Methods: Twelve dogs scheduled for unilateral TPLO surgery were randomly assigned to one of two groups, systemic analgesia alone (SA) or regional analgesia (lumbar plexus and sciatic nerve block with ropivacaine) (RA). The anesthetic protocol for all dogs was hydromorphone, propofol and isoflurane. The cost to manage anesthesia and postoperative period were compared using Mann-Whitney U test. Statistical difference was considered when \( p < 0.05 \).

Results: The cost for anesthesia, analgesia and care was higher in the SA group. The SA group required higher isoflurane vaporizer settings, rescue analgesia during surgery (fentanyl) and sedation and analgesia during the recovery period. In addition, 4/5 dogs in the SA group developed hypotension and 3 required intensive treatment. In the RA group, 3/7 dogs developed hypotension but none required intensive treatment. In the recovery period, 2/5 dogs in the SA group required additional bandage change or nursing care. The duration of anesthesia was similar between groups (174 minutes (SA) versus 179 minutes (RA); \( p = 0.7 \)). The cost to maintain anesthesia, analgesia and care intra- and postoperatively per dog was $34-156 for the SA group and $26-55 for the RA group.

Conclusion: The preliminary results suggest that the use of ultrasound guided lumbar plexus and sciatic nerve blocks can decrease the cost of anesthesia and postoperative care while improving pain management for TPLO surgery in dogs.

Cardiovascular effects of carbon dioxide insufflation for thoracoscopy in cats

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Introduction: This study compared the cardiovascular effects of 0, 3 and 5 mmHg using CO\(_2\) insufflation.

Methods: Six healthy adult cats (6.15 ± 0.41 kg) were used with random assignment of treatment order. Anesthesia was induced using isoflurane in oxygen, the cats were orotracheally intubated and maintained on isoflurane in 50% oxygen using IPPV and a non-rebreathing circuit. Cats were instrumented with peripheral venous, pulmonary and femoral arterial catheters. End-tidal CO\(_2\), isoflurane, peak inspiratory pressure (PIP) and PEEP values were measured using a calibrated multiparameter monitor. Ventilation was adjusted to maintain PECO\(_2\). All variables were measured 30 minutes after initiating each treatment. Intrathoracic pressure was returned to 0 mmHg for 10 minutes before the next treatment. Variables were compared using a one-way analysis of variance for repeated measures with a post-hoc Tukey test.

Results: Maintenance of normocapnia required significant increases in \( f_R \) (13 ± 4 to 17 ± 4 and 20 ± 5 bpm), PIP (8 ± 1 to 16 ± 3 and 19 ± 2 cmH\(_2\)O) and PEEP (3 ± 1 to 5 ± 1 and 6 ± 2 cmH\(_2\)O) for 0, 3 and 5 mmHg, respectively. Cardiovascular variables were all similar except CVP, which increased (7 ± 2 to 10 ± 1 and 11 ± 1 mmHg for 0, 3 and 5 mmHg) with CO\(_2\) insufflation. There were no statistically significant differences between 3 and 5 mmHg.

Conclusion: In healthy cats, CO\(_2\) insufflation for thoracoscopy had minimal effect on the cardiovascular system despite the need for increased ventilation.

Evaluation of soluble epoxide hydrolase inhibition in experimentally induced radiocarpal synovitis in horses

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Introduction: Epoxy fatty acids stabilization via soluble epoxide hydrolase (sEH) inhibition might modulate nociception in horses with painful joint conditions. Goals were to determine the pharmacokinetics, antinociceptive and anti-inflammatory effects of the sEH inhibitor t-TUCB in horses with lipopolysaccharide (LPS)-induced radiocarpal synovitis.

Methods: Seven healthy mares were administered t-TUCB at 0 (control), 0.03, 0.1, 0.3 and 1 mg kg\(^{-1}\) IV concurrently with LPS injection in a Latin square design. At baseline, then at 2, 4, 8, 12, 24, 36 and 48 hours after t-TUCB, two individuals assigned lame-ness (American Association of Equine Practitioners; 0-5) and pain scores (visual analog scale; 0 = no pain, 100 = extreme pain). Clinical and laboratory evaluations and determination of plasma t-TUCB concentrations were performed. Synovial fluid (SF) was collected bilaterally at baseline, 12 and 24 hours.
after t-TUCB to assess local inflammation and t-TUCB concentrations. Areas under the curves of pain and lameness score were calculated and compared between control and treatments with repeated measures ANOVA with significance (p < 0.05).

