You Cannot Un-ring the Bell: How the Word "Aneurysm" Impacts Patients

Between 3 and 6 million Americans have a bicuspid aortic valve (BAV), with 30% to 60% having some degree of aortic dilatation. Recognizing the catastrophic nature of acute dissection, the correlation between aortic diameter and dissection, and the declining surgical mortality associated with aortic intervention, the 2006 ACC/AHA Guidelines for the Management of Patients with Valvular Heart Disease recommended an aggressive approach to BAV-associated aortopathy with elective intervention at a threshold diameter of 5.0 cm.[1] The 2010 ACC/AHA Guidelines for the Diagnosis and Management of Patients with Thoracic Aortic Disease were even more aggressive, with elective operation recommended at 4.0 to 5.0 cm.[2] The result has been a marked increase in surgical referrals of patients with "aneurysms" and an increase in aortic operations.[3] Newer evidence suggested, however, that this threshold was too low and the 2014 ACC/AHA Guidelines for the Management of Patients with Valvular Heart Disease[4] set the number at 5.5 cm, consistent with the European Guidelines.[5]

Despite this reversal, the referral of patients with "aortic aneurysm" seems to continue unabated. It is common for patients to nervously await a surgical opinion regarding an "aneurysm" identified on computerized tomography or echocardiography falling well below the threshold. They may have discontinued exercise or be on medical leave until after repair. They often feel as if they have "a time bomb in their chest." In some cases, reassurance will suffice. For others you cannot "un-ring the bell"; the specter of aortic catastrophe cannot be erased regardless of true risk. They want their aorta out. This is particularly challenging for those with a well-functioning BAV for whom surgery may commit to a valve prosthesis. Have we served these patients well?

Evidence accumulates and guidelines evolve. Why is it so hard for us to roll back the threshold?

As humans, we harbor biases. As physicians, it is our responsibility to recognize those biases. We strive to be evidence-based but are anecdote-driven. We read the literature but remember clinical experience, and we experience the subset of individuals who come to our attention—the numerator as it were—largely unaware of the general population constituting the denominator. We remember with particular clarity the tragically young patient with BAV and aortic dissection. This is availability bias. Furthermore, our outcome information is asymmetric. We see the unoperated patient in whom dissection occurred but have no way of knowing how many of those operated patients would or would not have dissected. The complications of aortic replacement, necessary or not, may be dismissed as the cost of preventing catastrophe. Finally, like our patients, we are subject to "certainty" bias, willing to trade risk for certainty. If the probability of aortic dissection is 1% at an unknown time, and the risk of operative intervention is twice that but on a set date, humans will tend to pick the latter, reinforced by confidence that surely the complication will not happen to them ("optimism" bias).

It is time for us to "un-ring the bell" for ourselves. This is true for all involved in care of these patients, from clinicians in direct contact to imagers who's reports apply the term "aneurysm" triggering the cascade. The onus is upon us to recognize limitations in our knowledge and quirks in our own thinking as we advise patients. While it is ultimately up to the patient to decide whether to intervene prophylactically, our language has a powerful impact on their thinking. Accordingly, a measure of caution is appropriate when applying an emotionally charged term such as "aneurysm (read "time bomb") to a patient. If we cannot un-ring the bell for them, we should avoid ringing it in the first place.

Conflicts of Interest

None.

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