



**TOBRAMYCIN
DEXAMETHASONE**

TOBRADEX®

3 mg / 1 mg per mL Sterile Ophthalmic Suspension
3 mg / 1 mg per g Sterile Ophthalmic Ointment
Anti-infective

DESCRIPTION AND COMPOSITION

Pharmaceutical form(s)

Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension: white to off-white suspension. The reference monograph for this drug product is Ph. Eur.

Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Ointment: white to off-white homogeneous ointment. The reference monograph for this drug product is Ph. Eur.

Certain dosage strengths and dosage forms may not be available in all countries.

Active substance(s)

Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension:

Each mL of suspension contains:
Tobramycin, Ph. Eur.....3 mg
Dexamethasone, Ph. Eur.....1 mg

Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Ointment:

Each gram of ointment contains:
Tobramycin, Ph. Eur.....3 mg
Dexamethasone, Ph. Eur.....1 mg

Excipients

Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension:

Excipient with known effect: 1 mL of the eye drops suspension contains 0.1 mg of benzalkonium chloride.

Other excipients: tyloxapol, disodium edetate, sodium chloride, hydroxyethylcellulose, sodium sulphate anhydrous, sulphuric acid and/or sodium hydroxide (to adjust pH) and purified water.

Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Ointment:

Other excipients: chlorobutanol anhydrous, liquid paraffin and white soft paraffin.

Pharmaceutical formulations may vary between countries

INDICATIONS

Tobramycin/Dexamethasone (TOBRADEX®) Sterile Ophthalmic Suspension and Ointment are indicated for steroid-responsive inflammatory ocular conditions for which a corticosteroid is indicated and where superficial bacterial ocular infection or a risk of bacterial ocular infection exists.

Ocular steroids are indicated in inflammatory conditions of the palpebral and bulbar conjunctiva, cornea and anterior segment of the globe where the inherent risk of steroid use in certain infective conjunctivitis is accepted to obtain a diminution in edema and inflammation. They are also indicated in chronic anterior uveitis and corneal injury from chemical, radiation or thermal burns, or penetration of foreign bodies.

The use of a combination drug with an anti-infective component is indicated where the risk of superficial ocular infection is high or where there is an expectation that potentially dangerous numbers of bacteria will be present in the eye.

DOSAGE REGIMEN AND ADMINISTRATION

Dosage regimen

Tobramycin/Dexamethasone (TOBRADEX®) Sterile Ophthalmic Suspension

One (1) or two (2) drops instilled into the conjunctival sac(s) every four (4) to six (6) hours. During the initial 24 to 48 hours, the dosage may be increased to one (1) or two (2) drops every two (2) hours. Frequency should be decreased gradually as warranted by improvement in clinical signs. Care should be taken not to discontinue therapy prematurely.

Tobramycin/Dexamethasone (TOBRADEX®) Sterile Ophthalmic Ointment

Apply a 1-1.5 cm ribbon into the conjunctival sac(s) up to three or four times daily. After applying ointment, look downward before closing the eye.

Tobramycin/Dexamethasone (TOBRADEX®) Sterile Ophthalmic Ointment may be used at bedtime in conjunction with Tobramycin/Dexamethasone (TOBRADEX®) Sterile Ophthalmic Suspension used during the day. Not more than 20 mL or 8 g should be prescribed initially and the prescription should not be refilled without further evaluation as outlined in section 3.4.

Special populations

Renal and hepatic impairment

Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension and Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Ointment have not been studied in these patient populations. However, due to low systemic absorption of tobramycin and dexamethasone after topical administration of this product, dose adjustment is not necessary.

Pediatric patients (below 2 years)

Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension and Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Ointment may be used in children 2 years of age and older at the same dose as in adults. The safety and efficacy in children younger than 2 years of age have not been established.

Geriatric patients (65 years of age or above)

No dosage regimen adjustment is required in patients 65 years of age or above.

