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THE AUTHORS' REPLY:

We thank Dr. Mezue and colleagues for their valued comments on our paper (1). The cutpoints generated by our model were 7.75 mm for membranous septum length and 17.3 mm^3 for noncoronary cusp device landing zone calcium volume (with an 850 Hounsfield Unit threshold for detection). Importantly, these thresholds were derived from a predictive model in a single-center analysis (Cedars-Sinai Heart Institute) and so absolute cutoffs should not at this stage drive clinical management, although they could be used for comparison in prospective studies.

The measurement of the membranous septum was based on a 2-dimensional measurement in a coronal plane, as for the original description by Hamdan et al. (2), and this parameter may be further optimized in future with a 3-dimensional methodology. It should also be noted that we have made considerable efforts to standardize calcium quantification in contrast computed tomography scans (3), but the methodology used has only been validated in a single-center study in 1 post-processing software package, albeit with a robust correlation to Agatston score from noncontrast scans and also to the endpoint of paravalvular leak (3).

Lastly, there may be device differences in parameters and procedural differences (including implant depth, pre-dilatation, and post-dilatation)

that may greatly influence the need for pacemaker in the context of the 3 most relevant patient-specific factors identified of: 1) membranous septum length; 2) noncoronary cusp device landing zone calcium volume; and 3) baseline conduction. We sought in this paper to create a thought-provoking framework that we hope will help drive further interest and research collaboration that will ultimately guide clinical decision making as we refine our practice further.

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