

Aortic Valve Replacement: Surgery or Percutaneous Implantation?

BACKGROUND

Higher life expectancy meets the challenge arising from increased prevalence of chronic diseases. In people aged 75 years or older, reduced aortic valve opening (stenosis) is a very common cause of chronic disease. The aortic valve can be imagined as a gate opening and closing with each heart beat, allowing blood to exit the left ventricle into the aorta with an approximate flow of 5 liters per minute under resting conditions. Under normal conditions, the size of the open aortic valve is about 3 to 4 cm². Over the years, the three flaps (leaflets) of the aortic valve may undergo a degenerative process with calcium deposition and leaflet fusion. For many years the patient does not have any symptoms of this condition.

SYMPTOMS

When symptoms develop breathlessness (dyspnea), chest pain during exercise (angina) or even fainting (syncope) it means that the valve has narrowed to a critical level (lower than 1 cm²). Under these circumstances, there is common agreement that aortic valve replacement is indicated, as the risk of death increases rapidly without intervention.

AORTIC VALVE REPLACEMENT SURGERY

Open-heart surgery for aortic valve replacement is the standard intervention, validated by years of experience, using a bioprosthetic heart valve (Figure 1 A) which does not require long-term anticoagulant therapy, or a mechanical prosthetic valve with greater durability in younger patients.

PERCUTANEOUS AORTIC VALVE IMPLANTATION

In inoperable patients with high surgical risk due to chest deformations or radiation therapy, permanent oxygen requirement, heavily calcified (porcelain) aorta, frailty or extremely high surgical risk, "percutaneous aortic valve implantation" (through the skin) is indicated (Figures 1 B and 2), as it avoids surgical risk and, compared to medical treatment, reduces mortality and significantly improves symptoms and quality of life.

AORTIC VALVE SURGERY OR PERCUTANEOUS IMPLANTATION?

In the rest of patients over 80 years of age who do not have very high operative mortality, long-term survival after surgery is similar to that of percutaneous implantation, though the incidence of stroke and leaks due to malpositioning of the implanted valve is more frequent in percutaneous implantation.

In these patients, the decision to perform aortic valve surgery or percutaneous implantation depends on the evaluation of an interdisciplinary team of clinical cardiologists, interventional cardiologists and cardiovascular surgeons who will make a thorough analysis of the risks and of certain technical aspects (vascular access, aortic annulus size, appropriate aortic anatomy) as reported in the article published in this issue.

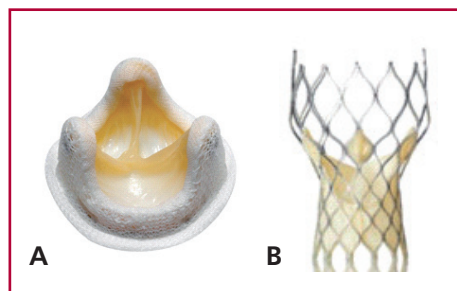


Fig. 1. A. Bioprosthetic valve for surgical replacement. B. Bioprosthetic valve for percutaneous implantation.

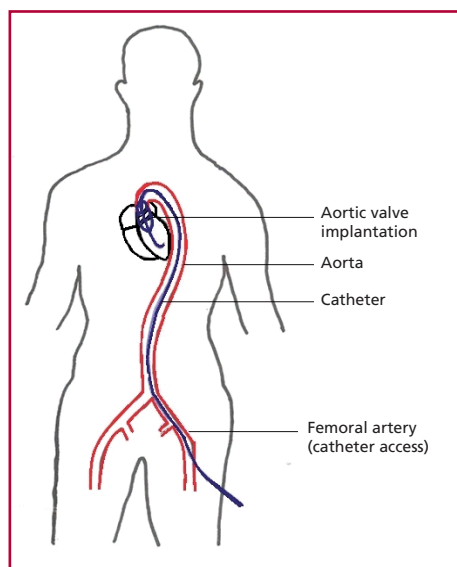


Fig. 2. Percutaneous aortic valve implantation.

AJC/RAC
Copy for patient

Editor: Dr. Adrián Charask
Designer: Alejandro Trainini

RELATED WEBSITES

Sociedad Argentina de Cardiología (Área de Consensos): <http://www.sac.org.ar/consensos>
Revista Argentina de Cardiología: Rev Argent Cardiol 2013;81:14-9 <http://dx.doi.org/10.7775/rac.v81.il.2063>.

Informe del ACC/AHA 2008: <http://circ.ahajournals.org/content/118/8/887.full.pdf>

Video: Transcatheter valve implant <http://www.nejm.org/doi/full/10.1056/NEJMoa1008232>

This presentation is for informational and educational purposes only and is not intended to be a substitute of the evaluation, advice, diagnosis, or treatment recommended by your doctor.