

## Response to Letter Regarding Article, “Magnetic Resonance Imaging With 3-Dimensional Analysis of Left Ventricular Remodeling in Isolated Mitral Regurgitation: Implications Beyond Dimensions”

We thank Drs Vallakati and Sharma for their comments and appreciate their interest in our work.<sup>1</sup> As pointed out, we demonstrated the Bullet formula underestimates left ventricular end-systolic volume, and further analysis does indeed demonstrate the mean Bullet formula-calculated left ventricular ejection fraction is significantly higher than left ventricular ejection fraction measured by magnetic resonance imaging ( $67\% \pm 9\%$  versus  $61\% \pm 7\%$ ,  $P < 0.0001$ ). Referral echocardiograms in our study used a visual estimate of left ventricular ejection fraction. Furthermore, only a very small portion of the patients were found to have a left ventricular ejection fraction  $< 60\%$  by magnetic resonance imaging measurement; almost all had left ventricular end-systolic diameter  $< 40$  mm, and thus, we did not perform analyses based on referral echocardiographic assessment. It is of great interest whether an accurate echocardiographic volume-based assessment of end systole and ejection fraction is comparable to magnetic resonance imaging-derived measures in the evaluation of mitral regurgitation. Given the wide availability of echocardiography now with potential for 3-dimensional analysis, this represents an exciting area of future study. In our reported study of surgical patients with severe mitral regurgitation, regurgitant volume was not significantly associated with postoperative left ventricular dysfunction. However, this result must be interpreted with caution because of the relatively small sample size. We did not perform specific imaging to assess atrial remodeling and thus are reluctant to comment on its relationship with outcomes.

### Disclosures

None.

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### Reference

1. Schiros CG, Dell'Italia LJ, Gladden JD, Clark D 3rd, Aban I, Gupta H, Lloyd SG, McGiffin DC, Perry G, Denney TS Jr, Ahmed MI. Magnetic resonance imaging with 3-dimensional analysis of left ventricular remodeling in isolated mitral regurgitation: implications beyond dimensions. *Circulation*. 2012;125:2334–2342.