Method of administration

- For ocular use only.
- After cap is removed, if tamper evident snap collar is loose, it should be removed before using the product.
- The bottle must be well shaken before use.
- To avoid contamination, the dropper tip should not touch any surface. The tip of the dropper/tube should also not come into contact with the eye as this may cause injury to the eye.
- Either nasolacrimal occlusion or gently closing the eyelid(s) after administration is recommended. This may reduce the systemic absorption of medicinal products administered via ocular route and result in a decrease in systemic adverse reactions.
- If more than one topical ophthalmic medicinal product is being used, the medicines must be administered at least 5 minutes apart. Eye ointment should be administered last.

CONTRAINDICATIONS

- Hypersensitivity to the active substances or to any of the excipients.
- Herpes simplex keratitis.
- Vaccinia, varicella, and other viral infection of cornea or conjunctiva.
- Fungal diseases of ocular structures or untreated parasitic eye infections.
- Mycobacterial ocular infections.

WARNINGS AND PRECAUTIONS

- Sensitivity to topically administered aminoglycosides may occur in some patients. Severity of hypersensitivity reactions may vary from local effects to generalized reactions such as erythema, itching, urticaria, skin rash, anaphylaxis, anaphylactoid reactions, or bullous reactions. If hypersensitivity develops during use of this medicine, treatment should be discontinued.
- Cross-hypersensitivity to other aminoglycosides can occur, and the possibility that patients who become sensitized to topical tobramycin may also be sensitive to other topical and/or systemic aminoglycosides should be considered.
- Serious adverse reactions including neurotoxicity, ototoxicity and nephrotoxicity have occurred in patients receiving systemic aminoglycoside therapy. Caution is advised when Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension/Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Ointment are used concomitantly with systemic aminoglycosides.
- Caution should be exercised when prescribing Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension/Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Ointment to patients with known or suspected neuromuscular disorders such as myasthenia gravis or Parkinson's disease. Aminoglycosides may aggravate muscle weakness because of their potential effect on neuromuscular function.
- Prolonged use of topical ophthalmic corticosteroids may result in ocular hypertension and/or glaucoma, with damage to the optic nerve, reduced visual acuity and visual field

defects, and posterior subcapsular cataract formation. In patients receiving prolonged ophthalmic corticosteroid therapy, intraocular pressure should be checked routinely and frequently. This is especially important in pediatric patients, as the risk of corticosteroid-induced ocular hypertension may be greater in children and may occur earlier than in adults. The risk of corticosteroid-induced raised intraocular pressure and/or cataract formation is increased in predisposed patients (e.g. diabetes).

- Cushing’s syndrome and/or adrenal suppression associated with systemic absorption of ophthalmic dexamethasone may occur after intensive or long-term continuous therapy in predisposed patients, including children and patients treated with CYP3A4 inhibitors (including ritonavir and cobicistat) (see Section INTERACTIONS). In these cases, treatment should not be discontinued abruptly, but progressively tapered.
- Corticosteroids may reduce resistance to and aid in the establishment of bacterial, viral or fungal or parasitic infections and mask the clinical signs of infection.
- Fungal infection should be suspected in patients with persistent corneal ulceration. If fungal infection occurs, corticosteroids therapy should be discontinued.
- Prolonged use of antibiotics such as tobramycin may result in overgrowth of non-susceptible organisms, including fungi. If superinfection occurs, appropriate therapy should be initiated.
- Topical ophthalmic corticosteroids may slow corneal wound healing. Topical NSAIDs are also known to slow or delay healing. Concomitant use of topical NSAIDs and topical steroids may increase the potential for healing problems (see section INTERACTIONS).
- In those diseases causing thinning of the cornea or sclera, perforations have been known to occur with the use of topical corticosteroids.
- Contact lens wear is not recommended during treatment of an ocular inflammation or infection.

Special excipients

Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension contains benzalkonium chloride which may cause eye irritation and is known to discolor soft contact lenses. Avoid contact with soft contact lenses. In case patients are allowed to wear contact lenses, they must be instructed to remove contact lenses prior to application of Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension and wait at least 15 minutes before reinsertion.

