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Commentary: Acute type A dissection and sex: A matter of biology or of imperfect adjustment?

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CENTRAL MESSAGE

The impact of female sex on outcomes following acute type A aortic dissection remains unclear.

Generally women are at increased risk of major morbidity and mortality following cardiac surgery compared with men. In fact, previous reports have identified female sex as an independent risk factor for mortality following coronary artery bypass grafting despite adjustment for multiple risk factors.¹ This can be explained in part by the fact that women are older at presentation and have higher rates of important medical comorbidities, such as hypertension, diabetes, peripheral artery disease, and congestive heart failure at presentation.² Furthermore, women have smaller coronary artery diameters compared with males, irrespective of body size.³ Similar intrinsic differences have been described for mitral valve repair and replacement, but the evidence related to sex-specific outcomes following acute type A aortic dissection (ATAAD) remains sparse.

In this issue of the *Journal*, Norton and colleagues⁴ investigate the impact of female sex on outcomes following operative repair of ATAAD in 650 patients, of whom 206 (32%) were women. The authors found that compared with men, women were significantly older and had higher rates of hypertension and stroke at presentation but less extensive dissections and a lower rate of root replacement. Operative mortality was significantly lower for women compared with men, with male sex identified as an independent

predictor of mortality. Notably, 10-year survival was similar in the two groups.

The authors are to be commended for this series, with an overall operative mortality rate of 8.0%. Like all analyses, however, this study should be interpreted in the context of some important limitations. As the authors acknowledge, this is a single-center retrospective series with specialized aortic surgeons, and caution should be taken when extrapolating results to all patients and institutions. In fact, a large analysis from the International Registry of Acute Aortic Dissection found that women had higher rates of operative mortality following repair of ATAAD, even after adjusting for age and hypertension—findings contrary to those of the present smaller, single-center analysis.⁵

Most importantly, male and female patients present with intrinsic differences. In this analysis, although women had significantly higher rates of hypertension and stroke at presentation, they had lower rates of end-organ malperfusion, less renal failure, and better baseline left ventricular function. Furthermore, male patients had more extensive dissections and underwent more complex operations, as reflected by higher rates of root replacement and significantly longer cardiopulmonary bypass and cross-clamp times, known risk factors for increased mortality following ATAAD. Observational series are known to be limited by unmeasured confounders, even when complex matching techniques are used to minimize differences between patient populations.⁶ These intrinsic baseline differences in the patient populations, rather than biological sex alone, may explain any difference in operative mortality observed.

To be sure, this analysis attempts to address an important question in the ever-evolving surgical treatment of ATAAD. However, the question of whether sex has an impact on outcomes remains unclear. Future analyses should focus

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specifically on women to improve perioperative care following ATAAD.

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