Presentation

Each Reutenox tablet contains 20 mg of tenoxicam.

Reutenox tablets are yellow, biconvex, oval, film coated tablets, scored on both sides.

The tablets can be divided into equal doses.

Indications

Reutenox is indicated for the symptomatic treatment of the following painful inflammatory and degenerative disorders of the musculoskeletal system:
- rheumatoid arthritis
- osteoarthritis
- arthrosis
- ankylosing spondylitis
- extra-articular disorders, e.g. tendinitis, bursitis, periartthritis of shoulders (shoulder-hand syndrome) or hips, strains and sprains
- post-operative pain
- acute gout
- primary dysmenorrhoea.

Dosage and Administration

Standard dosage

Undesirable effects may be minimised using the lowest effective dose for the shortest possible duration necessary to control symptoms.

For all indications except primary dysmenorrhoea, post-operative pain and acute gout, a daily dosage of 20 mg should be given at the same time of day.

The recommended dose for primary dysmenorrhoea is 20 to 40 mg once daily. For post-operative pain the recommended dose is 40 mg once daily up to five days and for acute attacks
of gout the recommended dose is 40 mg once daily for two days followed by 20 mg once daily for a further five days.

In treatment of chronic disorders the therapeutic effect of tenoxicam is evident early in treatment and there is a progressive increase in response over time. In chronic disorders, daily doses higher than 20 mg are not recommended since this would increase the frequency and intensity of unwanted reactions without significantly increasing efficacy.

For patients needing long-term treatment a reduction to a daily oral dose of 10 mg may be tried for maintenance.

The tablets should be taken with a glass of water. It is preferable to take this medicine during or immediately after a meal.

**Special dosage instructions**

In principle, the above dosage recommendations also apply to patients suffering from kidney or liver disease. Dosage should be minimised in patients with renal impairment.

The elderly are at increased risk of the serious consequences of adverse reactions. If an NSAID is considered necessary the lowest effective dose should be used and for the shortest possible duration. The patient should be monitored regularly for GI bleeding during NSAID therapy.

Because of lack of clinical experience, no dosage recommendations have been established for children and adolescents.

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**Contraindications**

Reutenox is contraindicated in patients with:

- known hypersensitivity to tenoxicam, to any component of the product or to other non-steroidal anti-inflammatory drugs (NSAIDs)
- asthma, or in whom salicylates or other NSAIDs induce symptoms of asthma, rhinitis or urticaria
- active or a history of gastrointestinal bleeding or perforation, related to previous NSAIDs therapy
- active, or history of recurrent peptic ulcer/haemorrhage (two or more distinct episodes of proven ulceration or bleeding)
- haemorrhagic diathesis, as with other NSAIDs
- severe heart failure, as with other NSAIDs.

Reutenox is also contraindicated in the third trimester of pregnancy.

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**Warnings and Precautions**

Reutenox is relatively contraindicated in patients with liver dysfunction.
The use of tenoxicam with concomitant NSAIDs, including cyclo-oxygenase-2 selective inhibitors should be avoided.

Adverse effects may be minimised by using the lowest effective dose for the shortest duration necessary to control symptoms (see Dosage and Administration and Warnings and Precautions below).

**Cardiovascular and/or cerebrovascular effects**

Appropriate monitoring and advice are required for patients with a history of hypertension and/or mild to moderate congestive heart failure as fluid retention and oedema have been reported in association with NSAID therapy.

Clinical trial and epidemiological data suggest that use of selective cyclo-oxygenase-2 inhibitors (COX-2 inhibitors) and some NSAIDs (particularly at high doses and long term treatment) may be associated with an increased risk of serious cardiovascular events, including myocardial infarction and stroke, which may increase with dose or duration of use. Patients with cardiovascular disease or cardiovascular risk factors may also be at greater risk.

