Commentary: Reinventing the wheel of mitral valve surgery survival

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Left to right: Morgan T. Harloff, MD, Edward D. Percy, MD, and Sary F. Aranki, MD

Central Message

The 90-day mortality after mitral valve surgery is a stronger predictor for survival at 1 year than is the 30-day mortality.

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In this edition of the *Journal*, Mori and colleagues¹ report their examination of the utility of 90-day mortality as a predictor for 1-year survival after mitral valve repair (MV repair) and mitral valve replacement (MVR). Mori and colleagues¹ established that the risk of mortality persists beyond the 30-day period traditionally used to assess outcomes after cardiac surgery. The risk of mortality persisted beyond 30 days after MV repair and did not normalize until 90 days. Similarly, the risk of death after MVR persisted until 180 days before ultimately reaching a plateau. This analysis confirms our suspicions that have been observed in related studies. It is therefore conceivable that 90-day mortality after mitral valve surgery is a better surrogate for mortality at 1 year than is 30-day mortality.

Mori and colleagues¹ are to be commended for a well-conducted study with a large sample size and impressive follow-up. Despite a high-risk cohort of patients, including a large proportion of urgent and emergency procedures, superior outcomes were obtained, with no in-hospital mortality. Their achievement of 98% survival at 1 year after MV repair and greater than 92% survival at 1 year after complex MVR with a high volume of concomitant procedures is remarkable.

This study is limited by lack of a formal control group. In addition, urgent and emergency mitral valve procedures are not as common as this study implies. Most urgent and emergency mitral valve operations are secondary to endocarditis or papillary muscle rupture. It is unlikely that most centers would have this mixture of cases, in which approximately 30.5% of mitral valve procedures were performed under such conditions. The conclusions reached by this report therefore may not be reflective of wider practice. Instead, it may be worthwhile to compare survival among

isolated MV repairs and MVRs that were performed electively.

The Society of Thoracic Surgeons Predicted Risk of Mortality score is a well-validated predictor of mortality 30 days after cardiac surgery.² Recent studies, however, have shown that 30-day mortality may no longer be a sufficient quality metric for predicting survival at 1 year after open heart procedures. For example, the American College of Cardiology Foundation–Society of Thoracic Surgeons Collaboration on the Comparative Effectiveness of Revascularization Strategies study demonstrated that the risk of death extends beyond 30 days after coronary artery bypass grafting.³ Likewise, Hirji and colleagues⁴ established that 90-day mortality after both surgical aortic valve replacement and transcatheter aortic valve replacement may be an improved performance quality metric because of its stronger association with 1-year survival. Until now, 90-day mortality after mitral surgery has not been validated as a stronger predictor than 30-day mortality of 1-year survival.

In conclusion, Mori and colleagues¹ have conducted a thoughtful analysis of survival after MV repair and MVR. They achieved excellent survival results at 1 year, even with complex MVR. Although they were able to demonstrate that the risk of mortality continues for 90 days after MV repair and for 180 days after MVR, is this information as groundbreaking as they would like us to believe? Nevertheless, it demonstrates the importance of monitoring outcomes beyond the Society of Thoracic Surgeons–mandated 30 days. Moreover, it may be reasonable to observe patients for a longer period after MVR than after MV repair.

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