HEALTHY HEART

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Honorary Editor :
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Interventional Cardiologist

Dear Friends,

Transcatheter aortic valve replacement (TAVR)/ Transcatheter aortic valve implantation (TAVI) has matured into an accepted mainstay treatment option for patients with severe symptomatic aortic valve stenosis (AS) across the whole spectrum of risk. The advances in the interventional treatment of AS has raised the question of which patients with severe AS should still be referred to surgery. The myriad of clinical permutations does not allow providing a single, uniform treatment strategy for all patients. Rather, the advent of TAVI along with established surgical aortic valve replacement (SAVR) fundamentally enforces the role of the multidisciplinary heart team for decision-making recommendations.

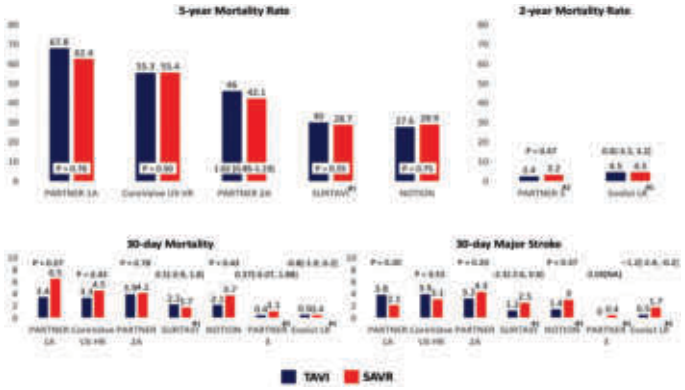
Management of Aortic Stenosis & TAVR / TAVI

Introduction

Transcatheter aortic valve implantation (TAVI) has been directly compared with surgical aortic valve replacement (SAVR) in a series of randomized clinical trials across the entire spectrum of surgical risk. Across these trials, TAVI has consistently been associated with clinical outcomes better or comparable to SAVR in terms of all-cause death and stroke throughout longest available follow-up (Figure:1).

In a meta-analysis including seven landmark trials, TAVI was associated with a modest reduction in all-cause death and stroke throughout 2 years irrespective of surgical risk and type of transcatheter heart valve (THV) system, a difference that was apparent in patients allocated to transfemoral TAVI. These excellent outcomes, albeit still mid-term, have led to a paradigm shift in the management of patients with severe aortic valve stenosis (AS) by establishing a less-invasive treatment that allows for more rapid recovery while providing similar clinical benefits as the previous gold standard SAVR.

