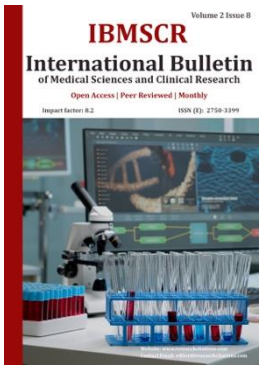

PRINCIPLES OF TREATMENT OF PATIENTS WITH ACUTE CORONARY SYNDROME.

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ANNOTATION

Cardiovascular diseases are the leading causes of death and disability worldwide, and acute coronary syndrome (ACS) is the leading cause. acute coronary syndrome (ACS) is an acute insufficiency of coronary blood circulation based on all clinical manifestations , which usually develops against the background of atherosclerosis of the coronary arteries. The pathomorphological basis of this condition is a violation of the integrity of the atherosclerotic plaque along with its thrombosis . [1] Some characteristics of the pathogenesis and clinic of OCD predetermine the most important organizational principles, diagnostic and treatment methods. The principles of treatment are specific when the patient is suspected of OCD, diagnosed diagnostically, or when complications arise. lib, in which time and the chosen treatment algorithm are extremely important and determine the prognosis of the disease and the patient's future life. This shows that it is important to further improve any stage of treatment of patients with OCD.

Keywords : O`KS , tenecteplase TLT,TBA,KAG.

The clinical course of ACS depends on the manifestation of atherothrombotic occlusion of the coronary artery (complete, incomplete) and its duration . and myocardial infarction without Q wave and myocardial infarction with Q wave. [1] In most cases, it is not clear what form the disease will take in the acute period. At the same time, it is fundamentally important to immediately develop and implement medical tactics that differ significantly in different forms of OCD. Complete (as opposed to incomplete) occlusion of the large branch of the coronary artery is usually accompanied by elevation of the ST segment on the ECG. Therefore , in the initial diagnosis, it is suggested to distinguish between ST-segment elevation and non-ST segment elevation. To a large extent, the dynamics of the ST segment in the ECG examination in patients with ACS determines the urgency of restoring adequate coronary blood flow (COB) - the main pathogenetic treatment method of ACS treatment and, in most cases, the method of its implementation (thrombolytic therapy-TLT or percutaneous coronary angioplasty-TBA).[1, 9, 13] In patients with ST-segment elevation ACS, both methods are effective for restoring CKD. Thrombolytic therapy in ACS without ST-segment elevation therapy is not provided. A significant number of patients with CKD have prodromal symptoms that indicate

an increase in cardiovascular disease. Unfortunately, many people do not pay attention to them and do not go to the doctor. Approximately 70% of all thromboses lead to MI, narrowing less than 50% of the vascular bed, and advanced atherosclerotic plaques are hemodynamically insignificant. [2]

Therefore, before thrombus formation, patients may not have angina attacks, and objective signs of myocardial ischemia and impending attacks are not observed during instrumental examination (ECG, stress ECG, myocardial scintigraphy and even coronary angiography). For such patients, the disease develops suddenly. They cannot assess the situation correctly, and sometimes they are not psychologically ready to seek emergency medical help.

develops very quickly, and from the first minutes, high electrical instability of the myocardium - electrophysiological ventricular rhythm disturbances, including ventricular fibrillation (VF) - is observed. In the acute period of the disease, QF is the main direct cause of death. [5,7] According to epidemiological data, 90-120 minutes after the onset of the first symptoms of ACS, usually half of patients with this coronary attack die. If there is a doctor nearby at the time of cardiac arrest , most of the dead can be saved with the most basic equipment by today's standards: a cardioscope and an electric defibrillator. This internal conflict between the potential possibility of rhythm restoration and the inability to realize it is the tragedy of modern cardiology.[7]

The effectiveness of this approach has been confirmed by many years of experience in intensive care units for patients with ICU . The widespread introduction of these units into clinical practice has reduced hospital mortality in acute myocardial infarction by 30-40%. The presence of intensive care units for coronary patients is a necessary condition for the successful treatment of patients with ACS. Today, a patient diagnosed with or suspected of 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 occlusion of coronary arteries, 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 [6,10].] A thrombosed blood vessel can be restored, but the effect of reperfusion is sharply reduced for every minute lost during this period. In this regard, the concept of "golden hour" for restoring coronary blood flow has even appeared in cardiology. [2, 9] From the above , it is clear that the special role of time is extremely important in the successful treatment of patients with O`KS. This explains the very important role of the pre-hospital stage of medical care. Within the scope of the article, we do not have the opportunity to dwell on the question of how to speed up the application of the patient himself or those around him for emergency medical care. This is a problem that requires special analysis. The main task of any doctor or paramedic who has the first medical contact with a patient is to suspect OCD and immediately call an emergency team. The diagnostic capabilities of the family doctor polyclinic group are expanding significantly, primarily due to electrocardiography. However, not in all cases, especially in the first hours of the disease, the ECG is very informative. If there are no ECG signs of OCD or there is no possibility to record an ECG, it is a gross mistake to refuse hospitalization . In any case, it is not necessary to wait for additional instrumental or laboratory confirmation of the diagnosis of OCD. Reasonable clinical suspicion of this is sufficient reason to immediately admit the patient to a specialized hospital.[9] Naturally, in such conditions, even an experienced doctor can make a diagnostic error. This does not

