

**TREATMENT OF ACUTE CORONARY SYNDROME IN UZBEKISTAN PROBLEMS
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ABSTRACT

Cardiovascular diseases are the leading cause of mortality in the world, including in Uzbekistan. Acute coronary syndrome (ACS), including ST-segment elevation myocardial infarction, is one of the most dangerous forms of cardiovascular pathologies. In Uzbekistan, about 8 thousand cases of ACS with ST elevation are registered annually, with almost 60% of patients dying in the prehospital stage. **Key problems:** insufficient availability and quality of specialized cardiac care, especially in the regions of the country. The need to improve the organization of emergency medical care for ACS. The need to improve the professional training of medical personnel. The need to improve drug supply and introduce modern high-tech treatment methods. **Solutions:** development of a network of modern cardiology centers equipped with the necessary equipment. Optimization of the system for providing emergency and planned cardiac care. Advanced training of medical personnel. Ensuring the availability of effective medicines and high-tech treatment methods. **Conclusion:** Solving the problem of ACS treatment in Uzbekistan requires an integrated approach, which will increase the accessibility and effectiveness of medical care for patients.

KEYWORDS: Acute coronary syndrome (ACS), percutaneous coronary intervention (PCI), high-tech treatment methods.

INTRODUCTION

Cardiovascular diseases (CVDs) are one of the leading causes of death globally, taking the lives of more than 17 million people annually.^[1,20] The situation in Asian countries is of particular concern, where 35% of all CVD-related deaths are recorded.^[1,16] There is also a steady increase in the number of cardiovascular pathologies in Uzbekistan, which are diagnosed in about 4 million citizens, or 12% of the total population.^[2] One of the most threatening manifestations of CVD is acute coronary syndrome (ACS) with ST segment elevation, which is registered annually in about 8 thousand cases in Uzbekistan.^[3] The complexity of the situation lies in the fact that almost 60% of patients with ACS with ST elevation die at the prehospital stage, which makes it extremely urgent to study various aspects of the spread, occurrence and course of this disease.^[3,5]

According to the order of the Ministry of Health of the Republic of Uzbekistan dated March 17, 2014, No.106 "On improving the organization of emergency care for patients with ACS/AMI", one of the main activities is to reduce mortality from diseases of the circulatory system through the widespread introduction of effective

treatment methods (thrombolysis, percutaneous coronary intervention) in patients with ACS with ST segment elevation.^[4] In pursuance of this order, in 2020, an additional resolution of the Ministry of Health of the Republic of Uzbekistan dated December 18, 2020, No. 341 "On improving the organization of emergency medical care for patients with acute coronary syndrome in Tashkent" was adopted, according to which primary PCI was started in three specialized centers for patients with ACS with ST segment elevation around -the- clock at the expense of the state budget.^[5] Due to this, it was possible to reduce hospital mortality by 2 times from 13% to 6.5%.^[5]

This review presents a detailed analysis of modern approaches to the treatment of ACS in Uzbekistan, based on data from national and foreign literature over the past 5 years (2020-2024). The focus is on the organization of emergency medical care for patients with ACS, the effectiveness of the use of reperfusion therapy methods, as well as problems and solutions related to the optimization of medical care for this category of patients in Uzbekistan.

1. Prevalence and prognosis of ACS in Uzbekistan

Acute coronary syndrome (ACS) is one of the most serious and life-threatening cardiovascular pathologies characterized by impaired myocardial blood supply, which can lead to the development of acute myocardial infarction (AMI).^[6]

According to statistics, about 8 thousand cases of ACS with ST segment elevation are registered annually in Uzbekistan.^[3] At the same time, the mortality rate at the prehospital stage reaches 60%, which is significantly higher than similar indicators typical for economically developed countries.^[3]

One of the fundamental causes of high mortality in ACS in Uzbekistan is the late access of patients to medical care. According to a study conducted in 2020, only 40% of patients with ACS symptoms went to the nearest medical center within the first 3 hours after the appearance of clinical onset.^[7] Late treatment of patients for medical care not only increases the risk of mortality, but also reduces the effectiveness of reperfusion measures.^[8]

Another important cause of high mortality in ACS in Uzbekistan is the underdevelopment of the emergency medical care system. According to the results of a study conducted in 2021, only 60% of patients with ACS were delivered to specialized cardiology centers equipped with angiographic equipment within the first 120 minutes from the first medical contact.^[9] Such long-term transportation of patients significantly reduces the effectiveness of reperfusion therapy and worsens the prognosis.

Thus, the solution to the problem of high mortality in ACS in Uzbekistan lies in the plane of increasing the availability and timeliness of emergency medical care for this category of patients.

2. Methods of reperfusion therapy for ACS in Uzbekistan

The treatment of patients with ST-segment elevation ACS is based on reperfusion therapy aimed at restoring blood flow to the infarct-associated coronary artery as quickly as possible.^[10] Currently, two main methods of reperfusion are used in Uzbekistan: primary percutaneous coronary intervention (PCI) with stenting and thrombolytic therapy.

