Bimeda

PRODUCT INFORMATION

Flunazine®

Flunixin Meglumine Injection USP

Sterile Anti-inflammatory/Analgesic/Antipyretic

DIN 02240510

INDICATIONS

Horses: Flunazine® is recommended for the alleviation of inflammation and associated pain in musculoskeletal disorders in the horse.
Flunazine* is also recommended for the alleviation of visceral pain associated with colic in the horse.
Cattle: Flunazine® is indicated for the control of pyrexia associated with Bovine Respiratory Disease. Flunazine® is also indicated for the control of pyrexia and inflammation associated with endotoxemia. In clinical studies, flunixin meglumine injectable as an adjunct to antibiotic therapy with oxytetracycline has been demonstrated to control pyrexia associated bovine respiratory disease.

See reverse side for Administration and Dosage.

DESCRIPTION

Injectable flunixin meglamine to be used as an anti-inflammatory, analgesic or antipyretic. For use in horses and cattle, including dairy cattle.

PACKAGING

ITEM NO.	UNIT PACKAGE	CASE SIZE
1FLU001	50 mL	12
1FLU002	100 mL	12
1FLU016	250 mL	12

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Flunazine®

Flunixin Meglumine Injection USP

Sterile Anti-inflammatory/Analgesic/Antipyretic

DIN 02240510

Veterinary Use Only

50 mg/mL flunixin (equivalent to 83 mg flunixin meglumine)

For intravenous or intramuscular use in horse and for intravenous use only in cattle.

PHARMACOLOGICAL CLASSIFICATION:
Anti-inflammatory; analgesic; antipyretic.

STRUCTURAL FORMULA AND CHEMISTRY:
Flunixin meglumine is the N-methyl-glucamine salt of (2 (2'-methyl-3'-trifluoromethyl-anilino) nicotinic acid)

Molecular Formula: $C_{14}H_{11}F_3N_2O_2 \bullet C_7H_{17}NO_5$
Molecular Weight: 491.46

DESCRIPTION:
Each millilitre of Flunazine® contains 50 mg flunixin equivalent to 83 mg of flunixin meglumine USP, 0.1 mg edetate disodium, 2.2 mg sodium formaldehyde sulfoxylate, 4.0 mg diethanolamine, 207.2 mg propylene glycol, 5.0 mg phenol as preservative, hydrochloric acid to adjust the pH and water for injection q.s.

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Cattle: Flunazine® is indicated for the control of pyrexia associated with Bovine Respiratory Disease. Flunazine® is also indicated for the control of pyrexia and inflammation associated with endotoxemia. In clinical studies, flunixin meglumine injectable as an adjunct to antibiotic therapy with oxytetracycline has been demonstrated to control pyrexia associated bovine respiratory disease.

ACTION:
Flunixin meglumine is a potent, non-narcotic, non-steroidal, analgesic agent with anti-inflammatory activity. Antipyretic activity has been demonstrated in cattle and in laboratory animals. It is significantly more potent than pentazocine, meperidine and codeine as an analgesic in the rat yeast paw test.
Horse: Flunixin is four times as potent on a mg per mg basis as phenylbutazone as measured by the reduction in lameness and swelling in the horse. Plasma half-life in horse serum is 1.6 hour following a single dose of 1.1 mg/kg.
Measurable amounts are detectable in horse plasma at 8 hours post injection.
Cattle: Flunixin meglumine is a weak acid (pKa = 5.82) which exhibits a high degree of plasma protein binding (app. 99%). However, free (unbound) drug appears to readily partition into body tissues (Vss predictions range from 297 to 782 mL/kg). Total body water is approximately 570 mL/kg. In cattle, elimination occurs primarily through biliary excretion. This may, at least in part, explain the presence of multiple peaks in the blood concentration/time profile following IV administration.
In healthy cattle, total body clearance has been reported to range from 90 to 150 mL/kg/hr. These studies also report a large discrepancy between the volume of distribution at steady state (Vss) and the volume of distribution associated with the terminal elimination phase (Vß). This discrepancy appears to be attributable to extended drug elimination from a deep compartment. The terminal half-life has been shown to vary from 3.14 to 8.12 hours. In clinical studies, the treatment with flunixin meglumine injectable as an adjunct to antibiotic therapy with oxytetracycline has been demonstrated to control pyrexia associated with bovine respiratory diseases.
Model and field studies have shown that flunixin can have short-term effect in the control of some inflammatory factors associated with endotoxemia and irritation (carregeenan).
Flunixin persists in inflammatory tissues and is associated with anti-inflammatory properties which extend well beyond the period associated with detectable plasma drug concentrations. These observations account for the counterclockwise hysteresis associated with flunixin's pharmacokinetic/pharmacodynamic relationship. Therefore, prediction of drug concentrations based on the estimated plasma terminal half-life will likely underestimate both the duration of drug action and the concentration of drug remaining at the site of activity.

