See Article page XXX.

Commentary: Intraoperative neuromonitoring: FAST to FASTER response to neurologic complication

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Intraoperative neuromonitoring for both arch surgery and descending/thoracoabdominal interventions remains debated. While opponents complain about the common false-positive findings, the authors from Pittsburgh describe the predictive value of intraoperative neurophysiologic monitoring (IONM) during aortic arch surgery with hypothermic circulatory arrest.¹ Importantly, the results demonstrated that patients with IONM changes had an increased mortality and adverse neurologic events, with somatosensory-evoked potentials being more sensitive than electroencephalogram in predicting neurologic events.

Although these conclusions seem intuitive, they are important in optimizing the Achilles heel of neurologic complications in aortic surgery. A complaint with monitoring historically has been that the understanding of these changes does not change the care of the patient. However, this is no longer the case. The authors describe several actions that could be taken if IONM was abnormal, seen in Figure 3. These include immediate intraoperative changes (increase cerebral perfusion, scan the carotid arteries using ultrasonography, evaluate the anastomoses for possible kinking), interventions after removal of the crossclamp, such as to increase arterial pulsatility or increase perfusion pressure, and postoperative steps including immediate

Stroke Acronym	Aortic Neuromonitoring Acronym
Facial Droop	Find monitoring Changes
Arm Weakness	Asses the changes are consistent with procedure risk
Speech	Survey potential anatomic solutions
Time to call	Time to CT or Angiography
	Embolus
	Removal

From the American Stroke Association acronym to the IONM acronym.

CENTRAL MESSAGE

Although controversial, intraoperative neuromonitoring has the potential to facilitate stroke treatment in aortic surgery.

computed tomography angiography of head and neck to determine whether any neurointervention could be indicated. This can be taken a step further to include on table angiograms and potential embolectomy, which we have done in a couple of cases that were already in the hybrid room.

We applaud the authors for their work in furthering the ability to intervene on abnormal IONM in these complex cases. Ultimately, the role of IONM is to direct real-time changes with immediate interventions to improve patient outcomes. While this continues to progress, this study does help us get closer to the goal of eliminating stroke in these at risk operations. More studies in this area will be helpful in minimizing false positives as well as determining reliable thresholds for interventions such as on table cerebral imaging. As hybrid suites become more commonplace, this will most certainly become a reality in the future of aortic arch interventions.

Reference

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