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Commentary: Mitral bioprosthesis versus mechanical prosthesis in severe chronic mitral regurgitation: Bioprosthesis wins the duel

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

The most effective surgical strategy to address severe chronic ischemic mitral regurgitation (CIMR) is controversial due to conflicting results. Some authors report lower early mortality with MV repair compared with MV replacement,^{1,2} whereas others did not observe significant differences.^{3,4} MV replacement may offer greater freedom from mitral regurgitation recurrence compared with MV repair in the long-term⁵; on the opposite side, the adverse effects of implanting a prosthetic valve are fully recognized and may negatively influence mid- and long-term survival. However, because CIMR is a consequence of left ventricle (LV) disease, in some conditions, such as severe LV remodeling, increased tenting area ($>2.5 \text{ cm}^2$) and coaptation distance ($>1 \text{ cm}$),⁶ or an increased preoperative posterior leaflet tethering angle ($>22^\circ$),⁷ MV replacement is preferred or strongly recommended. In this context, the choice of the prosthetic valve is crucial.

Bernard and colleagues⁸ have focused their research on identifying the ideal prosthesis in patients who underwent MV replacement for CIMR. During their 16-year study period, 236 (56%) patients who received a mechanical prosthesis (MP) and 188 (44%) patients who received a bioprosthesis (BP) were identified. By a propensity score matching and an inverse probability of treatment weight,

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CENTRAL MESSAGE

Patients with severe chronic ischemic mitral regurgitation should receive a bioprosthesis, when valve repair is not advisable. Promising results of valve-in-valve technique should drive the choice.

a total of 126 paired patients were matched. The authors report interesting data at mean follow-up of 6 years. Matched patients with an MP experienced more cardiovascular events, such as increased risk of stroke and major bleeding. Another interesting result is the low and comparable incidence of late reintervention due to prosthesis dysfunction between the 2 matched groups (1.6% in MP patients vs 3.2% in BP patients). Because the readmission for cardiovascular causes, stroke, or major bleeding was strongly associated with the MP (hazard ratio, 1.65; 95% confidence interval, 1.17-2.32; $P = .004$), the obvious conclusion should be that surgeons should increase the use of BPs in patients with CIMR. This is an important take-home message from this study. Indeed, the authors point out that the prosthesis choice in patients with severe CIMR should not be driven by a patient's age alone, but also on the etiology of MV disease and the grade of LV dysfunction. However, among the weaknesses of this study is the lack of information regarding the entity of LV dysfunction (intended as grade of advanced LV remodeling) and the completeness of coronary revascularization. These factors may strongly influence the long-term course of these patients, as well as his or her need for lifelong anticoagulation therapy.

Maybe MP could be a reasonable choice in a 50-year-old patient with a low grade of LV remodeling who is undergoing

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complete myocardial revascularization. However, in the era of transcatheter therapy, valve-in-valve procedures to manage a degenerated mitral BP are increasing.⁹ This could overcome the operative risk of conventional redo surgery^{10,11} and therefore the prosthesis choice should be driven also on the potential valve-in-valve therapy criterion. Based on the results of the study by Bernard and colleagues,⁸ we conclude that BP has to be the first choice in patients with severe CIMR when mitral repair is not advisable.

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Commentary: Valve options for ischemic mitral regurgitation in an era of new technologies: ViV(a) la bioprosthesis

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Bernard and colleagues¹ have presented their findings that prosthetic valve selection does not influence long-term survival in patients undergoing mitral valve replacement for ischemic mitral regurgitation; however, bioprosthetic valves appear to be associated with less morbidity. Guidelines on valve selection have generally cited patient age

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CENTRAL MESSAGE

Prosthetic valve selection should include criteria of patient age and suitability for anticoagulation, as well as patient preference, disease process, life expectancy, and future valve-in-valve options.

and suitability for lifelong anticoagulation, tempered by patient preference, as the dominant criteria for making recommendations. Evidence can be found to support bioprosthetic as well as mechanical valve use.^{1,2} With no

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