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A LEFT-SHIFT IN THE DIAMETER FOR PROPHYLACTIC ANEURYSMECTOMY:
THE RIGHT DECISION FOR ALL?

To the Editor:

With great interest we read the recent insightful report from the Yale Aortic Institute, resulting from efforts dedicated to studying the natural history, surgical management, and outcomes of thoracic aortic aneurysms (TAAs). Over the past decades, the authors have immensely contributed to disentangling the unknowns of this “silent-killer,” here with supporting informed decision-making. Based on 5 arguments, in the current report the authors recommend a “left-shift” in the diameter for preemptive aneurysmectomy from 5.5 to 5.0 cm.

Albeit increasingly studied, male–female-specific guidelines or recommendations for TAA are lacking. Female patients with TAA show increased rates of aortic growth and risks of aortic dissection while also being subject to worse postoperative outcomes after thoracic aortic surgery. Based on the 5 reasons explained by the authors, a “left-shift,” in general, seems rational. Nevertheless, future studies should point out how the magnitude of the shift ideally realized for female patients relates to that ideally realized for male patients. More insight is needed into the relative meaning of these 5 key elements, individually for female and male patients, to further tailor a potential shift recommendation in guidelines. Whether indexing for height suffices in predicting risk and preventing aortic events for female patients or whether the disparities in disease progression and outcomes (partially) result from male- or female-intrinsic factors other than height remains to be elucidated. Size alone does not seem to entirely capture the complexity of aneurysm-related risks in patients with TAA, and perhaps aneurysm-related risks are more sufficiently eliminated by an absolute “left-shift” of 5 mm in male patients (Figure 1). Cellular and hormonal processes related to activity of matrix metalloproteinases, inhibitory enzymes of matrix metalloproteinases, transforming growth factor beta, and estrogen receptor expression are known to behave dissimilar between male and female patients with TAAs. The male–female-specific effect of these processes and alterations herein on mechanotransduction and risk of aortic syndromes remains poorly understood.

Furthermore, gender considerations and patient preferences cannot be ignored. Health-related quality of life and lived experiences differ between male and female patients with thoracic aortic disease and their partners. Moreover, patients with Marfan syndrome with TAA show a greater willingness to proceed to surgery than their physicians, and male patients attach greater value to an active lifestyle than female patients.

Treatment decisions in aortic disease should always concern the best-available evidence, the patient’s unique clinical state and circumstances, and informed patient preferences, when balancing the risk of the operation itself with the hazard posed by the dilated aorta. Promising novel treatment approaches such as personalized external aortic root

FIGURE 1. A left-shift in the aortic diameter for preemptive aneurysmectomy.
support (ie, PEARS) could prove meaningful in early elimination of aneurysm-related hazards in selected patients, encouraging an even bigger “left-shift.”

We support the overall conclusions drawn by the authors and plead for an active pursuit of obtaining male–female-specific insights into the treatment of thoracic aortic disease. In this light, the “one-size-fits-all” philosophy should be abandoned and patient-tailored solutions (male/female) should be explored further.

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