Commentary: Some is good, so more must be better, right?

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In this issue of the *Journal*, Angleitner and colleagues¹ present an interesting retrospective study assessing unilateral versus bilateral antegrade cerebral perfusion (ACP) during surgical repair of acute type A aortic dissection. This single-center experience sheds light on an important clinical question, finding no overall survival benefit for bilateral ACP. In subgroup analysis, however, Angleitner and colleagues¹ suggest that patients requiring longer than 50 minutes of ACP have a survival benefit with a bilateral approach.

Angleitner and colleagues¹ are to be commended for attempting to answer this question; however, the retrospective nature of the study is susceptible to considerable selection bias. The surgeon was allowed to decide on type of ACP used, and some of the clinical factors leading to the decision are likely not captured in a database. Two aortic specialists performed about one-third of cases, and they performed numerically more cases with bilateral ACP, in addition to a greater number of total arch replacements. In a study so limited by sample size, the effect of these differences is largely unknown. A recent Society of Thoracic Surgeons national database study found only 34% of patients were cannulated in the axillary artery, and 46% received antegrade cerebral perfusion.² The generalizability of these findings thus may be limited. Although Angleitner and colleagues¹ excluded all patients with retrograde cerebral perfusion, the national Society of Thoracic Surgeons study actually found a potential benefit of retrograde cerebral perfusion relative to ACP.²

The primary goal of surgical repair of acute type A aortic dissection is stabilization of the aortic root and elimination of the aortic dissection plane and ascending fenestrations to restore true lumen flow.³ There has been a trend toward increasing complexity of aortic repairs for acute type A dissection.⁴ This is evidenced by a move away from isolated ascending repair toward hemiarch replacement, which should still require less than 30 minutes of circulatory arrest

time. There thus should be few cases requiring ACP longer than 50 minutes. Total arch or frozen elephant trunk procedures should be tailored to specific patient needs and performed by experienced aortic surgeons. These are not elective arch cases, however, and the cerebral perfusion strategy should similarly be tailored. The potential perfusion benefit should be weighed against further manipulation of dissected friable small vessels. Another scenario in which surgeons should consider expanded cerebral perfusion strategies is reoperative cardiac surgery, with anticipated longer circulatory arrest.⁵

Central Message

Unilateral and bilateral antegrade cerebral perfusion routes during acute type A aortic dissection repair each have pros and cons that must be considered and applied in a patient-specific approach.

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