Bispectral index for monitoring anesthetic depth in patients with severe burns receiving target-controlled infusion of remifentanil and propofol

Z.G. Guo*, X.P. Jia*, X.Y. Wang, P. Li, X.J. Su and J.H. Hao

Department of Anesthesiology,
First Affiliated Hospital of General Hospital of PLA, Beijing, China

*These authors contributed equally to this study.
Corresponding author: J.H. Hao
E-mail: jiahuahaoen@126.com

Received July 7, 2014
Accepted March 12, 2015
Published July 13, 2015
DOI http://dx.doi.org/10.4238/2015.July.13.3

ABSTRACT. This study evaluated the feasibility and effectiveness of using the bispectral index (BIS) to monitor anesthetic depth in patients with severe burns receiving intravenous target-controlled infusion (TCI) of remifentanil and propofol. We randomly assigned 80 patients undergoing elective escharectomy (<1 week) to BIS (A) and control (B) groups. All patients received remifentanil and propofol as intravenous TCI anesthesia. Clinical data were recorded at different time points. The time from drug withdrawal to eye opening upon the patient hearing his/her name called and upon reaching an Aldrete score of 9 points was also recorded. During anesthesia maintenance, the target concentrations of remifentanil and propofol in group A were significantly lower than that in group B (2.12 ± 0.35 vs 2.50 ± 0.21 ng/mL and 2.54 ± 0.22 vs 2.86 ± 0.31 μg/mL, respectively; P < 0.01). The time from drug withdrawal to eye opening upon the patient hearing his/her name called and reaching an Aldrete score of 9 points in group A was considerably shorter than
that in group B (7.90 ± 0.58 vs 8.35 ± 0.66 min and 9.15 ± 0.69 vs 11.13 ± 0.96 min, respectively; P < 0.01). In both groups, mean arterial pressure and heart rate values at each time point after loss of consciousness were significantly lower than the baseline values (P < 0.05), with the exception of 2 min after intubation. The use of BIS to monitor anesthetic depth in patients with severe burns receiving TCI of remifentanil and propofol during the perioperative period reduces propofol consumption and shortens the consciousness recovery time in patients.

Key words: Propofol; Remifentanil; Target-control infusion; Burn