

[Vet Anaesth Analg](#). 2009 Jul;36(4):369-83. Epub 2009 May 12.

## Clinical evaluation of the efficacy and safety of a constant rate infusion of dexmedetomidine for postoperative pain management in dogs.

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**OBJECTIVE:** To compare postoperative analgesia provided by a constant rate infusion (CRI) of dexmedetomidine (DMED) to that of a well-established positive control [morphine (MOR)] in critically ill dogs. The sedative, cardiorespiratory effects and clinical safety of a 24-hour DMED CRI were also evaluated. **STUDY DESIGN:** Prospective, randomised, blinded, positive-controlled parallel-group clinical study. **ANIMALS:** Forty hospitalised, client-owned dogs requiring post-operative pain management after invasive surgery. **METHODS:** After surgery, a loading dose of either DMED (25 microg m<sup>-2</sup>) or MOR (2500 microg m<sup>-2</sup>) followed by a 24-hour CRI of DMED (25 microg m<sup>-2</sup> hour<sup>-1</sup>) or MOR (2500 microg m<sup>-2</sup> hour<sup>-1</sup>) was administered. Pain was measured using the Short Form of the Glasgow Composite Measure Pain Scale, sedation and physiological variables were scored at regular intervals. Animals considered to be painful received rescue analgesia and were allocated to a post-rescue protocol; animals which were unresponsive to rescue analgesia were removed from the study. Data were analysed with anova, two-sample t-tests or Chi-square tests. Time to intervention was analysed with Kaplan-Meier methodology. **RESULTS:** Forty dogs were enrolled. Twenty dogs (9 DMED and 11 MOR) did not require rescue analgesia. Eleven DMED and eight MOR dogs were allocated to the post-rescue protocol and seven of these removed from the study. Significant differences in pain scores between groups were not observed during the first 12 hours, however, DMED dogs were less ( $p = 0.009$ ) painful during the last 12 hours. Sedation score over the entire 24-hour study was not significantly different between groups. **CONCLUSION / CLINICAL RELEVANCE:** Dexmedetomidine CRI was equally effective as MOR CRI at providing postoperative analgesia and no clinically significant adverse reactions were noted. This study shows the potential of DMED to contribute to a balanced postoperative analgesia regimen in dogs.

PMID: 19470144 [PubMed - indexed for MEDLINE]