

## Commentary: Aortic repair in the Great White North—endovascular or open, eh?



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Disclosures: Dr Coselli's work is partly supported by the Cullen Foundation. Dr Coselli consults for, receives royalties and a departmental educational grant from, and participates in clinical trials for Terumo Aortic; consults and participates in clinical trials for Medtronic, Inc., and W.L. Gore & Associates; and serves as a co-investigator for CytoSorbents. Dr Huu has nothing to disclose with regard to commercial support.

Received for publication Oct 8, 2019; revisions received Oct 8, 2019; accepted for publication Oct 8, 2019; available ahead of print Oct 24, 2019.

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J Thorac Cardiovasc Surg 2021;161:528-9  
0022-5223/\$36.00

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<https://doi.org/10.1016/j.jtcvs.2019.10.050>



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### Central Message

A Canadian study finds that open repair of TAAA has significantly greater short-term mortality and morbidity compared with an endovascular approach, but long-term survival is comparable. However, patient management must be individually tailored to achieve optimal outcomes.

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Open thoracoabdominal aortic aneurysm (TAAA) repair is among the most technically complex surgical procedures performed today. Even in high-volume centers of excellence, the incidence of mortality and morbidity remains daunting. As a result, the advent of endovascular repair for TAAA has been greeted with much enthusiasm and celebrated as a less-invasive treatment for a potentially fatal pathology. For high-risk patients, the propaganda has been nothing short of a panacea. In the last decade, endovascular repair of the descending thoracic aorta has largely superseded open repairs.<sup>1</sup> Such a dramatic shift in management strategy has ignited a firestorm of debate over which method should be used to treat TAAA. However, this revolutionary endovascular technology is a recent phenomenon—long-term outcomes of endovascular TAAA repair are simply not available.

With their work, Rocha and colleagues<sup>2</sup> sought to determine the individual benefits of these 2 treatment strategies as performed in Ontario, Canada, using comprehensive provincial data. With a propensity-matched analysis for 241 patients undergoing open or endovascular repair of TAAA, they found that open procedures had a greater rate of in-hospital mortality and life-altering complications. These results were not unexpected, because the risks of open procedures are understood to be up-front, with traditional benefits perceptible long term. Their data also demonstrate that endovascular TAAA repairs had greater rates of reintervention compared with open procedures, thus affirming that an endovascular repair may not be as durable. This is not a benign finding—endovascular reintervention is not necessarily a free ride; studies suggest that subsequent interventions are associated with increased mortality rates.<sup>3,4</sup> Our own work has demonstrated that open TAAA repair is durable.<sup>5</sup>

Although a recent meta-analysis by this group<sup>6</sup> demonstrated a survival benefit for patients undergoing endovascular rather than open TAAA repair, their current population-based study concluded that overall survival at 8 years was not significantly different between the 2 treatment options.<sup>2</sup> Deciphering these results in the broader context of endovascular versus open repair as a superior treatment for TAAA is challenging. The incidence and prevalence of patients with TAAA is low, and consequently, published studies must pool the highly varied types of TAAA repair (ie, Crawford extents I-IV TAAA repair) together to gather sufficient data. A limitation of the study by Rocha and others from Toronto<sup>2</sup> includes the inability to match patients by the extent of TAAA repair. As procedural outcomes are highly dependent on the extent of aortic disease, with Crawford extent II TAAA repair carrying the greatest operative risk, the literature can provide generalized outcomes that are not necessarily applicable to each subgroup of TAAA.

One can conclude that both endovascular and open repair of TAAA are viable approaches. Perhaps, they could even be considered symbiotic approaches. For example, patients may benefit from staged open and endovascular approaches, such as an endovascular repair of the descending thoracic aorta followed by open TAAA extent

IV repair, which may provide greater stability for the branching visceral arteries. Choosing the appropriate course of action is based on countless patient characteristics, and treatment plans must be individualized. Undoubtedly, both procedures will remain integral to the management of TAAA; however, more research is required to determine the specific selection criteria for each patient.

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