

Preoperative low-dose intrathecal morphine enhances postoperative analgesia after cervical and thoracolumbar spinal surgery in dogs

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Objective – To assess the effect of preoperative intrathecal administration of a low-dose of morphine on postoperative methadone requirements in dogs undergoing cervical and thoracolumbar spinal surgery.

Study design – Prospective randomized blind clinical trial involving two small animal referral veterinary hospitals in UK.

Animals – Twelve dogs were matched according to the surgical procedure, and randomized to receive preoperative intrathecal morphine (MG) or no-treatment (CG).

Methodology – Surgery was performed under balanced anaesthesia. Dogs in MG received 0.0285 ± 0.0037 (median and 95% CI) mg kg^{-1} of morphine intrathecally at L5-6 or L6-7 level 38 (25-65) minutes prior to surgery. Fentanyl ($1.2 \text{ mcg kg}^{-1} \text{ h}^{-1}$ in MG, $4.2 \text{ mcg kg}^{-1} \text{ h}^{-1}$ in CG) and ketamine (0.5 mg kg^{-1} hourly) were administered intravenously during surgery. Further fentanyl boluses were administered in the event of a response to surgical stimulation. Dogs in CG received IV morphine (0.1 mg kg^{-1} over 10 minutes) 10 minutes before end of surgery. Pain was assessed postoperatively every 2 hours using the Mathews Pain Scale, and methadone (0.2 mg kg^{-1} IM) was administered in the event of a pain score of 3 or higher. The total amount of methadone administered over 24 and 48 hours was calculated, and possible side-effects related to the technique recorded. A permutation test was performed, using R software, to compare methadone consumption between the two groups.

Results – Methadone consumption was significantly lower in MG compared to CG, both at 24 h ($p=0.0063$) and 48 h ($p=0.01$) postoperatively. Side effects and complications related to intrathecal morphine were not observed.

Conclusions – Preoperative intrathecal administration of a low-dose of morphine significantly reduces methadone requirements after cervical and thoracolumbar spinal surgery in dogs receiving multimodal analgesia.

Clinical Relevance – Preoperative intrathecal administration of a low-dose of morphine at the lumbar level represents a safe and effective mean of providing postoperative analgesia in dogs undergoing spinal surgery.