Patients with uncontrolled hypertension, congestive heart failure, established ischaemic heart disease, peripheral arterial disease, and/or cerebrovascular disease should only be treated with tenoxicam after careful consideration. Similar consideration should be made before initiating longer-term treatment of patients with risk factors for cardiovascular disease (e.g. hypertension, hyperlipidaemia, diabetes mellitus, smoking).

To minimise the potential risk of an adverse cardiovascular event in patients taking an NSAID, especially in those with cardiovascular risk factors, the lowest effective dose should be used for the shortest possible duration (see Dosage and Administration).

NSAIDs may lead to the onset of new hypertension or worsening of pre-existing hypertension and patients taking anti-hypertensives with NSAIDs may have an impaired anti-hypertensive response.

Caution is advised when prescribing NSAIDs to patients with hypertension. Blood pressure should be monitored closely during initiation of NSAID treatment and at regular intervals thereafter.

Fluid retention and oedema have been observed in some patients taking NSAIDs; therefore, caution is advised in patients with fluid retention or heart failure.

There is no consistent evidence to suggest that concurrent use of aspirin mitigates the possible increased risk of serious cardiovascular thrombotic events associated with NSAID use.

**Gastrointestinal effects**

GI bleeding, ulceration and perforation, which can be fatal, has been reported with all NSAIDs, including tenoxicam therapy. These effects can occur at any time during treatment, with or without warning symptoms, or a previous history of serious GI events. Studies have not identified any subset of patients not at risk of developing peptic ulcer and bleeding.

Upper gastrointestinal ulcers, gross bleeding or perforation caused by NSAIDs occur in approximately 1% of patients treated for 3 - 6 months and in about 2 - 4% of patients treated for one year. These trends continue with longer duration of use, increasing the likelihood of
developing a serious gastrointestinal event at some time during the course of therapy. However, even short term therapy is not without risk.

Caution is advised in patients with risk factors for gastrointestinal events who may be at greater risk of developing serious gastrointestinal events e.g. the elderly, those with a history of serious gastrointestinal events, smoking and alcoholism.

The elderly have an increased frequency of adverse reactions to NSAIDs, especially gastrointestinal bleeding and perforation, which may be fatal. Debilitated patients do not seem to tolerate ulceration or bleeding as well as others. Most of the fatal gastrointestinal events associated with NSAIDs occurred in the elderly and/or debilitated patients.

The risk of GI bleeding, ulceration or perforation is higher with increasing NSAID doses, in patients with a history of ulcer, particularly if complicated with haemorrhage or perforation (see Contraindications) and in the elderly.

Patients with risk factors should commence treatment on the lowest dose possible. Combination therapy with protective agents (e.g. proton pump inhibitors or misoprostol) should be considered for these patients, and also for patients requiring concomitant low dose aspirin or other medicines likely to increase gastrointestinal toxicity (see Interactions).

NSAIDs should be given with care to patients with a history of inflammatory bowel disease (ulcerative colitis; Crohn's disease) as their condition may be exacerbated. Patients with a history of gastrointestinal toxicity, particularly when elderly, should report any unusual abdominal symptoms (especially gastrointestinal bleeding) particularly in the initial stages of treatment. If peptic ulceration or gastrointestinal bleeding occurs, Reutenox should be withdrawn immediately. Physicians should warn patients about the signs and symptoms of serious gastrointestinal toxicity.

Caution is advised in patients receiving concomitant medications which could increase the risk of ulceration or bleeding, such as oral corticosteroids, anticoagulants (e.g. warfarin), selective serotonin-reuptake inhibitors or anti-platelet agents (e.g. aspirin). The concurrent use of aspirin and NSAIDs also increases the risk of serious gastrointestinal adverse events (see Interactions).

Skin reactions

Life-threatening cutaneous reactions such as exfoliative dermatitis, toxic epidermal necrolysis (TEN) and Stevens-Johnson syndrome (SJS), which can be fatal and occur without warning, have been reported with tenoxicam. These serious adverse effects are idiosyncratic and are independent of dose or duration of use.

