REPLY: PROSPECTIVE TRIALS ARE REQUIRED TO DETERMINE THE OPTIMAL ARCH STRATEGY FOR ACUTE TYPE A DISSECTION

Reply to the Editor:

We thank Gregory and colleagues for their interest in our study of hemiarch (HA) versus extended arch (EA) repair in acute type A dissection (ATAD) by the Canadian Thoracic Aortic Collaborative (CTAC). Their commentary highlights several important challenges when using retrospective data to understand this clinical question.

The definition of EA repair was the subject of significant debate among the co-authors. The surgical techniques varied considerably across the 9 centers and evolved over the 20-year study period. We hypothesized the following: (1) The risk of cerebral injury would increase with reconstruction of the supra-aortic vessels (partial/total arch repair at zones 1-3/C6 frozen/conventional elephant trunk); (2) the risk of spinal cord injury (SCI) would increase with covered stents; and (3) improved resolution of malperfusion would occur with any distal stent. Each of these hypotheses would require different comparator groups, smaller numbers, and analytic challenges. Furthermore, the limitations of a retrospective database became apparent, with some variables such as the zone of distal anastomosis and method of arch vessel reconstruction inconsistently reported.

Ultimately, we decided to include any technique that involved more intervention on the distal aorta than an HA in the EA arm. This meant including patients with an HA and antegrade thoracic endovascular aortic repair or Ascyrus Medical Dissection Stent (AMDS) in the EA arm, with the rationale being that having a stent in the distal aorta would improve distal malperfusion. Nevertheless, both techniques do not require arch vessel reconstruction and as such may have lower rates of neurological injury. Furthermore, the AMDS does not have any reported risk of SCI. In our series, eliminating the small number of patients with an AMDS from the EA arm did not change the overall SCI rate; however, we observed no new SCI events in any patient with the AMDS. However, the rate of stroke and permanent neurological injury was not different between the 2 groups. Patients may have had subtle neurological deficits that were not reported and would certainly have a higher incidence of lesions observed on cerebrovascular imaging than the clinical diagnostic rate for neurological events.

Last, we agree that the cannulation site is critical to the conduct of ATAD repair. Although outside the scope of this study, we have previously studied the impact of cannulation strategy on ATAD outcomes in both the CTAC dataset and the International Registry of Aortic Dissection data. Interestingly, although our CTAC analysis found benefit of axillary cannulation with respect to mortality and stroke risk, International Registry of Aortic Dissection data demonstrated equivalent perioperative outcomes.

In summary, the optimal arch repair strategy in ATAD remains controversial. Large multicenter data from organizations such as CTAC overcome some of the challenges associated with retrospective studies. Going forward, TITAN:HEADSTART (NCT03885635), the first randomized trial in ATAD, will aim to provide insight on the optimal arch repair strategy in ATAD by randomizing patients to EA versus HA and including core computed tomography laboratory follow-up.

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M.W.A.C. and M.O. have received Speakers’ honoraria from Medtronic, Edwards Lifesciences, Terumo Aortic, and Artivion. M.B. has received honoraria from Terumo Aortic and serves as a proctor for Edwards Lifesciences. J.J.A. has consultancy agreements with Artivion and Gore Medical. The other author reported no conflicts of interest.

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References

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