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Abstract: *This article provides information about modern princi pals of treatment of ischemic heart disease, detailed descri ptions of indication to the different types of treatment, such as conservative treatment, interventional and surgical. We made a conclusion that, the diagnostic coronaryventriculography is the basic method, which determines further tactics of patient's treatment. There is marked ways of improvement of surgical treatment by the beating heart surgery and using arterial conduits.*

MODERN PRINCIPLES OF SURGICAL TREATMENT OF THE ISCHAEMIC HEART DISEASE

The life of society and the preservation of public health have repeatedly posed new problems to medical science. Most often, these are various "diseases of the century" that attracted the attention of not only doctors. They were usually characterized by prevalence, difficulty of diagnosis and treatment, tragic consequences. The development of civilization, the successes of medical science have pushed these diseases into the background.

Currently, one of the most acute problems of heart disease is coronary artery disease (CAD).

Actually, ischemic heart disease is understood as a pathological condition that develops when there is a violation of the correspondence between the need for blood supply to the heart and its actual implementation. Coronary insufficiency occurs as a result of a deficiency in the supply of blood to the tissues of the heart. Insufficient blood supply to the myocardium may result from various reasons.

The causes of myocardial ischemia are:

- atherosclerosis of the coronary bed;

- thrombosis, thromboembolism of the coronary arteries;

- spasm of the coronary arteries;

- congenital anatomical anomalies of the coronary bed.

It can be seen that regardless of the root cause, the final point is the effect of this factor on the coronary vessels. In light of this, knowledge of their anatomical structure and which parts of the heart they supply with blood are needed.

The blood supply to the myocardium is carried out by the right and left coronary arteries, the latter departing from the aorta with a short trunk, then it is divided into the anterior descending (ADA) and circumflex arteries (CA).

Depending on the anatomical severity of the coronary vessels and which of them provides blood supply to the posterior wall of the heart, right-coronary, left-coronary and balanced types of blood supply are distinguished.

In a balanced type, all three main coronary arteries are well developed and fairly evenly developed. The entire left ventricle is supplied with blood, including the papillary muscles, and the anterior ½ and 2/3 of the interventricular septum, through the system of the left coronary artery. The right ventricle, including both right papillary muscles and the posterior ½-1/3 septum, receives blood from the right coronary artery. This is probably the most common type of blood supply to the heart.

With the left type of blood supply to the entire left ventricle and, in addition, the entire septum and partially the posterior wall of the right ventricle is carried out due to the developed enveloping branch of the left coronary artery, which reaches the posterior longitudinal sulcus and ends here in the form of a posterior descending artery, giving away part of the branches to the posterior the surface of the right ventricle.

The right type is observed with a weak development of the circumflex branch, which either ends without reaching the blunt edge, without extending to the posterior surface of the left ventricle. In such cases, the right coronary artery, after branching of the posterior descending artery, usually gives off several more branches to the posterior wall of the left ventricle. In this case, the entire right ventricle, the posterior wall of the left ventricle, the posterior left papillary muscle and partially the apex of the heart receive blood from the right coronary artery.

The very fact of clinical diagnosis of even pronounced manifestations of coronary artery disease is insufficient to determine the indications for direct surgical intervention on the coronary vessels. For its implementation, it is necessary to accurately determine the characteristics of the lesions of the coronary vessels. which is provided by selective coronary angiography. In this study, a contrast agent is

injected into the mouth of the coronary vessels and coronary angiography is performed.

Selective coronary angiography is used to determine: 1) the type of myocardial blood supply; 2) which coronary vessels are affected, the number of affected vessels; 3) precise localization. The degree and extent of their narrowing; 4) the condition of the distal part of the affected arteries below the site of narrowing; 5) the state of collateral circulation, providing compensation for the stenosing process.

Analysis of coronary angiography data shows that in most cases there is a right type of coronary circulation, in which vascularization of the posterior wall of the heart is provided by the right coronary artery. The next in frequency is the balanced type, when the blood supply to the posterior wall of the heart is provided equally by both coronary arteries. The left type of coronary circulation is much less common.

It is customary to distinguish four degrees of severity of coronary artery stenosis: I - moderate narrowing up to 50% of the lumen, II - pronounced narrowing from 50 to 70%, III - sharp narrowing by 75-90% and IV - vessel occlusion.

In most cases, a pronounced narrowing of the coronary vessels is combined with a multiplicity of their lesions.

Left ventriculography is an integral part of angiographic examination of a patient with coronary artery disease. This method provides the most important information about the contractility of the myocardium, the presence of dyskinetic and akinetic zones, left ventricular aneurysm or other complications of coronary artery disease.

According to the number of vessels, one-, two-, three and four-vessel (LCA + RCA trunk, equivalents of the LCA trunk) types of lesions are distinguished.Left ventriculography and modern methodsultrasound diagnostics allow to determinealso hemodynamic parameters, the most importantof which are the left ventricular ejection fraction (LVEF), end-diastolic volume.

