Use of Dipyrone in Cats After Ovariohysterectomy

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In the literature

Pereira MA, Campos KD, Goncalves LA, et al. Cyclooxygenases 1 and 2 inhibition and analgesic efficacy of dipyrone at different doses or meloxicam in cats after ovariohysterectomy. *Vet Anaesth Analg*. 2021;48(1):7-16.

FROM THE PAGE ...

Dipyrone is an analgesic, antipyretic, and antispasmodic agent with a mechanism of action that is not completely understood. This study evaluated the effect of dipyrone on COX-1 and COX-2 inhibition and its postoperative analgesic effects as compared with meloxicam in 30 cats undergoing elective ovariohysterectomy. The study also compared the postoperative adverse effects of dipyrone and meloxicam after 7 and 4 days, respectively. Cats were randomized to receive dipyrone at 25 mg/kg every 24 hours, dipyrone at 12.5 mg/kg every 12 hours, or meloxicam at 0.1 mg/kg every 24 hours. Treatment was administered IV during skin closure and again at discharge. Pet owners were instructed to administer the same dosage PO for 6 days (dipyrone) or 3 days (meloxicam). All surgeries were performed by the same experienced surgeon.

Thromboxane B_2 and prostaglandin E_2 concentrations (the major enzyme products of COX-1 and COX-2, respectively), physiologic variables, and pain and sedation scores were measured for the first 24 hours at predetermined intervals. Adverse effects and short-term complications were monitored during the first 24 hours postoperatively and at the time of suture removal. Hepatic and renal function tests were assessed 7 days before and 7 days after anesthesia; symmetric dimethylarginine (SDMA) was measured 7 days before surgery and 24 hours and 7 days after surgery. Four pain scales were used to determine whether rescue analgesia was warranted.

Dipyrone was as effective as meloxicam for postoperative analgesia. The only adverse effect noted was sialorrhea, which was seen in all cats given dipyrone at home. Both dipyrone dosages strongly inhibited both COX isoforms, with COX-1 inhibition being more pronounced and longer-lasting than COX-2. Meloxicam also inhibited both COX isoenzymes; however, COX-1 inhibition was less intense than with dipyrone, and COX-2 inhibition

lasted longer. Only one cat in the meloxicam group had an elevated SDMA value (15 µg/dL; reference range, 0-14 µg/dL) 7 days postoperatively.

Limitations of the study included whether data could be extrapolated from a study using an experienced surgeon for less experienced clinicians; young age of study cats; healthy, nonpregnant female study cats with compliant temperaments; 20 hours elapsing between sampling times, as some COX activity may have been missed; and the duration of oral treatment differing between dipyrone and meloxicam.

… TO YOUR PATIENTS

Key pearls to put into practice:

1. The mechanism of action of dipyrone is not completely understood but likely involves several mechanisms (eg, COX inhibition, endogenous opioid and cannabinoid systems).
2. NSAIDs and narcotics (eg, opioids) can have serious adverse effects. There have been no reports of significant adverse effects associated with dipyrone in domestic animals.
3. Dipyrone (at both dosages in this study) and meloxicam provide adequate analgesia for the management of postoperative pain in young, healthy cats undergoing ovariohysterectomy.

Suggested Reading

FDA Center for Veterinary Medicine. FDA approves Zimeta (dipyrone injection) for the control of fever in horses. U.S. Food & Drug Administration website. https://www.fda.gov/animal-veterinary/cvm-updates/fda-approves-zimeta-dipyrone-injection-control-fever-horses. Updated November 26, 2019. Accessed March 31, 2020.

Jasiecka A, Maślanka T, Jaroszewski JJ. Pharmacological characteristics of metamizole. *Pol J Vet Sci*. 2014;17(1):207-214.