The authors reported no conflicts of interest.

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REPLY: SUBVALVULAR REPAIR FOR ISCHEMIC MITRAL REGURGITATION: SETTING UP THE ENDGAME

Reply to the Editor:

The debate surrounding treatment of ischemic mitral regurgitation (MR) has ceased to yield for valid reasons. The randomized Cardiothoracic Surgical Trials Network comparing mitral valve (MV) repair with replacement for severe ischemic MR suggests chordal-sparing replacement is the preferred option, given the unfavorable rates of recurrent MR in the repair group (1 year: 32.6% vs 2.3%, $P < .001$; 2 years: 58.8% vs 3.8%, $P < .001$).[1,2] Furthermore, no significant survival advantage was discovered between surgical approaches at 1 or 2 years, although the study was not powered to definitively conclude if there was.

In effort to study a more "complete" MV repair, comparison of restrictive annuloplasty with coronary revascularization versus restrictive annuloplasty plus papillary muscle approximation and coronary revascularization was pursued.[3] Here too, no significant difference in mortality was discovered, even at 5 years. The study's primary end point of absolute change in left ventricular end-diastolic diameter (-5.8 ± 4.1 mm vs -0.2 ± 2.3 mm, $P < .001$) and secondary end point of change in ejection fraction ($8.8 \pm 5.9\%$ vs $2.5 \pm 4.3\%$, $P < .001$) did favor incorporation of papillary muscle approximation to the MV repair.

Xu and colleagues[4] are to be commended for their excellent investigation of a preclinical ischemic MR model. Here, they demonstrated papillary muscle approximation in conjunction with an undersized mitral annuloplasty yielded improved valvular and ventricular mechanics versus annuloplasty alone. This reinforces the notion to pursue treating the subvalvular apparatus since ischemic MR is a disease of the ventricle. Unfortunately, the numerous strategies to treat the subvalvular apparatus from novel devices and ingenious surgical techniques have yielded no definitive standard.[5-7]

Despite our best intentions, no clinical trials have demonstrated a significant advantage for a particular surgical approach. The 2016 update to the American Association for Thoracic Surgery consensus guidelines for ischemic MR posit MV repair or replacement may be considered, although at this time, replacement is preferred.[8] As our understanding of this heterogenous disease process improves, incorporation of risk prediction models and careful patient selection may tip the scales toward repair of severe ischemic MR.[9,10] We agree that attention to the subvalvular apparatus is warranted but stand by the notion that robust data must be gleaned before defining the best approach.[11] In addition, a subvalvular approach will depend on individual measurements, which have yet to be standardized. When we can answer whether combining annular and subvalvular repair techniques leads to improved survival with acceptable freedom from recurrent MR over MV replacement, we will be ever closer to calling checkmate on severe ischemic MR.

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This work was supported by a research grant from National Heart, Lung, and Blood Institute/National Institutes of Health (T32HL007849). The content is solely the responsibility of the authors and does not represent the official views of the National Institutes of Health.

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https://doi.org/10.1016/j.xjon.2021.07.019