Patients should be advised of the signs and symptoms of serious skin reactions and monitored closely for skin reactions. The highest risk of occurrence of SJS or TEN is within the first weeks of treatment.

If symptoms or signs of SJS or TEN (e.g. progressive skin rash often with blisters of mucosal lesions) are present, Reutenox should be discontinued. The best results for managing SJS and TEN come from early diagnosis and immediate discontinuation of any suspected medicine. Early withdrawal is associated with a better prognosis.

If the patient has developed SJS or TEN with the use of tenoxicam, tenoxicam must not be re-started in this patient at any time.
**Haematological effects**
Tenoxicam inhibits platelet aggregation and may affect haemostasis. Reutenox has no significant influence on blood coagulation factors, coagulation time, prothrombin time or activated thromboplastin time.

Patients having coagulation disorders or receiving therapy that interferes with haemostasis should, however, be carefully observed when Reutenox is administered.

**Ocular effects**
Adverse eye findings have been reported with NSAIDs including tenoxicam. Thus ophthalmic evaluation is recommended for patients who develop visual disturbances.

**Antipyretic effects**
As known for other anti-inflammatory medicines, Reutenox may mask the usual signs of infection.

**Galactose intolerance**
As Reutenox contains lactose, patients with rare hereditary problems of galactose intolerance, the lapp lactase deficiency or glucose-galactose malabsorption should not take this medicine.

**Use in pregnancy**
Inhibition of prostaglandin synthesis may adversely affect the pregnancy and/or the embryo/foetal development. Data from epidemiological studies suggest an increased risk of miscarriage and of cardiac malformation and gastoschisis after use of a prostaglandin synthesis inhibitor in early pregnancy. The absolute risk for cardiovascular malformation was increased from less than 1%, up to approximately 1.5%. The risk is believed to increase with dose and duration of therapy. In animals, administration of a prostaglandin synthesis inhibitor has been shown to result in increased pre- and post-implantation loss and embryo-foetal lethality. In addition, increased incidences of various malformations, including cardiovascular, have been reported in animals given a prostaglandin synthesis inhibitor during the organogenetic period. During the first and second trimester of pregnancy, Reutenox should not be given unless clearly necessary. If Reutenox is used by a woman attempting to conceive, or during the first and second trimester of pregnancy, the dose should be kept as low and duration of treatment as short as possible.

During the third trimester of pregnancy, all prostaglandin synthesis inhibitors may expose the foetus to:
- cardiopulmonary toxicity (with premature closure of the ductus arteriosus and pulmonary hypertension);
- renal dysfunction, which may progress to renal failure with oligo-hydroamniosis;

and the mother and the neonate, at the end of pregnancy, to:
- possible prolongation of bleeding time, an anti-aggregating effect which may occur even at very low doses;
- inhibition of uterine contractions resulting in delayed or prolonged labour.

Consequently, Reutenox is contraindicated during the third trimester of pregnancy.
Use in lactation

Based on findings from single dose administration, a very small amount (mean value less than 0.3% of the dose) of tenoxicam passes into breast milk (see Further Information).

There is no evidence of adverse reactions in breast-fed infants of mothers taking Reutenox. Nevertheless, infants should be weaned or the medicine discontinued.

Effects on ability to drive and use machines

Patients experiencing adverse events that might affect driving or using machines, such as vertigo, dizziness or visual disturbances should refrain from driving a car or using machines.

Other

Laboratory tests

NSAIDs inhibit renal prostaglandin synthesis and consequently may have an undesirable effect on renal haemodynamics and on salt and water balance. It is necessary to adequately monitor the patient with a special emphasis on cardiac and renal function (BUN, creatinine, development of oedema, weight gain, etc.) when giving tenoxicam to patients with conditions that could increase their risk of developing renal failure, such as pre-existing renal disease, impaired renal function in diabetics, hepatic cirrhosis, congestive heart failure, volume depletion or concomitant treatment with potentially nephrotoxic medicines, diuretics and corticosteroids. This group of patients is at special risk in peri- and post-operative phases of major surgery due to the possibility of serious blood loss. They therefore require close monitoring in the post-operative and recovery periods.

