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WHICH ISCHEMIC MITRAL VALVES SHOULD BE REPAIRED AND HOW? TIME WILL TELL

Reply to the Editor:

We enjoyed reading the letter to the Editor “Biomechanics of Failed Ischemic Mitral Valve Repair: Discovering New Frontiers” by Nappi and Spadaccio,¹ and appreciate the opportunity to comment further. Ischemic mitral regurgitation (IMR) is without question a nuanced disease process that encompasses a complex pathophysiology. The Cardiothoracic Surgical Trials Network (CTSN) completed 2 multicenter, randomized IMR trials that improved our understanding of appropriate treatment for moderate and severe regurgitation, but there are still many unanswered questions.^{2,3} Drs Nappi and Spadaccio are attempting to answer some of those questions with their work on papillary muscle approximation and the subvalvular apparatus.⁴

When discussing IMR, it is important to clarify the severity of regurgitation using a standardized technique for evaluation. When conducting the IMR trials, the CTSN used criteria recommended by the American Society of Echocardiography for defining moderate versus severe regurgitation.⁵ Combining multiple degrees of IMR together minimizes the complexity of this ventricular disease process and limits the validity of research findings.

In the CTSN’s severe IMR trial, the rate of recurrent moderate or severe mitral regurgitation at 2 years was lower in the replacement group compared with the repair group (3.8% vs 58.8%, $P < .001$), but there were no significant differences in 2-year survival or degree of reverse remodeling.³ Of note, patients who were repaired without recurrence had very good outcomes. This brings up 2 new questions that need to be addressed: How do we determine which patients will benefit from repair and how do we identify the best repair strategy for each patient? With new repair techniques and better patient selection, we can significantly advance the management of IMR.

We applaud Drs Nappi and Spadaccio on the development of their biomechanical model for predicting the type of subvalvular approach that should accompany each mitral valve repair. This type of scientific solution may allow us to tailor our repair strategy depending on the specific geometric characteristics of each valve and subvalvular apparatus. We look forward to the application of this model in the clinical scenario to determine whether outcomes after repair can be improved. Predicting how to repair IMR on an individualized basis will allow for more patients to avoid recurrence, and hopefully that will translate to an improvement in long-term outcomes.

The results of the moderate and severe IMR trials conducted by the CTSN have been helpful in shaping the discussion regarding IMR management. In both trials, it cannot be overlooked that there were no survival differences between groups at 2 years.^{2,3} Although it would be nice to worry about the degree of recurrence only, patient-centered outcomes such as survival and quality of life are the true definition of success. Randomized clinical trials with extended follow-up are necessary to obtain such results. Restrictive annuloplasty with an individualized approach to the subvalvular apparatus is a logical solution to prevent recurrence of mitral regurgitation and provide long-term, meaningful outcomes.

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