardial injury than patients with Q-AMI without liver pathology. Besides, they have higher activity of metabolic oxygen-dependent reactions and lower level of antioxidant protection. Obviously, the presence of NASH leads to more profound metabolic, structural and clinical disorders in patients with Q-AMI, and therefore requires more intensive treatment of such patients.