Figure: 1 Short and long-term outcomes of major randomized clinical trials



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GUIDELINES

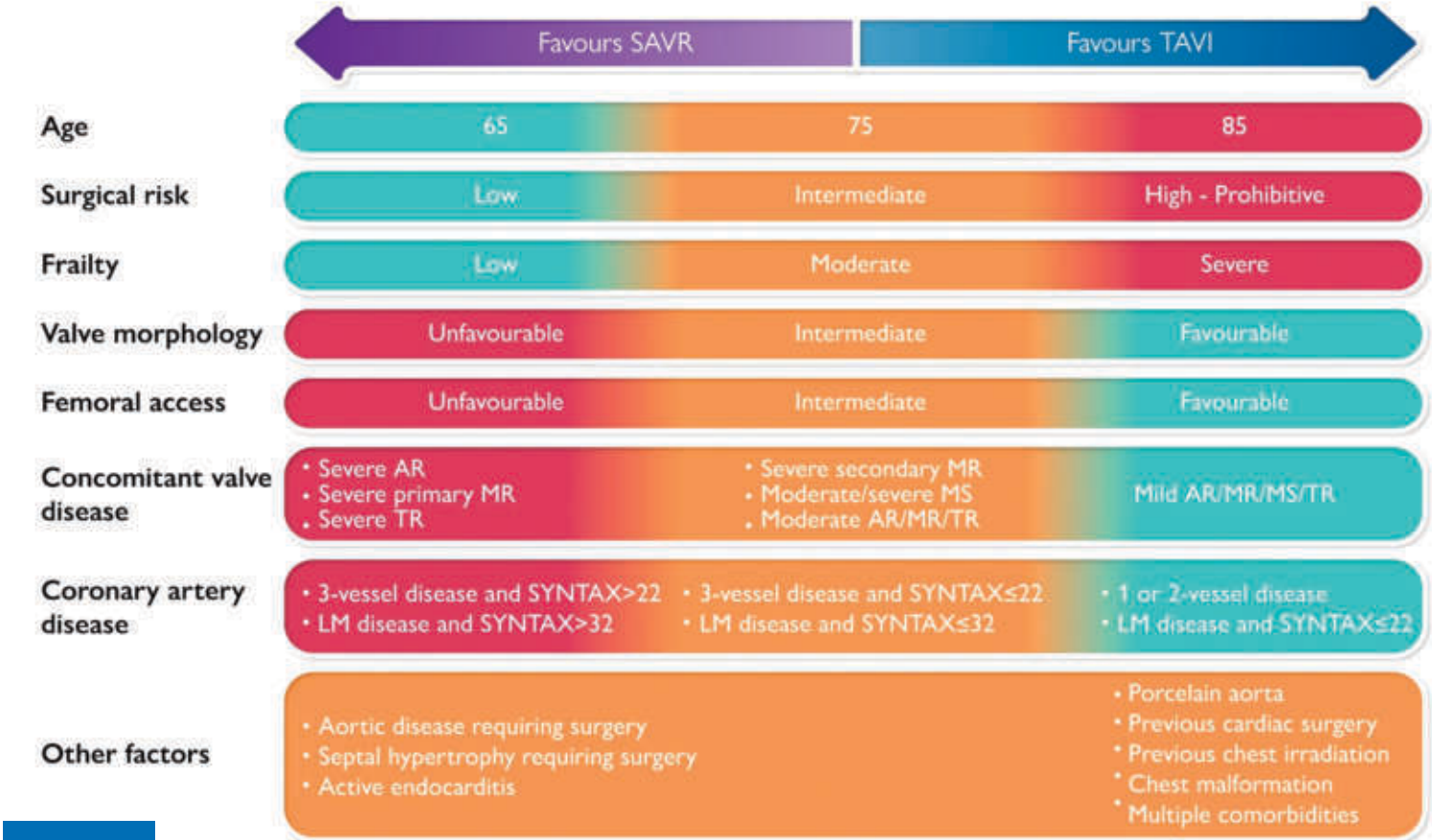
As a result, current European and US guidelines for the management of valvular heart disease consider transfemoral TAVI and SAVR both Class I recommendations for the majority of patients with severe, symptomatic AS.

Guideline recommendations choice of surgical aortic valve replacement vs. transcatheter aortic valve implantation for whom a bioprosthesis is appropriate

Recommendations	TAVI		SAVR	
	Classa	Levelb	Classa	Levelb
Symptomatic and asymptomatic patients with severe AS and any indication for AVR who are <65 years of age or have a life expectancy over 20 years			I	A
Symptomatic patient with severe AS who are 65-80 years of age and have no anatomical contraindication to transfemoral TAVI	I	A	I	A
Symptomatic patient with several AS who are >80 years of age or younger patients with a life expectancy <10years and no anatomic contraindication to transfemoral TAVI	I	A	IIb	A
Asymptotic patients with sever AS and an LVEF <50 who are 65-80years of age and have no anatomic contraindication to transfemoral TAVI	I	B NR	I	B NR
Asymptotic patients with sever AS and an abnormal exercise test, very severe AS, rapid progression, or an elevated BNP			I	B NR
Patient with an indication for AVR but vascular anatomy or other factor are not suitable for transfemoral TAVI			I	A
Symptomatic patients of any age with severe AS and a high or prohibitive surgical risk (estimated life expectancy >12 months)	I	A		
2021 ESC/EACTs Guidelines for the Management of Valvular Heart Disease				
Younger (<75 years)patients who are low risk for surgery (STS PROM/EuroScore II<4%), or patients who are operable and unsuitable for transfemoral TAVI			I	B
Older(>75years)patients, or in those who are high risk(STS PROM) EuroScore II>8%),or unsuitable for surgery	I	A		
Remaining patients according to individual clinical, anatomical, and procedural characteristics	I	B	I	B

