

# Comparison of tramadol and methadone for intraoperative and early postoperative pain control in canine ovariohysterectomy – Preliminary study

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**Objectives:** Poor surgical acute-pain control alters metabolic and hemodynamic systems, facilitates the release of the inflammatory cascade, and triggers a sympathetic stress being accompanied by an array of negative consequences. Preemptive analgesia is a method that aims at the inhibition of central sensitization and helps lower the amount of anesthetic required. For this purpose, opioids can be administered. Tramadol is widely used in veterinary medicine as an analgesic drug in dogs, but its efficacy has been described as questionable. In this study we compare analgesia quality and cardiorespiratory effects produced by tramadol single intravenous (IV) bolus vs methadone single IV bolus and continuous rate infusion (CRI) of methadone vs tramadol infusion.

**Materials and Methods:** Twenty-four healthy female dogs were pre-medicated with acepromazine (0.01 mg/kg IM) and divided into 4 groups (G): G1 and G2 corresponded to methadone (0.2 mg/kg IV) and tramadol (4 mg/kg IV) single bolus groups, respectively; G3 and G4 corresponded to methadone (0.2 mg/kg/h) and tramadol (4 mg/kg/h) CRI, respectively. All animals were induced with midazolam (0.2 mg/kg IV) and propofol (2-4 mg/kg IV). Clinical data were monitored using a multiparameter monitor during specific surgical times.

**Results:** The dogs showed 1-7 years old, and weight ranged between 7 to 28,6 Kg. There are no statistically significant differences between G1 and G2, except for HR (higher in G,  $p < 0,05$ ) and ETCO<sub>2</sub> (higher in G2,  $p < 0,051$ ). Between G3 and G4, there were statistically significant differences in SAP (higher in G3,  $p < 0,05$ ), PAM (higher in G3,  $p < 0,05$ ) and ETCO<sub>2</sub> (higher in G3,  $p < 0,05$ ). 3 Animals in the G3 showed hypersalivation post-operatively.

**Conclusion:** Methadone and tramadol administered preemptively can be used safely in dogs for analgesia during and after ovariohysterectomy proven by its intra-operative clinical stability. Moreover, no significant adverse effects were observed besides hypersalivation.

**Key words:** methadone, tramadol, dog, anesthesia