**Diagnostic Local Anaesthesia in Equine Lameness**

Local anaesthesia is commonly used as part of a lameness exam to aid in definitively localising the source of pain when obvious pathology does not exist. It must be done in a systematic manner (distal to proximal limb). The anaesthetic agent is deposited by perineural infiltration (nerve block), intra-synovial injection (joint capsules, bursa, and sheaths), field block (ring block) or directly in a sensitive region.

Important points to note:

1. General: Do not use local anaesthetic with epinephrine because it has the potential to cause skin necrosis at the injection site (vasoconstriction).

Avoid intra-vascular injection of local anaesthetics by aspirating prior to and during administration of the drug.

Always use sterile solutions, equipment and techniques.

1. Needle size and gauge: When anesthetizing nerves below the carpus or hock use a 25-gauge, 5/8-in. (1.59-cm) needle. For nerves more proximally on the limb use a 22- or 20-gauge 1½-in. (3.8-cm) needle.
2. Positioning of the needle: Always insert the needle detached from the syringe. For situations where the horse may move it is safer to use a spinal needle as it is flexible and more likely to bend than break. Direct the needle distally during insertion when anesthetizing nerves in the distal portion of the limb to prevent proximal migration of anaesthetic agent which will lead to inaccurate results.
3. Syringe: Do not use Luer-lock syringes as they are difficult to attach and detach quickly to the needle after it is inserted. The needle can be bent or broken if the horse moves during the procedure.
4. Volume of anaesthetic: Only use the smallest effective volume of anaesthetic agent below the carpus or hock to avoid inadvertent anaesthesia of adjacent nerves.

Table 1.0: Common drugs used for reginal blocks when investigating a lame horse.

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| Drugs | Dose | Onset of action | Duration of action | Contraindications | Notes |
| Lidocaine hydrochloride 2% (20mg/ml) | 0.2-0.3 mg/kg  (approximately 5-8 ml of 2% solution in an average horse)  Toxic dose 8mg/kg | 5-10 minutes  (Max effect at 15 minutes) | 45-60 minutes | Local tissue irritation and swelling. Cardiotoxic. Use with caution in animals with liver disease, congestive heart failure, shock, hypovolemia, severe respiratory depression or marked hypoxia. | Toxic effects include loss of consciousness, hypotension, respiratory collapse, excitability, muscles spasm and  convulsions. |
| Mepivacaine HCl 2 % (20mg/ml) | Approximately 3-15 ml of 20 mg/ml in an average horse.  Toxic dose: >400mg/kg within 24 hours | 5-10 minutes (Max effect at 12-20 minutes) | 120-180 minutes | Prohibited for use in horses intended for human consumption. | Causes less tissue irritation and longer duration of action than Lidocaine HCl. Toxicity characterised by CNS effects. |
| Bupivacaine HCl 0.5% (5mg/ml) | 0.05–0.08 mg/kg (approximately 5–8 ml of 0.5% solution in an average adult horse  Toxic dose 4 mg/kg | 5-10 minutes  (Max effect at 15 minutes) | 4-6 hours | Toxicity: More cardiotoxic than lidocaine. Ventricular dysrhythmias. Decrease myocardial contractility. | Longer duration of action than Mepivacaine HCl.  Less suitable for diagnostic nerve blocks because of long duration of action. |
| Prilocaine | 0.60 to 0.84 mg/kg |  |  |  | Slower onset of action. Spreads less well compared to lidocaine.  Causes dose-dependent methemoglobinemia which limits its clinical usefulness.  Causes less swelling. Great accuracy when doing specific nerve blocks.  Low cardiac toxicity. |

References

Agrifutures.com.au. (2018). [online] Available at: https://www.agrifutures.com.au/wp-content/uploads/publications/13-048.pdf [Accessed 15 Sep. 2018].

Schumacher, J. (2018). Regional Anesthesia in Equine Lameness - Musculoskeletal System - Veterinary Manual. [online] Veterinary Manual. Available at: https://www.msdvetmanual.com/musculoskeletal-system/lameness-in-horses/regional-anesthesia-in-equine-lameness#v3284276 [Accessed 15 Sep. 2018].

Stashak T, Adams O. Adams' lameness in horses. 5th ed. Philadelphia, Pa.: Lippincott Williams & Wilkins; 2002.