Effect of Intraoperative Brain Protection with Propofol on Postoperative Cognition in Patients Undergoing Temporary Clipping during Intracranial Aneurysm Surgery

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ABSTRACT

To evaluate effect of intraoperative brain protection with propofol on postoperative cognition in patients undergoing temporary clipping during intracranial aneurysm surgery.

Background: Cognitive dysfunction after subarachnoid hemorrhage (SAH) affects health-related quality of life. It is attributable to the presence of subarachnoid blood, hydrocephalus, cerebral edema, and vasospasm. Mini-mental State Examination (MMSE) is a screening test used for assessment of cognitive dysfunction.

Objectives: To study the effect of propofol on postoperative cognition in patients undergoing intracranial aneurysm surgery.

Methods: After obtaining the approval from our Institute Ethics Committee, good grade aneurysmal SAH patients undergoing temporary clipping during surgery were allocated either to group C (control) or group P (propofol). Patients in group P received propofol 1.5 mg/kg bolus followed by 100–200 µg/kg/min titrated to attain a burst suppression ratio (BSR) of 75±5% on bispectral index monitor. Cognitive dysfunction as assessed by Hindi-language modification of mini-mental state examination score (HMSE) was evaluated postoperatively, at 24 hours after surgery, and at discharge from hospital. An HMSE score of ≤ 23 was indicative of cognitive dysfunction. Perioperative complications, duration of ICU and hospital stay, and outcome at discharge were also noted.

Results: A total of 66 patients (32 in group C and 34 in group P) were included in the study. 97% of the patients had anterior circulation aneurysms. At 24 hours after surgery, 8 and 12 patients in group C and P, respectively, and at discharge, 5 patients in each group had cognitive dysfunction. In both groups, the trend showed a decline in cognition at 24 hours followed by improvement at discharge. Glasgow outcome score in both the groups was comparable. Intraoperative brain bulge, postoperative vasospasm and cerebral infarct were found to be independent risk factors for cognitive dysfunction, on multivariate analysis.

Conclusions: Pharmacologic neuroprotection with propofol at the time of temporary clipping during surgery for aneurysmal SAH did not offer any advantage as far as preservation of cognition is concerned.

REFERENCES
