

Honorary Editor : Dr. Dhaval Naik



Transcatheter Aortic Valve Implantation (TAVI) or Transcatheter Aortic Valve Replacement (TAVR) is the replacement of the aortic valve of the heart without performing surgery or stopping the heart. It is indicated in severe symptomatic aortic stenosis in high risk patients associated with surgical aortic valve replacement in elderly patients and those with concomitant severe systolic heart failure or coronary artery disease, as well as in people with comorbidities such as cerebrovascular and peripheral arterial disease, chronic kidney disease, and chronic respiratory dysfunction. CIMS Hospital is pioneer in this technology in Gujarat and so far we have done 9 cases of TAVI.

Transcatheter Aortic Valve Implantation (TAVI)

Introduction

Human heart is made of muscles and is about the size of our fist. The primary function of the Heart is to pump blood into the body (pure blood) and into lungs (Impure blood). It has four valves which are synchronized to open and close according to heart's rhythm. Heart valves play a very important role in ensuring blood flows in the correct direction within the heart and out of it so that eventually human body is assured proper blood supply.

Aortic Valve is situated between Left ventricle and aorta or in other words, it's a gate between heart and body and ensures adequate blood goes into the body and must not regurgitate back. Narrowing of this valve

increases with advanced age.

Aortic stenosis usually leads to an abnormal

is very common diseases particularly, it

Aortic stenosis usually leads to an abnormal heart sound (murmur). Sonography of the heart (Echocardiography) confirms it. Additional investigations like CT scan, ECG helps to facilitate diagnosis. Once confirmed the further management of Aortic valve stenosis will depend on its severity and associated symptoms.

While surgery-aortic valve replacement remains the gold standard therapy either conventional or minimally access, transcatheter aortic valve implantation (TAVI) has been emerged as an alternative in elderly patients, inoperable or of higher surgical risk. In the recently published European guidelines on valvular heart disease, the variety of treatment options for aortic stenosis has now been acknowledged, and the multidisciplinary "Heart Team" placed in a central position to determine the most appropriate individualized therapy for patients. In this article we describe how these new guidelines can be implemented in daily practice.



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Heart Team

Mostly, Aortic valve Replacement surgeries are performed through sternotomy. The patient is placed under general anesthesia and the breast bone is cut open. The heart is stopped and a heart lung machine takes over the function of the heart temporarily. The surgeon will then completely remove the diseased aortic valve and place a new valve. The heart is then restarted and the chest incision is closed.

TAVR procedure can be done without general anesthesia and does not require stopping the heart or opening the chest cavity. It is a minimally invasive, catheter based technique during which the doctor replaces the patient's diseased valve with a bioprosthetic valve. Once in place, the valve immediately begins functioning. Patient can be discharged from the hospital within a few days and will have a much shorter recovery period compared to open heart surgery. This novel, interventional technique is somewhat similar to angioplasty and is done in the Cardiac Catheterization Lab or hybrid operation theatre.

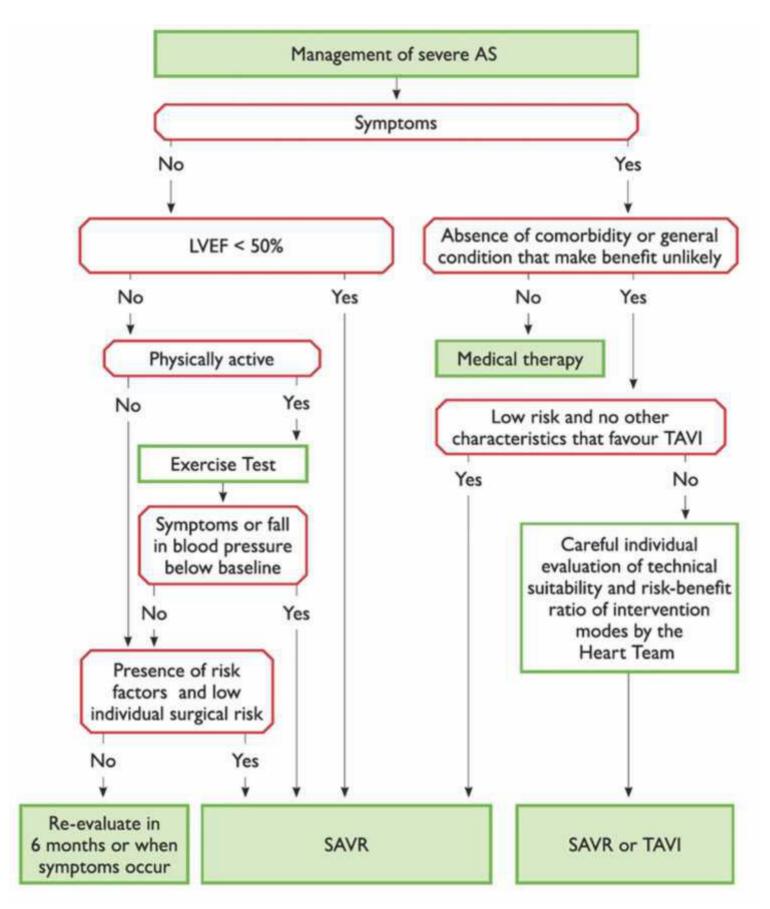
If you have been diagnosed with severe aortic stenosis associated with high risks, TAVR may be a better alternative for you. However only a specialized Heart Team can determine which treatment option is best for patients.

