performance of a degenerated biological valve, a process that may happen very soon after surgery, mainly in young patients. This point is of paramount importance and should be strongly considered in the surgical plan. In fact, because the patients who underwent combined prosthetic valve replacement would become high-risk surgical patients compared with those patients who received an isolated prosthesis replacement,³ considering that the incidence of embolic and bleeding events are similar between the 2 types of prosthesis^{1,5,6} and in light of the most recent evidence regarding the promising results of mitral ViV procedures,^{4,7} surgeons must not depart from the standard indication of offering a mechanical prosthesis for young patients and should consider the biological prosthesis only for those who refuse or who do not tolerate the anticoagulant therapy and in cases of isolated mitral valve replacement that would better tolerate the surgical risk of reoperation in the future.

References

1. Chen C-Y, Chan Y-H, Wu VC-C, Liu K-S, Cheng Y-T, Chu P-H, et al. Bioprosthetic versus mechanical mitral valve replacements in patients with rheumatic heart disease. *J Thorac Cardiovasc Surg.* 2023;165:1050-60.e8.
2. Javadikasgari H, Chemtob RA, Gillinov AM, Pettersson GB, Lowry AM, Desai MY, et al. Outcomes of mitral valve re-replacement for bioprosthetic structural valve deterioration. *J Thorac Cardiovasc Surg.* August 25, 2020 [Epub ahead of print].
3. Formica F, Nicolini F. Commentary: mitral bioprosthesis degeneration: looking for a benchmark to tailor the correct procedure to the patient. *J Thorac Cardiovasc Surg.* October 9, 2020 [Epub ahead of print].
4. Whisenant B, Kapadia SR, Eleid MF, Kodali SK, McCabe JM, Krishnaswamy A, et al. One-year outcomes of mitral valve-in-valve using the SAPIEN 3 transcatheter heart valve. *JAMA Cardiol.* 2020;5:1245-52.
5. Kaneko T, Aranki S, Javed Q, McGurk S, Shekar P, Davidson M, et al. Mechanical versus bioprosthetic mitral valve replacement in patients <65 years old. *J Thorac Cardiovasc Surg.* 2014;147:117-26.
6. Schnittman SR, Itagaki S, Toyoda N, Adams DH, Egorova NN, Chikwe J. Survival and long-term outcomes after mitral valve replacement in patients aged 18 to 50 years. *J Thorac Cardiovasc Surg.* 2018;155:96-102.
7. Simonetto F, Purita PAM, Malerba M, Barbierato M, Pascotto A, Mangino D, et al. Surgical redo versus transseptal or transapical transcatheter mitral valve-in-valve implantation for failed mitral valve bioprosthesis. *Catheter Cardiovasc Interv.* 2021;97:714-22.

See Article page 1050.

Commentary: Different problem, different place... same conversation

Andrew M. Vekstein, MD, and
Oliver K. Jawitz, MD, MHS

The choice between mechanical valve or bioprosthetic valve replacement in patients with severe mitral disease remains controversial.¹ The maximum age at which mechanical replacement is recommended has been cited as between 65 and 70 years.² The option for future valve-in-valve transcatheter replacement has driven a recent shift toward bioprosthetic valve use; however, there is more experience with this approach in the aortic position.^{3,4} The ideal valve choice in patients with severe rheumatic mitral disease

Andrew M. Vekstein, MD, and Oliver K. Jawitz, MD, MHS

CENTRAL MESSAGE

The relationship of patient age and long-term outcomes following bioprosthetic valve versus mechanical mitral valve replacement is similar in patients with rheumatic heart disease and those with degenerative heart disease.

remains unclear. Rheumatic etiologies (RHD) continue to represent the most common cause of mitral valve disease in the developing world. Although this disease affects

From the Division of Cardiovascular and Thoracic Surgery, Department of Surgery, Duke University Medical Center, Durham, NC.

Disclosures: The authors reported no conflicts of interest.

The *Journal* policy requires editors and reviewers to disclose conflicts of interest and to decline handling or reviewing manuscripts for which they may have a conflict of interest. The editors and reviewers of this article have no conflicts of interest.

Received for publication March 21, 2021; revisions received March 21, 2021; accepted for publication March 23, 2021; available ahead of print March 26, 2021.

Address for reprints: Oliver K. Jawitz, MD, MHS, Department of Surgery, Duke University Medical Center, Box #3850, Durham, NC, 27710 (E-mail: oliver.jawitz@duke.edu).

J Thorac Cardiovasc Surg 2023;165:1062-3

0022-5223/\$36.00

Copyright © 2021 by The American Association for Thoracic Surgery

<https://doi.org/10.1016/j.jtcvs.2021.03.071>

patients of all ages, the literature is disproportionately directed at younger patients.

In the current issue of the *Journal*, Chen and colleagues⁵ leverage the Taiwan National Health Insurance Research Database to compare long-term outcomes after bioprosthetic and mechanical mitral valve replacement. In a propensity score matched analysis of 3653 RHD patients age >20 years, a multivariable model was developed to compare late mortality and other endpoints of interest. Consistent with studies of degenerative mitral disease, the reintervention rate was higher in the bioprosthetic group. There was a non-statistically significant trend toward a higher number of thromboembolic events with the mechanical valves. When age was added as an interaction term, the trend toward a benefit with mechanical valves was present until age 65 years.

The authors should be commended for a well-designed analysis of a robust national database. Although the study generates important data for surgeons choosing the appropriate prosthesis in patients with RHD, the conversation remains remarkably similar to that of patients with degenerative mitral disease. The choice between bioprosthetic and mechanical valve should be a

patient-specific decision, accounting for age, need for anti-coagulation, comorbidities, and valve anatomy, among other factors, with the etiology of mitral disease playing a less significant role. Whether in rheumatic or degenerative mitral valve disease, age 65 seems to represent a consistent inflection point before which the durability of a mechanical valve can be expected to translate into an overall survival benefit in the appropriate patient.

References

1. Chikwe J, Chiang YP, Egorova NN, Itagaki S, Adams DH. Survival and outcomes following bioprosthetic vs mechanical mitral valve replacement in patients aged 50 to 69 years. *JAMA*. 2015;313:1435-42.
2. 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.
3. Tuzcu EM, Kapadia SR, Vemulapalli S, Carroll JD, Holmes DR Jr, Mack MJ, et al. Transcatheter aortic valve replacement of failed surgically implanted bioprostheses: the STS/ACC Registry. *J Am Coll Cardiol*. 2018;72:370-82.
4. Whisenant B, Kapadia SR, Eleid MF, Kodali SK, McCabe JM, Krishnaswamy A, et al. One-year outcomes of mitral valve-in-valve using the SAPIEN 3 transcatheter heart valve. *JAMA Cardiol*. 2020;5:1245-52.
5. Chen C-Y, Chan Y-H, Wu VC-C, Liu K-S, Cheng Y-T, Chu P-H, et al. Bioprosthetic versus mechanical mitral valve replacements in patients with rheumatic heart disease. *J Thorac Cardiovasc Surg*. 2023;165:1050-60.e8.