Commentary: Aortic valve reoperation: “You are probably not going to have one”

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There are two facts every surgeon should share with middle-aged patients who are deciding between bioprosthetic and mechanical aortic valve replacement prosthesis. These are highlighted by the study from Iribarne and colleagues in this issue of *The Journal of Thoracic and Cardiovascular Surgery*.¹

One fact is well recognized: middle-aged recipients of mechanical and biological aortic valves have very similar long-term survival. Iribarne and colleagues confirm this finding, previously reported in a single randomized study in this age group, and in 2 retrospective analyses published in the *Journal of the American Medical Association* and *The New England Journal of Medicine*.²⁻⁴ It is the main reason that patient preference is a class I indication for either a mechanical or a bioprosthetic valve in consensus guideline recommendations for this age group.⁵

The second fact is less understood—which is problematic because it is a major consideration for most patients. This is the fact that reoperation is simply not very common after bioprosthetic aortic valve replacement in the over-60 population. To quote from a recent round table of 3 of The American Association for Thoracic Surgery presidents and specialty thought leaders discussing what to say in response to the 60-year-old patient who says “I do not want a reoperation”: “Well, what we should tell them is, ‘You are probably not going to have a reoperation no matter what valve you choose.’”⁶

This is counterintuitive but supported by long-term data, which consistently indicate that only approximately 1 in 5 such patients will undergo reoperation.⁷ The cumulative incidence of explant for structural valve degeneration is only 1.5% to 2% per year in 60-year-old patients with low prosthetic transvalvular gradients, and less than 1.5% per year in 70- and 80-year-old patients irrespective of prosthetic transvalvular gradient.⁷ Patients are much more likely to die than undergo reoperation—so the actual (as opposed to actuarial) risk of reoperative valve replacement is relatively low.⁷ Additionally, advances in valve technology

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Central Message

Middle-aged recipients of bioprosthetic aortic valves have survival similar to mechanical valve recipients, and reoperation for structural valve degeneration is relatively uncommon.

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such as valve preservation and transcatheter modalities continue to reduce the need for redo surgery.

These reasons partly explain why only 8% (n = 69) of the cohort of 869 recipients of bioprosthetic aortic valve replacement underwent reoperation over a 26-year study period.¹ However, perhaps the most important explanation for the low rate of reoperations is that the follow-up data in the study by Iribarne and colleagues¹ are highly skewed, because most bioprosthetic patients were operated on late in the study period. This was compounded by the authors' decision to include patients operated on until the last year of the study—consequently, follow-up for bioprosthetic patients averaged only 6 years, and less than 12 months for many patients. Irrespective, the operative mortality associated with bioprosthetic valve reoperation was remarkably low, with only 1 death from 69 reoperations in the entire cohort of 869 recipients of bioprosthetic valves.

One death from valve reoperation across a 26-year-study period and 869 recipients of bioprosthetic valves is an impressive statistic. However, the real strength of this clinical registry lies in the potential to individualize patient choice in the basis of detailed, long-term analysis of echocardiographic and functional end points, rather than just death and reoperation.

References

1. Iribarne A, Leavitt BJ, Robich MP, Sardella GL, Gelb DJ, Baribeau YR, et al. Tissue versus mechanical aortic valve replacement in younger patients: a multicenter analysis. *J Thorac Cardiovasc Surg*. 2019;158:1529-38.e2.

2. Stassano P, Di Tommaso L, Monaco M, Lorio F, Pepino P, Spampinato N, et al. Aortic valve replacement: a prospective randomized evaluation of mechanical versus biological valves in patients ages 55 to 70 years. *J Am Coll Cardiol*. 2009;54:1862-8.
3. Goldstone AB, Chiu P, Baiocchi M, Lingala B, Patrick WL, Fischbein MP, et al. Mechanical or biologic prostheses for aortic-valve and mitral-valve replacement. *N Engl J Med*. 2017;377:1847-57.
4. Chiang YP, Chikwe J, Moskowitz AJ, Itagaki S, Adams DH, Egorova NN. Survival and long-term outcomes following bioprosthetic vs mechanical aortic valve replacement in patients aged 50 to 69 years. *JAMA*. 2014;312:1323-9.
5. Nishimura RA, Otto CM, Bonow RO, Carabello BA, Erwin JP 3rd, Guyton RA, et al. 2014 AHA/ACC guideline for the management of patients with valvular heart disease: executive summary: a report of the American College of Cardiology/American Heart Association task force on practice guidelines. *J Am Coll Cardiol*. 2014;63:2438-88 [erratum in 2014;63:2489].
6. Sundt T, Schaff H, Soltesz EG, Uva MS, Adams DH. Mechanical vs biologic valves: our modern day conundrum. *Semin Thorac Cardiovasc Surg*. 2016;28:404-17.
7. Johnston DR, Soltesz EG, Vakil N. Long-term durability of bioprosthetic aortic valves: implications from 12,569 implants. *Ann Thorac Surg*. 2015;99:1239-47.