

# Perioperative Ketamine for Analgesia in Spine Surgery: A Meta-analysis of Randomized Controlled Trials

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## STUDY DESIGN

Meta-analysis of randomized controlled trials.

## OBJECTIVE

To evaluate the effectiveness of perioperative supplemental ketamine to reduce postoperative opioid analgesic consumption following spine surgery.

## SUMMARY OF BACKGROUND DATA

Although low-dose supplemental ketamine has been known to reduce pain after surgery, there is conflicting evidence regarding whether ketamine can be effective to reduce opioid consumption following spine surgery.

## METHODS

Comprehensive search of PubMed, the Cochrane Central Register of Controlled Trials for prospective randomized controlled trials (RCTs), Web of Science, and Scopus. Patients that received supplemental ketamine were compared to the control group in terms of postoperative morphine equivalent consumption, pain scores, and adverse events. Mean differences (MD) and 95% confidence intervals (CI) were used to describe continuous outcomes. Odds Ratios (OR) and 95% CIs were applied to dichotomous outcomes.

## RESULTS

A total of 14 RCTs comprising 649 patients were selected for inclusion into the meta-analysis. Patients that were administered adjunctive ketamine exhibited less cumulative morphine equivalent consumption at 4, 8, 12, and 24 hours following spine surgery (all  $p < 0.05$ ). The ketamine group also reported lower postoperative pain scores at 6, 12, and 24 hours (all  $p < 0.05$ ). None of the adverse events studied attained statistical significance (all  $p > 0.05$ ).

## CONCLUSIONS

Supplemental perioperative ketamine reduces postoperative opioid consumption up to 24 hours following spine surgery.

LEVEL OF EVIDENCE

1.

<b>type</b>	journal paper/review (English)
<b>date of publishing</b>	11-07-2017
<b>journal title</b>	Spine
<b>ISSN electronic</b>	1528-1159