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IMPROVING THE MANAGEMENT OF PATIENTS WITH ACUTE CORONARY SYNDROME COMPLICATED BY ARRHYTHMIAS AT THE STAGES OF TREATMENT

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Abstract. The presence of acute heart failure in patients with myocardial infarction remains one of the current problems in cardiology. The urgency of the problem is determined by the frequency of complications resulting from this pathology and the lack of a sufficiently effective treatment.

Keywords. Acute coronary syndrome, cardiovascular complications, hypoxia.

Acute coronary syndrome is one of the main causes of cardiovascular mortality worldwide [2]. To determine the nearest unfavorable outcome of patients with acute coronary syndrome, a globally accepted algorithm has been developed that includes many risk scales: TIMI, GRACE (Global Registry of Acute Coronary Events), CADILLAC (the Controlled Abciximab and Device Investigation to Lower Late Angioplasty Complications). Their common disadvantage is that they do not take into account a number of cardiovascular complications, such as readmission associated with myocardial ischemia, revascularization of peripheral vessels, stroke, and only half-year and one-year forecasts are estimated, although it is generally known that after a year the cardiovascular risk continues to increase [one]. Predicting long-term unfavorable outcomes, taking into account the period of more than a year after the index event, is a more difficult task, since there are many factors influencing the course of coronary heart disease (7). Thus, to date, no predictors of five-year outcomes of acute coronary syndrome have been identified, which determines the relevance of this study.

According to the literature data, cardiac arrhythmias and conduction disturbances are a permanent complication of acute coronary artery disease (ACS), and in the first day of the disease they are observed in 90-95% of patients (8). The recorded late potentials of the ventricles of the heart are highly sensitive markers of the development of ventricular tachycardia, being the most common causes of death in patients with acute coronary syndrome (10). The urgency of this problem lies in the low efficiency of diagnosing the onset of rhythm disturbances, predicting their course and insufficiently effective treatment. Pathological changes in the myocardium are accompanied by various disturbances in the electrical activity of the heart, but all of them are characterized by general patterns and prognostically unfavorable in terms of the occurrence of fatally dangerous rhythm disturbances (2). The onset of myocardial ischemia due to a decrease in coronary blood flow leads to disruption of biochemical processes in mitochondrial cells, as a result, the contractile function of

cardiomyocytes decreases (5). Hypoxia activates anaerobic glycolysis, and glycogen is metabolized to lactate; therefore, the pH in the myocardium shifts to the acidic side and the electrical activity and contractility in the heart muscle are further reduced (1,3). The electrical impulse, propagating through the conducting system, reaches the blocked zone, retrograde and, provided it leaves this state, passes through the blocked zone. Re-entering the pulse creates a circular excitation wave. Single cycles of an ectopic impulse or circular wave create an extrasystole, and long cycles lead to the development of paroxysmal tachycardia, atrial fibrillation-atrial flutter (AFF) (2,11), which served as the subject of the study of this problem and its treatment in patients with acute coronary ischemia. Currently, the correction of microcirculatory disorders and free radical oxidation of lipids is considered as absolutely necessary links in the treatment of all forms of myocardial ischemia (3,6). One of the leading and, undoubtedly, the most effective methods of preventing complications and deaths, as well as improving the quality of life of patients with acute coronary syndrome, is the rapid and stable restoration of blood flow using thrombolytic therapy (TLT). hours, up to 90% of the living tissue of the myocardium is necrotic. Restoration of coronary blood flow in the first 12 hours from the onset of the first symptoms gives good results in subsequent periods of acute coronary syndrome. The most positive result is achieved if TLT is applied in the first 2 hours from the onset of the disease. And restoration of blood flow in the first hour after the onset of an attack can prevent the development of myocardial infarction and make the lesion to a minimum (4). In the pharmacotherapy of ischemic heart disease, drugs of metabolic and cytoprotective action have become of particular interest, which is determined by the importance of normalizing energy metabolism in cardiomyocytes in this pathology. Unlike traditional methods of treatment aimed at directly improving coronary circulation, the principle of action of modern cytoprotectors is based on their ability to increase the ability of the myocardium to endure ischemia without losing or quickly restoring its functional activity (5). The mechanism of action of cytoprotectors includes an improvement in cellular energy metabolism and a decrease in the content of peroxides in the vascular wall and blood. Optimization of energy metabolism is based on the ability of cardiocytoprotectors to stimulate glucose oxidation, as the most beneficial way of energy generation from the point of view of saving oxygen (10). Therefore, protection of the myocardium (cardioprotection) is of great importance in the medical correction of acute coronary syndrome. For this purpose, it is advisable to use antihypoxants and antioxidants - agents that optimize energy exchange processes in the myocardium, improve metabolism in the ischemic area. As well as the functional activity of cardiomyocytes (9.8). This class includes corvitini trimetazidine.

Ischemic heart disease (IHD), despite significant advances in the diagnosis, treatment and prevention of this disease, still remains one of the most pressing problems of modern cardiology and health care in general [8,6]. The main reason for hospitalizations for ischemic heart disease is the development of acute coronary syndrome (ACS). Risk stratification of complications in patients with myocardial infarction (MI) is necessary to determine the tactics of treatment, establish the length of

hospital stay, develop individual rehabilitation and secondary prevention programs [3].

Risk stratification in acute coronary syndrome is imperfect; therefore, new markers, including laboratory ones, are being searched for, and the role of known markers with a high predictive value in relation to the development of adverse cardiovascular events (HCCS), the course of the disease, and monitoring of drug results is being clarified. therapy in patients during periods of exacerbation of ischemic heart disease and after stabilization of the state [9]. To improve risk stratification, it is possible to use biomarkers that reflect various pathophysiological processes [10].

One of the new and promising prognostic biomarkers is ST2. It is a protein, the concentration of which increases during myocardial ischemia and tension of its walls, and also plays a role in the remodeling of the heart after ischemic injury [7]. Brain natriuretic peptide (NT-proBNP) is used as biomarkers of biomechanical stress. NT-proBNP binds and activates receptors, causing a decrease in systemic vascular resistance, central venous pressure, and natriuresis. High NT-proBNP levels help anticipate adverse events following acute coronary syndrome. ST2 correlates with NT-proBNP levels, and there is evidence that they are able to predict the risk of death and recurrence of acute coronary syndrome or the development of heart failure [7]. Pentraxin-3 (Ptx-3) is a protein of the acute phase of inflammation, a component of neutrophil traps that contribute to coronary thrombosis. It was proposed as a new marker of myocardial infarction [12] and was associated with the development of both heart failure with a reduced ejection fraction and increased mortality after myocardial infarction in the long term [4,11].

To date, a lot of studies have been carried out proving the prognostic value of ST2, NT-proBNP, Ptx-3 biomarkers in relation to the development of heart failure in patients with coronary artery disease. However, their prognostic value in patients with myocardial infarction in relation to the development of adverse cardiovascular events, such as repeated myocardial infarction, stroke, hospitalization, death from cardiovascular causes, in the long-term period, requires clarification. Establishment of the prognostic values of the studied biomarkers, as well as the relationship between the levels and development of HCCS in the long-term period, contributes to the expansion of ideas about acute coronary syndrome. [12]

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