

AABP-AASRP Sessions

Moderators: Joan Bowen

Practical Analgesic Techniques for Small Ruminants and Camelids

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Abstract

While reviewing literature it became apparent to me that within the last five years, discussions have been increasing on methods to provide local and systemic analgesia for camelids and small ruminant patients. It is about time, as it is now quite obvious to me as an “old schooler” that this is a moral/ethical obligation, and pragmatically, comfortable patients seem to heal faster, experience fewer complications, and can be discharged sooner to a more favorable home environment.

Résumé

À la suite d'une analyse de la littérature, il m'est clairement apparu que depuis les cinq dernières années il est de plus en plus question d'utiliser une analgésie locale et systémique chez les camélidés et les petits ruminants. Il était temps, selon moi qui suis de la vieille école, de réaliser que ceci est une obligation morale/éthique et que pragmatiquement les patients plus confortables guérissent plus vite, ont moins de complications et peuvent sortir plus tôt vers un environnement familial plus favorable.

Introduction

Pain and discomfort associated with traumatic injury, surgery, and gastrointestinal maladies need to be minimized, and we are extending knowledge and experience gained from other species to this group. That is fine, because in general the information extrapolated from other species is a useful starting point, and we may be waiting a long time for the results of pharmacokinetic and efficacy studies on medications which will not be labeled for these species. Make no mistake, we need those studies, but in the meantime, our patients could benefit now from useful techniques. I am pleased to provide an overview of practical options for analgesia in camelids and small ruminants.

Systemic Drug Options

Options for analgesia include the use of NSAIDs (non-steroidal anti-inflammatory drugs) – flunixin meglumine, phenylbutazone and ketoprofen; opioids and opiates – butorphanol, buprenorphine, nalbuphene, fentanyl, and morphine; lidocaine; and ketamine.

Transdermal fentanyl (Duragesic) can be applied to clipped regions on the forelimb to provide longer term analgesia for up to 72 hours. Onset of activity may require eight to 12 hours.

Constant rate infusions (CRI) of ketamine or lidocaine have been used with good success to provide analgesia in large animal patients. Lidocaine, ketamine, morphine, and fentanyl have all been used as CRIs alone or in different combinations. Monitoring of physiological and behavioral changes will allow fine tuning of dosing plans. Lidocaine is used for visceral pain and unresponsive neuropathic pain. It usually requires an initial loading dose of 1-2 mg/kg IV over five minutes, followed by continuous infusions of 9.1-22.7 µg/lb (20-50 µg/kg)/minute. Ketamine, a *N*-methyl-D-aspartate (NMDA) receptor antagonist, when given as a CRI dosed at 18.2 µg/lb (40 µg/kg)/minute, provides aggressive visceral pain management.

Regional Techniques

Regional or local blocks are easily performed with lidocaine, mepivacaine, or bupivacaine. These local anesthetics work by blocking the sodium channels of pain fibers in the nociceptive pathway. They can be injected locally or at a specific nerve to provide lack of sensation over the innervated region.

Caudal epidurals represent a convenient form of regional analgesia/anesthesia. A mixture of 2% lidocaine (0.10 mg/lb or 0.22 mg/kg) and xylazine (0.08 mg/lb or 0.17 mg/kg) placed into the epidural space provide faster onset and longer duration of analgesia than either alone. Concern regarding motor blockade limits the volume, and thus cranial extent, of the effect.

Opioid epidurals are most commonly used at our facility because of their safety, profound analgesia, lack of sedation, and duration. Morphine (0.045 mg/lb or 0.1 mg/kg) is most commonly used. Increasing volume allows more cranial migration and analgesia to those areas without fear of neuromuscular blockade. Preservative-free morphine (Duramorph) at the dose of (0.045 mg/lb or 0.1 mg/kg) is used in camelids. Sterile water or saline extend the volume for more cranial effects. Onset of analgesia is 30-60 minutes with a duration of 12-24 hours.

Conclusions

I look forward to new information regarding different analgesics in camelids and small ruminants. The information may be slow in coming – pharmacokinetic studies are important, but they do not always correlate with efficacy and duration of action. In the meantime,

we should extrapolate the information we do have to address the management of pain in our patients.

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