# Pre-emptive analgesic effects of gabapentin, morphine, and ketamine on postoperative pain after spine surgery

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***Objective:***This study evaluated the effects of gabapentin, ketamine, and morphine as pre-emptive analgesic drugs either sole unaided or in combination on postoperative pain after spine surgeries.***Method:***One hundred and fifty patients aged from 35 to 63 years, ASA I-II, weighing 70 to 95 Kg, and who underwent spine surgeries were included in the study. They were randomized into five groups: Gabapentin group received 1200 mg gabapentin orally; Morphine+ group received 1200 mg gabapentin orally and 0.1 mg/Kg morphine IV; Ketamine+ group received 1200 gabapentin orally and 1mg/kg ketamine IV; Morphine group received 0.1 mg/Kg morphine IV; and Ketamine group received 1 mg/kg ketamine IV. Oral gabapentin was received one hour before induction of anesthesia, while IV drugs were received at induction of anesthesia. Postoperative 24-hour morphine consumption, visual analog pain score (VAS), and adverse effects were recorded.***Results:***There was a significant decrease in total morphine consumption in group Morphine+ compared to other groups over the first 24 hours postoperatively, $P<0.001$. There was a significant decrease in postoperative VAS in both Morphine+ and Ketamine+ groups compared to the other groups, $P < 0.001$, while there was an insignificant difference between morphine+ and ketamine+ groups, $P = 0.1$. There was a significant decrease in postoperative nausea and vomiting (PONV) ($P = 0.02$), and dizziness ($P = 0.003$) in both Morphine+ and Ketamine+ groups compared to the other groups.***Conclusion:*** Pre-emptive administration of gabapentin in combination with morphine is associated with less postoperative morphine consumption, pain scoring, PONV, and dizziness than the use of each drug solely unaided in patients undergoing spine surgeries. The gabapentin-morphine combination had better opioid sparing properties than gabapentin-ketamine combination despite equivalent pain scoring.

***Keywords*:** pre-emptive; gabapentin; morphine; ketamine; spine surgery