6-1-2022

Assessment of sinus of valsalva dimensions before TAVI: An independent predictor of worse outcomes?

Kartik Gupta

James C. Lee

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Kartik Gupta, MD [a], **and James C Lee, MD, FACC, FASE, FSCCT** [b,*] ***Detroit, MI***

We read with great interest the article by Tomii et al.[1], describing the prognostic importance of the sinus of Valsalva (SOV) index in a prospective registry of 1,554 elderly (≥ 80 years) patients undergoing transcatheter aortic valve implantation (TAVI) for tricuspid aortic valve stenosis. The authors should be congratulated for the novelty and the study sample size.

The authors note that the SOV dimension is frequently disregarded in computed tomography performed for TAVI planning. We would highlight that the SOV is a standard metric of consideration for the Medtronic CoreValve self-expanding valve technology, and small SOV dimensions in conjunction with low coronary heights are felt to increase the risk of coronary obstruction during TAVI, particularly in patients with narrow SOV dimensions with similarly sized transcatheter heart valves.[2,3]

In the current study, the authors report that patients in the highest tertile of SOV index had a 62% higher hazard of 1-year all-cause mortality vs. lowest and middle tertile, even after adjusting for age, gender, body mass index, Society of Thoracic Surgeons predicted risk of mortality score, diabetes mellitus, atrial fibrillation, peripheral arterial disease, estimated glomerular filtration rate, baseline moderate or severe aortic regurgitation, left ventricular ejection fraction and aortic valve area index (Table 5 in the main article). The authors mention in the methods section that the variables were selected based on "potential association with outcome of interest". It would be helpful to gain more detailed insight into how the variables in the multivariable model were selected.

An example discussed in the manuscript is that the ascending aorta diameter provides independent prognostic value in TAVI[4], but this is not utilized in the multivariate model. This seems relevant as the authors show an association between a larger SOV index and larger ascending aorta diameters. Furthermore, previous literature[5-8] suggests an independent association of several other CT-imaging parameters (aortic annular size, device landing zone calcium) and echocardiographic parameters (moderate to severe mitral regurgitation) which are independently associated with 1-year mortality after TAVI (same outcome as in this study). The authors report these outcomes, but they do not appear to be included in the multivariate model.

If the SOV index is to be integrated as a standard metric for risk in patients undergoing TAVI, we believe having a better understanding of the impact of these known confounders is important.

Conflict of interest

No relevant financial conflicts of interest.

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From the [a]*Department of Medicine, Henry Ford Hospital, Detroit, MI,* [b]*Director of Echocardiography, Center for Structural Heart Disease, Division of Cardiovascular Diseases, Henry Ford Hospital, Detroit, MI*

[*]*Reprint requests: James C Lee, MD, Director of Echocardiography, Division of Cardiology, Center for Structural Heart Disease, Henry Ford Heart and Vascular Institute, Detroit, MI.*

E-mail address: jlee24@hfhs.org.

0002-8703

https://doi.org/10.1016/j.ahj.2022.01.003