ARTICLE IN REVIEW:

Aortic valve allografts demonstrate long-term durability and patient survival

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TITLE: Long-term Outcomes of Aortic Valve Replacement with Aortic Homograft: 27 Years Experience[1]

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STUDY DESIGN: Retrospective, 252 patients

SUMMARY: This retrospective study evaluated the longterm patient survival and durability of aortic valve allografts used for aortic valve replacement. From January 1992 to March 2019, 252 adult (mean age 49 ± 14 years) patients received aortic allograft root replacements. Indication for implantation was infective endocarditis (IE) in 95 (38%) patients and, among the non-IE patients (157; 62%), included aortic stenosis (AS; 30%), aortic insufficiency (AI; 64%), mixed AS/AI (4%), and aortic dissection in AI (2%). Follow-up was 100% and 97% complete for survival and reoperation, respectively, with a median of 19 years and a total of 4,467 patient-years. Overall patient survival was 91%, 85%, and 78% at 5, 15, and 25 years, respectively. When stratified, survival was significantly higher in the non-IE versus IE groups (95%, 91%, and 82% for non-IE versus 80%, 74%, and 71% for IE at 5, 15, and 25 years, respectively; p<0.001). Patients with resolved IE had similar survival to the non-IE group, whereas survival for those with active IE was significantly lower (p<0.001). However, among patients who survived to discharge (n=236; 93.7%), there was no significant difference in long-term survival between IE and non-IE groups. Over the follow-up duration, only 41 (16%) patients underwent reoperation, primarily due to structural valve deterioration (34 patients, 83%), which was not significantly different between IE and non-IE patients. The reoperative mortality was 4.9% (n=2). These results demonstrate that, regardless of indication for implantation, aortic valve allografts used for aortic root replacement offer long-term durability and patient survival, with low risk of operative mortality. The authors, therefore, concluded that "aortic valve allografts must continue to be the prosthesis of choice for advanced endocarditis cases." The conclusions from this study are in agreement with recent findings that reported long-term durability and performance of aortic valve allografts used in aortic root replacements.[2]

Long-term patient survival regardless of indication:

Overall patient survival was 85% and 78% at 15 and 25 years, respectively. Post-discharge, long-term survival remained high and was not statistically different between IE and non-IE patients (85% and 92% at 15 years, respectively; p=0.27). The authors concluded that "aortic valve allografts must continue to be the prosthesis of choice for advanced endocarditis."

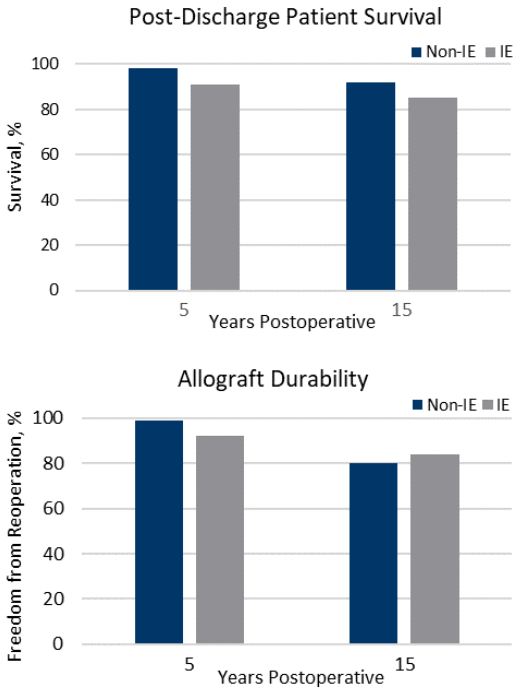
Long-term durability:

During the follow-up duration, only 41 patients (16%) underwent reoperation, which was not significantly different between IE and non-IE patients (p=0.53), demonstrating long-term durability regardless of indication for implantation.

Low risk of operative mortality:

Operative mortality was 6.3% (n=16) in the overall cohort following aortic root replacement and was primarily in patients with IE (n=15 vs n=1 for non-IE; p<0.001). Following reoperation, operative survival was 95%.

Long-Term Patient Survival and Durability of Aortic Valve Allografts



Aortic valve allografts demonstrated long-term patient survival and allograft durability, which was not significantly different between IE and non-IE groups. Figures created from data presented in Figures 3C and 5, respectively.[1]

Reference:

1. Yazdchi F, Harloff M, Hirji S, et al. Long-term Outcomes of Aortic Valve Replacement with Aortic Homograft: 27 Years Experience [published online ahead of print, 2021 Jan 9]. Ann Thorac Surg. 2021;S0003-4975(21)00048-5. doi:10.1016/j.athoracsur.2020.12.030

2. Witten JC, Durbak E, Houghtaling PL, et al. Performance and Durability of Cryopreserved Allograft Aortic Valve Replacements [published online ahead of print, 2020 Sep 25]. Ann Thorac Surg. 2020;S0003-4975(20)31534-4. doi:10.1016/j.athoracsur.2020.07.033

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