ADVERSE DRUG REACTIONS

Adverse drug reactions from clinical trials (Table 7-1) are listed by MedDRA system organ class. Within each system organ class, the adverse drug reactions are ranked by frequency, with the most frequent reactions first. Within each frequency grouping, adverse drug reactions are presented in order of decreasing seriousness. In addition, the corresponding frequency category for each adverse drug reaction is based on the following convention (CIOMS III): very common ($\geq 1/10$); common ($\geq 1/100$ to $< 1/10$); uncommon ($\geq 1/1,000$ to $< 1/100$); rare ($\geq 1/10,000$ to $< 1/1,000$); very rare ($< 1/10,000$)

Table 1 Percentage of patients with adverse drug reactions in clinical trials

System organ classification	Adverse reactions	Frequency category
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Eye disorders	Intraocular pressure increased, eye pain, eye pruritus, ocular discomfort, eye irritation	Uncommon
	keratitis, eye allergy, vision blurred, dry eye, ocular hyperaemia	Rare
Gastrointestinal disorders	Dysgeusia	Rare

Adverse drug reactions from spontaneous reports and literature cases (frequency not known)

The following adverse drug reactions have been derived from post-marketing experience with Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension and Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Ointment via spontaneous case reports and literature cases. Because these reactions are reported voluntarily from a population of uncertain size, it is not possible to reliably estimate their frequency which is therefore categorized as not known. Adverse drug reactions are listed according to system organ classes in MedDRA. Within each system organ class, ADRs are presented in order of decreasing seriousness.

Table 2 Adverse drug reactions from spontaneous reports and literature (frequency not known)

System organ classification	Adverse reactions
Immune system disorders	Anaphylactic reaction, hypersensitivity
Nervous system disorders	Dizziness, headache
Eye disorders	Eyelid oedema, erythema of eyelid, mydriasis, lacrimation increased
Gastrointestinal disorders	Nausea, abdominal discomfort
Skin and subcutaneous tissue disorders	Erythema multiforme, swelling of the face, rash, pruritus

INTERACTIONS

- Concomitant use of topical steroids and topical NSAIDs may increase the potential for corneal healing problems.
- CYP3A4 inhibitors including ritonavir and cobicistat may increase systemic exposure resulting in increased risk of adrenal suppression/Cushing's syndrome (see Section DOSAGE REGIMEN AND ADMINISTRATION). The combination should be avoided unless the benefit outweighs the increased risk of systemic corticosteroid side-effects, in which case patients should be monitored for systemic corticosteroid effects.

PREGNANCY, LACTATION, FEMALES AND MALES OF REPRODUCTIVE POTENTIAL

Pregnancy

Risk summary

There are no adequate and well-controlled studies with Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension and Tobramycin + Dexamethasone (Tobradex®)

Sterile Ophthalmic Ointment in pregnant women to inform a product-associated risk.

Prolonged or repeated corticoid use during pregnancy has been associated with an increased risk of intra-uterine growth retardation. Infants born of mothers who have received substantial doses of corticosteroids during pregnancy should be observed carefully for signs of hypoadrenalism .

Embryo-fetal toxicity and teratogenicity were seen in animal studies with dexamethasone, both after systemic and ocular administration at therapeutically relevant dose levels (see Animal data).

Reproductive studies with tobramycin in rats and rabbits have not shown evidence of harm to the fetus following subcutaneous administration at dose levels greater than 45-fold the maximum recommended ocular human dose (MROHD) of 0.288 mg/kg/day based on body surface area (BSA) (see Animal data).

Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension and Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Ointment should be used during pregnancy only if the potential benefit outweighs the potential risk to the fetus.

