

Patients undergoing spinal surgery are at high risk of acute and persistent postoperative pain. Therefore, adequate pain relief is crucial. This systematic review aimed to provide answers about best-proven postoperative analgesic treatment for patients undergoing lumbar one or two-level fusions for degenerative spine diseases. We performed a search in PubMed, Embase, and The Cochrane Library for randomized controlled trials. The primary outcome was opioid consumption after 24 hours postoperatively. We performed meta-analysis, trial sequential analysis, and Grading of Recommendations assessment to accommodate systematic errors. Forty-four randomized controlled trials were included with 2983 participants. Five subgroups emerged. Non-Steroidal Anti-Inflammatory-Drugs (NSAID), epidural, ketamine, local infiltration analgesia, and intrathecal morphine. The results showed a significant reduction in opioid consumption for treatment with NSAID ($P < 0.0008$) and epidural ($P < 0.0006$) (predefined minimal clinical relevance of 10 mg). Concerning secondary outcomes, significant reductions in pain scores were detected after six hours at rest (NSAID ($P < 0.0001$), intrathecal morphine ($P < 0.0001$)), six hours during mobilization (intrathecal morphine ($P = 0.003$)), 24 hours at rest (epidural ($P < 0.00001$), ketamine ($P < 0.00001$)) and 24 hours during mobilization (intrathecal morphine ($P = 0.03$)). The effect of wound infiltration was non-significant. The quality of evidence was low to very low for most trials. The results from this systematic review showed that some analgesic interventions have the capability to reduce opioid consumption compared to controls. However, due to the high risk of bias and low evidence, it was impossible to recommend a “gold standard” for the analgesic treatment after one or two-level spinal fusion surgery.

