Response to Letter Regarding Article, “Accurate Assessment of Aortic Stenosis: A Review of Diagnostic Modalities and Hemodynamics”

We agree with Drs. Covolo, Tarnantini, and Razzolini’s comments on our article regarding left ventricular compensation to progressive outflow obstruction in valvular aortic stenosis. Aortic stenosis is typically associated with a prolonged asymptomatic period, with progressive reduction of the aortic valve orifice. This is accompanied by a corresponding increase in the pressure gradient ($\Delta P$) and the myocardial pressure overload, resulting in compensatory left ventricular hypertrophy, enlargement of cardiac myocytes, and increased left ventricular wall thickness. In the setting of longstanding hypertrophy, myocardial contractility may be mildly to moderately depressed. The left ventricle compensates for the increased workload, until reaching the preload reserve, either owing to increased diastolic stiffness, preventing complete filling, or owing to the limit of sarcomere extension being reached. It has not been clearly elucidated which of these mechanisms plays a predominant role. In any case, once the preload reserve is exhausted, further increase in afterload is accompanied by a reduction in stroke volume, resulting in afterload mismatch.

Disclosures

None.

Gautam Kumar, MBBS, MRCP(UK)
Department of Medicine
Division of Cardiology
Emory University
Atlanta, GA

References

Response to Letter Regarding Article, "Accurate Assessment of Aortic Stenosis: A Review of Diagnostic Modalities and Hemodynamics"
Gautam Kumar, Neelakantan Saikrishnan, Fadi J. Sawaya, Stamatios Lerakis and Ajit P. Yoganathan

Circulation. 2014;130:e135
doi: 10.1161/CIRCULATIONAHA.114.012345

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://circ.ahajournals.org/content/130/15/e135

Permissions: Requests for permissions to reproduce figures, tables, or portions of articles originally published in Circulation can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial Office. Once the online version of the published article for which permission is being requested is located, click Request Permissions in the middle column of the Web page under Services. Further information about this process is available in the Permissions and Rights Question and Answer document.

Reprints: Information about reprints can be found online at:
http://www.lww.com/reprints

Subscriptions: Information about subscribing to Circulation is online at:
http://circ.ahajournals.org//subscriptions/