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DIN 02450240
VETERINARY USE ONLY

# NERFASIN 100™

**(Xylazine Injection, Mfr. Std.)**
100 mg/mL Sterile Injectable Solution
**Sedative and Analgesic**
**For Use In Horses Only**

**DESCRIPTION:**
Nerfasin 100™ (Xylazine) is supplied in 10, 25, and 50 mL multiple-dose vials as a sterile solution.

Each mL contains 100 mg xylazine (as hydrochloride).

**Active Ingredients - Each mL contains:**
Xylazine (as hydrochloride).....100 mg
**Preservatives - Each mL contains:**
Methyl parahydroxybenzoate.....1 mg
**Inactive Ingredients - Each mL contains:**
Hydrochloric acid 10% .....q.s.
Sodium hydrogen carbonate solution 6.67% .....q.s.
Water for injection .....q.s.

**INDICATIONS:**
Nerfasin 100™ should be used in horses when it is desirable to produce a state of sedation accompanied by a shorter period of analgesia. Xylazine has been used successfully as follows:
1. Diagnostic procedures - oral and ophthalmic examinations, abdominal palpation, rectal palpation, vaginal examination, catheterization of the bladder and radiographic examinations.
2. Orthopedic procedures, such as application of casting materials and splints.
3. Dental procedures.
4. Minor surgical procedures of short duration such as debridement, removal of cutaneous neoplasms and suturing of lacerations.
5. To calm and facilitate handling of fractious animals.
6. Therapeutic medication for sedation and relief of pain following injury or surgery.
7. Major surgical procedures:
   a. When used as a preanesthetic to general anesthesia.
   b. When used in conjunction with local anesthetics.

**DOSAGE AND ADMINISTRATION:**
1. Intravenously - 0.5 mL/45 kg body weight (Equivalent to 1.1 mg/kg or 0.5 mg/lb)
   Intramusculary - 1.0 mL/45 kg body weight (Equivalent to 2.2 mg/kg or 1 mg/lb).
   Following injection of Nerfasin 100™ , the animal should be allowed to rest quietly until the full effect has been reached. These dosages produce sedation which is usually maintained for 1 to 2 hours and analgesia which lasts for 15 to 30 minutes.
2. Preanesthetic to Local Anaesthesia: Nerfasin 100™ at the recommended dosages can be used in conjunction with local anesthetics such as procaine or lidocaine.
3. Preanesthetic to General Anaesthesia: Nerfasin 100™ , at the recommended dosage rates, produces an additive effect to central nervous system depressants such as pentobarbital sodium, thiopental sodium and thiamylal sodium. Therefore, the dosage of such compounds should be reduced and administered to the desired effect. In general, only 1/3 to 1/2 of the calculated dosage of the barbiturates will be needed to produce a surgical plane of anesthesia. Post anesthetic or emergence excitement has not been observed in animals preanesthetized with xylazine. Xylazine has been used successfully as a preanesthetic agent for pentobarbital sodium, thiopental sodium, thiamylal sodium, nitrous oxide, ether, halothane and methoxyflurane anesthesia.

**CONTRAINDICATIONS:**
Do not use Nerfasin 100™ in conjunction with tranquilizers.

**CAUTIONS:**
Careful consideration should be given before administering to horses with significantly depressed respiration, severe pathologic heart disease, advanced liver and kidney disease, severe endotoxic or traumatic shock.
Since an additive effect results from the use of Nerfasin 100™ and the barbiturate compounds, it should be used with caution with these central nervous system depressants.
Products known to produce respiratory depression or apnea, such as thiamylal sodium, should be given at a reduced dosage and, when injected intravenously, should be administered SLOWLY.
When intravenous administration is desired, avoid perivascular injection in order to achieve the desired effect.
Intracarotid Arterial Injection Should Be Avoided. As with many compounds, including tranquilizers, immediate violent seizures followed by collapse may result from inadvertent administration into the carotid artery. Although the reaction with Nerfasin 100™ is usually transient and recovery may be rapid and complete, special care should be taken to assure that the needle is in the jugular vein rather than the carotid artery.
Bradycardia and an arrhythmia in the form of incomplete atrioventricular block have been reported following xylazine administration.
Although clinically the importance of this effect is questioned[1,2,3,4], a standard dose of atropine given prior to or following Nerfasin 100™ will greatly decrease the incidence.
Following the use of Nerfasin 100™, veterinarians and attendants should continue to use care and appropriate animal handling techniques, since conscious animals, although sedated, are capable of inflicting personal injury.