Data

Human data

Based on data from a paired case-control study, it was concluded that the risk of deafness in children born to mothers who had received gentamicin, neomycin and other aminoglycoside antibiotics during pregnancy cannot be excluded, but the magnitude is estimated to be small. Ototoxicity, which is known to occur after tobramycin therapy, has not been reported as an effect of *in utero* exposure. However, eighth cranial nerve toxicity in the fetus is well known following exposure to other aminoglycosides and may potentially occur with tobramycin.

Animal data

Dexamethasone

In embryo-fetal development studies, dexamethasone was teratogenic in mice and rabbits following topical ocular application. In mice, rats and rabbits, a number of fetal malformations, fetal growth retardation, and increased mortality rates were seen at maternally toxic doses following systemic administration (oral, subcutaneous, and intramuscular) during the period of organogenesis. The overall no-observed-effect level (NOEL) for developmental toxicity was derived from an oral rat study and was based on embryotoxicity (0.01 mg/kg/day). This corresponds to less than 1 time the MROHD based on BSA.

Tobramycin

In embryo-fetal development studies in rats and rabbits, pregnant animals received subcutaneous tobramycin during the period of organogenesis at doses up to 100 and 40 mg/kg/day, respectively. There was no embryo-fetal toxicity in either species up to the maximum dose tested corresponding to 56 and 45 times the MROHD based on BSA, respectively.

In a peri- and postnatal development study in rats, subcutaneous administration of up to 100 mg/kg/day tobramycin during early gestation through the lactation period did not adversely affect the fertility index, gestation survival index, litter size, sex distribution, postpartum progeny survival index or weight of offspring. The ratio of the highest dose tested to the

MROHD is 56 based on BSA.

Lactation

Risk summary

It is not known if tobramycin and dexamethasone are transferred into human milk following topical ocular administration.

Limited published data in lactating women indicate that tobramycin is transferred into human milk following intramuscular administration.

It is not likely that the amount of tobramycin and dexamethasone would be detectable in human milk or be capable of producing clinical effects in the infant following topical ocular use of the product.

However, a risk to the breast-fed child cannot be excluded. A decision must be made whether to discontinue breast-feeding or to discontinue/abstain from therapy taking into account the benefit of breast-feeding for the child and the benefit of therapy for the woman.

Females and males of reproductive potential

Infertility

There are no data regarding the effects of Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension and Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Ointment on human or animal fertility. There is limited clinical data to evaluate the effect of dexamethasone on male or female fertility. No standard animal fertility studies are available with dexamethasone. Tobramycin did not impair fertility in rats (see Section NON-CLINICAL SAFETY DATA).

OVERDOSAGE

Due to the characteristics of this preparation, no toxic effects are to be expected with an ocular overdose of this product, or in the event of accidental ingestion of the contents of one bottle or tube.

CLINICAL PHARMACOLOGY

Mechanism of action (MOA)

Aspects of the inflammatory process such as edema, fibrin deposition, capillary dilation, leukocyte migration, capillary proliferation, deposition of collagen, scar formation, and fibroblastic proliferation are suppressed. Topical corticosteroids are effective in acute inflammatory conditions of the conjunctiva, sclera, cornea, lids, iris, and anterior segment of the globe as well as in ocular allergic conditions.

Dexamethasone is one of the most potent corticosteroids; it is 5 to 14 times more potent than prednisolone and 25 to 75 times more potent than cortisone and hydrocortisone. The exact mechanism of anti-inflammatory action of dexamethasone is unknown. It inhibits multiple inflammatory cytokines and produces multiple glucocorticoid and mineralocorticoid effects.

Dexamethasone is a potent corticoid. Corticoids suppress the inflammatory response to a variety of agents and they can delay or slow healing. Since corticoids may inhibit the body's defense mechanism against infection, a concomitant antimicrobial drug may be used when this

inhibition is considered to be clinically significant. Tobramycin is an antibacterial drug. It inhibits the growth of bacteria by inhibiting protein synthesis.