Because of the high plasma protein binding of tenoxicam, caution is required when plasma albumin levels are markedly reduced.

Preclinical safety

Tenoxicam showed no mutagenic, carcinogenic or teratogenic effects in animals.

Adverse Effects

Based on clinical trials including large numbers of patients, tenoxicam proved to be well tolerated in the recommended dose. Usually the undesirable effects reported were mild and transient. In a small proportion of patients the interruption of treatment due to undesirable effects was necessary. The safety profile from post-marketing experience is consistent with the experience from clinical trials.

Adverse effects are listed below in CIOMS frequency categories:

Very common: ≥ 10%
Common:       ≥ 1% and < 10%
Uncommon:     ≥ 0.1% and < 1%
Rare:         ≥ 0.01% and < 0.1%
Very rare:    < 0.01%
Not known:    frequency cannot be estimated from available data
Blood and lymphatic system disorders
Not known: anaemia, agranulocytosis, leukopenia, thrombocytopenia

Cardiac disorders
Rare: palpitations
Not known: cardiac failure

Ear and labyrinth disorders
Rare: vertigo

Eye disorders
Not known: visual disturbances (such as visual impairment and vision blurred)

Gastrointestinal disorders
Very common: gastric, epigastric and abdominal discomfort, dyspepsia, nausea, vomiting, flatulence
Common: gastrointestinal haemorrhage, gastrointestinal perforation, gastrointestinal ulcers, peptic ulcer (sometimes fatal, particularly in the elderly), haematemesis, melena, constipation, diarrhoea, mouth ulceration, gastritis, dry mouth, exacerbation of colitis and Crohn’s disease (see Warnings and Precautions)
Very rare: pancreatitis

General disorders and administration site conditions
Uncommon: fatigue, oedema

Hepatobiliary disorders
Uncommon: increased hepatic enzymes
Not known: hepatitis

Immune system disorders
Not known: hypersensitivity reactions such as dyspnoea, asthma, anaphylactic reactions, angioedema

Metabolism and nutrition disorders
Common: anorexia

Nervous system disorders
Common: dizziness, headache
Not known: paraesthesia, somnolence

Psychiatric disorders
Rare: sleep disturbances
Not known: confusional state, hallucinations

Renal and urinary disorders
Uncommon: increased blood urea or creatinine
Reproductive system and breast disorders

*Not known:* Isolated cases of female infertility have been reported with agents known to inhibit cyclo-oxygenase/prostaglandin synthesis including tenoxicam

Skin and subcutaneous tissue disorders

*Uncommon:* pruritis, erythema, exanthema, rash, urticaria  
*Very rare:* severe cutaneous adverse reactions (SCARs) like Stevens-Johnson Syndrome, toxic epidermal necrolysis  
*Not known:* photosensitivity reaction

Vascular disorders

*Not known:* hypertension, vasculitis

Clinical trial and epidemiological data suggest that use of selective cyclo-oxygenase-2 (COX-2) inhibitors and some NSAIDs (particularly at high doses and in long term treatment) may be associated with a small increased risk of arterial thrombotic events (for example myocardial infarction or stroke).

Although tenoxicam has not shown to increase thrombotic events such as myocardial infarction, there are insufficient data to exclude such a risk with tenoxicam.

Interactions

**Pharmacokinetic interactions**

**Acetylsalicylate and salicylates**

Salicylates increase the clearance and volume of distribution of NSAIDs including tenoxicam by displacing them from protein binding sites and therefore decrease the mean minimum steady-state plasma concentrations of tenoxicam. Concurrent treatment with salicylate or other NSAIDs is not recommended because of increased risk of undesirable reactions.

