Response to Letter Regarding Article, “Prosthesis-Patient Mismatch in Bovine Pericardial Aortic Valves: Evaluation Using 3 Different Modalities and Associated Medium-Term Outcomes”

We thank House et al¹ for a thoughtful critical review of our study. To keep the study cohort homogeneous, we preselected only patients with normal systolic function who underwent an aortic valve replacement with a pericardial tissue valve. We agree that there is a small likelihood of underestimation of the prevalence of prosthesis–patient mismatch (PPM) in our cohort because of low gradient aortic stenosis and normal systolic function, a group of patients who are challenging to evaluate and manage. However, among patients from our cohort undergoing aortic valve replacement for aortic stenosis (79% of the cohort), the average preoperative mean gradient was 43.5 mm Hg, suggesting that the likelihood of low gradient in this preselected group of patients was probably lower than that reported in the literature.

Given excellent clinical outcomes for an average follow-up of 4.1±1.8 years, evaluation for PPM by the ASE algorithmic method and correlated with the manufacturer provided estimates for this type of valve in patients with normal ejection fraction seems to have clinical use for appropriate valve selection in the operating room with good intermediate-term outcomes. Further in our cohort, effective orifice area index measured in postoperative echocardiograms suggested the incidence of moderate and severe PPM in 63% of the cohort without any demonstrated prognostic relevance to their clinical outcomes, therefore limiting its use in these patients. Hence, we feel that the ASE-suggested algorithm has practical value for valve selection, with data now supporting excellent intermediate clinical outcomes.

As pointed out by House et al., a small group of patients in our cohort (28/614 patients or 4.5%) with elevated mean gradients >20 mm Hg were identified to have PPM based on the ASE algorithm but not by the manufacturers charts. This seems to be a limitation of the charts in a subset of patients. Although manufacturer-provided effective orifice area index charts have been reported to underestimate PPM severity, for the valve type most commonly implanted in our study, the good intermediate-term outcomes in our patients suggest there is a need to reevaluate the best method to assess for PPM in this patient population. Most patients (18/28 or 63%) identified to have PPM based on ASE algorithm had the smallest size valves implanted (19 and 21 mm), in whom the manufacturer charts may have limitations. However, despite the finding of PPM suggested by ASE algorithm, even in this subgroup, the patients had excellent outcomes. We agree that patients with PPM suggested by the ASE algorithm need close long-term follow-up for any adverse events, as do all patients with prosthetic valves.

Disclosures

Patrick M. McCarthy is a consultant for Edwards Life sciences. The other authors report no conflicts.

References


(Circ Cardiovasc Imaging. 2014;7:210.)
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Circ Cardiovasc Imaging is available at http://circimaging.ahajournals.org DOI: 10.1161/CIRCIMAGING.113.001333

210
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_Circ Cardiovasc Imaging_. 2014;7:210
doi: 10.1161/CIRCIMAGING.113.001333

_Circulation: Cardiovascular Imaging_ is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
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Print ISSN: 1941-9651. Online ISSN: 1942-0080

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://circimaging.ahajournals.org/content/7/1/210

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