indicate dishonesty or incompetence, nor should it be perceived as such by hospital doctors or health care providers. The inconsistency between the pre-hospital diagnosis and the hospital diagnosis is a natural phenomenon in 50% of cases. This inconsistency should be taken into account when planning the necessary number of beds in intensive care units (blocks) for coronary patients. In addition to diagnostics and transport, the most important task of the ambulance brigade is therapeutic treatment. The arrival time of the brigade is the most important event , which mainly determines the future fate of the patient. Employees of the ambulance brigade should know exactly the algorithm of diagnosis and treatment of OCD at the pre-hospital stage and be ready to implement it. Adequate pain relief is the first priority. The emergency team should be ready to carry out resuscitation measures, first of all to deal with QF. [1, 14] He should start antithrombotic therapy and may also start thrombolytic therapy (TLT). Our experience shows that conducting TLT by the emergency team at the pre-hospital stage is an important way to increase its efficiency. These observations are supported by large international studies (e.g., EM1R), which showed that, on average, thrombolytic drugs should be started 1 hour before hospital admission by the ambulance crew [1,5] .

At the same time, the death rate will decrease by an additional 17%. The development of new thrombolytic drugs that allow their bolus administration (tenecteplase - metallyse®, local purolase) makes TLT more convenient in the prehospital phase . An important element of the care algorithm is to take the patient to a specialized medical institution. It is necessary to try to ensure that the pre-hospital stage and specialized hospitals act as a single system and are managed in their work based on a single procedure. Only in this way it is possible to achieve real continuity of various stages of medical care - this is the key to successful treatment of this category of patients.

Transporting patients by ambulance teams is often fraught with difficulties that lead to unacceptable delays. However, the experience of a number of countries shows that the organization of the case is very realistic, which ensures that the majority of patients with ACS are admitted to the hospital within the first 2 hours from the onset of the attack. Of course, solving these issues requires the involvement of local and higher organization bodies. The delivery time from the place of illness to the hospital should not exceed 15 minutes. In some cases, if there are good paved roads, the patient can be transported by an ambulance to a hospital at a distance of 40-60 km. When the patient needs to use high-tech treatment methods , there are no such possibilities in nearby hospitals.

OCD is a common condition that can develop suddenly anywhere and at any time. Its clinical manifestations are diverse, and sometimes not only for the amateur who is next to the sick person, but it does not allow an experienced specialist to draw correct diagnostic conclusions. In this regard, and for a number of other reasons, any ambulance team must be adequately equipped to provide care to patients with OSC, and the team members must be able to make a diagnosis and provide immediate (minutes and seconds!) medical care. should be ready to provide assistance, should be able to perform measures according to international and local standards, including treatment of TLT and ventricular arrhythmias. The system used in some areas seems to be completely wrong, where the ambulance team suspects that a patient has OCD and calls a specialist team for treatment and transport. Perhaps, in big cities, this situation justifies itself , 1-2 teams can consult each other, but in any case, this should not delay the start of treatment . can The experience of a number of rural districts abroad gives a positive answer to this question. For such teams, it is especially important to be equipped

with a modern communication system that allows you to receive the necessary advice in real time, including ECG diagnostics.

preferred for restoring coronary blood circulation ? Today, posterior balloon angioplasty (TBA), which in more cases than TLT, allows you to restore coronary blood circulation along the blocked vessel, especially in the late period (3-12 hours after the onset of the attack) you immediately achieve an optimal anatomical result, hemorrhagic stroke does not increase the probability.[11] It gives optimal results in some complications of myocardial infarction, for example, in acute circulatory failure, as well as in patients with diabetes. TBA is the method of choice in the treatment of OCD patients with ST depression . 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 immediately 24 hours a day, 7 days a week.[11, 12] In other words, so to speak, a situation similar to the introduction of intensive care units for coronary patients into the practice of cardiology in the 60s and 70s of the last century is emerging at a new, higher level. It is a very effective method. The advantages of TLT are accessibility, the ability to start treatment at the pre-hospital stage, and relatively low cost [1, 5].

