

5. Safi HJ, Bartoli S, Hess KR, Shenaq SS, Viets JR, Butt GR, Sheinbaum R, Doerr HK, Maulsby R, Rivera VM: Neurologic deficit in patients at high risk with thoracoabdominal aortic aneurysms: The role of cerebral spinal fluid drainage and distal aortic perfusion. *J Vasc Surg* 1994; 20:434-43; discussion 442-3
6. Keyhani K, Miller CC 3rd, Estrera AL, Wegryn T, Sheinbaum R, Safi HJ: Analysis of motor and somatosensory evoked potentials during thoracic and thoracoabdominal aortic aneurysm repair. *J Vasc Surg* 2009; 49:36-41
7. Shine TS, Harrison BA, De Ruyter ML, Crook JE, Heckman M, Daube JR, Stapelfeldt WH, Cherry KJ, Gloviczki P, Bower TC, Murray MJ: Motor and somatosensory evoked potentials: Their role in predicting spinal cord ischemia in patients undergoing thoracoabdominal aortic aneurysm repair with regional lumbar epidural cooling. *ANESTHESIOLOGY* 2008; 108: 580-7
8. Estrera AL, Sheinbaum R, Miller CC 3rd, Harrison R, Safi HJ: Neuromonitor-guided repair of thoracoabdominal aortic aneurysms. *J Thorac Cardiovasc Surg* 2010; 140:S131-5; discussion S142-6
9. Koeppel TA, Mess WH, Jacobs MJ: Motor evoked potentials in thoracoabdominal aortic surgery: PRO. *Cardiol Clin* 2010; 28:351-60
10. Coselli JS, Tsai PI: Motor evoked potentials in thoracoabdominal aortic surgery: CON. *Cardiol Clin* 2010; 28:361-8
11. Griffin FA, Haraden C: Patient safety and medical errors, *Healthcare Quality Handbook*, 2nd Edition. Edited by Ransom ER, Maulik SJ, Nash DB, Ranson SB. Chicago, Health Administration Press, 2011, pp 243-68

(Accepted for publication February 22, 2012.)

#### In Reply:

Drs. Loubser and Sheinbaum purport in their letter that "Based on the lessons learned from cerebrospinal fluid drainage, and in the interests of patient safety, we should view neurophysiologic monitoring during TAAA [thoracoabdominal aortic aneurysm] surgery not as an obscure modality as Vaughn *et al.* impugn,<sup>1</sup> but as a standard-of-care." Although it is fair to acknowledge that some centers have successfully adopted these techniques in the interests of patient safety, we disagree that these techniques should be considered "standard of care" (which has major medical-legal connotations).

The most recent American College of Cardiology; American Heart Association; American Association for Thoracic Surgery; American College of Radiology; American Stroke Association; Society of Cardiovascular Anesthesiologists; Society for Cardiovascular Angiography and Interventions; Society of Interventional Radiology; Society of Thoracic Surgeons; and Society for Vascular Medicine guidelines for spinal cord protection during descending aortic open surgical and endovascular repairs specifically state that "neurophysiological monitoring of the spinal cord (somatosensory evoked potentials or motor evoked potentials) may be considered as a strategy to detect spinal cord ischemia and to guide reimplantation of intercostal arteries and/or hemodynamic optimization to prevent or treat spinal cord ischemia (Class IIb Indication)."<sup>2</sup> In point of fact, the only Class I recom-

mendation at present for spinal cord protection in patients at high risk of spinal cord ischemic injury undergoing open or endovascular thoracic aortic repair is cerebrospinal fluid drainage.<sup>2</sup>

Respectfully, we also disagree that we "impugned" neurophysiologic monitoring as an obscure technique. Rather, after having presented the supporting evidence for neurophysiologic monitoring,<sup>3</sup> we simply and correctly stated that "there are limitations and drawbacks for the use of somatosensory evoked potentials and motor evoked potentials for these procedures, and are not standard practice at all institutions."<sup>1</sup> Thus, in our ongoing effort to decrease morbidity and mortality during open and endovascular repair of the descending and thoracoabdominal aorta, we fully support and advocate the use of any of the recommended strategies for spinal cord protection.<sup>2</sup>

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#### References

1. Vaughn SB, LeMaire SA, Collard CD: Case scenario: Anesthetic considerations for thoracoabdominal aortic aneurysm repair. *ANESTHESIOLOGY* 2011; 115:1093-102
2. Hiratzka LF, Bakris GL, Beckman JA, Bersin RM, Carr VF, Casey DE Jr, Eagle KA, Hermann LK, Isselbacher EM, Kazerooni EA, Kouchoukos NT, Lytle BW, Milewicz DM, Reich DL, Sen S, Shinn JA, Svensson LG, Williams DM, American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines, American Association for Thoracic Surgery, American College of Radiology, American Stroke Association, Society of Cardiovascular Anesthesiologists, Society for Cardiovascular Angiography and Interventions, Society of Interventional Radiology, Society of Thoracic Surgeons, Society for Vascular Medicine: 2010 ACCF/AHA/AATS/ACR/ASA/SCA/SCAI/SIR/STS/SVM guidelines for the diagnosis and management of patients with Thoracic Aortic Disease: A report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines, American Association for Thoracic Surgery, American College of Radiology, American Stroke Association, Society of Cardiovascular Anesthesiologists, Society for Cardiovascular Angiography and Interventions, Society of Interventional Radiology, Society of Thoracic Surgeons, and Society for Vascular Medicine. *Circulation* 2010; 121:e266-369
3. Coselli JS, Tsai PI: Motor evoked potentials in thoracoabdominal aortic surgery: CON. *Cardiol Clin* 2010; 28:361-8

(Accepted for publication February 22, 2012.)

## Confirmation of Nonanesthetic-induced Malignant Hyperthermia

#### To the Editor:

We read with interest the important study by Groom *et al.*, Identical *de novo* Mutation in the type 1 Ryanodine Receptor Gene Associated with Fatal, Stress-induced Malignant Hy-

This letter was sent to the author of the original article by Groom *et al.*, who chose not to reply.—James C. Eisenach, M.D., Editor-in-Chief.