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Commentary: Surgical aortic valve replacement after transcatheter aortic valve replacement: Is it time to reconsider the lifelong management?

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On the basis of clinical evidence of multiple clinical randomized trials, the number of transcatheter aortic valve replacement (TAVR) procedures performed in North America has surpassed the number of isolated surgical aortic valve replacement (SAVR) procedures according to the Society of Thoracic Surgeons Adult Cardiac Surgery Database.¹⁻⁵ Because TAVR is used in younger patients, valve reintervention is inevitable because of structural valve deterioration, significant paravalvular leak (PVL), severe prosthesis-patient mismatch, endocarditis, or the need for additional procedures.⁶⁻⁸

In this issue of the *Journal*, Fukuhara and colleagues⁹ report on trends, indications, and outcomes of repeat TAVRs and TAVR explants on the basis of Michigan state data and provide several important takeaways. Although the overall frequency of aortic valve reintervention after TAVR was only 0.9%,⁹ the percentage of reinterventions is trending significantly upward, and the proportion of TAVR explant rose from 13% to 65% between 2014 and 2019.⁹ The reintervention rate after TAVR was higher in self-expanding valves compared with balloon-expanding valves, likely because of the higher rate of surgical TAVR explants among self-expanding valves. Repeat TAVR was performed for aortic stenosis

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CENTRAL MESSAGE

Surgical risks of TAVR explant are formidable compared with repeat TAVR or redo surgical AVR. Thus, the lifelong management of patients with aortic stenosis should be taken into consideration.

(AS), aortic insufficiency, PVL, or mixed AS/aortic insufficiency, whereas TAVR explant was performed for conditions such as severe PVL, unfavorable coronary anatomy, concomitant surgical procedure, endocarditis, and TAVR-related structural issues, which are contraindications for repeat TAVR.^{9,10}

Comparison of early mortality and observed-to-expected (O/E) mortality ratios for TAVR explant, repeat TAVR, and redo SAVR are other crucial topics. The current study⁹ and that of Kaneko and colleagues¹¹ (on the basis of Society of Thoracic Surgeons Adult Cardiac Surgery Database data) showed early mortality of 15% for TAVR explant, 2% for repeat TAVR, and 4.6% for redo SAVR. Likewise, the O/E mortality ratio was 1.8 for TAVR explant, 0.3 for repeat TAVR, and 0.9 for redo SAVR.⁹⁻¹¹

Why are there large differences in mortality and O/E ratios? First, approximately two-thirds of TAVR explant patients underwent concurrent procedures such as aortic repair, mitral/tricuspid repair, root enlargement, or coronary artery bypass grafting. These conditions might have been present at the time of the original procedure and worsened by the time of explant. Patients with complex coronary disease or concomitant valve disease who undergo TAVR might sacrifice more comprehensive management for the sake of convenience.¹² Second, TAVR explants are technically more demanding because of severe adhesion of devices to the aortic wall, especially at the sinotubular

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junction for self-expandable devices.^{9,10} Accordingly, 32% (11/34) of TAVR explant patients underwent aortic repair, of which 36% (4/11) were unplanned procedures because of tissue trauma during explantation.⁹ Most SAVR valves are stented bioprostheses with a short stent frame, which are easier to explant and less likely to lead to aortic repair.

As the role of TAVR for treatment of AS has expanded into lower-risk and younger patients, the number of TAVR explants is likely to increase. On the basis of the high mortality and morbidity risk of TAVR explantation in the current study and others,⁶⁻¹⁰ members of heart teams should consider not just the feasibility of the TAVR procedure, but also the lifelong risks and benefits of TAVR.

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