Commentary: When does the early death risk become constant after a mitral valve operation?

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Early mortality happens with mitral surgery—but when?

Central Message

Variability exists in early postoperative mortality between mitral repair and replacement. Mortality from repair is reduced by 90 days, but that from replacement continues, stabilizing after 180 days.

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For many years, we have known that a mitral valve repair (MVP) for degenerative mitral valve disease carries proven excellent long-term survival and freedom from recurrent insufficiency.¹⁻⁴ Repair results in patients with ischemic or cardiomyopathic functional mitral regurgitation, however, have been inferior.⁵⁻⁷ In addition, survival with MVP is significantly better than with mitral valve replacement (MVR), even when the chordae tendineae are preserved.⁸ These and other studies have centered on long-term results and not on the early period after a repair or replacement.

In their article in this issue of the *Journal*, Mori and coauthors⁹ focus on the early (1-year) mortality after successful mitral valve operations done at a single center. They retrospectively reviewed the clinical results of 1048 patients who underwent either MVP (n = 624; 64.7% with isolated MVP) or replacement (n = 424; 50% with isolated MVR).⁵ Twelve surgeons operated on these patients. There were no in-hospital deaths; however, the 30-day mortalities were 0.2% and 1.4% for MVP and MVR, respectively. During this period, survivals were variable between the MVP and MVR groups and were significantly better in the MVP group.

The overall message from the study of Mori and coauthors⁹ is that temporal risk of death after MVP persists for 90 days but stabilizes at a low rate thereafter. In comparison, the mortality risk continues for 180 days after MVR and then stabilizes, but it still remains 2 to 3 times higher than that at the same time point after MVP. Mori and coauthors⁹ have thus shown that early mortality during the first postoperative year persists, but at different rates for MVP and MVR. Potentially confounding their findings, there were many differences between the MVP and MVR cohorts. Both short- and long-term surgical survivals vary widely among patients with myxomatous degeneration, rheumatic disease, ischemic cardiomyopathy, or non-ischemia related dilated cardiomyopathy. Moreover, New York Heart Association heart failure class greatly affects both early and

late mortality for both MVP and MVR. As expected, the preoperative comorbidities were much higher in the patients studied who underwent MVR. Moreover, only 64.7% of the patients who underwent MVP and 50% of those who underwent MVR underwent an isolated mitral valve operation. In addition, 77% of MVP and 58% of MVR operations were elective. The two cohorts were thus not optimally comparable because of protean mitral pathology, the significant number of patients not operated on electively, the lack of an isolated mitral valve operation in a significant number of patients, and the lack heart failure consideration. Another point is that the mean patient age was between 64 and 67 years, which excluded the study of older patients who potentially could have had both a higher operative mortality and a higher long-term risk. In addition, the New York Heart Association level of congestive heart failure, which differed between the cohorts, is a predictor of mortality.

Despite these caveats, Mori and coauthors⁹ are to be congratulated for providing no operative mortality and a low 30-day mortality in more than 1000 mitral valve operations. This result speaks to the quality of this surgical program in performing mitral valve surgery. It would have been very important if the study could have been done in a population of patients who all underwent isolated mitral operations that were all done electively. Moreover, because repairs can be done safely in patients older than 65 years, expansion of the study would have added useful

information. Nevertheless, Mori and coauthors⁹ have given us a cogent subjective early risk model of early mortality in these operations. This study and commentary should help guide others when studying the early mortality after mitral valve operations.

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