

# Long term prospects for transcatheter aortic valve replacement- A short review

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## Abstract

The replacement of the aortic valve through the catheter has become an acceptable alternative to surgery for patients with acute aortic stenosis and symptoms that are not suitable for work or that have a high surgical risk. Recent trials support the use of aortic valve replacement through the catheter also in patients at moderate risk, and ongoing trials assess the suitability of other groups of patients. The authors review the main anatomical features that do not complement the procedure for the replacement of the aortic valve through catheterization and obtaining echo images for the pre-abortion, intra-corporal and postoperative evaluation.

## Introduction

The replacement of aortic valve (TAVR) is now recommended for the treatment of high-risk patients, and is suffering from acute surgical symptoms (AS). TAVR currently involves second-order recommendation for patients with intermediate surgical risk, but in view of large random trials epic aortic valve shows impurity in substitution, TAVR can also be an appropriate option in this population. TAVR continues to grow with increased use indicators. In this article, we review the necessary echocardiography for the structural features of the integral tower process and pre-abortion evaluation, intra-atrial and post-operation.

Since the first case of aortic catheter replacement valve (TAVR) in 2002 [1] and 96 First generation systems such as Sapien and CoreValve 230 have proven to be safe and effective in patients with high aortic stenosis (AS) while further improvements it was introduced to the second generation Sapien 3TM, CoreValve and Evolut. Yet there are still challenges inherent in these systems. Difficulties in inaccuracy, sites, valve dislocation, paravalvular calcification, ventricular atrial delivery block and stroke always awaits the best solutions. The limited range of taper showed acceptable results in the treatment of pure aortic calcification (R). Design improvements focused on these challenges and importance. Revisions were made to achieve better results.

## Anatomic Perspective

One important physical difference is that the transcatheter aortic valve (TAVR) was excluded for testing as standard, and can be associated with the worst procedural results compared to the transcatheter valve [2-3]. A larger and more circular ring in structural variation, larger sinus and high ascending aorta, more eccentric ring, in the structural variation compared to the pilot valve, which may contribute to the maximum degree of aortic dissection in the aorta (bar). The extension of Condon Dosage After More Folding TAVR Pacing recently demonstrated good success rates in these patients using new generation catheter valves [4]. Preoperative scaling can reduce these complications before using many complex tomography (CT) as well as implantation techniques.

## Morphology of the Aortic Valve

Rather, the morphology associated with the aortic valve is essential. Although many imaging patterns can evaluate the aortic valves and form the root, aortic valve diagnosis is usually performed using a color echocardiography, opening a specific "fish eye" valve for a small mouth lamp "appearance and absence of opening in the rap should be imaged. In the patients with good quality transaortic image, which is not dense, the sensitivity and specificity of the diagnosis is to determine the vacuum biocompatibility - > 70% and > 90%, respectively. But clinical uncertainty after 15% of echocardiography can keep patients up to 10%.

## Ventricular and ventricular detection Distortions

Overpressure, increase in wall thickness maintains normal wall stress and the increase in thickness of the wall is often seen with a natural winding block (concentric re-projection) and an increase of the winding mass (concentric magnification). Increased thickness of the wall in S. has been associated with impaired handling of calcium, structural changes, apoptosis, and increased deposition of collagen fibers. These changes result in reduced detectable deformation properties corresponding to the room, prior to any change in F. This series of events eventually leads to a reduced stroke size and increased packing pressure, resulting in heart failure while maintaining F. Thus, imaging strain as well as diastolic function parameters may be early signs of abnormal winding function. Importantly, the European Society of Cardiovascular Imaging and the American Society of Echocardiography agree to standardize the imaging strain known as distortion of imaging terminology, the type of stored data used for quantitative analysis, the method of measuring basic parameters, definition of parameters, and output results to reduce variance among respondents.

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## Evolution of New design

Based on the initial design, two different cone valves can be identified, i.e. (1) Inflatable Balloon, the original LED creator Edwards and later Seban (Edwards Life Science, Irwin, CA, USA) “self-extensible” (Medtronic, Minneapolis, USA) and its successor. The initial concept was a “balloon” valve: Suspended on an artificial valve, balloon and a balloon inside a metal brace. To deploy the LED, the balloon should be blown. And before the introduction of “expandable” valves, the idea of using “self-extension” beams which do not require balloons. This concept has used the unique properties of Nitinol (Nickel-Titanium alloy): Flexibility at low temperatures and high temperature restores original morphology and radial force at normal body temperature.

## Future design trends

Curly valve thinner), thus making small vessels eligible for blood vessels, while maintaining the radial force of the stent. This can be achieved by modifying either the size or shape of the stent cells, expanding the sealing skirt or adding an additional outer seal to the prostheses. The third main focus point is the construction of a reusable and recoverable valve. To date, almost all available prostheses have this capability, although some reports suffer from engineering problems requiring further modifications [2]. Besides the prosthetic prostheses, the unique and promising concept was the direct flow (direct medical flow valve, Santa Rosa, California, USA), using a non-metallic design. The hollow plastic frame that attached the valve with a homogenous polymer should be filled to fix the artificial end permanently in the desired position. Unfortunately, despite promising initial results, the company had to stop its activities due to a lack of financial support and the valve was unavailable on the market [1]. Vascular access variant the first human implant was performed through the femoral vein with a hole across the barrier, crossing the anterograde aneurysm valve and spreading [3]. Soon a more pronounced retrograde approach through femoral artery has gained popularity and has become the “golden standard” in clinical practice. However, because some patients have zigzag, calcined or simply very narrow femoral femoral ilio vessels

make them unsuitable for transfemoral-tavre (TF-TAVR), the need for alternative vascular access route is obvious. In the beginning, Transcatheter Aortic Valve Replacement (TA-VA) was an attractive alternative. Later it became apparent that was associated with an increased risk of bleeding, myocardial infarction, pulmonary complications and a generally higher risk of postoperative mortality compared to TF-TAV [4,5]. The causes are not entirely clear and can be attributed to a more invasive procedure involving a thoracic incision, to pre-selection of patients (as TA-VA is considered only if TF-TAV is not possible), or to combine the two. However, the research continued to use the subclavian artery or axilla, ascending aorta, or carotid artery as an alternative to TF-TAVR and has been widely investigated in recent years. Results from the ROT register show promising results with direct cross-artery approach. However; this involves partial shear or thoracic thoracic [4] and usually requires tugging across the axillary or cross-clavicle taper surgical cut, although successful skin conditions have been reported about it [5,6]. Similarly, carotid access can be safely performed, even under local anesthesia alone.

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