Nonopiate Alternative to Analgesia in Rabbits

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In the Literature

Schnellbacher RW, Divers SJ, Comolli JR, et al. Effects of intravenous administration of lidocaine and buprenorphine on gastrointestinal tract motility and signs of pain in New Zealand White rabbits after ovariohysterectomy. *Am J Vet Res.* 2017;78(12):1359-1371.

FROM THE PAGE ...

Opiates can have a number of adverse effects; ileus[1,2] and respiratory depression[3] are the most disconcerting of these effects in rabbits, making nonopiate-based analgesia desirable in this species.

This study provided a direct comparison of efficacy of buprenorphine versus lidocaine for both intraoperative and postoperative analgesia. All rabbits were administered ketamine and xylazine for induction and supplemental analgesia for ovariohysterectomy. Because pain can be difficult to assess in rabbits, a behavior-based system[4] to score comfort, similar to validated behavior-based systems in dogs,[5] was used in addition to traditional biochemical and physiologic pain assessment methods. Seven rabbits received buprenorphine (0.06 mg/kg IV q8h) for 2 days, and seven other rabbits received lidocaine as an intravenous bolus (2 mg/kg over 5 minutes) followed by a constant-rate infusion (100 µg/kg/min) for 2 days.

Intravenous lidocaine was found to provide significant improvement in pain control as compared with buprenorphine. Rabbits treated with lidocaine had decreased heart rates, lower serum glucose concentrations, and higher postoperative food intake and fecal production than did buprenorphine-treated rabbits, which suggests improved analgesia through lidocaine infusion. Levels of activity (play and exploring) and degree of observed comfort were also markedly improved in the lidocaine-treated group; recoveries were overall improved and patients appeared comfortable.

Results suggest that lidocaine provides an excellent alternative to buprenorphine analgesia in rabbit surgery. It may also provide means for controlling pain and inflammation, as well as the secondary consequences of both, in nonsurgical cases that require analgesia and control of ileus. Because postoperative ileus is common in rabbits, improved appetite and fecal production are good indicators of improved comfort. Based on this study and earlier publications, lidocaine administered as a constant-rate infusion would be a good first-line treatment protocol for GI stasis,[6] endotoxemia/dysbiosis,[7] and other causes of moderate-to-severe pain.

… TO YOUR PATIENTS

Key pearls to put into practice:

1. In rabbit medicine and surgery, adequate analgesia is a critical part of providing standard-of-care treatment; lidocaine can be a valuable tool in the application of nonopiate-based analgesia protocols.
2. Lidocaine provides a number of additional benefits for rabbits, including anti-inflammatory activity, free-radical scavenging, GI prokinetic function, and inhibition of endotoxin-related damage.[8-11]
3. Administration of lidocaine via a constant-rate infusion is a safe and effective analgesic method with fewer adverse effects than opiates in rabbits.
4. Intravenous lidocaine may be administered as part of a balanced therapy in nonsurgical cases of GI pain and ileus.

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