



ABOUT THE SYSTEM OF TREATMENT OF PATIENTS WITH ACUTE CORONARY SYNDROME

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ABSTRACT

Cardiovascular disease is one of the leading causes of death and disability in the world, with acute coronary syndrome (ARD) being the leading cause of death. Acute coronary syndrome (ACS) is an acute coronary insufficiency based on all clinical manifestations, which usually develops against the background of atherosclerosis of the coronary arteries. Some features of the pathogenesis and clinical features of OCD predetermine the most important organizational principles, methods of diagnosis and treatment. , in which time and the chosen treatment algorithm are very important, determining the prognosis of the disease and the subsequent life of the patient

The clinical course of OCD depends on the expression of atherothrombotic occlusion of the coronary artery (complete, incomplete) and its duration, OCD can manifest in different forms, unstable angina, myocardial infarction (MI), ECG while Q-tooth myocardial infarction and Q-tooth myocardial infarction. It is not clear what form the disease often takes in the most acute period . At the same time, it is important in principle to immediately develop and implement medical tactics that differ significantly in different forms of CKD. Complete closure of the large coronary artery network (as opposed to incomplete) is usually accompanied by an elevation of the ST segment on the ECG. Therefore , at the initial diagnosis, it is recommended to differentiate OCD with or without elevation of the ST segment. To a large extent, the

dynamics of the ST segment in the ECG examination in patients with OCD determines the degree of urgency to restore adequate coronary blood flow (ACH) - the main pathogenetic treatment of OCD and, in many cases, the method of its implementation (thrombolytic therapy-TLT or percutaneous coronary angioplasty-TBA). Both methods of recovery of CKD are effective in patients with STDs with ST-segment elevation. Thrombolytic therapy is not indicated in patients with ST-segment elevation without ST-segment elevation. A significant proportion of patients with OCD have prodromal symptoms indicating an increase in cardiovascular disease. Unfortunately, many do not pay attention to them and do not go to the doctor. About 70% of all thrombosis leads to MI, narrowing less than 50% of the vascular



bed, and advanced atherosclerotic plaques are hemodynamically insignificant.

Therefore, before thrombus formation, patients may not have angina attacks, and during instrumental examination (ECG, stress ECG, myocardial scintigraphy and even coronary angiography) there are no objective signs of myocardial ischemia and impending seizures. For such patients, the disease develops suddenly. They are unable to properly assess the situation and sometimes are not psychologically ready to seek emergency medical care.

develops very rapidly, and from the first minutes is observed high electrical instability of the myocardium - a violation of electrophysiological ventricular rhythm, including ventricular fibrillation (QF). In the acute phase of the disease, QF is the main direct cause of death. According to epidemiological data, half of the patients with this coronary attack usually die 90-120 minutes after the onset of the first symptoms of OCD. If there is a doctor nearby in the event of a heart attack, by today's standards, most of the dead can be saved with the simplest equipment: a cardioscope and an electric defibrillator. This internal contradiction between the potential ability to restore rhythm and its inability to do so is a tragedy of modern cardiology.

The effectiveness of this approach has been confirmed by many years of experience in intensive care units for patients with UIC. Widespread introduction of these departments in clinical practice has reduced hospital deaths in acute myocardial infarction by 30-40%. The presence of intensive care units for coronary patients is a prerequisite for successful treatment of patients with OCD. Today, a patient diagnosed or suspected of having OCD

cannot be admitted to a hospital that does not have such conditions.

Another pathophysiological mechanism that requires urgent intervention is the development of myocardial necrosis. With the observation of coronary artery occlusion, irreversible changes in the myocardium appear after 30-40 minutes and end after 3-6 hours, depending on the level of development of collateral blood flow, myocardial oxygen demand and other factors. It is possible to restore a thrombotic vessel, but during this period, the effect of reperfusion is sharply reduced with every minute lost. In this regard, the concept of "golden hour" has even emerged in cardiology to restore coronary blood flow. From the above, it is clear that the special role of time in the successful treatment of patients with OCD is very important. This explains the crucial role of the pre-hospital phase of care. In the context of the article, we do not have the opportunity to dwell on the question of how to speed up the patient or those around him to seek emergency medical care. This is a problem that requires special analysis. The main task of any doctor or paramedic who has had the first medical contact with a patient is to suspect an OCD and call an ambulance immediately (TYG). The diagnostic capabilities of the family physician outpatient group are significantly expanding, primarily due to electrocardiography. However, not in all cases, especially in the early hours of the disease, the ECG is very informative. Refusal of hospitalization if the patient does not have ECG symptoms or ECG recording is a serious mistake. In any case, it is not necessary to wait for additional instrumental or laboratory confirmation of the diagnosis of OCD. A reasonable clinical