Surgical revascularization is more complicated and expensive. In Russia, it is used to a limited extent in O`KS (LABokeria and RG Gudkova, 2015). According to the experience of other countries, aortic coronary bypass surgery (ACS) is used in 4-5% of cases in urgent cases. [11, 12]

methods of restoring coronary blood flow in ACS be approved and managed by the Ministry of Health? In our opinion, it is important to use each method correctly at the right time. We cannot reject TLT as the most convenient and highly effective method of treatment: according to some data, the simultaneous use of TLT and TBA in combination is better compared to the cases observed when TLT or TBA are used separately. The death rate, the observation of recurrent myocardial infarction, the need for repeated urgent revascularization can be reduced, as well as the combined use of TLT and, subsequently, delayed CAG and (if indicated) TBA, for which the patient from one hospital to another will die. 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 who needs reperfusion therapy to an institution with a possibility of urgent TBA. [11, 12, 13] TLT practice. improvement, we need to actively expand the network of institutions where emergency coronary angioplasty can be performed , because in experienced patients , this method is the most effective when performed on time. All patients with ACS should be admitted to such hospitals because, according to the results of a study conducted in the United States, the probability of an emergency when transferred from a "primary" hospital to a hospital where TBA can be performed is 4.2%. cases, it can be done within the recommended 90 minutes (from admission to the medical facility to the start of TBA practice). Over time, the ratio of using different methods of revascularization can change. There is every reason to believe that the future belongs to the combined use of TLT and TBA, although this approach has not confirmed its advantages in practice, because providing modern high-tech medical care to all patients with OCD is special, organizationally complex and requires an expensive system. Thus, according to the expert group of the European Society of Cardiology (A. Orlandini et al., 2019), there is a direct relationship between income per capita and treatment efficiency. Unfortunately, in 2016 , in-hospital mortality from ST-elevation MI was 12.1% in low-income

countries, and 4.9% in high-income countries. Experts attribute these differences directly to the availability of modern treatment methods. It should be noted that even a small step forward requires more and serious financial investments . The second part of the problem is the training of highly qualified cardiologists, including qualified specialists in invasive diagnostic and treatment methods, cardiac surgeons, medical staff and technical support services. It is necessary to create strong cardiology centers that will take over the main flow of patients in order to use the expensive equipment with maximum efficiency and for specialists to maintain their professional qualifications at the required level. If 20-30 years ago there was talk about the establishment of specialized emergency cardiology departments with intensive care units, the modern development of science allows the creation of more powerful complexes that provide new high-tech methods of diagnosis and treatment of patients with CKD. requires, the issues of calculating the necessary number of specialized institutions, their power and location, deserve a separate discussion.[2, 8,15]

Approximate estimates (of course, which require clarification) show that 50% of the difference between the diagnosis of OCD in the hospital and the one established in the hospital stage (probable and acceptable overdiagnosis of OCD in the pre-hospital stage) taking into account the frequency and average length, in order to keep a patient with OCD under control for 2-3 days in the intensive care unit, there should be 6 beds in BIK per 200,000 adult population (MI disease is 1 per 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, which are carried out today in economically developed countries (45% of CAG during hospitalization, TBA in 30% of patients) (A. Orlandini et al ., 2015), then the expected number of interventions for 550 cases of OCD is approximately 250 CAG and 160-170 TBA per year, or slightly more than 1.1 interventions per day. For such a large number of patients, it is not appropriate to organize the round-the-clock duty of relevant specialists, even if we take into account the fact that these specialists and these equipments are also used in planned events. If 1 million adults live in a radius of 50-60 km, it seems more reasonable to establish an emergency cardiology center that is properly equipped and staffed with specialists, including cardiologists with invasive methods of treatment. Such a center should have 18-24 beds in the BIK, the corresponding number of beds in ordinary wards to which patients are transferred from the BIK (the average stay of a patient with OCD in the hospital is 10 days, there should be at least 3 beds). in ordinary wards for 1 bed in BIK). If emergency cardiology centers are not independent institutions, but are considered an integral part of cardiology hospitals (dispensaries), the efficiency of using equipment and beds will be high. [6,14,15] The advantages of adding these cardiology centers to large multidisciplinary hospitals or treatment-prophylaxis associations are obvious. When using the surgical method of emergency coronary revascularization (about 4-5% of patients with ACS), it is justified to create one such center for a large region with a population of 3-5 million adults. It is necessary to organize and speed up the immediate transportation of these patients over long distances. The system of specialized cardiology centers can and should be the basis for the organization of the CKD register, the need for this has been felt for a long time [8, 9, 11, Only the inconsistency in diagnostic criteria and evaluation of treatment effectiveness can explain the large, incredible differences in the data on prevalence, mortality and treatment results

representing individual regions of the country: in some cases, they differ significantly (LA Bokeria and RG Rudkova, 2018).

Of course, diagnosis of OCD today should be based on international and local recommendations, and treatment should be based on a single algorithm developed by the international community of cardiology. Recommendations developed by local experts on the basis of VNOK should become an official document of the health care system, which must be implemented throughout the country. requires. Its main elements are as follows: an extensive network of ambulances, their teams should be properly equipped and staffed with personnel trained to treat patients with OSC, and provide round-the-clock diagnosis and treatment. capable specialized emergency cardiology centers, including high-tech methods. For pre-hospital and in-hospital diagnosis and treatment of patients with CKD, it is necessary to use a single algorithm based on modern cardiology achievements reflected in the "Instructions" . [10,13,15] They are mandatory throughout the country. and should become an official document that 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 conditions for their implementation.

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

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