Pharmacodynamics (PD)

Mechanism of resistance

Resistance to tobramycin occurs by several different mechanisms including (1) alterations of the ribosomal subunit within the bacterial cell; (2) interference with the transport of tobramycin into the cell, and (3) inactivation of tobramycin by an array of adenylating, phosphorylating, and acetylating enzymes. Genetic information for production of inactivating enzymes may be carried on the bacterial chromosome or on plasmids. Cross resistance to other aminoglycosides may occur.

Breakpoints

The breakpoints and the in vitro spectrum as mentioned below are based on systemic use. These breakpoints might not be applicable on topical ocular use of the medicinal product as higher concentrations are obtained locally and the local physical/chemical circumstances can influence the activity of the product on the site of administration. In accordance with EUCAST, the following breakpoints are defined for tobramycin:

- Enterobacteriaceae S \leq 2 mg/L, R $>$ 4 mg/L
- Pseudomonas spp. S \leq 4 mg/L, R $>$ 4 mg/L
- Acinetobacter spp. S \leq 4 mg/L, R $>$ 4 mg/L
- Staphylococcus spp. S \leq 1 mg/L, R $>$ 1 mg/L
- Not species-related S \leq 2 mg/L, R $>$ 4 mg/L

Clinical efficacy against specific pathogens

The information listed below gives only an approximate guidance on probabilities whether microorganisms will be susceptible to tobramycin in Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension and Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Ointment. Bacterial species that have been recovered from external ocular infections of the eye such as observed in conjunctivitis are presented here.

The prevalence of acquired resistance may vary geographically and with time for selected species and local information on resistance is desirable, particularly when treating severe infections. As necessary, expert advice should be sought when the local prevalence of resistance is such that the utility of tobramycin in at least some types of infections is questionable.

Commonly susceptible species

Aerobic Gram-positive microorganisms:

- Bacillus megaterium
- Bacillus pumilus
- Corynebacterium macginleyi
- Corynebacterium pseudodiphtheriticum
- Kocuria kristinae
- Staphylococcus aureus (methicillin susceptible – MSSA)
- Staphylococcus epidermidis (coagulase-positive and –negative)
- Staphylococcus haemolyticus (methicillin susceptible – MSSH)
- Streptococci (including some of the group A beta-hemolytic species, some nonhemo-

lytic species, and some *Streptococcus pneumoniae*)

Aerobic Gram-negative microorganisms:

- *Acinetobacter calcoaceticus*
- *Acinetobacter junii*
- *Acinetobacter ursingii*
- *Citrobacter koseri*
- *Enterobacter aerogenes*
- *Escherichia coli*
- *H. aegyptius*
- *Haemophilus influenzae*
- *Klebsiella oxytoca*
- *Klebsiella pneumoniae*
- *Morganella morganii*
- *Moraxella catarrhalis*
- *Moraxella lacunata*
- *Moraxella osloensis*
- Some *Neisseria* species
- *Proteus mirabilis*
- Most *Proteus vulgaris* strains
- *Pseudomonas aeruginosa*
- *Serratia liquifaciens*

Anti-bacterial activity against other relevant pathogens

Species for which acquired resistance might be a problem:

- *Acinetobacter baumannii*
- *Bacillus cereus*
- *Bacillus thuringiensis*
- *Kocuria rhizophila*
- *Staphylococcus aureus* (methicillin resistant – MRSA)
- *Staphylococcus haemolyticus* (methicillin resistant –MRSH)
- *Staphylococcus*, other coagulase-negative spp.
- *Serratia marcescens*

Inherently resistant organisms

Aerobic Gram-positive microorganisms:

- *Enterococcus faecalis*
- *Streptococcus mitis*
- *Streptococcus pneumoniae*
- *Streptococcus sanguis*
- *Chryseobacterium indologenes*

Aerobic Gram-negative microorganisms:

- *Haemophilus influenzae*

- *Stenotrophomonas maltophilia*

Anaerobic Bacteria:

- *Propionibacterium acnes*

Bacterial susceptibility studies demonstrate that in some cases, microorganisms resistant to gentamicin retain susceptibility to tobramycin.