2020 ACC/AHA Guidelines for the management of Valvular Heart Disease

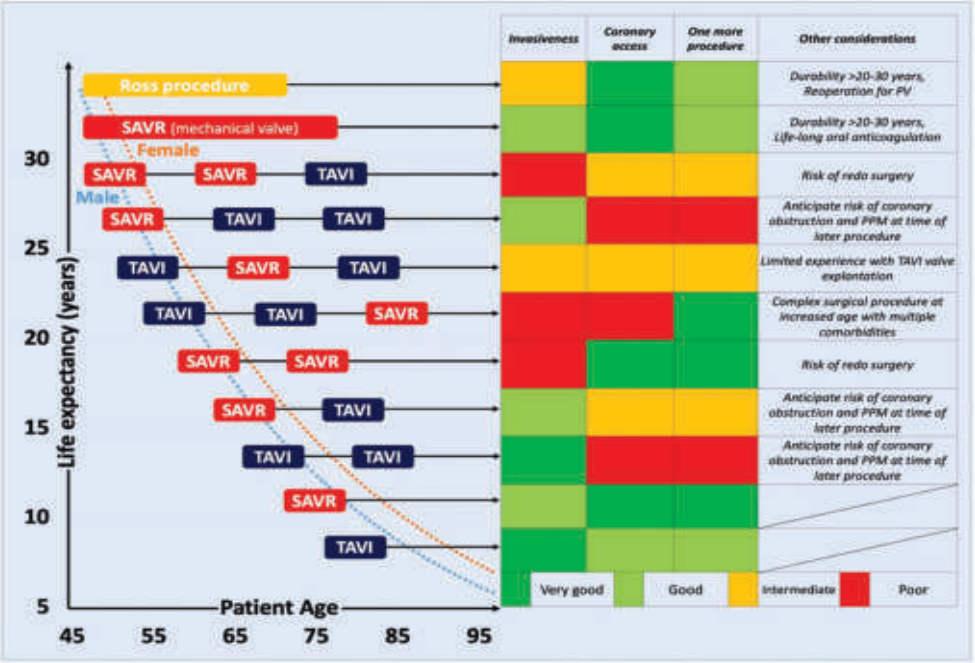
The decision is usually made by local heart teams taking into consideration multiple and complex clinical and anatomical factors.



LIFETIME MANAGEMENT

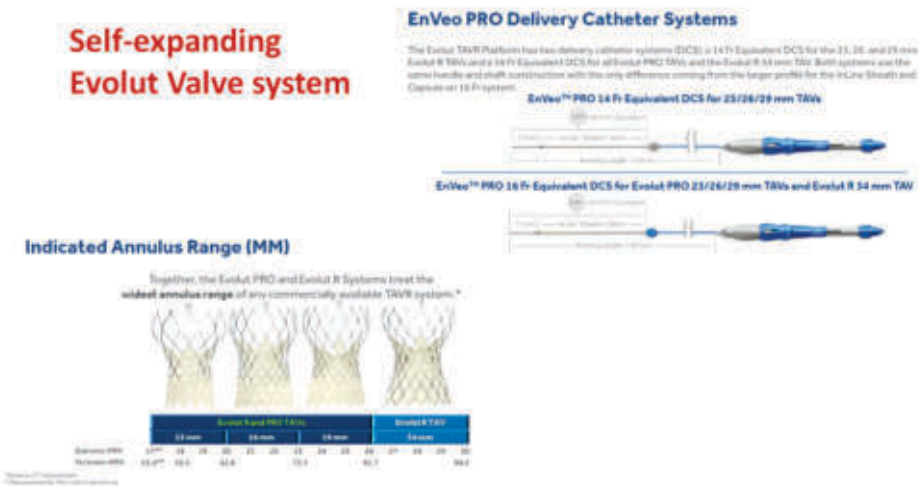
As TAVI is expanding to younger and low-risk patients with longer life expectancy, it becomes increasingly important to anticipate lifetime management looking beyond the first 10–15 years after the index procedure and prospectively considering subsequent aortic valve replacement strategies. Various treatment strategies can be considered depending on the patient's life expectancy (Figure:2); however, as there is no robust evidence supporting any of the strategies, it is important to regularly update available evidence and recognize the uncertainties that exist for