According to modern clinical recommendations, primary PCI with stenting of the infarct-associated coronary artery is the preferred method of reperfusion therapy in patients with ACS with ST-segment elevation.^[11,12] This method allows for restoring blood flow in the coronary artery in a shorter time compared to thrombolysis, which ensures better myocardial preservation and improved prognosis of patients.^[13] In a prospective study conducted in Uzbekistan in 2022, it was shown that the 30-day mortality rate in patients who underwent primary

PCI was 5,2%, while in patients who received thrombolytic therapy, this indicator reached 15,3%.^[14]

However, despite the obvious advantages of primary PCI, in Uzbekistan, this method of reperfusion is available only in a limited number of medical organizations equipped with angiographic equipment. According to a study conducted in 2021, only 60% of patients with ST-segment elevation ACS were taken to cardiology centers with the ability to perform primary PCI within the recommended 120 minutes from the first medical contact.^[9] If it is impossible to perform PCI on time in patients with ACS with ST-segment elevation, thrombolytic therapy is used in Uzbekistan.

Despite the lower efficacy compared to primary PCI, thrombolytic therapy also shows good results if it is used early from the onset of the disease.^[15] Data from a prospective study conducted in 2023 indicate that the use of thrombolytics during the first 12 hours after the onset of symptoms of ACS with ST-segment elevation can achieve a reduction in 30-day mortality to 15,3%.^[14] At the same time, according to clinical recommendations, the possibility of effective PCI in such patients remains even after 12 hours from the onset of symptoms.^[16]

Thus, in Uzbekistan, despite the advantage of primary PCI, thrombolytic therapy continues to occupy an important place in the treatment of patients with ACS with ST-segment elevation, especially if timely reperfusion care cannot be provided within the recommended time frame. To increase the availability and effectiveness of treatment for this category of patients, further development of the system of emergency cardiological care in Uzbekistan is necessary.

3. Problems and solutions to optimize the provision of medical care for ACS in Uzbekistan

Improving the accessibility and effectiveness of treatment for patients with acute coronary syndrome in Uzbekistan is a complex task that requires improvement of various aspects of the organization of medical care. Among the key areas of optimization are the following

1. Development of a network of cardiological centers equipped with angiographic equipment for performing primary PCI: According to recent studies, an increase in the number of medical organizations capable of providing highly specialized care for ACS will increase the availability of reperfusion therapy and reduce the time of patient delivery to specialized hospitals.^[17]

According to the order of the Ministry of Health of the Republic of Uzbekistan dated December 18, 2020, No. 341 "On improving the organization of emergency medical care for patients with the acute coronary syndrome in the city of Tashkent", three specialized centers began conducting primary PCI for patients with ACS with ST-segment elevation around -the- clock at the expense of the state budget.^[5] Due to this, it was possible

to reduce hospital mortality by 2 times from 13% to 6,5%.^[5]

2. Improving the system of pre-hospital care for patients with ACS. The key element here is the introduction of the practice of prehospital thrombolytic therapy by emergency medical teams, which will allow treatment to begin already at the stage of transporting the patient to the hospital.^[11,18] In addition, an important role is played by raising public awareness of the symptoms of ACS and the need for timely medical care.

3. Professional development of medical personnel providing care to patients with ACS. Regular training of doctors and nursing staff in algorithms for the diagnosis and treatment of ACS, as well as the development of practical skills necessary for reperfusion therapy, is the key to improving the quality of care.^[6,19]

4. Improving the system of monitoring and registration of ACS cases. The introduction of the national register of acute coronary syndrome will allow obtaining reliable data on the prevalence, course features, and outcomes of ACS in Uzbekistan, which, in turn, will contribute to the development and implementation of effective programs for the prevention and treatment of this pathology.^[3,20]

According to official data obtained by our center, in 2022, 4,536 cases of acute coronary syndrome with ST-elevation were registered in the republic, of which 686 cases (15,0%) ended in death, 752 (16,6%) patients underwent thrombolytic therapy and 1,690 (37,3%) underwent percutaneous coronary intervention (PCI) with stenting of a connected artery infarction. Of the total number of PCI conducted in the republic, 247 patients (14,6%) account for private clinics in the republic. 2094 patients remained without any reperfusion therapy, which is 46,2% of the total number of ACS patients with ST-elevation.

Thus, the problem of treatment of acute coronary syndrome (ACS) is extremely relevant for the healthcare system of the Republic of Uzbekistan and requires an early comprehensive solution. This is due to several key points

1. High prevalence and social significance of ACS. ACS, including myocardial infarction and unstable angina pectoris, is one of the leading causes of death and disability in the population of Uzbekistan. Timely and effective treatment of ACS is extremely important to reduce mortality and improve the quality of life of patients.

2. The need to improve the availability and quality of medical care. At the moment, there are problems with ensuring the availability and timeliness of specialized cardiological care for patients with ACS, especially in the regions of the country. The development of a network of modern cardiological centers equipped with

the necessary diagnostic and therapeutic equipment is required.

3. Improving the organization of medical care. It is necessary to optimize the system of emergency and planned cardiological care, to introduce effective patient routes, diagnostic and treatment algorithms based on modern clinical recommendations.

4. Improving the professional training of medical personnel. It is important to ensure continuous professional development of cardiologists and other specialists involved in providing care to patients with ACS, to introduce advanced diagnostic and treatment practices.

5. Improvement of drug supply and the use of high-tech treatment methods. It is necessary to optimize the drug supply for patients with ACS, as well as expand the availability of modern high-tech treatment methods, including percutaneous coronary interventions, etc.

Thus, solving the problem of ACS treatment in Uzbekistan requires an integrated approach, including the development of a network of cardiological centers, improving the organization of medical care, professional development of medical personnel, and the introduction of modern methods of diagnosis and treatment. This will increase the accessibility and effectiveness of medical care for patients with acute coronary syndrome in the Republic of Uzbekistan.

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