

37. INTRATHECAL MORPHINE: DOUBLE-BLIND EVALUATION OF OPTIMAL DOSAGE FOR ANALGESIA AFTER MAJOR LUMBAR SPINAL SURGERY

Boezaart, A.P.; Eksteen, J.; van der Spuy, G.; Rossouw, P.; Knipe-van Rensburg, M. Anesthesiology, MediClinic Hospital, Paarl, South Africa

Objectives: To evaluate the efficacy and safety of three different dosages of intrathecal morphine sulfate (ITMS) for postoperative analgesia after lumbar spinal fusion. Analgesia and respiratory depression after ITMS are dose related but the optimal dose to use for major spinal surgery is not known.

Methods: In this prospective, randomized, double blind study, sixty patients undergoing posterolateral lumbar fusion with or without decompression were divided randomly into three groups of 20 patients each. Anesthesia, monitoring, and surgery were similar for all patients. Just before closing of the wound, morphine sulfate was injected by the surgeon into the dural sack under direct visualization. Patients in group 1 received 0.2mg morphine, those in group 2, 0.3mg and group 3, 0.4mg. Routine analgesia, consisting of diclofenac, was prescribed as "rescue analgesia" to be use if necessary. Measurements were made and compared between the groups with one-way ANOVA at zero hours (on admission to the Intensive Care Unit), 6 hours, 12 hours, 18 hours, and 24 hours after surgery.

Results: At zero hours and at 12 hours after surgery, pain levels were similar in groups 2 and 3, but were significantly higher in group 1 ($p < 0,05$). The respiratory rate was significantly lower in group 3 than in the other two groups ($p < 0,05$) and the arterial CO₂ tension (PaCO₂) was consistently higher in group 3. PaCO₂ decreased in all three groups over the first 24 hours. Pruritus and nausea did not differ between the three groups.

Conclusions: For adult patients undergoing posterolateral lumbar fusion, 0.3 mg (0.004 mg/kg) seems to be the optimal dose of intrathecal morphine to manage pain. The dose and volume of ITMS is critical. With 0.004 mg/kg ITMS, analgesia can be expected to be excellent and the side effects, especially respiratory depression, negligible.