Indications for coronary angiography and left ventriculography are:

1. Severe clinical manifestations of coronary artery disease with frequent attacks of angina pectoris with ineffective or ineffective conservative treatment;

2. Atypical pain syndromes with pathological changes on the ECG at rest or during an exercise test;

3. Postinfarction coronary cardiosclerosis with clinical manifestations of chronic coronary insufficiency;

4. Suspicion of left ventricular aneurysm;

5. Pre-infarction state with the possibility of emergency surgical treatment;

6.Acute myocardial infarction in the first hours of the disease in the presence of a cardiac surgery center, ready for urgent interventions;

7. The need to monitor the functioning of the coronary artery bypass graft in the long-term postoperative period;

8. The need for differential diagnosis of ischemic heart disease and other diseases.

Existing methods of treating patients with coronary artery disease can be divided into: drug therapy; interventional techniques; surgical treatment and a combined approach Drug therapy is indicated mainly for stenosis of the lumen of one of the vessels up to 50%. The second way to treat coronary artery disease is to restore blood flow in the vessels by expanding them and eliminating narrowed areas by stenting. These include dilatation of narrowed areas of the coronary arteries with a balloon catheter, performed “bloodless” by percutaneous puncture of the peripheral arteries and placing a stent on the affected area. This is a modern and most intensively developing area of cardiology. The number of such interventions in the United States exceeds several hundred thousand per year and is an alternative to coronary surgery.

The third direction, purely surgical, is coronary artery bypass operations (CABO). This is a direct restoration of blood flow through the coronary vessel using shunts. In Uzbekistan, the first CABO operation was performed in 1987 at the RSCS by Professor B.L. Gambarin. under the leadership of Academician V. Vakhidov At present, about 60% of all heart operations in the world are performed in coronary surgery. Despite the fact that CABO operations have been carried out for more than 35 years, this method is under development, and there are still a number of unresolved problems. CABO is performed under cardiopulmonary bypass or on a beating heart. After revision of the heart vessels, the operation plan is finally specified.

The preparation of a venous graft, which is used to provide a coronary artery bypass graft, is of great importance. Usually, for this, a section of the great saphenous vein of the leg is used with a length of 20-25 cm. It is important that the diameter of the graft corresponds to the size of the lumen of the coronary artery at the site of the shunt. It should be wider than the coronary artery because over time, it “arterializes” and the lumen of the graft decreases. At the same time, if the graft diameter is too large, the blood flow slows down and conditions are created for its

thrombosis. Distally, the vascular graft is anastomosed to the coronary artery below the narrowing site, and a proximal anastomosis is created to the ascending aorta. With multiple lesions of the coronary vessels, 2, 3, 4 or more shunts are applied.

Not all patients who require myocardial revascularization can undergo CABG. Restoration of blood flow in a coronary artery can be performed with its atherosclerotic lesion in a limited area with a narrowing of the lumen by more than 50% or occlusion. The requirement for narrowing the lumen of the vessel by more than 50% is due to the fact that such severity of stenosis usually leads to severe clinical manifestations of coronary insufficiency, and restoration of blood flow contributes to the most favorable hemodynamic shifts.

It should be noted that in case of multiple lesions of the coronary arteries, indications for CABG may occur even with a lesser degree of narrowing of each of the arteries than 50% of the lumen size. This is explained by the fact that the total decrease in the coronary lumen in these cases is large, and the imposition of several coronary artery bypass grafts will significantly improve the blood supply to the myocardium. Lesions located in the proximal part of the vessel are more favorable for correction, since the zone of myocardial ischemia is much larger, and the restoration of blood flow in the vessel promotes blood supply to large areas of the heart muscle. With several narrowing of the vessel, an anastomosis is formed at the most distal site.

Although limited vascular lesions are preferable for coronary artery bypass grafting, diffuse changes do not always preclude the operation. Sometimes it is possible to impose a shunt after a preliminary endarterectomy. More than 370 CABG operations were performed at the RSCS named after Academician V. Vakhidov until April 1, 2006. The results are not entirely satisfying, but our scope for improvement is limited. Unfortunately, patients who are mostly severe and "neglected" are sent for surgical treatment. Complete myocardial revascularization was performed using up to 5 shunts (on average, 2.3 ± 0.4 shunts) per patient, which indicates multiple lesions of the coronary vessels.

One of the ways to improve the results of surgical treatment is the use of arterial grafts, in particular, today the use of the left internal thoracic artery for PNA bypass surgery is the "gold standard" of coronary surgery and in the long-term period gives the lowest percentage of stenosis

During the current year (from January to April 2006) in the Department of Coronary Surgery, 27 coronary artery bypass grafting operations were performed using the internal thoracic artery in all cases for PNA bypass with an average number

of shunts of 2.5. Mortality was noted in only one case. In two cases, the operation was performed on a beating heart, the results are satisfactory.

There are many factors that affect both the immediate and long-term results of CABO. In foreign multicenter studies, covering tens of thousands of observations, it is determined that the main factors that increase the operational mortality are:

- impaired LV function (decreased ejection fraction);

- cardiogenic shock at the time of surgery;

- the need for an urgent operation;

- previous heart surgery;

- dysfunction of other organs and systems.

In any case, CABO surgery is a palliative intervention that eliminates not the cause of the disease, but its consequences (impaired blood supply to the myocardium). That is why both methods of treatment of ischemic heart disease - medical and surgical - should not be opposed, but complement each other. Only a timely performed CABG operation followed by adequate drug management can achieve the greatest effect in the treatment of patients with coronary artery disease. This is done throughout the civilized world. And you can hardly find another way.