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How to: Perform epidural analgesia

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Indications
Caudal epidural analgesia is an extremely useful technique in horses and can be used to facilitate obstetric manipulations, surgery on the tail, perineum and genitourinary tract and as part of intraoperative and post operative pain management protocols. The technique is contra-indicated if there is an infection at the site of needle insertion and relative contra-indications include coagulopathies, ataxia, neurological diseases and septicaemia. The temperament of the horse and personnel safety should also be considered.

Technique
Adequate restraint is essential and, if possible, the horse should be encouraged to bear weight evenly on its pelvic limbs. The first coccygeal space may be located by digital palpation (area approximately 5 cm cranial to the start of the tail hairs on the midline) during dorsoventral movement of the tail. The site should be clipped and a strict aseptic technique should be used. Local anaesthetic infiltration along the proposed needle path will reduce the horse’s response to subsequent spinal needle placement. An 18–20 SWG spinal needle is inserted perpendicularly through the skin with the bevel facing cranially. The angle of insertion may need to be altered to ensure that the needle passes through the interspinous and interarcuate ligaments and into the epidural space. A change in resistance to needle advancement may be appreciated as the epidural space is entered. The needle should be withdrawn slightly if the floor of the vertebral canal is encountered. The ‘hanging drop’ technique can be used to verify correct placement of the needle; a drop of saline or local anaesthetic placed on the hub of the needle will be drawn into the epidural space as it is penetrated with the needle tip. Gentle suction should be applied with a syringe to look for the presence of blood and if none is aspirated the drugs should be injected very slowly. If the needle tip is in the epidural space there should be very little resistance to injection.

For longer-term pain management an epidural catheter may be inserted using strict aseptic technique to try to prevent the introduction of infection.

NOTES

Drugs that have been administered into the epidural space in horses include local anesthetics, opioids, α₂-agonists, ketamine and tramadol as sole agents and in combinations. Whenever possible solutions of drugs used for epidural administration should be preservative free. Many of the drugs do not have marketing authorisations for epidural administration so the cascade should be applied.

Local anaesthetics administered into the epidural space can provide anaesthesia of the perineal region. The volume for injection is usually limited to about 10 ml in a 500 kg horse as severe ataxia and even recumbency can result from cranial spread of larger volumes. Mepivacaine has a UK marketing authorisation for epidural administration to horses with doses of 4–10 ml recommended on the data sheet.

Epidurally administered morphine and methadone (0.1 mg/kg bwt in 20 ml saline) have been reported to produce analgesia lasting between 5 and 6 h (Natalini and Robinson 2000; Olbrich and Mosing 2003) Adverse effects reported following epidural morphine administration in horses include pruritis and weals in the perineal region.

Epidural administration of detomidine (0.06 mg/kg bwt) or xylazine (0.17 mg/kg bwt) in 10 ml of saline produces analgesia lasting 2.5–3 h though signs of sedation may be observed (Skarda and Muir 1996).

Ketamine has been reported to produce analgesia following epidural administration in horses although it is worth noting that the use of epidural ketamine in people is controversial because of concerns about neurotoxicity (De Beer and Thomas 2003).

References


