

Practical anaesthesia and analgesia in farmed deer in New Zealand

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The most commonly used sedative/anaesthetic in farmed red deer and wapiti (*Cervus elaphus*) and fallow deer (*Dama dama*) in New Zealand is xylazine, either by itself or in combination with ("Fentazin": 58.3 mg xylazine, 0.4 mg fentanyl citrate, 3.2 mg azaperone per ml; Parnell Laboratories (NZ) Ltd, Takanini, New Zealand), carfentanyl or ketamine. The most common procedure requiring sedation or anaesthesia is velvet antler removal. The majority of the 200,000 mature velvetting stags in New Zealand are chemically restrained and the remainder physically restrained in mechanical crushes while local anaesthetic is applied and the antlers removed. Other sedative/anaesthetic procedures include stag electro-ejaculation, laparoscopic artificial insemination (AI), minor surgery, restraint for sampling or testing and dystocia. The procedure, temperament of the animal and the facilities will determine whether heavy sedation/anaesthesia, where the animal becomes laterally recumbent, or moderate to light sedation, where the animal stands quietly or sits, is used.

For heavy sedation/anaesthesia the following drugs are given by intramuscular injection (80% of quantities for intravenous injection): red deer and wapiti - 1) xylazine at 0.8 - 1.0 mg/kg, 2) xylazine at 0.8-1.0 mg/kg plus ketamine at 1.0-2.0 mg/kg, 3) "Fentazin" at 1 ml/50-70 kg and 4) xylazine at 0.6-0.8 mg/kg plus carfentanyl at 0.5-0.6 µg/kg. The addition of small amounts of opioids, fentanyl citrate or carfentanyl, makes

xylazine more reliable, lowers the dose rate, gives better analgesia and higher conception rates with AI. For fallow deer xylazine at 2.5 mg/kg plus ketamine at 5 mg/kg is given. Opioids are contraindicated in fallow deer.

For light to moderate sedation xylazine at 0.2 - 0.6 mg/kg or "Fentazin" at 1 ml/100 - 300 kg are given. For post-operative analgesia acetyl salicylate (25 mg/kg) gives 6-12 hours analgesia. For local anaesthetic routinely 2% lignocaine is used for most procedures. For velvet antler removal, the most effective method is a ring-block at the base of each pedicle with 10-20 ml. Regional blocks of the zygomatico-temporal, infratrochlear and auricolopalpebral nerves are used but are slightly less effective due to variability in nerve location. A minimum of four minutes is required for full analgesia.

Xylazine is routinely administered intramuscularly into the neck or rump by hand or pole syringe, or intravenously in the jugular or cephalic veins. Yohimbine (0.25 mg/kg) is routinely used to reverse xylazine sedation and is given intravenously in the jugular or cephalic veins.

Sudden noise should be avoided in lightly sedated animals. Regurgitation, bloating, hyperthermia, overdose and "stag death" can occur. Contaminated solutions can cause cellulitis at the injection sites. Intracarotid injection of yohimbine will result in convulsions. Halothane and oxygen (± nitrous oxide) is commonly used as a gaseous anaesthetic.