**Results:** Pain and lameness with 1 mg kg$^{-1}$ t-TUCB, but not the other treatments, were significantly lower compared to control. At this dose, t-TUCB was detected in SF of both joints at high concentrations, but was significantly higher in the LPS-treated compared to the contralateral joint. Plasma elimination half-life was 23 ± 11 hours, and clearance 14 ± 2 mL hour$^{-1}$ kg$^{-1}$. No significant anti-inflammatory or adverse effects were detected.

**Conclusion:** Inhibition of sEH may produce antinociception in horses with inflammatory joint pain.

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**Soluble epoxide hydrolase activity and pharmacologic inhibition in horses with chronic laminitis**

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**Introduction:** The roles of soluble epoxide hydrolase (sEH) and lipid mediators in inflammatory and neuropathic pain could be relevant to manage laminitis pain. The goals were to determine sEH activity in digital laminae, sEH inhibitor potency in vitro, and efficacy of a sEH inhibitor as adjunct analgesic in chronic laminitic horses.

**Methods:** Digital laminae sEH activity was measured in healthy and laminitic horses (n = 5-6 each). Potency of seven synthetic sEH inhibitors was determined in vitro using equine liver cytosol. t-TUCB (0.1 mg kg$^{-1}$) IV every 24 hours was used as adjunct analgesic in 10 chronic laminitic horses with refractory pain. Forelimb lifts, pain scores, physiologic and laboratory examinations were performed before and during t-TUCB treatment. Data were analyzed with two-tailed paired t-tests with p < 0.05 considered significant.

**Results:** Digital laminae sEH activity (nmol minute$^{-1}$ mg$^{-1}$) in laminitic (0.9 ± 0.6; CI: 0.16-1.55) was significantly higher than in healthy horses (0.17 ± 0.09; CI: 0.07-0.26). Use of t-TUCB for 4.3 ± 3 days in laminitic horses was associated with significant reduction in forelimb lifts (36 ± 22%; CI: 9-64%) and pain scores (18 ± 23%; CI: 2-35%) compared to baseline. One horse developed gas colic and another corneal vascularization in a blind eye during treatment. No other significant changes were observed.

**Conclusion:** Digital laminae sEH activity is significantly higher in chronic laminitic versus healthy horses. Adjunct analgesic therapy with a potent inhibitor of equine sEH appears to ameliorate signs of pathologic pain in laminitic horses.

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**Evaluation of gabapentin in osteoarthritic geriatric cats**

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**Introduction:** Gabapentin may have antinociceptive effects in cats with osteoarthritis. The goal was to evaluate gabapentin in geriatric cats with osteoarthritis and owner-identified mobility impairment.

**Methods:** Using a blinded, placebo-controlled, randomized, crossover design, 20 healthy client-owned geriatric (≥10 years-old) cats with clinical and radiographic evidence of osteoarthritis and owner-identified mobility impairment were studied. Cats received 0 (placebo) or gabapentin (10 mg kg$^{-1}$) orally twice daily for two weeks each treatment without washout period between. Activity was continuously assessed with a collar-mounted activity monitor system. Owners chose and rated three mobility-impaired activities using a client-specific outcome measure (CSOM) questionnaire weekly. Deterioration associated with crossing over to the opposite treatment was evaluated as a negative change ≥ 2 points in CSOM scores. Averaged daily activity counts were analyzed with two-tailed paired t-tests, the CSOM with McNemar’s test, and deterioration with one-tailed Fisher’s exact test with p < 0.05 considered statistically significant. Owner-identified adverse events were recorded.

**Results:** Compared to placebo, gabapentin was associated with significantly lower daily activity counts (48.333 ± 12.674 versus 39.038 ± 9.536) but with significantly greater proportion of improved ratings by owners (odds ratio 3.1; 95% confidence interval 1.4-7.5). Significantly greater proportion of cats deteriorated when crossing over from gabapentin to placebo than vice versa. Adverse events occurred in nine cats during gabapentin (sedation,