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Pain management in horses has received little attention compared to other domestic species until relatively recently. There are wide variations in the attitudes to and methods used to manage pain in horses (Price et al. 2002). Only 36.9% of horses undergoing routine castration receive analgesics post-operatively (Price et al. 2005). This may, in part, be due to the difficulties in assessing and quantifying pain in this species.

Pain can result in undesirable effects including a negative energy balance, impairment of the function of the respiratory and cardiovascular systems, central hypersensitivity to noxious stimuli and the development of chronic pain. Violent behaviour may be seen and this can make the horse difficult to handle and may negatively influence recovery from anaesthesia. Pain also has a significant implication for the welfare of the animal. The administration of analgesics before a surgical procedure (pre-emptive analgesia) will reduce ‘wind-up’ or central sensitisation and reduce the intensity of post-operative pain. Multi-modal analgesia (the administration of 2 or more drugs which act on different parts of the pain transmission pathways) has the advantage of maximising analgesia while minimising the potential adverse effects.

Nonsteroidal anti-inflammatory drugs (NSAIDs), local anaesthetics, ketamine, and α2 agonists are most commonly administered to horses (Price et al. 2002). Horses are perhaps fortunate in that sedation and local anaesthetic techniques are commonly used to facilitate surgical procedures and the simultaneous administration of these drugs has a potential additive or synergistic effect on analgesia. Relatively minor adjustments to protocols, for example, administration of analgesics before the surgical procedure begins can optimise the effect of the analgesic technique.

A number of NSAIDs have marketing authorisations for alleviation of inflammation and pain in the horse. NSAIDs seem to be effective analgesics in the horse, especially when administered as part of a multimodal analgesic protocol. Horses seem to be less susceptible to the potential adverse effects on renal function than dogs and cats when NSAIDs are administered in the perioperative period, especially when renal perfusion is reduced (e.g. hypotension during anaesthesia). Care should be taken in foals due to the risk of gastric ulceration.

Local anaesthetic techniques can be used to provide analgesia in conscious or sedated horses as well as during general anaesthesia. For example, intratesticular injection of lidocaine prior to castration decreases the cardiovascular responses to surgical stimulation and can reduce cremaster muscle tension and so improving surgical conditions (Haga et al. 2006). MAC is reduced when lidocaine is administered intravenously by continuous rate infusion during isoflurane anaesthesia and may potentially have some analgesic effects though these have not been fully investigated. Analgesics may be administered epidurally in the horse either as single injections or longer term via an epidural catheter. Local anaesthetics, opioids, α2 agonists and ketamine have all been administered via this route.

Ketamine is an NMDA receptor antagonist used for induction and maintenance of anaesthesia. At sub-anaesthetic doses it has anti-hyperalgesic effects and may be administered by continuous rate infusion as an algesic.

Alpha-2 adrenoceptor agonists (α2 agonists) are administered for sedation and also as preanaesthetic medication. The analgesic effects of xylazine and detomidine are well recognised and the administration of these drugs for control of pain associated with colic is common clinical practice. Recent reports suggest that romifidine also has antinociceptive effects. The sedative effects of the α2 agonists generally restrict their use as analgesics to the immediate perioperative period.

The use of opioids in horses for analgesia has been restricted by concerns over excitement. Price et al. (2002) reported that opioids are used in practice, but the respondents to their questionnaire-based survey expressed a strong preference...
for butorphanol over morphine. This is despite evidence, in other species, that kappa-agonist opioids are less effective for the treatment of pain than μ-agonist opioids (Muir 1998). Butorphanol does have a marketing authorisation for administration to the horse and it is worth noting that the dose for analgesia (0.1 mg/kg bwt) listed on the data sheet is approximately 10 times the dose suggested for a 500 kg horse (0.5 ml) when administered in combination with detomidine for sedation. Due to the short duration of action (30–60 min), it has been suggested that butorphanol is best administered by continuous rate infusion (Sellon et al. 2001).

Fear of side effects may have traditionally limited the use of full agonist opioids in horses. Morphine has been implicated in post anaesthetic colic in one institution (Senior et al. 2004) although results from another centre showed no such risk, (Andersen et al. 2006). A number of recent publications have reported no adverse effects and some beneficial effects of μ-agonist administration to horses undergoing general anaesthesia and this has stimulated further investigation of the analgesic potential of this class of drugs in horses. The administration of nitrous oxide during anaesthesia is also controversial. It can contribute to a balanced anaesthetic technique in healthy horses but is probably best avoided if facilities for blood gas analysis are not available.

Nursing care of the horse in the perioperative period should also be be considered since this can have a considerable impact on the horses comfort and the overall outcome.

REFERENCES