The value of the study conducted by Hibino and colleagues\(^1\) is in its high-quality, prospective echocardiographic data showing that one needs to wait about 1 year and not 30 days to judge the effectiveness of the timing of mitral repair to prevent permanent or long-lasting LV dysfunction. Current guidelines recommend ejection fraction of 60\% or end systolic diameter of 4.0 cm as red lines to indicate repair. These guidelines are designed to give at least 75\% of patients a normal ejection fraction of 50\% at 1 to 12 months after repair. These guidelines are based on data looking at recovery of ejection fraction at 1 to 12 months as a measure of successful timing of repair.\(^4\) The data offered by Hibino and colleagues\(^1\) support using ejection fraction at 1 year as a measure of appropriate timing of mitral repair. Good things take time. To assess recovery of LV function after mitral repair, at 1 year we can say: “We are there.”

**References**


**CENTRAL MESSAGE**

Hibino and colleagues present a subanalysis of the CAMRA CardioLink-2 trial, observing a 2-phased recovery of the left ventricle: Early diastolic recovery followed by late systolic recovery.

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**Commentary: Short-term pain, long-term gain with left ventricular function after mitral valve repair**

Clancy W. Mullan, MD, and Arnar Geirsson, MD

Mitral regurgitation is a common disorder with serious consequences for patient morbidity, including...
arrhythmias, heart failure, and stroke, as well as mortality. For acceptable-risk patients with severe, symptomatic disease or evidence of left ventricular (LV) dysfunction, surgical repair at a center of excellence is widely accepted as the gold standard therapy; however, no formal recommendations for optimal repair strategies exist, likely due to the multiple and complex phenotyping of primary mitral valve disease. The Canadian Mitral Research Alliance CardioLink-2 (CAMRA-2) trial was designed to evaluate differences in mitral valve function after leaflet-preserving versus leaflet-resecting techniques, with no observed differences between strategies. Hibino and colleagues report a subanalysis of the CAMRA-2 trial to investigate potential phased recovery of the LV and timeline of LV ejection fraction (EF) improvement after mitral valve repair, aiming to inform the conflicting evidence that had previously existed. 

The authors evaluated LV echocardiographic parameters and describe 2 phases of LV recovery after mitral repair. Independent of leaflet resection or preservation in their cohort, the LV demonstrated a decreased EF with improved forward stroke volume and end diastolic volumes. Over the subsequent year, the EF improved, albeit not to baseline. Although not improved at discharge, systolic parameters recovered over the following year.

The authors should be applauded for the limitations they acknowledge, which are insightful, thorough, and exemplary in their honest self-evaluation. Two should be highlighted. First, the authors acknowledge the well-compensated nature of their population, which could limit generalizability. Although the observed EF of their population is similar to the real-world population of patients undergoing mitral repair, an interesting observation is a widening of the distribution of predischarge EF. Given the relevance of postrepair EF to late survival, detailed phenotyping, including biomarker profiling, of patients to describe those demonstrating a significant reduction in EF would provide valuable clinical insight, although this analysis is, of course, limited by its nature as a subanalysis of a completed clinical trial. Second, the choice of 2-dimensional echocardiography is a meaningful limitation compared with the more reproducible cardiac magnetic resonance imaging or 3-dimensional echocardiography. We are further limited by lack of information on whether or not imaging was contrasted.

Two additional observations are important for interpretation of the data. First, in the CAMRA-2 trial, twice as many patients in the resection group underwent concomitant coronary artery bypass. Second, the cardioprotection strategies employed by the trial are not described. Both may have influenced the observations described here.

Hibino and colleagues provide valuable, hypothesis-generating observations in their study, and they should be applauded for their efforts to inform a challenging and elusive question. Future studies to define patients likely to or to not demonstrate LV recovery after mitral repair should be conducted with more reliable imaging techniques, comprehensive phenotyping, and homogeneity of myocardial preservation.

References