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ZYMAR®
(Gatifloxacin)
Ophthalmic Solution 0.3%
Antibacterial Agent

ACTIONS AND CLINICAL PHARMACOLOGY

Mechanism of Action: ZYMAR® (gatifloxacin) ophthalmic solution 0.3% is a sterile solution for topical ophthalmic use. Gatifloxacin is an 8-methoxy synthetic fluoroquinolone antibacterial agent with *in vitro* activity against gram-negative and gram-positive, aerobic and anaerobic and clinically important atypical microorganisms.

The antibacterial action of gatifloxacin results from inhibition of DNA gyrase and topoisomerase IV. DNA gyrase is an essential enzyme that is involved in the replication, transcription and repair of bacterial DNA. Topoisomerase IV is an enzyme known to play a key role in the partitioning of the chromosomal DNA during bacterial cell division.

Clinical Pharmacology: Pharmacokinetics: Ocular Administration:

Gatifloxacin ophthalmic solutions 0.3% and 0.5% were administered to 1 eye of 6 healthy male subjects each. At all time points, serum gatifloxacin levels were below the lower limit of quantification (5 ng/mL) in all subjects. Pharmacokinetic parameters for ophthalmic dosing could not therefore be calculated. There is no human pharmacokinetic data available with respect to tear concentration following ocular administration.

Systemic Administration: Gatifloxacin is well absorbed from the gastrointestinal tract after oral administration and can be given without regard to food. The absolute bioavailability of gatifloxacin is 96%. Peak plasma concentrations of gatifloxacin usually occur 1-2 hours after oral dosing.

INDICATIONS AND CLINICAL USE

ZYMAR® (gatifloxacin) ophthalmic solution 0.3% is indicated for the treatment of patients 1 year of age and older with bacterial conjunctivitis caused by susceptible strains of the following bacteria: Aerobic Gram-positive bacteria: *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Streptococcus pneumoniae*; Aerobic Gram-negative bacteria: *Haemophilus influenzae*.

CONTRAINDICATIONS

ZYMAR® (gatifloxacin) ophthalmic solution 0.3% is contraindicated in individuals who have shown hypersensitivity to gatifloxacin, to other quinolones, or to any of the components in this medication. (See **PHARMACEUTICAL INFORMATION**).

WARNINGS

NOT FOR INJECTION INTO THE EYE. FOR TOPICAL OPHTHALMIC USE ONLY.

ZYMAR® (gatifloxacin) ophthalmic solution 0.3% should not be injected subconjunctivally, nor should it be introduced directly into the anterior chamber of the eye.

In patients receiving systemic quinolones, serious and occasionally fatal hypersensitivity (anaphylactic) reactions, some following the first dose, have been reported. Some reactions were accompanied by cardiovascular collapse, loss of consciousness, angioedema (including laryngeal, pharyngeal or facial edema), airway obstruction, dyspnea, urticaria, and itching. If an allergic reaction to gatifloxacin occurs, discontinue the drug. Serious acute hypersensitivity reactions may require immediate emergency treatment. Oxygen and airway management should be administered as clinically indicated.

As with all antibiotics, serious and sometimes fatal events, some due to hypersensitivity and some due to uncertain etiology, have been reported in patients receiving systemic quinolone therapy. These events may be severe and generally occur following administration of multiple doses. Clinical manifestations may include one or more of the following: fever, rash or severe dermatologic reactions (e.g., toxic epidermal necrolysis, Stevens-Johnson syndrome); vasculitis, arthralgia, myalgia, serum sickness; allergic pneumonitis, interstitial nephritis; acute renal insufficiency or failure; hepatitis, jaundice, acute hepatic necrosis or failure; anemia, including hemolytic and aplastic; thrombocytopenia, including thrombotic thrombocytopenic purpura; leukopenia; agranulocytosis; pancytopenia; and/or other hematologic abnormalities.

PRECAUTIONS

General: As with other anti-infectives, prolonged use of ZYMAR® (gatifloxacin) ophthalmic solution 0.3% may result in overgrowth of nonsusceptible organisms, including fungi. If superinfection occurs discontinue use and institute alternative therapy. Whenever clinical judgment dictates, the patient should be examined with the aid of magnification, such as slit lamp biomicroscopy and, where appropriate, fluorescein staining.

Hypersensitivity: As with all topical ophthalmic drugs, there is a potential for a systemic reaction. Urticaria has been reported in patients receiving ZYMAR® (see **ADVERSE REACTIONS**).

Systemic quinolones have been associated with hypersensitivity reactions, even following a single dose.

Contact Lenses: Patients should not wear contact lenses while they have signs and symptoms of bacterial conjunctivitis.

Arthropathy: As with other members of the quinolone class, gatifloxacin has caused arthropathy and/or chondrodysplasia in juvenile rats and dogs when given systemically.