**WARNINGS:**
THIS DRUG IS NOT TO BE ADMINISTERED TO HORSES THAT ARE TO BE SLAUGHTERED FOR USE IN FOOD. This drug is for use in horses only.
Keep out of reach of children. Do not eat, drink or smoke while handling the veterinary drug product. Avoid skin and eye contact. For veterinary use only.
Xylazine is an alpha2-adrenergic agonist with sedative, some analgesic and muscle relaxant properties. Symptoms after absorption may include dose-dependent respiratory depression, bradycardia, hypotension, a dry mouth, and hyperglycemia. Ventricular arrhythmias have also been reported. Strictly avoid self-injection, oral intake and any contact with the skin, eyes or mucosa. In the case of accidental contact, was exposed skin or eyes abundantly with water. If symptoms occur, seek medical advice. In the case of accidental oral intake or self-inject, seek the advice of a physician and show the package insert but DO NOT DRIVE.
If pregnant women handle the product, special caution should be observed not to self-inject as uterine contractions and decreased fetal blood pressure may occur after accidental systemic exposure.
Dispose unused drug or waste materials in accordance with the Provincial/Municipal guidelines.

**ADVERSE REACTIONS:**
Nerfasin 100™ used at recommended dosage levels may occasionally cause slight muscle tremors, bradycardia with partial A-V heart block and a reduced respiratory rate. Movement in response to sharp auditory stimuli may be observed.

Following repeated intramuscular injection at the same site, a swelling may occur and such swelling may persist for several weeks.

**SAFETY:**
Xylazine has been tolerated in horses at 10 times the recommended dose. However, doses of this magnitude produced muscle tremors and long periods of sedation with careful surveillance necessary during the recovery period.

**PHARMACOLOGY:**
Xylazine is a potent sedative and analgesic as well as muscle relaxant. Its sedative and analgesic activity is related to central nervous system depression. Its muscle-relaxant effect is based on inhibition of the intraneural transmission of impulses in the central nervous system. The principal pharmacological activities develop within 10 to 15 minutes after intramuscular injection and within 3 to 5 minutes following 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. The centrally-acting muscle relaxant effect causes relaxation of the skeletal musculature, complementing sedation and analgesia.
In animals under the influence of xylazine, 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 horses[1,2,3,4]. 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.
Xylazine has no effect on blood clotting time or other hematologic parameters.
In limited tests, xylazine has been tolerated in horses at 10 times the recommended dose.
However, doses of this magnitude produce muscle tremors and long periods of sedation.

**STORAGE:** Store at room temperature, 15-30°C; Do not freeze. Store the vial in the upright position. Discard any remainder 28 days after broaching. The stopper should not be punctured more than 20 times after broaching.

**REFERENCES:**

1. Detweiller, D.K.: The Diagnosis and Significance of Cardiac Arrhythmias in Progress in Equine Practice. Edited by E.J. Catcott and J.F. Smithcors. American Veterinary Publications, Inc., Santa Barbara, California and Wheaton, Illinois, (1966), 280-281.
2. Glazier, D.B.: Atrioventricular Heart Block. Irish Vet. J., Vol. 12 (1958): 194-198.
3. Holmes, J.R., Alps, B.J.: Observations on Partial Atrioventricular Heart Block in the Horse. Can. Vet. J., Vol. 7, No. 12 (1966): 280-290.
4. Smetzer, D.L., Smith, C.R., Sentra, T.: Second Degree Atrioventricular Block in the Horse. Am. J. Vet. Res., Vol. 30, No. 6, (1969), 933-946.



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