From Surgical to Transcatheter Options for the Management of Aortic Stenosis

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Severe aortic stenosis (AS) has long been considered a surgical disease. Symptomatic AS is associated with very high mortality during short and intermediate follow up. A number of factors including age, comorbidities and frailty render AS patients either inoperable or at unacceptably high risk for surgical aortic valve replacement (SAVR).

Therefore, non-surgical methods to replace aortic valve have long been needed. Recently, the publication of the Nordic Aortic Valve Intervention (NOTION), Placement of Aortic Transcatheter Valve Trial 1 (PARTNER 1) and Placement of Aortic Transcatheter Valve Trial 2 (PARTNER 2) trials have shifted the paradigm for management of severe AS in patients deemed inoperable or at high risk as per the society of thoracic surgery risk prediction model [1].

The results of these trials suggest that the transcatheter replacement of aortic valves (TAVR) is associated with significant improvement in mortality compared with medical management. In patients at intermediate risk, TAVR is an acceptable option with similar mortality and lesser morbidity compared with SAVR [2]. There are several routes through which the aortic valves can be implanted via transcatheter approach but the predominant method is through the transfemoral route. The transthoracic approach is associated with greater morbidity and mortality and is reserved for cases in which the transfemoral route is not an option, for instance in the setting of severe peripheral vascular disease and the ensuing calcification.

The main periprocedural complications of TAVR seem to be the risk for permanent pacemaker implantation (PPM) and the risk of stroke. The risk of PPM implantation appears similar between the SAVR versus TAVR patients based on the results of the PARTNER 2 trial [3]. Similarly, with the advent of better equipment facilitating implantation, the risk of stroke may decrease.

TAVR represents an important medical advancement that has revolutionized the treatment of severe AS. Further studies are underway to assess the outcomes of TAVR in patients with low risk of surgical mortality and the results of those studies are anxiously awaited.

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