Every step matters

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Acute type A (I) aortic dissection remains a devastating disease associated with significant morbidity and mortality. Encouraging, however, was the recent update from the International Registry of Acute Dissection that reported significant improvements in outcomes during the past 2 decades.¹ Even with an *increased* rate of surgical treatment (from 78% to 90%), the operative mortality decreased from 25% to 18% ($P = .003$). This translates into a 28% *decrease* in the surgical mortality through the course of the study. This improvement is multifactorial and attributable to areas of improvement in all phases of care for the patient. Despite the progress, however, opportunity for improvement remains.

Mortality in acute type A (I) dissection results from either rupture or malperfusion, and it remains a continuing goal to address both of these issues throughout the patient's hospital course. Relevant to the surgeon are the steps required during the course of the operation. Operative mortality is dependent on many variables, which include cardiopulmonary bypass and temperature management, cannulation strategy, malperfusion mitigation, myocardial protection, resection of the tear, and the approach to the transverse arch, the aortic root, and the aortic valve. In dealing with acute type A (I) aortic dissection, many will focus on such issues as whether to replace the transverse arch to perform a valve-sparing aortic root procedure or to use moderate hypothermia with antegrade cerebral perfusion.²⁻⁴ I would not suggest that these are unimportant—these are *very* important issues—however, we should consider *all* operative steps *equally* important.

The brief communication in this issue of the *Journal* by Hussain and colleagues⁵ provides a simple technique in which the cannulation strategy was modified to address the lower extremity malperfusion at the *initiation of the procedure*. The technique is relatively simple, as Hussain and colleagues⁵ modified the arterial circuit to address the malperfused left lower extremity while providing central arterial perfusion through the right axillary artery. By

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Central Message

To continue to make strides the operative outcomes of acute type A (I) aortic dissection, mitigation of malperfusion at should be attempted every step.

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addressing this malperfusion at the initiation of the surgical procedure, as opposed to at the end, they potentially reduced the untoward effects of the persistent peripheral malperfusion.

My group recently reported our series of peripheral malperfusion after acute type A (I) aortic dissection and noted that 80% of peripheral malperfusion will be corrected by central repair alone.⁶ The 20% of patients who did not have improvement with central repair and required a peripheral intervention, whether open bypass or endovascular intervention, however, did have worse outcome with higher mortality. Although the higher mortality was attributable to involvement of other malperfused vascular beds, such as visceral and spinal, the persistent peripheral ischemia may have played a role. At any rate, what to address first and how should always be left to the operating surgeon.

In the end, improvement in the operative outcomes of acute type A (I) aortic dissection has occurred. We appreciate the detrimental effects of ischemia to all organ systems—related malperfusion. To continue to make strides, however, mitigating malperfusion at every step should be attempted. Thus, *every step matters*.

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