

Intrathecal Morphine Following Lumbar Fusion: A Placebo-Controlled Trial

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Objectives

To evaluate the safety and efficacy of intrathecal morphine following lumbar fusion.

Method

We randomly assigned 150 patients undergoing instrumented lumbar fusion for degenerative indications to receive a single intrathecal injection of morphine (0.2 mg) or placebo (normal saline) immediately prior to wound closure. An oblique injection technique was used to mitigate the risk of precipitating a cerebrospinal fluid leak. The primary outcome was pain on the visual-analogue scale during the first 24 hours after surgery. Secondary outcomes included respiratory depression, treatment-related side effects, postoperative opioid requirements, and length of hospital stay. An intention-to-treat, repeated-measures analysis was used to estimate outcomes according to treatment.

Results

The baseline characteristics of the two groups were similar. Intrathecal morphine reduced pain both at rest (32% area under the curves [AUCs] difference, $P < 0.002$) and with movement (22% AUCs difference, $P < 0.02$) during the initial 24 hours after surgery. The risk of respiratory depression was not increased by intrathecal morphine (hazard ratio, 0.86; 95% confidence interval, 0.44 to 1.68; $P = 0.66$). Although postoperative opioid requirements were reduced with intrathecal morphine ($P < 0.03$), lengths of hospital stay were similar ($P = 0.32$). Other than a trend towards increased intermittent catheterization among patients assigned to intrathecal morphine ($P = 0.09$), treatment-related side effects did not significantly differ between the two groups. The early benefits of intrathecal morphine on postoperative pain were no longer apparent from 48 hours onwards.

Conclusions

A single intrathecal injection of 0.2 mg of morphine safely reduces postoperative pain following lumbar fusion. (Funded by the Alberta Spine Foundation; ClinicalTrials.gov number, NCT01053039.)



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