Arthrotic and osteotoxic potential of ZYMAR® was not assessed in animals.

Drug Interactions: Specific drug interaction studies have not been conducted with ZYMAR® ophthalmic solution. Limited information is available on the concurrent use of ZYMAR® with other ophthalmic products.

Probenecid: Systemic administration of gatifloxacin (single oral 200 mg dose) with probenecid (500 mg BID x 1 day) resulted in a 42% increase in AUC and 44% longer half-life of gatifloxacin.

Digoxin: Overall, only modest increases in C_{max} and AUC of digoxin were noted (12% and 19%, respectively) in 8 of 11 healthy volunteers who received concomitant administration of gatifloxacin (400 mg oral tablet, once daily for 7 days) and digoxin (0.25 mg orally, once daily for 7 days). In 3 of 11 subjects, however, a significant increase in digoxin concentrations was observed. In these 3 subjects, digoxin C_{max} increased by 18%, 29%, and 58% while digoxin AUC increased by 66%, 104%, and 79%, and digoxin clearance decreased by 40%, 51%, and 45%.

Systemic studies have also shown that gatifloxacin is chelated by polyvalent ions, such as iron, magnesium, zinc and aluminum.

No significant pharmacokinetic interactions occur when cimetidine, midazolam, theophylline, warfarin, or glyburide is administered concomitantly with oral gatifloxacin.

Use in Pregnancy: There are no adequate and well-controlled studies of ZYMAR® in pregnant women. This drug should not be used in pregnant women unless, in the physician's opinion, the potential benefit to the mother justifies the potential risk to the fetus.

ZYMAR® solution has not been studied in pregnant animals. Oral and intravenous studies in pregnant animals indicate that gatifloxacin crosses the placenta and that reproductive and fetal effects occur at doses of ≥150 mg/kg/day, which cause maternal toxicity.

Use in Nursing Mothers: It is not known whether gatifloxacin is excreted in human milk, although gatifloxacin has been shown to be excreted in the breast milk of rats. Because gatifloxacin may be excreted in human milk, a decision should be made either to discontinue nursing or to discontinue the administration of ZYMAR®, taking into account the importance of ZYMAR® therapy to the mother and the possible risk to the infant.

Use in Children: The safety and efficacy of ZYMAR® in infants below the age of one year have not been established. ZYMAR® ophthalmic solution has been used to treat conjunctivitis in 14 infants between 1-2 years of age and 47 children between 3-12 years of age.

Use in the Elderly: No overall differences in safety or effectiveness have been observed between elderly and younger patients.

Information To Be Provided To The Patient: Physicians should instruct their patients to:

- avoid contaminating the applicator tip with material from the eye (or surrounding structures), fingers or other sources.
- refrain from wearing contact lenses if they have signs and symptoms of bacterial conjunctivitis.
- discontinue use of drug immediately and to contact their physician at the first sign of a rash or allergic reaction.

ADVERSE REACTIONS

In clinical studies 364 patients were treated with ZYMAR® (gatifloxacin) ophthalmic solution 0.3% for up to 5 days. Treatment-related adverse events were reported for 14.6% (53/364) of patients. The most frequently reported treatment-related adverse events occurring in 0.5% to 5% of patients treated with gatifloxacin are listed below:

Table 1: Percent of Patients in Phase 3 Trials with Treatment-Related Adverse Events Reported by 0.5% to 5% of Patients in the Active Treatment Arm

<i>Body System Preferred Term</i>	<i>Gatifloxacin N = 364</i>
Ocular	
superficial punctate keratitis	4.4%
eye irritation	1.9%
dry eye	1.6%
eyelid oedema	1.4%
lacrimation increased	1.4%
visual acuity reduced	1.1%
eye pain	0.8%
conjunctivitis papillary	0.8%
eye discharge	0.5%
Other (Non Ocular)	
erythema	0.8%
dermatitis, contact	0.5%
taste disturbance	1.4%
rhinorrhoea	0.5%
edema	0.5%

Other treatment-related adverse events occurring in less than 0.5% of patients included, conjunctival disorder, conjunctivitis, chemosis, conjunctival cyst, conjunctival hemorrhage, corneal deposits, eye disorder, photophobia, sub-epithelial opacities, blurred vision, dermatitis, generalized urticaria, nausea, sore throat, sneezing, dizziness, and iritis.

ZYMAR® was discontinued due to an adverse event, either related or unrelated to the drug, in 1.6% (6/364) of patients.

Post-Marketing Experience: Adverse events reported include macular edema, eye redness, eyelid edema, keratoconjunctivitis, blepharitis allergic, endophthalmitis, corneal disorder, eye irritation, uveitis, corneal ulcer, allergic reactions including pruritis and angioneurotic edema and neurological events including headache, tinnitus, tremor and oral paraesthesia. Rare cases of corneal melts and perforation have been reported in patients with multiple confounding factors including preexisting large corneal ulcer, corneal thinning, undiagnosed dacryocystitis, and use of multiple topical medications. Thus, it is difficult to determine the relationship of the events to ZYMAR®.

