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Commentary: Sutureless bioprosthesis: Simpler than conventional bioprostheses

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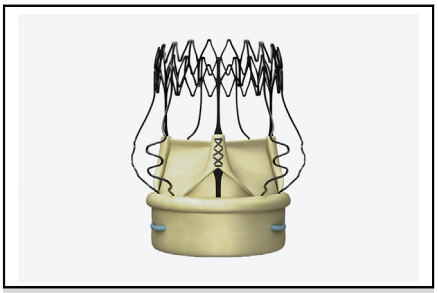

Perceval valve.

CENTRAL MESSAGE

Identifying the potential advantages of the Perceval sutureless bioprosthesis will require long-term evaluation. The prospective, randomized PERSIST-AVR trial revealed noninferior characteristics to conventional bioprostheses at 1 year.

Sutureless aortic bioprostheses, represented by the Perceval bioprosthesis, has been the most recent advancement of aortic replacement prostheses to follow conventional bioprostheses and transarterial valve implantation (TAVI). The predominant consideration is to facilitate aortic replacement for severe symptomatic aortic stenosis that will serve the lifetime of the patient. In each case, the patient, surgeon, and cardiologist must choose between mechanical prostheses and the various formulations of bioprostheses.

In this issue of the *Journal*, Fischlein and colleagues[1] report on the PERSIST-AVR trial comparing the Perceval sutureless bioprosthesis with conventional standard bioprostheses in a noninferiority assessment of major adverse cerebral and cardiovascular events (MACCE) at 1 year. MACCE is a composite of all-cause death, myocardial infarction, stroke or valve intervention at 1 year.

The patient population comprised 910 patients from 47 centers in 12 countries with similar age, sex, surgical procedure (mini-sternotomy), concomitant procedures, and Society of Thoracic Surgeons score. The authors found that the sutureless Perceval valves were associated with reduced surgical times (71.0 minutes vs 87.8 minutes) and cross-clamp times (48.5 minutes vs 65.2 minutes) but a higher rate of pacemaker implantation (11.1% vs 3.6% at 1 year). The trial revealed that the sutureless bioprosthesis was noninferior to stentless bioprostheses (type not identified).

The authors report that sutureless bioprosthesis should be considered within a comprehensive prostheses program. The surgical procedure time could be of importance in prolonged complex procedures. The mini-sternotomy procedure may be more common with the sutureless bioprostheses. The trial incorporated preoperative computed tomography scan for annular measurements (23.2-24.0 mm) and postoperative echocardiography, which revealed similar minimal central and periprosthetic leakage.

The trial data support the safety and efficacy of the Perceval bioprosthesis. The role of TAVI for subsequent structural valve deterioration will need to be determined, for TAVI might not be as effective with the Perceval bioprosthesis than with standard conventional bioprostheses. The risk of a requirement for permanent pacemaker is of critical importance. The authors found that heart block occurred predominantly with the XL prosthesis (25% of implants). The XL prosthesis has been remodeled, with reports of a reduced need for pacemaker replacement. These factors will help determine whether the Perceval bioprosthesis can be considered as a lifetime aortic valve replacement.

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Disclosures: The author 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 Dec 3, 2020; revisions received Dec 3, 2020; accepted for publication Dec 3, 2020; available ahead of print Dec 9, 2020.

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J Thorac Cardiovasc Surg 2021;161:933

0022-5223/$36.00

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https://doi.org/10.1016/j.jtcvs.2020.12.010

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1. Fischlein T, Folliguet T, Meuris B, Shrestha ML, Roselli EE, McGlothlin A, et al. Sutureless versus conventional bioprostheses for aortic valve replacement in severe symptomatic aortic valve stenosis. *J Thorac Cardiovasc Surg*. 2021;161:920-32.