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Cortisol indexes changes in unstable angina pectoris according to the age

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The topicality. Cardiovascular diseases (CVD) continue to be one of the main causes of disability and mortality in most countries of the world. Age is one of the most powerful triggers for the risk of cardiovascular disease, however, age-related mechanisms for the onset and progression of CVD and atherosclerosis remain unclear [1].

Objective. The study was devoted to the research of age-related changes in cortisol levels in the serum of patients with unstable angina.

Material and methods. The study included 68 patients with unstable angina, which were divided into 2 groups depending on age: the first group – 34 patients aged 39-60 years (Mean – 51.6), the second – 36 patients aged 61-74 (Mean – 67.5). The first and second control groups consisted of 30 practically healthy persons each in the range of 40-59 (Mean – 52.7) and 61-72 (Mean – 67.9) years, respectively, without signs of coronary heart disease, which were not at the dispensary observation about somatic pathology.

In order to study levels of cortisol, blood serum was used.

The concentration of cortisol was determined by immunochemical method with electrochemiluminescent ECLIA detection (Roche Diagnostics test system, Switzerland) on the COBAS E 411 automatic analyzer.

The results of the research were analyzed by mathematical method, performing statistical processing of the obtained data using the methods of mathematical statistics and the program STATISTICA 8.0 (Statsoft, USA). The following basic statistical indicators were defined: the arithmetic average (M) and the standard error of the mean (m). The difference between the arithmetic mean values was considered probable for the values of $p<0.05$.

Results and discussion According to modern data, the atherosclerotic lesion is based on inflammatory mechanisms that at the early stages cause the formation of an atherosclerotic plaque, and later lead to its changes and the formation of a blood clot. Cortisol indirectly affects the enzyme phospholipase C, resulting in inhibition of inflammatory reactions [2]. While the study of the cortisol level, it was determined that the concentration of this biomarker in group 1 (259.61±3.60 nmol/l) was lower by 27% comparably to control group 1 (353.46±3.79 nmol/l) ($p <0.05$), while in group 2 (220,14±4.19 nmol/l) higher by 23% if to compare to control group 2 (168.53±3.22 nmol/l) ($p <0.05$), but below the indicator of group 1 by 15%.

Conclusions. Research results demonstrated that the development of unstable angina is accompanied by changes in the levels of cortisol according to age. Decrease in the level of cortisol with age may indicate a reduction in the ability of the organism to suppress the inflammatory responses.

References

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