In one case, an elderly female with chronic conjunctivitis due to methicillin-resistant *Staphylococcus aureus* and a history of dacryocystitis, reported corneal perforation. This patient was using multiple concomitant antibiotics and had demonstrated evidence of a corneal defect associated with the infection prior to using ZYMAR® and continued using ZYMAR® during a successful post operative repair healing period.

SYMPTOMS AND TREATMENT OF OVERDOSAGE

A topical overdosage of ZYMAR® (gatifloxacin) ophthalmic solution 0.3% is considered to be a remote possibility. Discontinue medication when heavy or protracted use is suspected. A topical overdosage may be flushed from the eye(s) with warm tap water.

If a 10 kg child swallowed the contents of a 5 mL bottle of ZYMAR® (15 mg of drug) it would be exposed to 1.5 mg/kg of gatifloxacin. This is equivalent to 25% of the recommended adult systemic therapeutic dose of gatifloxacin of 400 mg/day for a 70 kg adult (6.0 mg/kg).

DOSEAGE AND ADMINISTRATION

The recommended dosage regimen for ZYMAR® (gatifloxacin) ophthalmic solution 0.3% in the treatment of patients 1 year of age and older with bacterial conjunctivitis is:

Days 1 and 2: Instill one drop every two hours in the affected eye(s) while awake, up to 8 times daily.

Days 3 to 7: Instill one drop four times daily while awake.

Doses should be evenly spaced throughout the day.

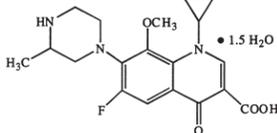
PHARMACEUTICAL INFORMATION

Drug Substance

Common name: gatifloxacin

Chemical name: (±)-1-cyclopropyl-6-fluoro-1,4-dihydro-8-methoxy-7-(3-(methyl-1-piperazinyl)-4-oxo-3-quinolinecarboxylic acid sesquihydrate

Structural formula:



Molecular formula: C₁₉H₂₂FN₃O₄ • 1.5 H₂O

Molecular weight: 402.42

Description: Gatifloxacin is a sesquihydrate crystalline powder and is white to pale yellow in colour. It exists as a racemate, with no net optical rotation. The solubility of the gatifloxacin in water is pH dependent. It is slightly soluble in ethanol and water and freely soluble in acetic acid. Gatifloxacin melts at approximately 183°C.

Composition: Each mL of ZYMAR® (gatifloxacin) ophthalmic solution 0.3% contains:

Active Ingredients: gatifloxacin 0.3% (3 mg/mL).

Inactive Ingredients: edetate disodium; purified water and sodium chloride. May contain hydrochloric acid and/or sodium hydroxide to adjust pH.

Preservatives: benzalkonium chloride 0.005%.

ZYMAR® is a sterile, clear, pale yellow coloured isotonic unbuffered solution formulated at a target pH of 6.

Stability and Storage Conditions: ZYMAR® ophthalmic solution 0.3% should be stored at 15°C to 25°C. Protect from freezing.

AVAILABILITY OF DOSAGE FORMS

ZYMAR® (gatifloxacin) ophthalmic solution 0.3% is supplied sterile in a white, low density polyethylene bottle with a controlled dropper tip and a tan, high density polyethylene (HIPS) cap. ZYMAR® is supplied in 1.0 mL and 5.0 mL sizes.

INFORMATION FOR THE CONSUMER

Please read this package insert carefully before using ZYMAR® (gatifloxacin) ophthalmic solution 0.3%. It provides useful information about this medication and effects you may experience. If you have any questions or need further explanation, please ask your doctor or pharmacist.

Remember: This medication is prescribed for the particular condition that you have. Never give this medication to others. Do not use it for any other condition.

What kind of medication is ZYMAR® and how does it work?

ZYMAR® is an antibiotic eye drop used to treat bacterial eye infections. ZYMAR® kills many kinds of bacteria that can cause infections of the eye and is ineffective against viruses.

What is ZYMAR® for?

ZYMAR® is used to treat the signs and symptoms of bacterial conjunctivitis.

What are the ingredients of ZYMAR®?

ZYMAR® contains the antibiotic, gatifloxacin, which is a member of the group of antibiotics known as "quinolones". ZYMAR® also contains the following non-medical ingredients: edetate disodium, purified water, sodium chloride and benzalkonium chloride, as preservative. It may also contain hydrochloric acid and or sodium hydroxide.

Who should not use ZYMAR®?

