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Commentary: In the era of mitral valve-in-valve therapy, mechanical prosthesis in young patients does not deserve to be forgotten

Francesco Formica, MD, Francesco Maestri, MD, and Francesco Nicolini, MD, PhD

Chen and colleagues¹ from Memorial Hospital of Taoyuan in Taiwan analyzed, retrospectively, the results of patients who received either biological or mechanical valve for mitral valve replacement in rheumatic heart disease. Patient data were extracted from the National Health Insurance administrative database in Taiwan. Propensity score analysis yielded 2 paired groups of 788 patients. No significant difference in terms of in-hospital mortality were observed between the 2 matched groups. Regarding late outcomes, all-cause mortality at 10 years was in favor of the mechanical valve group, risk of stroke tended to be higher in the mechanical group without statistical significance, and finally biological valve group reported a higher incidence of reoperation. No differences were reported between the groups in terms of bleeding and thromboembolic events during follow-up. Moreover, the authors have reported a beneficial long-term of mechanical valve in patients younger than age 65 years. The authors concluded recommending a mechanical valve in patients younger than 65 years with rheumatic heart disease.

Results and conclusions of this study open up a discussion about a recently debated topic: How much do we have to favor the choice of a mechanical prosthesis in young patients (eg, age <65 years) in an era where the results from transcatheter mitral valve-in-valve (ViV) procedures are increasingly encouraging? In a recent study by Javadikasgari and

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CENTRAL MESSAGE

In young patients, mechanical prosthesis for mitral valve replacement is still safe and deserves not to be forgotten—even in this era in which mitral valve-in-valve therapy gives encouraging results.

colleagues² at the Cleveland clinic, the authors observed that in patients undergoing reoperation for mitral biological prosthesis degeneration, those undergoing a prosthesis replacement associated with another surgical procedure had very high surgical risk compared with those undergoing isolated replacement who had a surgical risk close to zero. When commenting on that article, we highlighted the concept that high-risk patients were evaluated by a multidisciplinary team to select those who could benefit from a mitral ViV approach.³ In fact, this procedure (especially the transfemoral approach) has been reported to be safe in selected high-risk surgical patients.⁴ Some recently published studies have reported the advantage of using the mechanical prosthesis compared with bioprosthesis in young subjects undergoing mitral valve replacement in terms of greater long-term survival and lower rate of reoperation for mechanical prosthesis.^{5,6} However, use of a bioprosthesis for mitral valve replacement in young subjects is becoming more frequent, due to the combination of 2 factors: a patient's refusal of life-long anticoagulation therapy and the evidence of recent positive results of ViV procedures. In the study by Chen and colleagues,¹ it is evident that after 6 to 8 years, patients in the biological group have a higher incidence of reoperation and a higher mortality. The long-term survival difference observed after the implantation of a mechanical versus a biological prosthesis might have been influenced by the low

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performance of a degenerated biological valve, a process that may happen very soon after surgery, mainly in young patients. This point is of paramount importance and should be strongly considered in the surgical plan. In fact, because the patients who underwent combined prosthetic valve replacement would become high-risk surgical patients compared with those patients who received an isolated prosthesis replacement,³ considering that the incidence of embolic and bleeding events are similar between the 2 types of prosthesis^{1,5,6} and in light of the most recent evidence regarding the promising results of mitral ViV procedures,^{4,7} surgeons must not depart from the standard indication of offering a mechanical prosthesis for young patients and should consider the biological prosthesis only for those who refuse or who do not tolerate the anticoagulant therapy and in cases of isolated mitral valve replacement that would better tolerate the surgical risk of reoperation in the future.

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Commentary: Different problem, different place... same conversation

Andrew M. Vekstein, MD, and
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The choice between mechanical valve or bioprosthetic valve replacement in patients with severe mitral disease remains controversial.¹ The maximum age at which mechanical replacement is recommended has been cited as between 65 and 70 years.² The option for future valve-in-valve transcatheter replacement has driven a recent shift toward bioprosthetic valve use; however, there is more experience with this approach in the aortic position.^{3,4} The ideal valve choice in patients with severe rheumatic mitral disease

Andrew M. Vekstein, MD, and Oliver K. Jawitz, MD, MHS

CENTRAL MESSAGE

The relationship of patient age and long-term outcomes following bioprosthetic valve versus mechanical mitral valve replacement is similar in patients with rheumatic heart disease and those with degenerative heart disease.

remains unclear. Rheumatic etiologies (RHD) continue to represent the most common cause of mitral valve disease in the developing world. Although this disease affects

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