Commentary: With a median survival of only 2 to 3 years, should dialysis patients more than 50 years old exclusively have transcatheter valves?

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Daniel T. Engelman, MD (left), and David W. Deaton, MD (right).

It is well known that patients on hemodialysis for end-stage renal disease have a poor long-term prognosis.¹ These patients are especially prone to cardiovascular disease.² Prosthetic valve selection for this population has remained controversial. Biologic valves may be prone to early calcification exacerbated by end-stage renal disease.³ Equally challenging, the anticoagulation requirements in this vulnerable population are substantial after implantation of mechanical valves.

In their retrospective review in this issue of the *Journal*, Manghelli and colleagues⁴ compared postoperative outcomes of 423 patients from 3 institutions during a 20-year period who required preoperative hemodialysis and underwent valve replacement surgery with either biologic or mechanical valves. They compared 341 patients with a biologic valve with 82 patients with a mechanical valve. The average age of patients with a biologic valve was 60 years; that of those with a mechanical valve was 51 years.

The most striking result of this study was the tragically short lifespan of a dialysis-dependent patient after valve replacement surgery. Ten-year survivals for biologic and mechanical valves were 5% and 20%, respectively, with median survivals of 2 and 3 years, respectively. When adjusted for all covariates, survival was similar between groups. These results are similar to previous smaller studies.⁵

This study was limited by its retrospective nature, potential surgeon selection bias, and a lack of standardized protocols regarding which valve was chosen for which individual patient. In addition, there were no echocardiographic follow-up data. Manghelli and colleagues⁴ were therefore limited in their conclusions regarding the longevity of bio-prosthetic valves in this population.

Central Message

Dialysis-dependent patients that require valve replacement surgery have such a dismal long-term prognosis that biologic valves (open or transcatheter) are probably warranted.

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Nonetheless, the life expectancy data and outcomes remain valid. The most important message from this exhaustive study was that only those patients in their 30s or 40s with New York Heart Association class I or II heart failure and without diabetes had a more than 50% 5-year survival after valve replacement surgery. Manghelli and colleagues⁴ suggest that only these younger, “relatively healthier” patients should be considered for mechanical valve prosthetics. The study also leads obviously to the question of whether patients with end-stage renal disease should be offered open surgical aortic valve replacement procedures at all, as more percutaneous options become available. It was recently demonstrated that dialysis-dependent patients have a lower mortality after transcatheter aortic valve replacement than after surgical aortic valve replacement.⁶ Future studies will need to validate these findings.

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