DOSAGE AND ADMINISTRATION:
Horses: The recommended dose for musculoskeletal disorders is 1.1 mg per kg (1 mL/45 kg) of body weight once daily. Treatment may be given by intravenous or intramuscular injection and repeated for up to 5 days. Intravenous studies show onset of activity is within 2 hours. Peak response occurs between 12 and 16 hours and duration of activity is 24 to 36 hours following intravenous and intramuscular administration.
The recommended dose for the alleviation of pain associated with equine colic is 1.1 mg per kg of body weight. Intravenous administration is recommended for prompt relief. Should colic symptoms recur, treatment may be repeated as necessary. Clinical studies show that pain symptoms were alleviated in 37% of treated horses within 15 minutes, and 74% within 30 minutes. The cause of colic should be determined and treated with concomitant therapy.
Cattle: The recommended dose for cattle is 2.2 mg/kg (2 mL/45 kg) given by slow intravenous administration once a day for up to 3 days. The total daily dose should not exceed 2.2 mg/kg of body weight. Avoid rapid intravenous administration of the drug. Twenty-four (24) hours after administration, check if animal is febrile. Readminister only if the fever is 104°F (40°C) or higher.

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Flunazine® (cont.)

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Sterile Anti-inflammatory/Analgesic/Antipyretic

DIN 02240510

Veterinary Use Only

CONTRAINDICATIONS:
Horses: Do not administer intra-arterially. Inadvertent intra-arterial injection may cause adverse reactions. Signs can be ataxia, incoordination, hyperventilation, hysteria, and muscle weakness. Signs are transient and disappear without antidotal medication within a few minutes. Do not use in horses showing hypersensitivity to flunixin meglumine.
Cattle: Do not administer intra-arterially. Inadvertent intra-arterial injection may cause adverse reactions. Do not use in cattle showing hypersensitivity to flunixin meglumine. The drug is contra-indicated in animals with hepatic diseases. It is also contra-indicated in dehydrated animals, and in cattle with renal impairment, platelet disorder or gastric ulceration.

CAUTION:
The use of NSAIDS may be associated with gastro-intestinal and renal toxicity. Patients at greatest risk for renal toxicity are those that are dehydrated, on concomitant diuretic therapy or those with renal, cardiovascular, and/or hepatic dysfunction. Due to the potential for NSAIDS to induce gastro-intestinal ulceration, concomitant use of this drug with other anti-inflammatory drugs, such as other NSAIDS and corticosteroids should be avoided.
With the exception of the antibiotic oxytetracycline in cattle, studies to determine the activity of flunixin meglumine when administered concomitantly with other drugs have not been conducted. Drug compatibility should be monitored closely in patients requiring adjunctive therapy. Discontinue use if hematuria or fecal blood are observed. Avoid rapid intravenous administration of the drug.
Horses: The effect of flunixin meglumine on reproduction in horses has not been determined. Studies on reproduction in rats and rabbits have shown no teratogenicity.
Cattle: Do not use in bulls intended for breeding as reproductive effects of Flunazine* in this class of cattle have not been investigated. NSAIDs are known to have potential effects on both parturition and the estrous cycle. There may be a delay in the onset of estrus if flunixin is administered during the prostaglandin phase of the estrous cycle. The effects of flunixin on imminent parturition have not been evaluated in a controlled study. NSAIDs are known to have the potential to delay parturition through a tocolytic effect. Do not exceed the recommended dose.

SIDE EFFECTS:
During clinical studies no significant side effects were reported when the drug was injected slowly. In cattle, a temporary head thrashing can occur if the drug is injected too rapidly.

TOXICITY:
No toxic effects were observed in rats given intramuscular flunixin 4 mg/kg/day for 28 days. No adverse effects were seen in dogs given a single intramuscular injection of 50 mg/kg. Higher doses resulted in salivation, panting, emesis, and tremors. No toxic effects were observed in monkeys given intramuscular doses between 3 and 30 mg/kg per day for 28 days. **Horse:** Prolonged parenteral treatment in horses at 4.4 mg/kg body weight showed no untoward effects. Cattle: No flunixin-related changes (adverse reactions) were noted in cattle administered a 1X (2.2 mg/kg) dose for 9 days (three times the maximum clinical duration). Toxicity, such as blood in feces and/or urine, manifested itself at moderately elevated doses (3X and 5X) when flunixin was administered daily for 9 days (three times the maximum recommended duration).

WARNING:
Treated cattle must not be slaughtered for use in food for at least 6 (six) days after the latest treatment with this drug. Do not use in lactating or dry dairy cows. Do not use in calves to be processed for veal. This drug is not to be administered to horses that are to be slaughtered for food. KEEP OUT OF REACH OF CHILDREN.

STORAGE:
Store between 15°C and 30°C (59°F and 86°F).

HOW SUPPLIED:
Flunazine® 50 mg flunixin/mL (equivalent to 83 mg flunixin meglumine/mL) is available in 50 mL, 100 mL and 250 mL multidose vials.

1FLU001/8FLU002

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