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“SILENT KILLER” OR VICTIM OF MISTAKEN IDENTITY?

To the Editor:

I read with interest the article entitled “Decision-Making Algorithm for Ascending Aortic Aneurysm—Effectiveness in Clinical Application?” by Saeyeldin and colleagues.¹ It is, as we have become accustomed from these authors, clearly written and beautifully illustrated. An algorithm is presented, supported by data concerning the fate of those not undergoing surgical intervention, and a claim of clinical effectiveness is made. I am concerned, however, that an algorithm intended to protect from “silent killers” threatens to turn innocent bystanders into victims of mistaken identity.

Although the substance of the study focuses on aortic diameter and symptomatic status, the decision tree implies equivalence of an associated bicuspid aortic valve (BAV) with a strong family history, a defined connective tissue disease like Marfan syndrome, or symptomatic status as an indicator for intervention on a 4.0- to 5.0-cm aorta. The accompanying editorialists touch on this issue. Huu and Coselli² cite the lack of data to support survival benefit to replacement of aortas less than 4.5 cm associated with BAV, and Schoenhoff and Carrel³ highlight the dilemma of intervention particularly in patients with a normally functioning BAV. I feel compelled to emphasize this point, however, given the frequency of BAV in the population and the common association of moderate aortic dilatation. The potential impact of this controversial recommendation dwarfs that of all the others.

The best data to date, summarized in a recent meta-analysis by Guo and colleagues,⁴ indicate a low risk of rupture or dissection of moderately dilated aortas and no evidence that those associated with BAV behave more badly than others. This low rate of death and dissection is consistent with previous findings reported from the Yale data set.⁵ These

data and others lead to the roll-back in recommended threshold for intervention by the American College of Cardiology/American Heart Association valve disease guideline committee⁶ to 5.5 cm absent special conditions. The writers of the subsequent American Association for Thoracic Surgery Consensus Guidelines on BAV-related aortopathy agreed.⁷

The authors of this study argue that their algorithm is “effective.” If effectiveness is defined as “successfully producing the desired result” and that result is defined as prevention of dissection, surely it must be such. The counterfactual is not possible, since Dacron does not dissect. Indeed, an even more aggressive algorithm would also prevent dissection. But is it “efficient?” If we define efficiency as being “without waste”—more specifically without unnecessary surgery—perhaps not.

We should be careful not to injure the innocent bystander in our zeal to nab the killer. Data demonstrating outcomes of those who declined or were refused surgery are not relevant to the question of whether surgery was necessary among all those who underwent the same. We are at risk of falling intellectual victims of a surgical variant of the “primitive logic fallacy” or “affirming the consequent”: the operated patients did well, so we must have done the right thing. Without knowledge of the actual risk of aortic catastrophe among those with BAV and moderate aortic dilatation, we may be doing more harm than good.

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