**Anti-platelet agents and selective serotonin reuptake inhibitors**

There is an increased risk of gastrointestinal bleeding when anti-platelet agents and selective serotonin reuptake inhibitors (SSRIs) are combined with NSAIDs (see *Warnings and Precautions*).

**Methotrexate**

The co-administration of some NSAIDs and methotrexate has been associated with reduced renal tubular secretion of methotrexate, higher plasma concentrations of methotrexate, and severe methotrexate toxicity. Therefore, caution should be exercised when Reutenox is administered concurrently with methotrexate.

**Lithium**

As tenoxicam may decrease the renal clearance of lithium, their concomitant administration may lead to increased plasma levels and toxicity of lithium. The plasma levels of lithium should be closely monitored.
Diuretics and antihypertensives
As with NSAIDs in general, Reutenox should not be administered concurrently with potassium sparing diuretics. There is a known interaction between these two classes of compounds, which may cause hyperkalaemia and renal failure.

No clinically significant interaction between tenoxicam and furosemide was noted, but tenoxicam attenuates the blood pressure lowering effect of hydrochlorothiazide. As known from other NSAIDs, Reutenox might attenuate the antihypertensive effects of alpha-adrenergic blockers and ACE-inhibitors.

No interactions have been reported between Reutenox and centrally acting alpha agonists or calcium channel blockers.

There was no clinically relevant interaction when tenoxicam was administered together with atenolol. During clinical trials no interaction was reported for patients treated concomitantly with digitalis products. Thus concurrent dosing of tenoxicam and digoxin appears to be without major risk.

Antacids and H2-receptor antagonists
No clinically relevant interaction has been found with concomitantly administered antacids and cimetidine at the recommended dosages.

Probenecid
Co-administration of probenecid and tenoxicam treatment may increase plasma concentration of tenoxicam. The clinical significance of this observation has not been established.

Anticoagulants
No clinically relevant interaction has been found with concomitantly administered warfarin and phenprocoumon, and low molecular weight heparin at the recommended dosages. Nevertheless, as for other NSAIDs, careful monitoring is recommended when patients concomitantly receive anticoagulants.

Oral antidiabetics
The clinical effect of the oral antidiabetic medicines glibornuride, glibenclamide and tolbutamide was likewise not modified by tenoxicam. Nevertheless, as for other NSAIDs, careful monitoring is recommended when patients concomitantly receive oral antidiabetic medicines.

Cholestyramine
Cholestyramine may increase the clearance and reduce the half-life of tenoxicam.

Dextromethorphan
The concomitant administration of tenoxicam and dextromethorphan may increase the analgesic effect compared to monotherapy.

Pharmacodynamic interactions
Alcohol
There is no significant pharmacodynamic interaction between Reutenox and alcohol.
**Food**

The extent of absorption of tenoxicam is not influenced by food, but the rate of absorption ($C_{\text{max}}$) may be slower than in the fasting state.

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**Overdose**

**Symptoms and signs**

In general, symptoms of NSAID overdosage usually include nausea and vomiting, headache, drowsiness, blurred vision and dizziness. There have been isolated reports of more serious toxicity after ingestion of substantial quantities; they include seizures, hypotension, apnoea, coma and renal failure.

**Treatment**

Patients should be managed by symptomatic and supportive care following NSAIDs overdose. Discontinuation of the medicine, gastric lavage, and the administration of activated charcoal, antacids and proton-pump inhibitors may be indicated. There are no specific antidotes. Dialysis does not significantly clear NSAIDs from the blood stream.

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**Further Information**

**Actions**

**Pharmacotherapeutic group**

Anti-inflammatory and anti-rheumatic products, non-steroids

Oxicams (ATC code M01AC02)

**Mechanism of action**

The active ingredient of Reutenox, tenoxicam, is a NSAID with anti-inflammatory, analgesic, antipyretic properties and it also inhibits platelet aggregation. Tenoxicam inhibits prostaglandin biosynthesis by inhibition of cyclo-oxygenase 1 (COX-1) and 2 (COX-2), both *in vitro* (sheep seminal vesicles) and *in vivo* (protection of arachidonic acid-induced toxicity in mice).

