

Comparison of Propofol versus Ketamine-Propofol Combination as an Anesthetic Agent in Supratentorial Tumors: A Randomized Controlled Study

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Abstract : Introduction: The maintenance of hemodynamic stability is of pivotal importance in supratentorial surgeries. Anesthesia for supratentorial tumors requires an understanding of localized or generalized rising ICP, regulation, and maintenance of intracerebral perfusion, and avoidance of secondary systemic ischemic insults. We aimed to compare the effects of the combination of ketamine and propofol with propofol alone when used as an induction and maintenance anesthetic agent during supratentorial tumors. Methodology: This prospective, randomized, double-blinded controlled study was conducted at AIIMS Raipur after obtaining the institute Ethics Committee approval (1212/IEC-AIIMSRPR/2022 dated 15/10/2022), CTRI/2023/01/049298 registration and written informed consent. Fifty-two supratentorial tumor patients posted for craniotomy and excision were included in the study. The patients were randomized into two groups. One group received a combination of ketamine and propofol, and the other group received propofol for induction and maintenance of anesthesia. Intraoperative hemodynamic stability and quality of brain relaxation were studied in both groups. Statistical analysis and technique: An MS Excel spreadsheet program was used to code and record the data. Data analysis was done using IBM Corp SPSS v23. The independent sample "t" test was applied for continuously dispersed data when two groups were compared, the chi-square test for categorical data, and the Wilcoxon test for not normally distributed data. Results: The patients were comparable in terms of demographic profile, duration of the surgery, and intraoperative input-output status. The trends in BIS over time were similar between the two groups (p-value = 1.00). Intraoperative hemodynamics (SBP, DBP, MAP) were better maintained in the ketamine and propofol combination group during induction and maintenance (p-value < 0.01). The quality of brain relaxation was comparable between the two groups (p-value = 0.364). Conclusion: Ketamine and propofol combination for the induction and maintenance of anesthesia was associated with superior hemodynamic stability, required fewer vasopressors during excision of supratentorial tumors, provided adequate brain relaxation, and some degree of neuroprotection compared to propofol alone.

Keywords : supratentorial tumors, hemodynamic stability, brain relaxation, ketamine, propofol

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