

# Study compares long-term outcomes for types of aortic valve replacements

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Among patients ages 50 to 69 years who underwent aortic valve replacement with bioprosthetic (made primarily with tissue) compared with mechanical prosthetic valves, there was no significant difference in 15-year survival or stroke, although patients in the bioprosthetic valve group had a greater likelihood of reoperation but a lower likelihood of major bleeding, according to a study in the October 1 issue of *JAMA*.

Approximately 50,000 patients undergo [aortic valve replacement](#) annually in the United States. In older patients, bioprosthetic valves pose a low lifetime risk of reoperation for structural degeneration and avoid many of the complications associated with mechanical prostheses; bioprosthetic valves are therefore recommended in patients older than 70 years. The optimal prosthesis type for younger patients is less clear, according to background information in the article.

Yuting P. Chiang, B.A., of The Mount Sinai Hospital, New York, and colleagues used a statewide administrative database to quantify differences in long-term survival, stroke, reoperation, and [major bleeding](#) episodes after aortic [valve replacement](#) according to prosthesis type. The analysis included 4,253 patients ages 50 to 69 years who underwent primary isolated aortic valve replacement using bioprosthetic vs mechanical valves in New York State from 1997 through 2004. Median follow-up time was 10.8 years; the last follow-up date for mortality was November 30, 2013.

The researchers found no [significant difference](#) in long-term survival or stroke rates. Fifteen-year survival was 60.6 percent in the bioprosthesis group compared with 62.1 percent in the mechanical prosthesis group. The cumulative incidence of stroke at 15 years was 7.7 percent for patients who received a bioprosthetic valve, compared with 8.6 percent for those who received a mechanical prosthetic valve.

Bioprostheses were associated with a significantly higher rate of aortic valve reoperation than mechanical prostheses: the cumulative incidence of [aortic valve](#) reoperation at 15 years was 12.1 percent in the bioprosthesis group and 6.9 percent in the mechanical prosthesis group.

Mechanical prostheses were associated with a significantly higher rate of major bleeding at 15 years compared with bioprostheses: 13.0 percent for the mechanical prosthesis group vs. 6.6 percent for the bioprosthesis group.

"The absence of a significant survival benefit associated with one prosthesis type over another focuses decision making on lifestyle considerations, including the burden of anticoagulation medication and monitoring, and the relative risks of major morbidity—primarily stroke, reoperation, and major bleeding events," the authors write.

They add that these findings suggest that bioprosthetic valves may be a reasonable choice in [patients](#) 50 to 69 years of age.

**More information:** [DOI: 10.1001/jama.2014.12679](#)

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