Left Main Stenosis. Percutaneous Coronary Intervention (PCI) or Coronary Artery Bypass Graft Surgery (CABG)?

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Abstract

According to the World Health Organization (WHO) list of the 10 most common causes of death is headed from ischemic heart disease (IHD). Stable angina pectoris (SAP) is one of the forms of IHD. It affecting the vessels of the heart - the left and right coronary artery. Of particular note are stenoses covering the left main of the left coronary artery, because it supplies the majority of the heart muscle. In the era of coronary angioplasty with stent implantation, bypass surgery is still the “golden standard” in the treatment of left main stenosis. In clinical practice, some of the patients with stable angina pectoris have a stenosis of the left main. Today, with the advent of the DES stents possible implementation of the PCI of the left main with reduced risk of restenosis. Of course coronary angioplasty did not completely replace surgical revascularization by coronary artery bypass. Which solution is the medical properly and best for the patient is taken by the Heart Team. We comply with the calculated Syntax Score. The study SYNTAX - PCI (TAXUS DES) vs CABG is the - largest randomized study on this issue.

Keywords: Left main stenosis; Angioplasty; Drug eluting stent (DES); Percutaneous coronary intervention (PCI); Coronary artery bypass graft surgery (CABG)

Left main stenoses are important because the left coronary artery blood supply about 75% of the myocardium. These stenoses require quick decision and urgently conduct. They meet at 4% - 10% of patients with coronary angiography. These patients are at high risk of death. What matters is the anatomy of the stenosis - ostial, middle or distal segment - (bifurcation, trifurcation) (Figure 1). On the other hand are important clinical condition of the patient, the left ventricular function, whether the patient is suitable for surgery or not, heavy calcification of left main, protected and unprotected left main [1].

Figure 1

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In an attempt to solve the dilemma which method of revascularization is suitable for certain patients were conducted significant number of randomized trials. In a Meta analysis of 23 randomized studies comparing survival in patients after PCI and CABG after 10 years of follow that there is no difference in mortality between the two groups.

In a Meta analysis of 16 observational studies of 1278 patients offer percutaneous angioplasty DES to be safe in following them, citing the fact for hospital mortality 2.3% and 5.5% mortality after the last track - about 10 months. Evaluated 1108 patients who undergo coronary angioplasty with stent implantation within six years and comparing them with 1138 patients experienced coronary artery bypass. They do not establish differences in mortality, stroke and myocardial infarction between the two groups. However, revealing a greater incidence of revascularization in the group of coronary angioplasty. Despite these data taking into account the fact that within 1 year occluded about 35% of vein grafts and 8% of arterial grafts - left internal mammary artery can be considered that the DES stents for revascularization of stem stenosis.

Syntax study - Synergy between PCI with Taxus DES and Cardiac Surgery is the largest randomized controlled trial PCI with DES (TAXUS) versus CABG conducted in 87 centers in Europe and the US. Record the activity of the heart Team consisting of invasive cardiologist and cardiac surgeon [2]. They must reach consensus on the future revascularization.

This problem is present in Guidelines of the European Society of Cardiology for the treatment of stable angina pectoris in 2013-2013 ESC Guidelines for the management of stable coronary disease. After optimal medical therapy and the lack of effect is paying attention to invasive treatment of patients with multivessel disease and those with left main stenosis [3].

Case report

In our clinic was admitted a patient with complaining of chest pain with typical astringent character and irradiation to hands, back and throat. Complaints are accompanied by shortness of breath and sweating. The pain occurs in the morning after getting up and physical exercise. Disappear for 2-3 min. at rest. Chest pain last three days before admission in the clinic and lasted 15 minutes.
The patient had pre-existing coronary angioplasty with implantation of two DES stents in LAD 1 year ago. Risk factors - hypertension and dyslipidemia. Conduct regular therapy with aspirin 100 mg., Clopidogrel 75 mg., Beta blockers, Calcium channel blockers, Angiotensin receptor blockers, Nitrate.

No increase in markers of myocardial damage - troponin, MB fraction of creatine kinase and creatine kinase. From coronary angiography was establishing persistent optimal stent result of LAD and 80% stenosis in the middle third of the left main coronary artery (LMCA). Were calculated Grace Score and SYNTAX Score.

Grace score - 117 high because of current chest pain and ECG changes.
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Figure 5: Left coronary artery

Figure 6

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Discussion

In terms of mortality SYNTAX study showed no difference between PCI and CABG. The advantage of CABG was the reduction of repeat revascularization to 12% for CABG against 20% for PCI. Angiographic characteristics of left main stenosis are essential when choosing between PCI and CABG. Increasingly, the role of hybrid coronary revascularization - a mamma interna sinistra to LAD (LIMA - LAD) and PCI coronary artery different from the LAD. Of importance is the joint work of the Heart Team to explain to the patient what the angiographic finding is and what the treatment options are. The Doctor must explain the risks of his choice. Upon refusal

Figure 7: Direct stenting with DES

Figure 8: Final result

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of surgical revascularization and appropriate anatomical characteristics of left main stenosis can proceed to coronary angioplasty. An important factor in the decision for the PCI should be the experience of the operator. Deciding to choose between the two revascularization is a complex process. We discussed characteristic of the stenosis, what is the experience of operator, suitable is patient for cardiac surgery and not least the choice of the patient.

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