*In vitro* investigation on cyclo-oxygenase isoenzymes prepared from human COS-7 cells have shown that tenoxicam inhibits COX-1 and COX-2 isoenzymes approximately to the same extent i.e. COX-2/COX-1 ratio equals to 1.34.

*In vitro* tests of leukocyte peroxidase suggest that tenoxicam may act as a scavenger for active oxygen at the site of inflammation.

Tenoxicam is a potent *in vitro* inhibitor of human metalloproteinases (stromelysin and collagenase) which induce cartilage breakdown.

A further possible mechanism of action is the reduction of nitrite levels indicating an alteration of NO pathways.
These pharmacological effects explain, at least in part, the therapeutic benefit of Reutenox in the treatment of painful inflammatory and degenerative disorders of the musculoskeletal system.

**Pharmacokinetics**

**Absorption**

Oral absorption of tenoxicam is rapid and complete (absolute bioavailability 100%), whereas absorption after rectal administration is approximately 80%. Peak plasma concentrations following an oral or rectal administration are reached within two hours in fasting subjects. When taken with a meal, tenoxicam is absorbed to the same extent but the time to reach peak concentration is delayed.

With the recommended dosage regimen of 20 mg once daily, steady-state conditions are reached within ten to fifteen days without unexpected accumulation. The average concentration at steady state is 11 mg/L when tenoxicam is given at oral doses of 20 mg once daily and this does not change even on treatment for up to four years.

As predicted from single dose kinetic, plasma concentrations at steady state are 6-fold higher than those reached after a single dose.

The pharmacokinetics of tenoxicam are linear in the investigated dose range of 10 to 100 mg.

**Distribution**

During the first two hours following intravenous administration of tenoxicam, plasma levels of the medicine decline rapidly.

After this short period, no difference in plasma concentrations between intravenous and oral dosing are seen. The mean volume of distribution at steady state is 10 to 12 L.

In the blood over 99% of the medicine is bound to albumin. Tenoxicam penetrates well into the synovial fluid. Peak concentrations are reached later than in plasma.

Based on findings from single dose administration a very small amount (mean value less than 0.3% of the dose) of tenoxicam passes into breast milk (see Warnings and Precautions).

**Metabolism and Elimination**

Tenoxicam is excreted after virtually complete biotransformation to pharmacologically inactive metabolites.

Up to two thirds of an oral dose is excreted in the urine (mainly as the inactive 5'-hydroxy-tenoxicam) and the rest via the bile (a significant portion in the form of glucuronidated compounds). Less than 1% of the administered dose is recovered in the urine in form of the parent compound. The mean elimination half-life of tenoxicam is 72 hours (range 59 to 74 hours). The total plasma clearance is 2 mL/min.

**Pharmacokinetics in special populations**

Studies in the elderly, and in patients with renal insufficiency or liver cirrhosis suggest that no dose adjustment is necessary to achieve plasma concentrations similar to those seen in healthy subjects.
Patients with rheumatic diseases and the elderly show the same kinetics profile as healthy volunteers.

Because of the high plasma protein binding of tenoxicam, caution is required when plasma albumin levels are markedly reduced (see **Warnings and Precautions**).

**Other**

**Chemistry**

Chemical structure:

![Chemical Structure](image)

**Excipients**

Lactose, maize starch, purified talc, magnesium stearate, hydroxypropyl methylcellulose, polyethylene glycol 6000, titanium dioxide and iron oxide yellow.

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**Pharmaceutical Precautions**

**Instructions for handling**

Nil

**Incompatibilities**

Nil

**Shelf-life**

5 years

**Special precautions for storage**

Store below 30°C.
Package Quantities

Blister packs of 20 tablets

Medicine Schedule

Prescription Medicine

Sponsor Details

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Date of Preparation

30 May 2016