Equine*Review*

Introduction: This month's Equine Review discusses papers on the medicinal management of pain associated with laminitis, the treatment of impinging dorsal spinous processes with minimally invasive techiques, and the effects of overfeeding on equine cardiovascular health.

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Medical pain management for laminitis

Failure to adequately control pain is one of the primary reasons laminitic horses are subject to euthanasia. A recent review by Hopster and Driessen (2021) outlined several options for medical pain management of laminitis. Non-steroidal anti-inflammatories (NSAIDs) are the most commonly used first-line options and recent findings suggest that non-selective NSAIDS are more effective for analgesic therapy compared with COX-2 selective NSAIDS. To avoid causing further lamellar damage through excessive movement, the dose should be titrated based on the comfort level of the patient. In cases of chronic laminitis, high doses of NSAIDs are often required and the effect may not be seen for up to 3 days after start of treatment. This is important to consider when assessing the clinical response to NSAIDs. Paracetamol (20 mg/kg twice daily) is a commonly used analgesic in humans and may be considered as an adjunctive analgesic in horses that require additional pain relief. Although evidence for the efficacy of its use in horses is limited, the use of paracetamol in one laminitic pony has been previously described (West et al, 2011).

Opioids are typically used in addition to NSAIDs in horses with severe pain and the use of morphine, methadone, buprenorphine and tramadol have all been documented in horses. It is also speculated that dexmedetomidine (1.5–3.0 µg/kg intravenously or intramuscularly every 3–4 hours) a newer, highly selective alpha-2 agonist may provide strong analgesia in addition to offering protective effects on the lamellae of laminitic horses. Gabapentin (20 mg/kg) may be considered as an adjunctive therapy in the treatment of neuropathic pain in laminitis, however published studies examining its efficacy in horses have yielded conflicting results. Constant rate infusions of ketamine, lidocaine, acepromazine, xylazine and combinations thereof provide further options for analgesia. Systemic pain control may also be augmented with epidural catheters (both caudal and cervical) to provide potent analgesia in patients that are refractory to first-line options.

Minimally invasive treatment for impingement of dorsal spinous processes

Impinging dorsal spinous processes (DSPs) of the thoracolumbar spine are commonly implicated as a cause of back pain in horses. While conservative management may be sufficient to resolve clinical signs in some cases, minimally invasive surgical techniques have been gaining popularity because of their reduced complications, quicker recovery times and better cosmetic outcomes.

A retrospective study by de Souza et al (2021) described a minimally invasive cranial ostectomy for the treatment of impinging DSPs. In this study, 102 horses were treated under standing sedation and local anaesthesia, and minimally invasive cranial ostectomy of the caudal DSP was performed with bone rongeurs through multiple small incisions. On follow-up, 80% of horses had complete resolution of clinical signs and returned to work. In horses with pre-existing lameness issues, 69% returned to the same level of intended work and of those with no orthopaedic issues, 93% returned to the same level of intended work. Previously reported ostectomy techniques have been associated with long incisions, extensive dissection and increased complications, but the technique described in this study may have similar success rates to other techniques, with a lower risk of complications.

Effects of overfeeding on cardiovascular health

Given the alarming rise in equine obesity and associated insulin dysregulation, a recent study by D'Fonseca et al (2021) highlighted the cardiovascular changes associated with overfeeding in Shetland ponies. The researchers performed regular blood pressure measurements, echocardiograms and electrocardiograms in ponies fed 200% of their net energy requirements over 2 years and compared the results against those of a control group which received a maintenance diet. Increase in left ventricular wall thickness, followed by an increase in blood pressure, was first induced by overfeeding, with left ventricular hypertrophy developing within 2 years. The findings of this study are supportive of previous work that suggests an inability of insulin dysregulated horses to undergo insulin-induced vasodilation and instead, a constant state of vasoconstriction persists which maintains blood wpressure at high to normal levels. Clinical hypertension or pathological arrhythmias were not detected, but longer-term studies are warranted to determine whether further pathology would develop if the period of overfeeding is continued. EQ

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