

# ARTICLE IN REVIEW:

## Aortic allografts have low risk of infection

**PUBLICATION:** The Journal of Thoracic and Cardiovascular Surgery, May 2021

**TITLE:** Aortic Allograft Infection Risk

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**STUDY DESIGN:** Retrospective, 2,042 patients, 2,110 allografts

**SUMMARY:** A recent retrospective study demonstrated long-term durability of aortic valve allografts used in aortic valve reconstruction over a 30-year period.<sup>2</sup> As an extension of this, the objective of this retrospective study was to determine the risk of cryopreserved aortic allograft infection and associated risk factors in patients who received allografts for non-endocarditis indications (n = 1,124, 53%) and infective endocarditis (n = 986, 47%) over a 30-year period. In non-endocarditis patients, 27 allografts became infected, and the 20-year probability of infection was 5.6%. Streptococci were the most common infection microorganism in this cohort. In endocarditis patients, 45 allografts became infected and the 20-year probability of infection was 14%. *Staphylococcus aureus* was the most common microorganism for infection, and reinfection (infections with the original microorganism) occurred in only 9 allografts. For both groups, younger patient age was a risk factor for allograft infection. Older allograft donor age was an additional risk factor in non-endocarditis patients while earlier date of operation and injected drug use were additional risk factors for infective endocarditis patients. The low incidence of infection for both non-endocarditis and endocarditis indications, as well as the low reinfection rate among endocarditis patients, provide a powerful argument in support of cryopreserved aortic allografts over alternatives, particularly in infected aortic roots.

### Low incidence of infection:

Seventy-two out of 2,110 (3.4%) allografts became infected during follow-up. Notably, reinfection occurred in only 9 patients (out of 986) with a cumulative incidence of 5.6% at 15 years. By comparison, cumulative incidence of reinfection was reported as high as 10% at 12 years using other graft options.<sup>3</sup>

### Low probability of infection:

For non-endocarditis and endocarditis indications, the 20-year probability of infection was 5.6% and 14%, respectively.

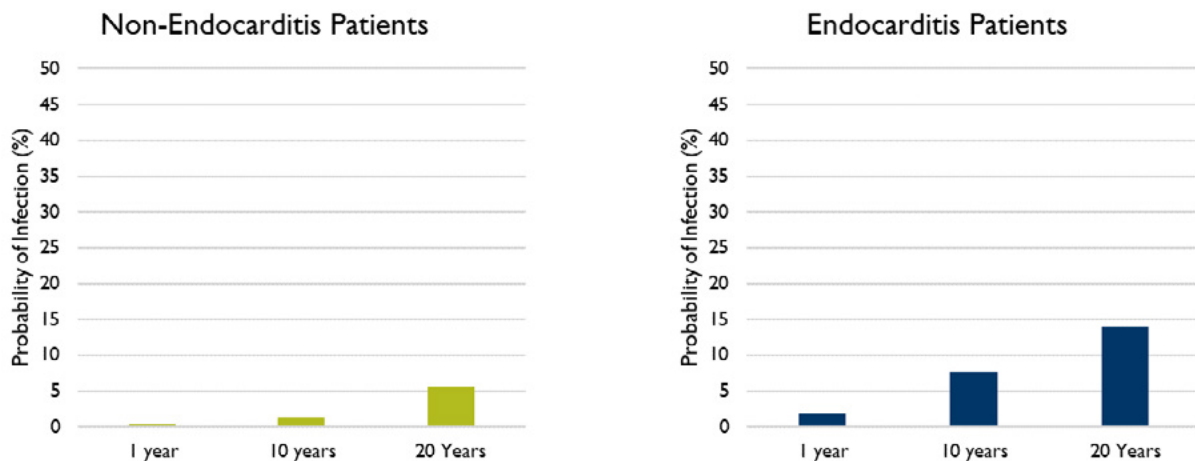
### Risk factors for infection:

Younger patient age was a risk factor in both groups. Older donor age was a risk factor for non-endocarditis patients. Earlier date of operation and injected drug use were risk factors for endocarditis patients.

### Reference:

1. Witten JC, Houghtaling PL, Shrestha NK, Gordon SM, Jaber W, Blackstone EH, Pettersson GB, on behalf of the Infectious Endocarditis Working Group. Aortic Allograft Infection Risk. The Journal of Thoracic and Cardiovascular Surgery. 2021. doi:10.1016/j.jtcvs.2021.04.086.
2. Witten JC, Durbak E, Houghtaling PL, et al. Performance and Durability of Cryopreserved Allograft Aortic Valve Replacements. Ann Thorac Surg. 2021;111(6):1893-1900. doi:10.1016/j.athoracsur.2020.07.033.
3. Toyoda N, Itagaki S, Tannous H, Egorova NN, Chikwe J. Bioprosthetic Versus Mechanical Valve Replacement for Infective Endocarditis: Focus on Recurrence Rates. Ann Thorac Surg. 2018;106(1):99-106. doi:10.1016/j.athoracsur.2017.12.046.

## Low probability of allograft infection



Adapted from data presented Figure 2 and Table E3<sup>1</sup>

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