

## Percutaneous Aortic Valve Implantation

*Implante valvular aórtico percutáneo*

### INTRODUCTION

Aortic valve stenosis (AVS) is the most common valve disease in the Western world. It is defined as severe when the valvular area is inferior to 1 cm<sup>2</sup> or 0.6 cm<sup>2</sup>/m<sup>2</sup> indexed for body surface area. Its prevalence reaches 4.6% in adults older than 75 years of age. Aortic valve replacement with extracorporeal circulation is the usual definitive treatment approach. However, surgical risk is greater in elderly patients or in those with other cardiac or non-cardiac diseases such as chronic obstructive pulmonary disease or chest disorders that prevent the opening of the sternum; for that reason, percutaneous aortic valve implantation (TAVI) has emerged as an alternative to surgery in recent years.

In Argentina, the TAVI technique was first performed in 2009; since then more than 2,500 procedures have been accomplished in more than 50 medical centers.

### WHAT IS TAVI?

Percutaneous aortic valve implantation is an effective and less invasive technique to replace the stenotic aortic valve. A stent-mounted biological valve (Figure 1) is inserted into the stenotic aortic valve, turning this approach more convenient for inoperable or high surgical risk patients.

Today, the most common access route to insert the new prosthesis is the femoral artery (puncture or small incision in the groin), but accessing through the ventricular tip with a minimal incision is also possible.

The advantage of the femoral approach is that surgery is performed under local anesthesia.

### WORDS OF CAUTION

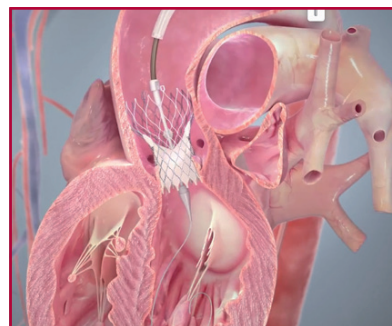
Percutaneous aortic valve implantation is recommended for patients with symptomatic severe aortic stenosis, who are at high surgical risk due to advanced age, other comorbidities and high frailty. Therefore, a multidisciplinary assessment is performed by a Heart Team of valve specialists consisting of clinical cardiologists, interventionists, cardiovascular surgeons, imaging specialists, and anesthesiologists, with the purpose of optimizing risk assessment and defining the best therapeutic strategy.

Transcatheter aortic valve implantation (TAVI) has become the treatment of choice for inoperable or high surgical risk patients with severe symptomatic aortic stenosis.

Estimated life expectancy <1 year, comorbidity suggesting lack of improvement for quality of life after TAVI, severe primary involvement of associated valve disease, inadequate aortic valve annulus size (<18 mm, or greater than the maximum diameter recommended by the prosthesis to be implanted), thrombus, active endocarditis, and mobile plaques in the ascending aorta are absolute contraindications for TAVI.

### CONCLUSIONS

Clinical outcomes from various multicenter registries and from the PARTNER (Placement of Aortic Transcatheter Valve) randomized study have confirmed the efficacy and safety of percutaneous valve implantation in high-risk patients with severe symptomatic aortic stenosis, and even in lower risk patients.



**Fig. 1.** Percutaneous aortic valve implantation.



**Author:** Carlos Giuliani, M.D.  
Interventional Cardiologist  
Sanatorio Finochietto

Matías Szejfman, M.D.  
Coordinator of the Interventional Cardiology  
Unit - Sanatorio Finochietto

**Editor:** Julio Manuel Lewkowicz, MD<sup>MTSAC</sup>  
Sanatorio Güemes, Buenos Aires

*The information provided is intended to be informative and educational and is not a replacement for the professional evaluation, advice, diagnosis or treatment by your healthcare professional.*

*This page cannot be photocopied for commercial purposes, unless authorized by the Argentine Society of Cardiology.*