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Commentary: Management of bioprosthetic valve failure—strategic planning for the future

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We read with great interest the invited expert opinion by Clark and colleagues.¹ Treatment of bioprosthetic structural valve deterioration is an increasingly challenging clinical entity, and the authors are to be congratulated for their concise yet extensive overview. We agree with the authors' appraisal of existing literature in that the valve-in-valve transcatheter aortic valve replacement (ViV-TAVR) approach to structural valve deterioration appears to be associated with favorable outcomes over reoperative surgical aortic valve replacement (re-SAVR), at least in the short term. This is in contrast to the existing literature showing good long-term durability of re-SAVR, given that the implanted valve will generally behave similarly to the index

CENTRAL MESSAGE

Heart teams should systematically and strategically plan for the future when determining the choice of initial treatment strategy between transcatheter and surgical aortic valve replacement.

bioprosthesis.^{2,3} Furthermore, a recent French study

demonstrated superior 5-year outcomes of lower cumulative event rates in the re-SAVR group, mainly attributed to fewer rehospitalizations for heart failure and lower pacemaker implantation rates.⁴ Unfortunately, all the studies comparing ViV-TAVR and re-SAVR are nonrandomized observational studies with limited long-term head-to-head follow-up and do not adequately risk-adjust for key clinical and anatomical confounders (eg, frailty, risk of patient-prosthesis mismatch, and coronary obstruction). Therefore, the need for a randomized control study has been debated, although it will be challenging because of the small population and the need for long-term follow-up. Given the superior short-term outcome and less invasiveness, we believe ViV-TAVR is here to stay, but the long-term outcome should be carefully assessed.

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FIGURE 1. Algorithm for transcatheter aortic valve replacement (TAVR) versus surgical aortic valve replacement (SAVR) in patients aged 65 years. AS, Aortic stenosis; PVL, paravalvular leak; SVD, structural valve deterioration; Sig, significant; ViV, valve-in-valve.

Although the emerging evidence on repeat interventions, such as ViV-TAVR, repeat TAVR, and TAVR explant, has provided useful data for the multidisciplinary heart teams,⁵⁻⁷ the choice of treatment between SAVR or TAVR at the index intervention is extremely critical yet nuanced, especially for young patients. We often gauge the success of these procedures based on 30-day or 1-year outcomes, but as the concept of lifetime management of the valvular disease expands, we must also learn to strategically plan for the future. **Figure 1** shows our proposed algorithm for selecting the intervention of choice between TAVR and SAVR in low-risk patients older than age 65 years. If a patient has unsuitable anatomy for TAVR based on computed tomography, he/she should undergo SAVR. If the anatomy is suitable for TAVR, the feasibility of the second procedure, the repeat TAVR, should be assessed. If the risk of patient–prosthesis mismatch and coronary obstruction risk is high, SAVR with concomitant possible root enlargement or replacement to allow future ViV-TAVR should be considered.⁸ Setting up the index SAVR for the subsequent ViV-TAVR is critical, especially given that the larger surgical prosthesis and the high coronary height has been associated with better survival in ViV-TAVR.⁹ The role of heart teams continues to intensify, so the time is now for us surgeons to start thinking forward and plan for the future at the time of index AVR procedure, particularly in younger, low-risk patients to ensure success at the time of bioprosthetic valve failure.

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