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Effect of statins on serum concentration of inflammatory markers and matrix metalloproteinases in acute period of with st-elevated myocardial infarction

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ABSTRACT

Purpose. We aimed to assess the effect of pre-hospital statin administration on the concentration of inflammatory markers and matrix metalloproteinases (-1, -3, -9) in the serum of patients with ST-elevated myocardial infarction (STEMI).

Materials and methods. As part of a prospective cohort study, 175 patients with STEMI were consistently included. The average age of patients in the common group was 61.3 ± 8.4 years, among them there were 116 (66.3%) men and 59 (33.7%) women. Serum concentrations of interleukins (IL-6, IL-10, IL-12), C-reactive protein (CRP), tumor necrosis factor-α (TNF-α) and matrix metalloproteinases (MMP) -1, -3, -9 (pg/ml), as well as blood lipid parameters were evaluated in all the patients on the 1st and 12th day of myocardial infarction. All the patients were divided into 2 groups depending on the statin intake at the pre-hospital stage: 136 (77.71%) patients without statins, 39 (22.29%) patients with statins.

Results. It was identified that in the group of patients (n = 39) who took statins for at least 7 days prior to the development of STEMI, significantly lower values of low-density lipoproteins were revealed [2.91 (1.31; 5.13) vs 1.34 (0.76; 9.77)], as compared to the patients without prior statin therapy. When analyzing the differences in the concentrations of the studied biomarkers in the groups of patients depending on the statin intake at the pre-hospital stage, significantly lower values of pro-inflammatory markers (IL-6, CRP, TNF-α), as well as MMP-9 were detected both on the 1st and the 12th day of STEMI development in the group of patients with pre-hospital statin intake. The concentration of IL-10 anti-inflammatory marker in the group of patients who was taking statins at the pre-hospital stage was twice higher than the corresponding values in the group of patients without statin administration.

Conclusion. The lack of pre-hospital statin administration in patients with STEMI is associated with the higher values of pro-inflammatory markers (IL-6, CRP, TNF-α), and MMP-9 during the in-hospital period.

BIOGRAPHY

Tamara Pecherina is a Senior Lecturer at Federal state budget scientific institution "Scientific research institute of complex problems of cardiovascular diseases", Russia. She worked as a Senior Researcher at Federal state budget scientific institution "Scientific research institute of complex problems of cardiovascular diseases" in 2009.

PUBLICATION

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3. Serum and Echocardiographic Markers May Synergistically Predict Adverse Cardiac Remodeling after ST-Segment Elevation Myocardial Infarction in Patients with Preserved Ejection Fraction
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