suspicion of this is sufficient reason to immediately admit the patient to a specialized hospital. Naturally, in such conditions, even an experienced doctor can make a diagnostic error. This does not indicate dishonesty or incompetence, nor should it be treated as such by hospital doctors or health care providers. Inconsistencies between pre-hospital and in-hospital OCD are a natural phenomenon in 50 % of cases. This inconsistency should be taken into account when planning the required number of bed regimens in intensive care units (blocks) for coronary patients. In addition to diagnosis and transportation, the most important task of the ambulance crew is therapeutic treatment. The timing of the arrival of the team is the most important event, which largely determines the future fate of the patient. Losing enough pain is first and foremost. The ambulance team should be ready to carry out resuscitation measures, first of all to deal with QF. He should start antithrombotic therapy as well as thrombolytic therapy (TLT). Our experience shows that conducting an TLT by an ambulance team in the pre-hospital phase is an important way to increase its effectiveness. These observations are supported by major international studies (e.g., EM1R), which showed that the ambulance crew should start taking thrombolytic drugs on average 1 hour before hospitalization.

At the same time, the mortality rate will be reduced by an additional 17%. The development of new thrombolytic drugs allows them to be administered by bolus (tenekteplaza - metallicse®, local purolase), which makes TLT more convenient in the pre-hospital stage. An important element of

the referral algorithm is to take the patient to a specialized medical facility. Efforts should be made to ensure that the pre-hospital and specialized hospitals operate as a single system and that their operations are managed in a unified manner. Only in this way can a real continuity of different stages of medical care be achieved - this is the key to successful treatment of this category of patients.

Transportation of patients by ambulance teams is often associated with difficulties that lead to unacceptable delays. However, the experience of a number of countries shows that the organization of work is very realistic, which ensures that most patients with OCD are hospitalized within the first 2 hours after the onset of the attack. Of course, addressing these issues requires the involvement of local and higher organizational bodies. Delivery time from the place of illness to the hospital should not exceed 15 minutes. In some cases, if there are well-paved roads, the patient can be transported by ambulance to a hospital 40-60 km away. When a patient needs to use high-tech treatments, such facilities are not available in nearby hospitals.

OCD is a common condition that can develop suddenly anywhere and at any time. but even for an experienced specialist it does not allow to draw correct diagnostic conclusions. It is more difficult for an ambulance station dispatcher to do this over the phone. In this regard, and for a number of other reasons, any ambulance team should be properly equipped to care for patients with OCD and the crew should be able to diagnose and treat immediately (minutes and seconds!) be willing to provide assistance and be able to take measures to treat international and local



standards, including TLT and ventricular arrhythmias. The system used in some areas seems to be completely flawed, and the ambulance team calls a team that specializes in the treatment and transportation of the patient with suspected OCD. Perhaps in large cities this situation is justified, 1-2 teams can consult each other, but in any case it should not delay the start of treatment. Can an ambulance crew without a doctor provide full medical care? The experience of a number of rural districts abroad provides a positive answer to this question. It is especially important for such teams to be equipped with a modern communication system that allows them to receive the necessary advice in real time, including ECG diagnostics.

preferred in the restoration of coronary circulation? Today, terrier balloon angioplasty (TBA), which is more common than TLT, allows you to restore coronary blood flow through a blocked vessel, especially in the late period (3-12 hours after the onset of the attack) you immediately achieve optimal anatomical results, hemorrhagic stroke does not increase the probability. It gives optimal results in some complications of myocardial infarction, such as acute circulatory failure, as well as in patients with diabetes. TBA is the method of choice in the treatment of patients with STDs. From a practical point of view, the use of primary TBA is associated with difficulties due to its technical complexity: TBA requires special equipment, expensive consumables and highly qualified personnel ready to work 24 hours a day, 7 days a week. In other words, a situation similar to the introduction of intensive care units in cardiology in the 60s and 70s of the last century is emerging at a

new, higher level, which at that time was costly. but at the same time it is a very effective method. The advantages of TLT are its availability, the ability to start treatment at the pre-hospital stage, and its relative cheapness.

The surgical revascularization method is more complex and expensive. In Russia, it is used to a limited extent in the ARC (L. A. Bokeria and RG Gudkova, 2015). According to the experience of other countries, in 4-5% of cases, coronary artery bypass grafting (US) is used in emergencies.

