Meloxicam SR™
Injectable

Description
ZooPharm provides extended release meloxicam in a patented sustained release polymer delivery matrix. This injectable Meloxicam SR™ is available by prescription only. It is designed to release meloxicam for up to 72-hours.

The formulation provides therapeutic blood levels of analgesia for perioperative and postoperative use in dogs and laboratory animal species based on published studies.1,2,10,11,12

Indications
Meloxicam is used in dogs, rats, mice, rabbits, primates and other species for relief of inflammation and pain in both acute and chronic musculo-skeletal disorders. Meloxicam is often used to reduce postoperative pain and inflammation following orthopaedic, soft tissue and other surgical procedures.

Dosage & Administration

Canine Dosing Information: 0.6 mg/kg * [In one 72-hour SC injection]

While the formulation can be injected through needles as small as 23 gauge, it is recommended that a larger needle (16 gauge to 18 gauge) be used to draw-up the Meloxicam SR from its vial. This makes syringe loading easier and minimizes handling loss. A luer-lock syringe is recommended for this technique.

Previous pain models in dogs have demonstrated antinociceptive efficacy at a dose rate of 0.2 mg/kg SC q24-hr. Pharmacokinetic studies have reported mean plasma concentration time profiles of meloxicam in dogs at this therapeutic dosage, to be between 300 ng/ml and 400 ng/ml (for 24 hrs).1

Lab Animal Dosing1,11,12

Rats: 4.0 mg/kg * [In one 72-hour SC injection]

Mice: 4.0 mg/kg * [In one 72-hour SC injection]

Rabbits: 0.6 mg/kg * [In one 72-hour SC injection]

*NOTE: Dose rates above are based on clinical research experience and studies published in refereed journals, as well as compiled from cited professional formularies, pilot studies and data reported from reviewed trials awaiting publication. Researchers and clinicians should rely on their professional knowledge and judgment when determining the prescribing dose for Meloxicam SR. If administering Meloxicam SR for the first time, it is suggested that initial dose determination be based on lowest dosing recommendations.

How Supplied
Meloxicam SR is available from ZooPharm by prescription in vials containing 5 ml volume of the formulation, in a sustained release biodegradable matrix (at a concentration of 2 mg/ml).

Disclaimer: The information is to be used entirely at the reader’s discretion, and is made available on the express condition that no liability, expressed or implied, is accepted by the authors or publisher for the accuracy, content, or use thereof.

For ordering details contact us at: 866-823-9314 info@wildpharm.com
Meloxicam is an NSAID of the oxicam class that acts by inhibiting prostaglandin synthesis and inducible COX-2, thereby exerting antiinflammatory, anti-exudative, analgesic and antipyretic effects. The molecule is highly plasma protein bound, when circulating in the body (95-99%). It has a long plasma half-life, enabling less frequent dosage schemes.\(^1\)\(^,\)\(^6\) Compared to several other NSAID’s tested, meloxicam was shown to be the most selective inhibitor of inducible cyclo-oxygenase activity. Primary pharmacological effects include anti-inflammatory, anti-pyretic and analgesic properties in several species including humans, probably due to inhibition of inducible cyclo-oxygenase.\(^7\)

Tissue reactions after a single subcutaneous injection of meloxicam was studied in rats. The tolerance after i.v., i.m., and s.c. injection and after dermal, rectal, and eye-drop application of a meloxicam formulation was also studied in several laboratory animals (rats, guinea pigs and rabbits). The total composition of the formulation used is not given, but it is stated that the formulation was one intended for human use. The conclusions reported from these study data indicated that the meloxicam injectable formulation was well tolerated.\(^1\)

Its chemical name is 4-Hydroxy-2-methyl-N-{5-methyl-2-thiazolyl}2H-1,2-benzothiazine-3-carboxamide-1,1-dioxide

The pharmacokinetic behavior of meloxicam after a single dose was elucidated in an intravenous pilot study in calves with radiolabelled meloxicam and in a bioavailability study in calves with administration of 0.5% injectable meloxicam solution via the IV and SC route in a cross-over design. The C\(_{\text{max}}\) of meloxicam from the SC administration was reached after 6 to 8 hours. The absolute availability was variable with values ranging from 44 to 154 % in individual animals. The mean elimination half-life of meloxicam from plasma was approximately 26 hours irrespective of the route of administration. Elimination of total radioactivity from plasma exhibited a terminal half-life of approximately 24 hours. Plasma protein binding ex vivo was found to be > 96.5 % and the same degree of binding was found in vitro. At all sacrifice time points investigated in the pilot study, the liver contained the highest concentration followed by the kidney and bile. Comparatively low concentrations were found in skeletal muscle and fat. The proportions of radioactivity excreted in the urine and the feces were approximately equal (46%) and excretion was completed after 6 days. Only trace quantities of parent compound were found in the urine.\(^7\)

Although meloxicam is COX-2 selective, at higher doses its specificity is diminished and more GI distress may be seen.\(^1\)\(^,\)\(^5\) GI distress is usually transient and subsides with a dose decrease or termination of therapy.\(^6\)

The use of meloxicam is contraindicated during pregnancy and lactation.\(^5\) Meloxicam should not be used in dogs younger than 6 weeks of age.\(^6\) Use is also contraindicated in animals suffering from GI disorders or impaired hepatic, cardiac, or renal function.\(^1\)\(^,\)\(^5\)\(^,\)\(^6\)

**Extreme caution** should be used in animals that are dehydrated, hypovolemic, or hypotensive because there is an increased risk of renal toxicity.\(^5\)\(^,\)\(^6\)

**CONTRAINDICATIONS:** Meloxicam SR is contraindicated for use in cats.

**DRUG INTERACTIONS:** Meloxicam is highly protein bound; therefore, it can be displaced by other highly protein-bound drugs such as warfarin and phenylbutazone, resulting in toxicity.\(^5\)\(^,\)\(^6\) Because meloxicam may inhibit platelet aggregation and also cause GI ulceration, it should not be used with other drugs that alter hemostasis or cause GI ulceration, including heparin, warfarin, aspirin, flunixin, phenylbutazone, and corticosteroids.\(^6\) Meloxicam may antagonize the antihypertensive effects of angiotensin-converting enzyme inhibitors.\(^9\)

References: