Commentary: To be or not to be: The guidelines are the question

Alice Le Huu, MD, and Joseph S. Coselli, MD

Despite significant gains in elucidating the physiopathology of ascending aortic aneurysms, in conjunction with improvements in surgical technique, managing this disease remains challenging. Of utmost importance to the patient is the threshold at which operative intervention is warranted. For many patients, current American and European guidelines recommend surgical repair of an ascending aorta or aortic sinus measuring \( \geq 5.5 \) cm.\(^1,2\) This threshold is lower for patients with a strong family history of aneurysm, a bicuspid valve, or a connective tissue disorder. In these clinical scenarios, intervention appears warranted at aortic diameters between 4 and 5 cm.\(^3\) However, the guidelines for operative management of an aortic aneurysm with concomitant bicuspid valve have become increasingly controversial because studies suggest that early intervention on an aorta \(< 4.5 \) cm does not confer a survival advantage.\(^4,5\)

Dr Elefteriades and his team at Yale have been instrumental in the development of the existing guidelines for thoracic aortic disease.\(^6\) In their latest endeavor, they have created a decision-making algorithm for managing ascending aortic aneurysms. This new algorithm is based on the premise that previous guidelines are too conservative in recommending repair of an aortic aneurysm at a diameter of 5.5 cm.

The team separated patients with ascending aortic aneurysms into 3 distinct categories: those with aneurysms \( \geq 5.0 \) cm, those with aneurysms 4.0 to 4.9 cm and risk factors, and those with aneurysms 4.0 to 4.9 cm and no risk factors. Surgery was recommended for the patients with an aortic diameter \( \geq 5.0 \) cm, rather than 5.5 cm as previously established guidelines suggest. Additionally, their algorithm establishes that patients with unexplained chest pain, which was classified as a risk factor, should be triaged to surgery when ascending aortic diameter is greater than 4.0 cm, along with patients with other risk factors—family history, connective tissue disorder, and bicuspid aortic valve. Two observations were made regarding the decision-making algorithm: that it correctly identified patients at risk for an aortic event, and that among patients whom the algorithm triaged to surgery, those who did not undergo surgery had significantly worse outcomes than those who did undergo it. The authors concluded that consideration should be given to changing the threshold diameter for operating on ascending aortic aneurysms from 5.5 cm to 5 cm.

In an effort to develop a new algorithm, Dr Elefteriades and his team have undertaken the formidable task of extensively analyzing an enormous dataset.\(^5\) Developing a simplified decision-making tool to address an exceedingly complex clinical pathology is particularly challenging. In clinical settings, the decision to operate at a smaller aortic diameter requires considering several factors, including genetic syndromes, family history, any previous cardiac or aortic surgery, age, and patient size. All of these factors substantially alter the development of aortic aneurysms, but unfortunately, their related risk is difficult to fully elucidate. Furthermore, the team’s data suggest that a leftward shift of operative indications for aortic aneurysms may be warranted. However, a change in the guidelines must be tempered by the knowledge that operative results obtained at smaller centers may not be comparable to those at Yale. Although a framework can guide operative management, patients must be evaluated in an
individual and institutional context to achieve optimal clinical outcomes.

References