methods of restoring coronary blood flow in OCD be approved and managed by the Ministry of Health? In our opinion, it is important to apply each method correctly in a timely manner. We cannot rule out TLT as the most convenient and highly effective method of treatment: some data suggest that concomitant use of TLT and TBA may be contraindicated in cases where TLT or TBA are used separately. The mortality rate, follow-up of myocardial infarction, the need for repeated emergency revascularization may be reduced, as well as the combined use of TLT and later delayed CAG and (if indicated) TBA, for which the patient is transferred from one hospital to another. can be transferred. The experience of a number of countries (Denmark, the Czech Republic, etc.) shows that in some cases it is justified to immediately transfer a patient in need of reperfusion therapy to an institution where there is a possibility of emergency TBA. We need to actively expand the network of institutions that can be expanded, because in experienced hands, this method, which is implemented in a timely manner, is the most effective. All patients with CKD should be admitted to such hospitals, as a 4.2% chance of an



emergency when transferred from a "primary" hospital to a hospital where TBA can be performed, according to a study in the United States. In some cases, it can be done within the recommended 90 minutes (from the time of admission to the medical facility to the start of TBA practice). Over time, the rate of application of different methods of revascularization may change. There is every reason to believe that the future belongs to the joint use of TLT and TBA, although this approach has not in practice confirmed its advantages. Providing modern high-tech medical care to all patients with ARI requires a special, organizationally complex and expensive system. Thus, according to a group of experts from the European Society of Cardiology (A. Orlandini et al., 2019), there is a direct correlation between per capita income and treatment effectiveness. Unfortunately, in 2016, in low-income countries, ST elevation was 12.1% of hospital deaths from MI, and in high-income countries it was 4.9%. Experts attribute these differences directly to the availability of modern treatments. It should be noted that even a small step forward requires more and more serious financial investments. The second aspect of the problem is the training of highly qualified cardiologists, including specialists in invasive diagnostics and treatment, cardiac surgeons, nurses and technical support services. It is necessary to create strong cardiology centers that will take care of the main flow of patients. If 20-30 years ago there was talk of establishing specialized emergency cardiology units with intensive care units, the modern development of science has led to the creation of more powerful complexes that

provide new high-tech methods of diagnosis and treatment of patients with OCD. The issues of calculating the required number of specialized institutions, their capacity and location are currently worthy of special discussion.

Estimates (of course, which need to be clarified) show that 50% of the difference between inpatient and inpatient diagnosis of CKD (probable and acceptable overdose of CKD in the pre-hospital stage) Taking into account the frequency and average length, in order to keep a patient with OCD in the intensive care unit for 2-3 days, the population of 200 thousand adults should have 6 beds in the ICU (MI disease is 1 in 1000 adults, 5.) During the year, about 550 cases of MI and unstable angina can be expected in this group. If we take as a goal for the coming years the frequency of use of high-tech methods of diagnosis and treatment of OCD in economically developed countries (KAG at 45% of hospitalizations, TBA in 30% of patients) (A. Orlandini et al., 2015), then the expected number of interventions for 550 OCD cases is approximately 250 KAG per year and 160-170 TBA or slightly more than 1.1 interventions per day. For such a large number of patients, it is not advisable to organize round-the-clock duty of appropriate specialists, even if these specialists and this equipment are used in planned activities. If 1 million adults live in an area with a radius of 50-60 km, it makes more sense to establish an emergency cardiology center, which is properly equipped and equipped with specialists, including cardiologists with invasive methods of treatment. Such a center should have 18-24 beds in the ICU, the appropriate number of beds in the ordinary wards



where patients are transferred from the ICU (the average hospital stay of a patient with OCD should be 10 days, at least 3 beds). In ordinary chambers for 1 bed in BIK). If emergency cardiology centers are not an independent institution, but an integral part of cardiology hospitals (dispensaries), the efficiency of the use of equipment and beds will be higher. The advantages of including these cardiology centers in large multidisciplinary hospitals or treatment and prevention associations are obvious. When using the surgical method of emergency coronary revascularization (about 4-5% of patients with OCD) it is justified to create one such center for a large region with a population of 3-5 million adults. Immediate and long-distance transportation of these patients should be organized and accelerated. Only inconsistencies in diagnostic criteria and assessment of treatment effectiveness may explain large, incredible differences in data on prevalence, mortality, and treatment outcomes representing individual regions of the country: in some cases they differ significantly (LA Bokeria and RG Rudkova, 2018).

Of course, today the diagnosis of OCD should be based on international and local recommendations, and treatment should be based on a single algorithm developed by

the international cardiology community. Recommendations developed by local experts on the basis of VNOK should become an official document of the health system, which must be implemented throughout the country. requires. Its main elements are: a wide network of ambulances, their teams should be properly equipped and staffed to treat patients with OCD, and to provide round-the-clock diagnosis and treatment. capable specialized emergency cardiology centers, including high-tech methods. A single algorithm based on the achievements of modern cardiology, reflected in the "Guidelines", should be used for the diagnosis and treatment of patients with OCD with pre-hospital and hospital stages. They should become an official document that is mandatory throughout the country and ensures the continuity of treatment of patients with OCD at all stages of medical care. In turn, the official nature of the "Guidelines" means that health authorities are obliged to create all the conditions for their implementation.

In short, in order to adequately assess the disease and its consequences, the quality of diagnosis and treatment, it is necessary to develop proposals for the organization and development of a system of medical care for these patients.

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