

Comparison of Two Anesthetic Methods during Interventional Neuroradiology Procedure: Propofol versus Sevoflurane Using Patient State Index

Authors : Ki Hwa Lee, Eunsu Kang, Jae Hong Park

Abstract : Background: Interventional neuroradiology (INR) has been a rapidly growing and evolving neurosurgical part during the past few decades. Sevoflurane and propofol are both suitable anesthetics for INR procedure. Monitoring of depth of anesthesia is being used very widely. SEDLine™ monitor, a 4-channel processed EEG monitor, uses a proprietary algorithm to analyze the raw EEG signal and displays the Patient State Index (PSI) values. There are only a few studies examining the PSI in the neuro-anesthesia. We aimed to investigate the difference of PSI values and hemodynamic variables between sevoflurane and propofol anesthesia during INR procedure. Methods: We reviewed the medical records of patients who scheduled to undergo embolization of non-ruptured intracranial aneurysm by a single operator from May 2013 to December 2014, retrospectively. Sixty-five patients were categorized into two groups; sevoflurane (n = 33) vs propofol (n = 32) group. The PSI values, hemodynamic variables, and the use of hemodynamic drugs were analyzed. Results: Significant differences were seen between PSI values obtained during different perioperative stages in both two groups ($P < 0.0001$). The PSI values of propofol group were lower than that of sevoflurane group during INR procedure ($P < 0.01$). The patients in propofol group had more prolonged time of extubation and more phenylephrine requirement than sevoflurane group ($p < 0.05$). Anti-hypertensive drug was more administered to the patients during extubation in sevoflurane group ($p < 0.05$). Conclusions: The PSI can detect depth of anesthesia and changes of concentration of anesthetics during INR procedure. Extubation was faster in sevoflurane group, but smooth recovery was shown in propofol group.

Keywords : interventional neuroradiology, patient state index, propofol, sevoflurane

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