procedures offers those who are high-risk for redo-surgery—or are inoperable—an opportunity for treatment. For patients who are of low or intermediate risk, heart teams must debate the relative efficacies of each approach, acknowledging the excellent outcomes of redo-surgery available at some centers together with the unknown long-term results of ViV procedures.

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Commentary: Doing it and (re) doing it well

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Mitral valve replacement in the United States still represent of 34% of isolated mitral valve procedures with 70% of implanted prostheses being bioprosthetic valves.¹ Unfortunately, mitral bioprostheses have limited durability, yet reoperative mitral valve surgery has been associated with increased morbidity and mortality with some reports advocating use of mechanical valves for patients younger than age 70 years.² Transcatheter valve technologies have been developed to mitigate the risk of valvular surgery for prohibitive- and high-risk patients, with recent expansion of indications for valve-in-valve treatment of structural deterioration of mitral bioprostheses.³ Although short term-outcomes of this treatment strategy have been encouraging,³ distant results are lacking. To best define treatment pathways for patients with failed mitral bioprosthetic

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CENTRAL MESSAGE

Mitral valve re-replacement for bioprosthetic structural valve deterioration in selected patients can be performed with very good perioperative and long-term survival.

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valves, reoperative surgical risk needs to be benchmarked versus less invasive but potentially less durable transcatheter therapies. Javadikasgari and colleagues⁴ from the Cleveland Clinic present a large cohort of 525 patients who underwent bioprosthetic mitral valve re-replacement for structural valve deterioration. The authors should be congratulated on very low mortality of only 0.75% in the isolated valve replacement subgroup, 7.1% mortality for combined procedures, and impressive long-term survival of approximately 50% at 10 years.

Although the outcomes for patients undergoing combined procedures are quite good, the outstanding results in

isolated valve replacement deserve further attention. The authors were able to achieve <1% mortality although 38% of patients had at least 2 prior cardiac operations before valve re-replacement. It would be interesting to see whether less-invasive surgical approaches were utilized and contributed to these results, but those data were not reported. A large registry of percutaneous valve-in-valve therapy of more than 1500 patients reported 30-day mortality of 5.4%, although for an older patient cohort with a mean Society of Thoracic Surgeons (STS) risk score of 11.2%.³ The STS score was not calculated in the current study, and therefore a direct comparison is difficult. However, the mean STS score of 17,195 patients undergoing reoperative mitral surgery from a national sample was reported at 8% with more than 20% of patients having a risk score >10%.⁵ The overall mortality for the entire group was 6.6% demonstrating again excessive risk prediction with statistical models.⁶ For patients undergoing mitral valve replacement for noninfectious etiologies after prior mitral surgery, the operative mortality was reported at only 3.5%. These data further benchmark 30-day results for transcatheter approaches and demonstrate that very good outcomes for reoperative mitral surgery can be achieved outside of centers of excellence because 962 centers contributed patient data. Direct comparisons of surgical versus percutaneous treatments for bioprosthetic mitral valve deterioration are lacking in the literature, but Komioka and colleagues⁷ recently reported similar perioperative mortality of approximately 3% in 59 patients undergoing surgical and 62 patients undergoing percutaneous treatment of failed mitral bioprostheses although the STS risk score was greater in the interventional group (12.7% vs 8.7%). Mitral valve gradients

were significantly higher in the percutaneous patients at 1 year.

The current study demonstrates that mitral valve re-replacement for structural valve deterioration in selected patients is a safe and durable procedure that should remain a part of the surgical armamentarium. Percutaneous approaches offer hope for less-invasive therapy and options for high- and prohibitive-risk patients, but these novel technologies should be benchmarked not only to the periprocedural period, but also to long-term outcomes of surgery.

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