Diclofenac Sodium Ophthalmic Solution, 0.1%

DESCRIPTION

Diclofenac Sodium Ophthalmic Solution 0.1% is a sterile, topical, non-steroidal, anti-inflammatory product for ophthalmic use. Diclofenac Sodium is designated chemically as 2-[(2,6-dichlorophenyl)amino]benzeneacetic acid, monosodium salt, with an empirical formula of C14H10Cl2NO2Na. The structural formula of diclofenac sodium is:

\[
\text{NaOCCH}_2\text{O} \quad \text{Cl} \quad \text{Cl}
\]

Diclofenac Sodium Ophthalmic Solution is available as a sterile solution, which contains diclofenac sodium 0.1% (1 mg/mL).

Active Ingredients: Basic acid, emodate disodium (1 mg/mL), polyvinyl 35% castor oil, purified water, sorbic acid (2 mg/mL), and benzethonium.

Diclofenac Sodium is a lightly yellow-white to light-beige, slightly hygroscopic crystalline powder. It is freely soluble in methanol, sparingly soluble in water, and very slightly soluble in backlight (pH 7.2).

Diclofenac Sodium Ophthalmic Solution 0.1% is an iso-osmotic solution with an osmolality of about 300 mOsmol/1000 g, buffered at approximately pH 7.2. Diclofenac Sodium Ophthalmic Solution has a faint characteristic odor of castor oil.

CLINICAL PHARMACOLOGY

Pharmacokinetics:

Diclofenac Sodium is one of a series of phenolic acids that have demonstrated anti-inflammatory and analgesic properties in pharmacological or pharmaceutical use. It is thought to inhibit the enzyme cycloxygenase, which is essential in the biosynthesis of prostaglandins.

Animal Studies

Prostaglandins have been shown in many animal models to be mediators of certain kinds of intraocular inflammation. In studies performed in animal eyes, prostaglandins have been shown to produce disruption of the blood-aqueous humor barrier, vasodilation, increased intraocular permeability, hypotonia, and increased intraocular pressure.

Pharmacodynamics:

Results from a bioavailability study established that plasma levels of diclofenac following ocular instillation of two drops of Diclofenac Sodium Ophthalmic to each eye were below the limit of quantification (0.5 mg/L) over a 4-hour period. This study suggests that limited, if any, systemic absorption occurs with Diclofenac Sodium Ophthalmic.

Clinical Trials

Postoperative Anti-Inflammatory Effects:

In two double-masked, controlled efficacy studies of postoperative inflammation, a total of 206 cataract patients were treated with Diclofenac Sodium Ophthalmic and 193 patients were treated with vehicle placebo. Diclofenac Sodium Ophthalmic was used over a 12-week period following the clinical assessment of the postoperative inflammation of the patients.

In the first study, untreated controls of normal, cataractous eyes (186 patients) and those patients who had undergone cataract surgery for the clinical assessment of postoperative inflammation, a total of 206 cataract patients were treated with Diclofenac Sodium Ophthalmic and 193 patients were treated with vehicle placebo. Diclofenac Sodium Ophthalmic and vehicle placebo were used over a 12-week period following the clinical assessment of postoperative inflammation of patients.

INDICATIONS AND USAGE

Diclofenac Sodium Ophthalmic is indicated for the treatment of postoperative inflammation in patients who have undergone cataract extraction and for the temporary relief of pain and photophobia in patients undergoing corneal refractive surgery.

CONTRAINDICATIONS

Diclofenac Sodium Ophthalmic is contraindicated in patients who are hypersensitive to any component of the medication.

WARNINGS

The refractive stability of patients undergoing corneal refractive procedures and treated with Diclofenac Sodium Ophthalmic has not been established. Patients should be monitored for at least one year following use in this setting.

With some nonsteroidal anti-inflammatory drugs, there exists the potential for increased bleeding time due to interference with thrombocyte aggregation. There have been reports that orally applied nonsteroidal anti-inflammatory drugs may cause increased bleeding of ocular tissues (including hyphema) in conjunction with surgery.

There is the potential for cross-reactivity to acetylsalicylic acid, phenylbutazone derivatives, and other nonsteroidal anti-inflammatory agents. Therefore, caution should be used when treating individuals who have previously exhibited sensitivities to these drugs.

PRESERVATIVES

General:

All topical nonsteroidal anti-inflammatory drugs (NSAIDs) may slow or delay healing. Topical corticosteroids are also known to slow or delay healing. Concurrent use of topical NSAIDs and topical corticosteroids may increase the potential for healing problems.

Use of topical NSAIDs, however, may result in healing. In some susceptible patients continued use of topical NSAIDs may result in epithelial breakdown, corneal erosion, corneal epithelial defects, keratitis, superficial corneal infiltrates, corneal thinning, corneal scarring, or corneal perforation. These events may be sight-threatening. Patients with evidence of corneal epithelial breakdown should immediately discontinue use of topical NSAIDs and be closely monitored for corneal healing.

Postmarketing experience with topical NSAIDs suggests that patients experiencing complicated ocular surgeries, corneal degenerations, corneal epithelial defects, keratitis, superficial corneal infiltrates, corneal thinning, corneal scarring, or corneal perforation, or reocular surgeries within a short period of time may be at increased risk for corneal adverse events, which may become sight-threatening. Topical NSAIDs should be used with caution in these patients.

Postmarketing experience with topical NSAIDs also suggests that use more than 14 days post surgery may increase patient risk for occurrence and severity of corneal adverse events.

It is recommended that Diclofenac Sodium Ophthalmic, like other NSAIDs, be used with caution in patients with known aspirin or salicylate intolerance.

Results from clinical studies indicate that Diclofenac Sodium has no significant effect upon ocular pressure. However, elevations in intraocular pressure may occur following cataract surgery.
Information for Patients

Except for the use of a bandage hydrogel soft contact lens during the first 3 days following refractive surgery, Diclofenac Sodium Ophthalmic should not be used by patients currently wearing soft contact lenses due to adverse events that have occurred in similar circumstances.

Concomitant Use of Other Ophthalmic Products

DOSAGE AND ADMINISTRATION

Cataract Surgery: One drop of Diclofenac Sodium Ophthalmic should be applied to the affected eye, 4 times daily beginning 24 hours after cataract surgery and continuing throughout the first 2 weeks of the post-operative period.

Corneal Refractive Surgery: One or two drops of Diclofenac Sodium Ophthalmic should be applied to the operative eye within the hour prior to corneal refractive surgery. Within 15 minutes after surgery, one or two drops should be applied to the operative eye and continued 4 times daily up to 3 days.

HOW SUPPLIED

Diclofenac Sodium Ophthalmic Solution, 0.1% (0.1 mg/mL) sterile solution is supplied in a low-density polyethylene (LDPE) white bottle with a DEP dropper tip. The 2.5 mL, 15-mL, and 30-mL bottles are supplied in a 75-mL outer carton.

Store at 20° to 25°C (68° to 77°F). Protect from light.

Diclofenac Sodium Ophthalmic Solution, 0.1% is supplied in a low-density polyethylene (LDPE) white bottle with a DEP dropper tip. The 2.5 mL and 15 mL bottles are supplied in a 75 mL outer carton.

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