Bicuspid aortic valve aortopathy is not cancer

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Disclosures: Author has nothing to disclose with regard to commercial support.

Received for publication April 1, 2017; accepted for publication April 1, 2017; available ahead of print May 9, 2017.

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J Thorac Cardiovasc Surg 2017;154:419-20

0022-5223/\$36.00

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<http://dx.doi.org/10.1016/j.jtcvs.2017.04.001>

In this issue of the *Journal*, Vallabhajosyula and colleagues¹ ask the question, “Is it necessary to replace the sinuses of Valsalva in the setting of bicuspid aortic valve aortopathy?” They leverage their enormous institutional experience to find an answer. The results suggest that this answer is “no.” At least not in all cases.

This is an important question given the number of individuals with bicuspid aortic valve (1%-2% of the population), the frequency of aortic dilatation or aneurysm (30%-50%), and the increasing frequency of aortic intervention in this population.² The findings of this study argue for us to take a step back and ask how much really need be done.

To be sure, it is hard to ask a surgeon to do less rather than more; however, the balance of judgment has to be between the operative risk of the more aggressive approach and the natural history of the disease. In other words, what does it “cost” to be aggressive, and what do we gain? One is well advised to recall John Hunter’s admonition, “No surgeon should approach the victim of his operation without a sacred dread and reluctance.” At what point may we be doing more harm than good?

The answer to this question would require us to know with some precision (1) the incremental operative risk of root replacement relative to root preservation and (2) the risk of late sinus segment degeneration. The evidence here suggests that the answer to the latter—at least for patients with a sinotubular junction/annular diameter ratio smaller than 1.5—is “not much.” This is consistent with the findings of others studies as well.³

So, what about the incremental risk of the more aggressive approach? Although it is hard to find data comparing the operative risk of root replacement with a separate valve and graft (what these authors¹ call “AVRSCAAR”) in truly matched populations, some data do suggest similar operative outcomes.^{4,5} At the same time, others have argued that, at least in “experienced hands,” adding an ascending graft to aortic valve replacement adds negligible risk.⁶ Data from the Society of Thoracic Surgeons database, however, indicate that the operative risk of aortic root replacement is

T.M.S. with mentor Sir Magdi Yacoub and friends Rocky Daly, Kenton Zehr, Samad Tadjkarimi.

Central Message

Estimates of surgical risk derived from retrospective series can be misleading and pose a genuine epistemological problem for those trying to balance risks and benefits of prophylactic procedures.

See Article page 421.

significantly higher than that for aortic valve replacement alone,⁷ even at experienced centers.⁸ But if $A = B$, and $B = C$, how can it be that $A > C$? Clearly, the answer is subtle patient selection, as is the case in any good surgical series. Good judgment is the silent partner to “experienced hands” and good judgment means patient selection. This paradox highlights the dangers of estimating operative risk from retrospective surgical series.

Bicuspid aortic valve aortopathy, it would appear, is not cancer after all. Regardless of theoretic arguments that are based on embryology and the migration of neural crest cells, it does not appear to require resection to “clean margins,” even if we believe that the operative risk “in our hands” is low.

My question to the authors¹ now is this: Is it really necessary to replace the arch?

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