Do not use ZYMAR® if you:

- have ever had an allergic reaction to TEQUIN™ (gatifloxacin) Tablets or I.V., or any medicine in the group of antibiotics known as "quinolones" such as CIPRO® (ciprofloxacin), LEVAQUIN® (levofloxacin), AVELOX® (moxifloxacin, OCUFLOX® (ofloxacin) or NOROXIN® (norfloxacin).
- are allergic to any component of ZYMAR® (see "What are the ingredients of ZYMAR®?").
- ZYMAR® is not recommended for children under 1 year of age.

Before using ZYMAR® you should discuss with your doctor the following:

- If you have allergies to any medications.
- If you wear contact lenses.
- If you are using any other eye drops.
- If you are pregnant or intend to become pregnant
- If you are breast-feeding or intend to breast-feed

How to use ZYMAR®?:

- ZYMAR® was prescribed by your doctor to treat your specific medical problem and is for your use only. Do not share it with others.
- The usual dose of ZYMAR® is: On days 1 and 2, instill one drop every two hours in the affected eye(s) while awake, up to 8 times daily. On days 3 to 7, instill one drop four times daily while awake. Doses should be evenly spaced throughout the day.
- Your doctor may have told you to use ZYMAR® in a different way to that recommended in this leaflet. If so, follow your doctor's instructions about when and how to use the eye drops. Read the directions on your prescription label carefully. Ask your doctor or pharmacist to explain anything that you do not understand.
- Do not wear contact lenses when you are suffering bacterial conjunctivitis.
- Do not change the dosage of the drug without consulting your physician. If you stop treatment contact your physician immediately.
- Do not start taking any other ophthalmic medicines unless you have discussed the matter with your physician.
- If you develop any eye irritation or any new eye problems such as dryness of the eye, swelling or redness of the eyelid, tearing, or decreased vision, contact your physician immediately.
- If you suspect that ZYMAR® is causing an allergic reaction, i.e. itchy skin or increased inflammation, stop its use and contact your physician as soon as possible.
- You must not use the bottle if the tamper-proof seal on the bottle neck is broken before you first use it.
- Follow the following steps to help you use ZYMAR® properly:



1. Wash your hands. Tilt your head back and look at the ceiling.
2. Gently pull down the lower eyelid to create a small pocket.
3. Turn the bottle upside down and squeeze it gently to release one drop into each eye that needs treatment.
4. Let go of the lower lid, and close your eye for 30 seconds.

If a drop misses your eye, try again.

To help prevent infections, do not let the tip of the bottle touch your eye or anything else. Put the cap back on and close the bottle immediately after you have used it.

Missed Doses:

- If you forget to apply your eye drops at your normal time, simply apply them as soon as you remember. Then go back to the original schedule as directed by your doctor. **Don't try to catch up on missed drops by applying more than one dose at a time.**

Possible side effects of ZYMAR® and what to do about them:

a) Stop use of product and consult a doctor if:

– You experience inflamed or itchy skin, swelling or redness of the skin or hives (urticaria), which may indicate you are allergic to an ingredient in ZYMAR®, immediately discontinue the product and contact you doctor as soon as possible.

b) Other side effects:

- Some eye related side effects which have occurred when using ZYMAR® include eye irritation, dry eye, swelling and redness of the eyelid, tearing or eye discharge, decreased vision, or eye pain. Other, non eye related side effects include unusual or after-taste and runny nose. Rare side effects include swelling or other disorders of the area around the cornea, spots on the cornea, sensitivity to light, blurred vision, nausea, sore throat, sneezing and dizziness. If any of these events persist or cause you concern, consult your doctor.
- Tell your physician or pharmacist promptly about any unusual symptom.

Storing ZYMAR®:

- Keep the dispensing container tightly closed when not in use. Store between 15°C to 25°C, protect from freezing.
- Discard container 28 days after opening.
- Do not use ZYMAR® after the expiration date (marked "EXP") on the bottle and the box.
- Keep away from children.

Special Notes:

- If ZYMAR® is swallowed, contact your doctor or poison control centre.
- If you accidentally add too many drops to the eye, ZYMAR® may be flushed from the eye(s) with warm water.
- Vision may be temporarily blurred or unstable for a period after administration of ZYMAR® ophthalmic solution. Use caution if driving or performing duties requiring clear vision.

How Supplied: ZYMAR® is supplied sterile in a white, low density polyethylene bottle with a controlled dropper tip and a tan, high density polyethylene (HIPS) cap. ZYMAR® is available in 1.0 mL and 5.0 mL sizes.

April 2009

ALLERGAN Inc.

Markham, Ontario, Canada, L6G 0B5

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• PART #: 71724EC11A

• DRAWING #: 0218401

• V-CODE #: 2584

• ARTWORK IS ACTUAL SIZE

• DROP TEMPLATE AND NOTES BEFORE PROCESSING



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GRAPHIC COMMUNICATIONS

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