

# **Comparison of NK-1 Receptor Antagonist (Maropitant) to Morphine as a Pre-anaesthetic Agent for Canine Ovariohysterectomy**

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**Statistics:** Normally distributed data were compared using two tail unpaired t-test (body weight, propofol dose, HR, SAP, VAS score and CSU acute pain score). Data that were not normally distributed was compared using Mann-Whitney test (age, anaesthesia duration, surgery duration, RR, expired isoflurane concentration and post-operative appetite). Statistical significance difference between groups was considered when  $p \leq 0.05$  and statistical comparisons were performed using a statistical software (GraphPad, Prism 4.00 Software). A Pearson correlation coefficient was calculated between the 3 investigators who assessed postoperative pain (GraphPad, Prism 4.00 Software).

**Methods:** Thirty healthy female dogs were randomly divided to receive either a pre-anaesthetic dose of morphine (0.5 mg/kg SQ) or maropitant (1 mg/kg, SQ) prior to ovariohysterectomy (OHE). Anaesthesia was induced with propofol and maintained with isoflurane. Expired isoflurane concentration, heart rate (HR), systolic arterial pressure (SAP) and respiratory rate were measured. Post-operative pain scores and appetite were evaluated during the recovery period. Rescue analgesia (morphine 0.1 mg/kg IV) was administered as needed post-operatively based on blinded pain score assessments.

**Results:** Thirteen dogs received morphine and 17 dogs received maropitant. There was a difference in body weight between groups with the maropitant group being smaller. The propofol induction dose required was similar between groups. There was also no difference between total anaesthesia and surgery duration time between groups, however, these times approached significance.

The baseline physiologic parameters (HR, SAP, RR) and expired isoflurane concentration recorded during anaesthesia but before surgery were not different between groups.

During surgical stimulation the morphine group showed increased HR and SAP. The RR did not change. During the same time period of surgical stimulation, the maropitant group showed an increase in SAP but not in HR or RR. The SAP increase during surgical stimulation in the maropitant group was less than that of the morphine group. Similarly, the increase in HR in the morphine group was higher than the increase in HR in the maropitant group during surgical stimulation. RR had a large variability within each group, thus, neither group showed significant changes during surgical stimulation.

The expired isoflurane concentration increased significantly during surgical stimulation in both groups. However, the expired isoflurane changes during surgical stimulation were small with 9% and 6% increase for the maropitant and morphine groups respectively. The expired isoflurane during surgical stimulation was lower in the maropitant group.

At extubation, the maropitant group had lower VAS and CSU scores when compared to the morphine group. During later time points (15, 30, 60, 90, 120 & 180 minutes post-extubation) there was no consistent difference observed between groups, when using either the VAS or CSU score systems. The results from 15 minutes onward are likely confounded by the use of morphine rescue analgesia. During the recovery period, 13/17 and 10/13 of the dogs in the maropitant and morphine groups respectively required morphine rescue analgesia. The VAS and CSU assessment correlation between the 3 blinded investigators was considered good with  $r^2 \geq 0.76$  and 0.72 respectively.

Dogs were offered food beginning at the 15 minute postoperative time period. Between 15 and 180 minutes post-extubation period; 64.7% of the dogs in the maropitant group, while only 15.3% of the dogs in the morphine group ate any food.