Intrathecal Morphine

Despite the potential for faster postoperative recovery and the ease of direct intraoperative injection, intrathecal morphine is rarely provided in lumbar spine surgery.

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

METHODS: We randomly assigned 150 patients undergoing elective instrumented lumbar fusion to receive a single intrathecal injection of morphine (0.2 mg) or placebo (normal saline) immediately prior to wound closure. The primary outcome was pain on the visual-analogue scale during the first 24 h 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 in the primary analysis.

RESULTS: The baseline characteristics of the 2 groups were similar. Intrathecal morphine reduced pain both at rest (32% area under the curves [AUCs] difference, P < .01) and with movement (22% AUCs difference, P < .02) during the initial 24 h 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 = .66). Although postoperative opioid requirements were reduced with intrathecal morphine (P < .03), lengths of hospital stay were similar (P = .32). Other than a trend towards increased intermittent catheterization among patients assigned to intrathecal morphine (P = .09), treatment-related side effects did not significantly differ. The early benefits of intrathecal morphine on postoperative pain were no longer apparent after 48 h.

CONCLUSION: A single intrathecal injection of 0.2 mg of morphine safely reduces postoperative pain following lumbar fusion ¹⁾.

A 42-year-old female patient with chronic abdominal pain from refractory pancreatitis, with an intrathecal drug delivery device implanted 21 years prior, delivering continuous intrathecal morphine. After many years without concerning physical signs or complaints, with gradual increases in daily morphine dose, she presented with rapidly progressive neurologic deficits, including lower extremity, bladder, and bowel symptoms. These symptoms were determined to be secondary to mass effect and local inflammation related to an intrathecal catheter tip granuloma, detected on magnetic resonance imaging of the spine. The mass was urgently resected. On histopathologic examination, this granuloma was found to be unique, in that in addition to the expected inflammatory components, it appeared to contain precipitated nonpolarizable crystals. These were identified as precipitated morphine using liquid extraction surface analysis-tandem mass spectrometry (LESA-MS/MS) and matrix-assisted laser desorption ionization-Fourier transform ion cyclotron resonance-mass spectrometry imaging (MALDI-FTICR-MSI). In addition to the unique finding of precipitated morphine crystals, the long-term follow-up of both morphine concentration and daily dose increases provides insight into the formation of intrathecal granulomas².

1)

Dhaliwal P, Yavin D, Whittaker T, Hawboldt GS, Jewett GAE, Casha S, du Plessis S. Intrathecal Morphine Following Lumbar Fusion: A Randomized, Placebo-Controlled Trial. Neurosurgery. 2018 Sep 27. doi: 10.1093/neuros/nyy384. [Epub ahead of print] PubMed PMID: 30265333.

2)

Kim AJ, Basu S, Glass C, Ross EL, Agar N, He Q, Calligaris D. Unique Intradural Inflammatory Mass

Containing Precipitated Morphine: Confirmatory Analysis by LESA-MS and MALDI-MS. Pain Pract. 2018 Sep;18(7):889-894. doi: 10.1111/papr.12688. Epub 2018 Mar 30. PubMed PMID: 29480977; PubMed Central PMCID: PMC6109606.

From: https://neurosurgerywiki.com/wiki/ - **Neurosurgery Wiki**

Permanent link: https://neurosurgerywiki.com/wiki/doku.php?id=intrathecal_morphine



Last update: 2024/06/07 03:00