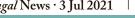
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Treatment of chronic coronary disease

Coronary Disease, or ischemic heart disease, consists of insufficient blood supply reaching the heart due to an obstruction of the coronary arteries. There are multiple causes for this occurring, the most common being atherosclerosis. The main risk factors for atherosclerosis are high blood pressure, high cholesterol, diabetes, obesity, lack of physical activity and smoking. This leads to the formation of atherosclerosis plaques and subsequent narrowing of the coronary arteries, preventing normal blood flow.

ypical symptom of ischemic heart disease is angina pectoris (or simply angina), which is a feeling of discomfort or tightness of the chest, usually on the left side, irradiating to the neck or left arm, although it can radiate to other parts of the chest and even to the abdomen. Angina occurs when the heart muscle (myocardium) needs more blood than what it is receiving, causing the myocardium to become ischemic. The consequent lack of blood flow and oxygen to the cells causes chest pain.

Treatment options are as follows:

Medical Treatment, Percutaneous Treatment and Surgery.

Medical Treatment is indicated for the mildest forms of coronary heart disease, with prescription drugs in order to stabilize the disease, control symptoms and improve the prognosis.

Percutaneous Treatment consists in coronary catheterization, where stents (tube-shape device) are implanted in the artery to prevent an occlusion, maintaining the artery open, restoring blood flow and reducing ischemia. This technique has precise indications and very good results, a symptomatic improvement is immediately noticed by the patient and it has an important prognostic impact. It is necessary to



remain in hospital for a few days and the patient can resume his normal activity within a few weeks.

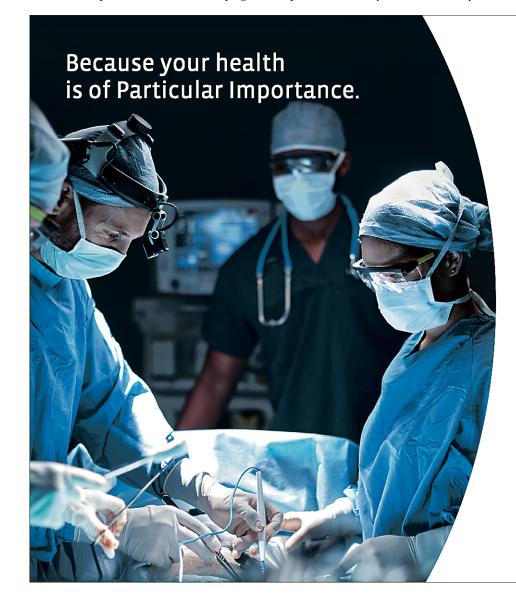
Surgical Treatment consists of surgery of the arteries of the heart, known as coronary bypass surgery. Chest arteries (internal mammary arteries) are used which are connected to the arteries of the heart, in front of the occlusions, thus restoring blood flow and decreasing ischemia. This is the most invasive option as to reach the heart, it is necessary to open the chest cavity. It is known as "open

heart surgery".

There are currently other strategies available, using smaller openings in the chest which result in smaller scars (key-hole surgery). The patient usually remains in hospital for 5 days, and can resume his normal activity within a few weeks. Despite being the most invasive method, it is a very low risk procedure and according to medical studies, this method has a number of indications, allowing for better long-term results, less need

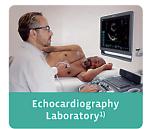
for drugs in the future, resulting in a clear improvement of the patient's overall prognosis. It is undoubtedly the treatment method to be considered in severe chronic coronary heart disease.

At the HPA Health Group, the Interventional Cardiology and the Cardiothoracic Surgery Teams work together as the "Heart Team", from such a time as the initial diagnosis is reached until the most appropriate treatment in each case, for each individual patient is decided on.



INTERVENTIONAL CARDIOLOGY & CARDIOTHORACIC SURGERY







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1) The Echocardiography Laboratory of the HPA - Gambelas has been awarded European Accreditation by the European Cardiovascular Imaging Society in 2020.

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