Bicuspid aortic valve–related aortopathy: “Knowledge is good”

Leonard N. Girardi, MD

From the Department of Cardiothoracic Surgery, New York–Presbyterian Hospital/Weill-Cornell Medical Center, New York, NY.

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Address for reprints: Leonard N. Girardi, MD, Cardiothoracic Surgery, New York–Presbyterian Hospital/Weill-Cornell Medical Center, 525 E 68th St M404, Box 110, New York, NY 10065 (E-mail: lngirard@med.cornell.edu).

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Previously published consensus statements from the most prestigious thoracic and cardiovascular organizations have attempted to provide guidance for the diagnosis and management of patients with disease of the thoracic aorta, including those with bicuspid aortic valve (BAV)–associated aortopathy.¹ A mere 4 years later, however, the American Heart Association and the American College of Cardiology encouraged a more conservative approach to this disease process,² leading to a recent “statement of clarification” focusing more specifically on appropriate surgical indications for a disease that affects 2% of the planet’s 7.4 billion people.³

The writing committee of The American Association for Thoracic Surgery has provided, in this issue of the *Journal*, a comprehensive review of BAV-associated aortopathy that can be used as a framework for the management of this very complicated and constantly evolving disease process.⁴ Those with interest in the entire spectrum of BAV disease should please take the time to read this compendium in its entirety. Those interested in the CliffsNotes version should please refer to the document’s Table 5. Because of the breadth of information in this publication, it is difficult to summarize and contextualize its findings in 500 words. If I may be so bold, however, there are a few very important recommendations that surgeons should review to strategize how best to incorporate these guidelines within their personal practices and those of the centers in which they work.

First, patients with BAV with a need for nonaortic cardiac surgery and an aortic diameter of 4.5 cm or greater should undergo concomitant repair of the ascending aorta or root (class IIa, level of evidence B). This recommendation arises primarily from a retrospective study showing a higher incidence of subsequent aortic events in patients with BAV undergoing isolated AVR with an aortic diameter of 4.5 cm or greater.⁵ This is not terribly controversial.

Second, patients with BAV *without risk factors* (please read to see what are considered “risk factors”) should undergo repair of the ascending aorta or root when the aortic

There are many phenotypes of bicuspid aortic valve–related aortopathy.

Central Message

The indications for surgery for bicuspid aortic valve–related aortopathy continue to evolve. Ongoing research will lead to additional modifications of these guidelines.

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diameter is 55 mm or greater (class I, level of evidence B). Indexing for body surface area has garnered significant attention, and some have suggested a ratio of aortic diameter to body surface area greater than 10 cm/m² as a cutoff for elective repair.⁶ This consensus statement, however, suggests that “more research is needed to confirm these findings.” These statements may generate some controversy.

Finally, patients with BAV with an aortic diameter of 50 mm or greater may undergo repair if they have risk factors (class IIa, level of evidence B) or when the patients are at low surgical risk and are operated on by an experienced aortic team in a center with established surgical results (class IIb, level of evidence C). Certainly, the concepts of “low-risk” and “experienced” provide a moving target, and they clearly generated a lot of discussion within the writing committee. Consideration should be given, however, to the fact that high-volume aortic centers routinely perform elective aortic root replacement with a risk substantially less than 1%.^{7,8} Similar considerations are suggested when elective arch repair is necessary in those with BAV-associated aortopathy (class I, level of evidence B). The controversy generated by these specific guidelines will and should generate further discussion and investigation.

Regardless of your perspective on consensus guidelines, remember that no one is going to be put on double-secret probation for not following these recommendations to the

letter. Every practice is different, as is every patient, and the writing committee of The American Association for Thoracic Surgery has given us a lot of data and wiggle room for individual interpretation.

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