



High BIS and low rSO₂ during CPB: seizure?

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To the Editor:

During cardiac surgery, anesthesiologists monitor the bispectral index (BIS) and regional cerebral oxygen saturation (rSO₂). We report the case of a high BIS score and low rSO₂ value during an ascending aorta graft surgery. Anesthesia was maintained with propofol and remifentanyl infusion. Immediately after the aortic cross clamp was applied, the BIS abruptly increased to 92, and the rSO₂ gradually decreased to 37 on both sides. Midazolam and rocuronium were administered, but little change was observed. Vital signs and an arterial blood gas analysis (ABGA) did not show any problems. The body temperature was 28 °C. About 20 min after the high BIS, the perfusionist began the sevoflurane inhalation via a pump. The BIS then decreased to 40, and the rSO₂ slowly increased to above 50. The patient was confused and irritable for 3 days after surgery, but did not show any kind of neurological complications thereafter. He did not recall the surgical experience.

After we ruled out several causes for the aberrant values, we concluded that a seizure might have occurred during the

event. Intraoperative seizures have been reported intermittently [1, 2]. During a seizure, cerebral activity is exaggerated and coincides with high electromyography activity, resulting in increased BIS values. When a seizure stops, the BIS decreases to the previous level. The rSO₂ decreases because of a high metabolic process in the cerebral hemisphere. After a seizure, the rSO₂ increases.

Compliance with ethical standards

Conflict of interest The author(s) declare that they have no competing interests.

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