

# Better results and greater safety in the treatment of Aortic Stenosis

The heart muscle is a pump the size of a fist that continuously pumps blood throughout the human body. It consists of four compartments or chambers, two atria and two ventricles. Each ventricle has one entrance and one exit.

**V**alve deficits can cause them not to open correctly, hindering the passage of blood through the valve, known as valvular stenosis. They may also not close completely causing loss or regurgitation, known as valve insufficiency. Or there may be a combination of both, known as double valve disease. Problems with heart valves are in most cases, caused by congenital disorders, rheumatic fever, infections or degenerative causes associated with age.

The function of the aortic valve is to make sure that blood, once it has been pumped by the heart, does not flow back (to the left ventricle) and reaches the various tissues with the necessary volume and pressure.

When there is stenosis or tightening of the aortic valve and the flow of blood is hindered, this causes symptoms of fatigue, chest pain, shortness of breath on minimal exertion or even fainting.

In adulthood AS is due to a

progressive deterioration due to, for example, calcium accumulation on the walls of the valve or after an episode of rheumatic fever.

The evolution of AS is usually slow and asymptomatic. However, if degeneration of the valve is in an advanced stage, the condition progresses rapidly and is associated to a 50% mortality rate, two years after the onset of the symptoms or even, a 50% mortality rate, after one year when associated with symptoms of heart insufficiency.

This is one of the most common diseases affecting the elderly population, with an incidence of 4% in people over the age of 75, corresponding to 40% of all diagnosed valvular heart disease.

These numbers have a tendency to gradually increase according to the predicted statistics on population aging.

Improvement due to available medication is limited and does not prevent the progression of the disease or the most serious complications.

Until very recently the treatment for severe AS was replacement of the disease valve by a prosthesis (biological or mechanical) in an open-heart surgery.

The Percutaneous Transcatheter Implant of the Aortic Valve has revolutionized the treatment of AS, by providing the possibility of a non-surgical valve replacement in patients with severe inoperable AS or in those patients with a very high risk for open heart surgery. The percutaneous solution, as the name indicates, consists in the introduction of a biological valve prosthesis applied with the use of a metallic stent, through a small incision in the groin. This is a safe procedure of reduced risk as it does not need surgery or general anaesthetic, permitting a substantially faster recovery, with very little impact on the quality of life of the patient.

However, this technique requires specific equipment that is not available in most hospitals, resulting in a vast number of patients that would



benefit from this procedure not being given this opportunity and benefit from this procedure. Moreover, access to this treatment has considerable asymmetries across Europe, but in Portugal this gap is even more significant. OECD and Eurostat reports state that we have the lowest rate of implants per million inhabitants and according to the indicators available only 5% of the candidates for this intervention have the possibility of being submitted to this procedure.

The HPA has since 2001 has a **hemodynamic laboratory and a cardiovascular intervention centre** to perform these and other interventions in cardiac disorders. Its Heart Team includes cardiothoracic surgeons, intervention cardiologists, imaging cardiologists, cardio-pneumologists and in addition to the **hemodynamic laboratory**, HPA has an **echocardiography laboratory** with European accreditation and a hybrid theatre room.

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

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