The recently published European guidelines on the treatment of valvular heart disease have placed the "Heart Team", a multidisciplinary team of cardiologists, cardiac surgeons and anesthetists to enhance the decision process to select the most appropriate therapy for individual patients. While it is recognized that low-risk patients with AS (STS score <4%, logistic EuroSCORE I <10%) should be directly considered for surgical AVR and TAVI is reserved for high risk patients. Below mentioned table fairly gives idea to select the modality either to go for TAVI or Surgical AVR.

	Favours TAVI	Favours SAVR
Clinical characteristics		
STS/EuroSCORE II <4% (logistic EuroSCORE I <10%)		+
STS/EuroSCORE II ≥4% (logistic EuroSCORE I ≥10%)	+	
Presence of severe comorbidity (not adequately reflected by scores)	+	
Age <75 years		+
Age ≥75 years	+	
Previous cardiac surgery	+	
Frailty	+	
Restricted mobility and conditions that may affect the rehabilitation process after the procedure	+	
Suspicion of endocarditis		+
Anatomical and technical aspects		
Favourable access for transfemoral TAVI	+	
Unfavourable access (any) for TAVI		+
Sequelae of chest radiation	+	
Porcelain aorta	+	
Presence of intact coronary bypass grafts at risk when sternotomy is performed	+	
Expected patient-prosthesis mismatch	+	
Severe chest deformation or scoliosis	+	
Short distance between coronary ostia and aortic valve annulus		+
Size of aortic valve annulus out of range for TAVI		+
Aortic root morphology unfavourable for TAVI		+
Valve morphology (bicuspid, degree of calcification, calcification pattern) unfavourable for TAVI		+
Presence of thrombi in aorta or LV		+
Cardiac conditions in addition to aort require consideration for concomitan		
Severe CAD requiring revascularization by CABG		+
Severe primary mitral valve disease, which could be treated surgically		+
Severe tricuspid valve disease		+
Aneurysm of the ascending aorta		+
Septal hypertrophy requiring myectomy		+



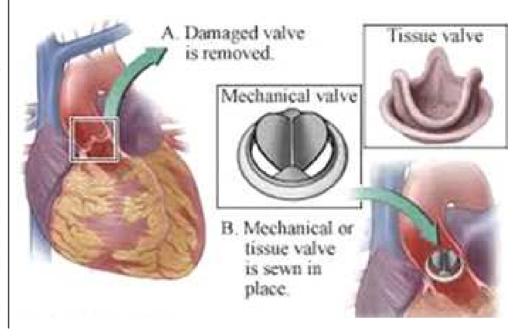






Various clinical studies have shown TAVR procedure to have a lower incidence of death and stroke compared to open heart surgery. TAVR may shorten recovery time to allow patients to get back to everyday activities. Patients have reported quality of life improvements within 30 days including the ability to take care of themselves.

In CIMS Hospital, we have performed 9 TAVI procedures; highest in Gujarat. All patients were old and had multiple co-morbidities hence, unfit for surgery. Last four cases were performed only under mild sedation without anesthesia. There was no mortality though all patients were very high risk for the procedure.











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- All 5 patients not only survived, but also went back home without any complication and disability within 7 days. Successful outcome...

What patient's relative had to say about CIMS....

CIMS Trauma Team gave timely treatment to all of my relatives and we appreciate such compassionate approach and prompt response. The stateof-the-art infrastructure of CIMS Hospital is very impressive. The supportive staff was very friendly and co-operative.







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