J Anesth (2013) 27:477–478
DOI 10.1007/s00540-013-1604-x

LETTER TO THE EDITOR

In reply: superior recovery profiles of propofol-based regimen as compared to isoflurane-based regimen in patients undergoing craniotomy for primary brain tumor excision: a retrospective study

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Received: 17 January 2013 / Accepted: 25 March 2013 / Published online: 11 April 2013

Keywords Isoflurane · Propofol · Craniotomy · Emergence · Consciousness

To the Editor:

Firstly, we are aware that the extubation time was prolonged in our results [1] compared with those in modern neuroanesthesia practice. A recent RCT study reported 8–10 min emergence time in postoperative patients of elective supratentorial craniotomy anesthetized by sevoflurane-remifentanil or by propofol-remifentanil anesthesia [2]. The emergence was, however, delayed during the period of investigation. The author had discussed the differences of anesthesia emergence profiles in the past and current conditions with the co-authors and recognized that the presented cases of Yamagata University Hospital 2002–2005 were suitable to be provided for re-examination on the effects of isoflurane and propofol in relation to the reasons specified in the paper. In addition to the above, it should be noted that neurosurgical procedures have been much improved since the time we conducted that research. Remarkable advancement of imaging technology and the development of surgical instruments have enabled the surgeon to perform less invasive surgery, of higher quality and shorter surgical duration. From the anesthesiological point of view, the introduction of remifentanil, which was officially approved in 2007 in Japan, was notable. Until then, fentanyl had been virtually the sole opioid that we could use intraoperatively. With administration of remifentanil, we could reduce main anesthetic's concentration and fentanyl usage. We speculate that longer surgical time and lack of remifentanil in the days of the study were the main causes of the prolonged emergence which is seldom seen in modern neuroanesthesia practice. Other cause(s), such as brain edema formation, could be considered, but would be speculative since no evidence is available to this retrospective investigation.

Use of nitrous oxide in the propofol group did not reduce opioid requirement, as indicated. About half of the patients required nitrous oxide during the course of the operation due to hemodynamic instability. In such cases, nitrous oxide was combined at concentrations of 50–60 %, and terminated when the Mayfield head holder was detached from the patient. Patients in the propofol group with nitrous oxide still required a large dose of fentanyl (fentanyl dose: with nitrous oxide; 584 ± 187 μg, without nitrous oxide; 632 ± 208 μg, $P = 0.2637$). Also, total dosage of propofol was not affected by the use of nitrous oxide (propofol dose: with nitrous oxide; 3,910 ± 1,563 μg, without nitrous oxide; 3,784 ± 1,708 μg, $P = 0.7386$). However, we cannot explain the 'conflict' in those results, which might suggest individual variability to anesthetics. Regarding BIS guided extubation, we did not use this method at all. BIS was only applied to monitor the depth of anesthesia and to prevent intraoperative awareness.

Lastly, I admit that our data was a bit old. Also, I did admit the limitation in value of the data since it was collected in a retrospective investigation. However, we still believe that the study results would provide useful information on anesthesia recovery profiles related to isoflurane and propofol, which had been, on and off, inconsistently described.

This author's reply refers to the letter to the editor at doi:10.1007/s00540-013-1603-y

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Acknowledgments Representing our study team, I thank Drs. Chowdhury and Cappellani for their interest in our paper

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