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Commentary: Gender and outcomes of acute aortic dissection: Instantaneously good, but then?

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CENTRAL MESSAGE

Gender-based differences in the phenotype of acute type A aortic dissection do not translate into dissimilar early postoperative outcomes—but what about mid- to long-term?

Since 2006, the GERAADA Registry has reflected the tendencies and outcomes in the practice of surgery for acute type A aortic dissection in many centers from Germany, Austria, Switzerland, and Luxembourg.¹ It is the expression of a great deal of commitment and represents an invaluable source of information in a field that continues to offer challenges and gratification, surprises, and frustrations. The current prestigious manuscript issued from the GERAADA Registry written by Rylski and coworkers² confirms that acute dissection tends to occur more frequently and earlier in life in men compared with women, underscores that men tend to present with a more severe proximal phenotype (with more frequent need for root replacement), and indicates that despite these dissimilarities, overall early outcomes are similar among genders. Indeed, it has been demonstrated that women present with delayed/less frequent occurrence of acute dissection, possibly as an expression of the protective effects on the cardiovascular system exerted by their hormonal layout. Conversely, it seems that a great value of this Registry lies in illustrating the effects of significant recent progress in surgical treatment, as demonstrated by the low incidence of aggregated mortality in data from as many as 56 centers. The authors correctly highlight advancements in cerebral protection strategies, surgical techniques, and technologies (eg, availability of frozen

elephant trunk and of modern vascular prostheses, use of reliable glues). In addition, we suggest the increasingly decomplexified attitude toward the use of root replacement surgery, an attitude that has spread in parallel with the democratization of surgical competence in such techniques. A hidden message in the folds of the GERAADA data likely consists in the effectiveness of liberal root replacement as a powerful tool to prevent early mortality in patients with a more aggressive proximal phenotype and, ultimately, to obtain similar outcomes among genders despite differing baseline profiles.

In that sense, and more in general, acute type A dissection represents a field in which the synergy of systematization, standardization, surgical pedagogy, and establishment of a rational referral chain have yielded major ameliorations in early outcomes compared with less recent experiences.³ Such tendency has become evident in many reference aortic centers worldwide, including the writers' one. It remains to be understood whether the same conclusions can be applied to lower-volume institutions—a question the GERAADA is well positioned to address. The mean annual volume is actually low—6 dissections per each of the 56 participating centers—suggesting an “organizational” dispersion, possibly due to “territorial” reasons.

The amount of available data in this registry and the relevant number of patients might be helpful to address some old—yet in a great deal unanswered—questions about seasonality and influence of environmental factors on the occurrence of dissection. We hope that the GERAADA will continue to be extensively exploited and used to provide

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several additional insightful messages. An additional significant drawback is represented by the limited availability of follow-up data beyond the 30th postoperative day. Although the authors' decision to report only patients with complete data is methodologically incontestable, the demonstration of long-term outcomes and their reasoned communication remains a vital asset for contemporary cardiac surgery. In that sense, is the GERAADA a "mutilated" tool?

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Commentary: Gender differences in aortic pathology and detection bias

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Health inequality between genders is a well-known phenomenon that has been demonstrated for centuries, first documented in the 1850s by the British epidemiologist William Farr.¹ Such differences are clearly demonstrated when comparing overall life expectancy, which has improved in females since the 1890s²; however, questions remain as to the contributing factors. In this edition of the *Journal*, Rylski and colleagues³ examine gender-related differences in acute aortic dissection, specifically differences in disease presentation, anatomic burden, and surgical outcomes.

We congratulate the authors in examining gender differences in this subset. An editorial series on gender differences in cardiothoracic surgery diseases and outcomes was initiated by the *Journal* nearly 20 years ago,⁴ and yet still much work remains to be done. A strength of this study is that the data are derived from a multicenter, multinational registry. Findings included that women presented at an older age (average, 5 years older), and that men were more likely to have visceral/renal malperfusion and

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CENTRAL MESSAGE

A registry study suggests gender differences in the clinical and anatomic presentation and surgical intervention of acute type A dissections. We reflect on the potential for study biases.

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neurologic dysfunction and to undergo aortic root replacement. Operative mortality was similar.

A question that arises is whether presentation differences truly represent gender-mediated biological differences in disease behavior, or might they reflect differences in detection and/or management. As with all procedure-based registries, there is a potential for survivorship bias when evaluating disease incidence.⁵ With specialized care, there also may be a referral bias. Inclusion in the study of Rylski and colleagues involved 4 preoperative steps: patients had to have been accurately diagnosed, transferred to a German Registry for Acute Aortic Dissection Type A (GERAADA) center, offered surgery, and consented to surgery as a treatment. This meant that the study excluded patients with type A dissection who had a missed diagnosis (whether clinically or due to lack of high-quality, accurately interpreted