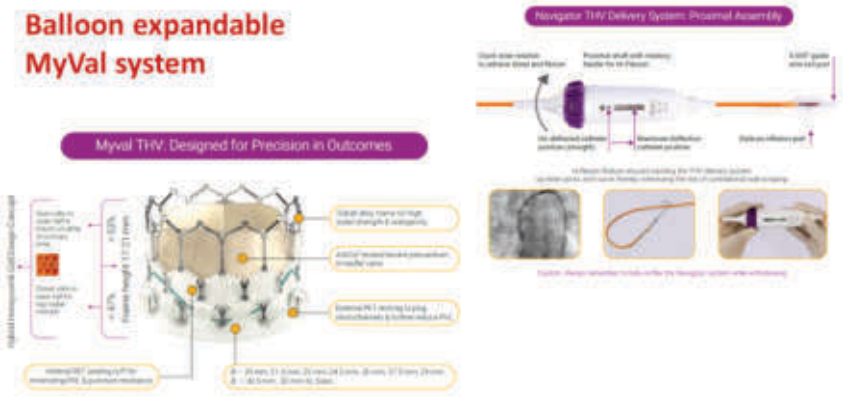
Figure: 2 Short and long-term outcomes of major randomized clinical trials



TAVR/TAVI VALVES

There are 2 types of TAVI / TAVR Valves: (i) Self-expanding valves (II) Balloon expandable valves





'Which patients with severe AS should be referred to TAVI or surgery (SAVR)?' is an evolving clinical question in the management of patients with severe AS that has arisen with the advent of TAVI and its reproducible, excellent outcomes. Anatomical and clinical factors, related to TAVI and SAVR, and lifetime management strategies now take center stage in the decision-making process. The multidisciplinary heart team plays a pivotal role to provide an optimal treatment recommendation in a shared decision-making process for individual patients.

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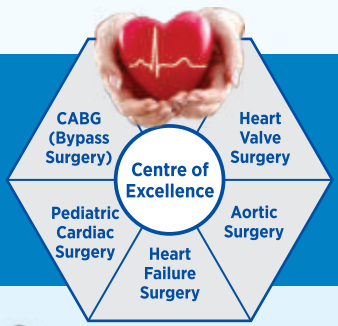

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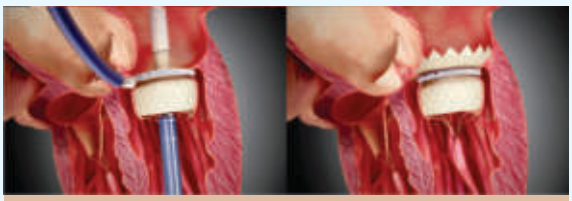
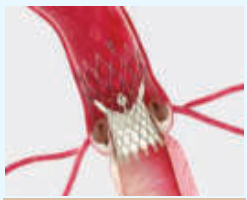


Balloon Expandable Valve

32nd TAVI
Transcatheter Aortic Valve Implantation

Balloon Expandable Valve



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