Xylazine hydrochloride

Description
Xylazine is used as a sedative and analgesic in Cervidae and other species of wildlife when it is desirable to produce a reversible state of sedation accompanied by a short period of analgesia. Xylazine hydrochloride is an alpha-two agonist with sedative, analgesic, and muscle relaxant properties. It was developed by the Bayer company in Germany in the 1960s and has a long history of use in veterinary medicine and wildlife.

It is an excellent sedative and muscle relaxant that can easily be delivered using small darts, resulting in more accurate dart delivery and reduced trauma to the animal. It is commonly used in conjunction with ketamine, etorphine and carfentanil in numerous species.

Indications: Wildlife Management
Xylazine hydrochloride has a multitude of applications for field use in cervids (fallow deer, mule deer, sika deer, white-tailed deer and elk), other hoof stock, and wildlife including calming of fractious animals, restraint for diagnostic and minor surgical procedures, relief of pain following injury or surgery and as a pre-anesthetic to local anesthesia.

Xylazine hydrochloride should be used in Cervidae when it is desirable to produce a state of sedation accompanied by a shorter period of analgesia. Other indications and uses are found in peer reviewed published literature and summarized in the Handbook of Wildlife Chemical Immobilization. [Kreeger]

Combined with ketamine, it has been used extensively in wildlife species and wildlife management applications. Its wide margin of safety and reversibility has made it a useful tool in the hands of wildlife veterinarians and professional wildlife biologists.

It is commonly used in conjunction with etorphine and carfentanil for its muscle relaxation properties to minimize the “opiate rigidity” produced by these two compounds.

Yohimbine hydrochloride at a dose rate of 0.2 to 0.3 mg/kg administered intravenously can reverse the effects of xylazine hydrochloride safely and rapidly. Xylazine can also be reversed with tolazoline and atipamezole in most species.

Indications: Domestic Species
Xylazine has broad and extensive use in domestic species. It is routinely used in companion animals and domestic hoof stock. The published veterinary literature is abundant with references to the use of xylazine in domestic species.

Chemistry & Pharmacology
Xylazine hydrochloride, a non-narcotic compound, is a sedative and analgesic as well as a muscle relaxant. Its sedative and analgesic activity is related to central nervous system depression. Following intramuscular administration, the clinical effects of xylazine hydrochloride are apparent within 10-15 minutes. Clinical effects are observed within 3-5 minutes of intravenous administration. A sleeplike state, the depth of which is dose-dependent, is usually maintained for 1 to 2 hours, while analgesia lasts from 15 to 30 minutes.

Xylazine hydrochloride is 2-(2,6-dimethylphenylamino)-4H-5,6-dihydro-1,3-thiazine hydrochloride.

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Pharmacokinetics

Xylazine’s muscle-relaxant effect is based on inhibition of the intra-neural transmission of impulses in the central nervous system. The centrally acting muscle-relaxant effect causes relaxation of the skeletal musculature complementing sedation and analgesia.

In Cervidae and other non-domestic hoofstock, the respiratory rate is reduced as in natural sleep. Following treatment with xylazine, the heart rate is decreased and a transient change in the conductivity of the cardiac muscle may occur, as evidenced by a partial atrioventricular block. This resembles the atrioventricular block often observed in normal domestic horses. Although a partial A-V block may occasionally occur following intramuscular injection of xylazine, the incidence is less than when it is administered intravenously. Intravenous administration of xylazine causes a transient rise in blood pressure, followed by a slight decrease.

How Supplied

Xylazine was initially approved by the FDA in a 100mg/ml presentation. Xylazine 300 was approved by the FDA in 2002 under the trade name of Cervizine 300.

The 300mg/ml concentration of xylazine hydrochloride is available upon prescription from ZooPharm.

Dosage & Administration

Cervidae: Administer intramuscularly, by either hand syringe or syringe dart, in the heavy muscles of the croup or shoulder. Following injection of xylazine, the animal should be allowed to rest quietly until the full effect has been reached.

Please consult Kreeger’s Handbook of Wildlife Chemical Immobilization for individual species dosages, as well as recommended drugs to use in combination with ketamine hydrochloride for various species.

Contraindications & Precautions

In Cervidae and other species occasional capture-associated deaths occur. Clinical trials in Cervidae revealed a mortality rate of approximately 3.5% attendant with the administration of xylazine hydrochloride. Xylazine commonly produces ruminal stasis and subsequent bloat in recumbent animals.

**WARNING:**

Do not use Xylazine hydrochloride in Cervidae or any game species less than 15 days before or during the hunting season. Do not use Xylazine hydrochloride in domestic food-producing animals.

**ADVERSE REACTION**

Xylazine in Cervidae at the recommended dosage levels may occasionally cause slight muscle tremors, bradycardia, and a reduced respiratory rate.

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