Pharmacokinetics (PK)

Absorption

Tobramycin is poorly absorbed across the cornea and conjunctiva when administered by topical ocular route. A peak concentration of 3 micrograms/mL in aqueous humor after 2 hours was attained followed by a rapid decline after topical administration of 0.3% tobramycin. However, Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension and Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Ointment delivers 542 ± 425 micrograms/mL tobramycin in human tears at 2 minutes after ocular dosing, a concentration that generally exceeds the MIC of the most resistant isolates (MICs >64 micrograms/mL).

Peak dexamethasone concentrations in aqueous humor after administration of Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension and Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Ointment were attained approximately at 2 hours with a mean value 32 ng/mL.

Systemic absorption of tobramycin after Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension and Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Ointment administration was poor with plasma concentrations generally below the limit of quantitation.

Plasma concentrations of dexamethasone was observed but were very low with all values less than 1 ng/mL after Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension and Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Ointment administration.

The bioavailability of oral dexamethasone ranged from 70 to 80% in normal subjects and patients.

Distribution

For tobramycin, systemic volume of distribution is 0.26 L/kg in man. Human plasma protein binding of tobramycin is low at less than 10%.

For dexamethasone, the volume of distribution at steady state was 0.58 L/kg after intravenous administration. The plasma protein binding of dexamethasone is 77%.

Biotransformation/metabolism

Tobramycin is not metabolized while dexamethasone is principally metabolized to 6beta-hydroxydexamethasone along with the minor metabolite, 6-beta-hydroxy-20-dihydrodexamethasone.

Elimination

Tobramycin is excreted rapidly and extensively in the urine via glomerular filtration, and primarily as unchanged drug. Systemic tobramycin clearance was 1.43 ± 0.34 mL/min/kg for normal weight patients after intravenous administration and its systemic clearance decreased

proportionally to renal function. The half-life for tobramycin is approximately 2 hours.

With dexamethasone after intravenous administration, the systemic clearance was 0.125 L/hr/kg with 2.6% of the dose recovered as unchanged parent drug while 70% of the dose was recovered as metabolites. The half-life has been reported as 3 to 4 hours but was found to be slightly longer in males. This observed difference was not attributed to changes in dexamethasone systemic clearance but to differences in volume of distribution and body weight.

Linearity/non-linearity

Ocular or systemic exposure with increasing dosing concentrations of tobramycin after topical ocular administration of tobramycin has not been tested. Therefore, the linearity of exposure with topical ocular dose could not be established. Mean C_{max} for dexamethasone at a topical ocular dose concentration of 0.033% with 0.3% tobramycin appeared lower than with Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension and Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Ointment with a value of approximately 25 ng/mL but this decrease was not proportional to dose.

PK/PD relationship

A specific PK/PD relationship has not been established for Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension and Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Ointment. Dexamethasone has demonstrated dose-independent pharmacokinetics in published animal studies.

Published *in vitro* and *in vivo* studies have shown that tobramycin features a prolonged post-antibiotic effect, which effectively suppresses bacterial growth despite low serum concentrations. Systemic administration studies of tobramycin have reported higher maximum concentrations with once daily compared to multiple daily dosing regimens. However, the weight of current evidence suggests that once daily systemic dosing is equally as efficacious as multiple-daily dosing. Tobramycin exhibits a concentration-dependent antimicrobial kill and greater efficacy with increasing levels of antibiotic above the MIC or minimum bactericidal concentration (MBC).

Special populations

Pediatric patients (below 18 years)

Aminoglycosides including topical ocular tobramycin has been commonly used among children, infants and neonates to treat serious Gram-negative infections. Clinical pharmacology of tobramycin in children has been described after systemic administration. Dexamethasone pharmacokinetics in pediatrics appears not to differ from adults after intravenous dosing.

Geriatric patients (65 years of age or above)

There is no change in tobramycin pharmacokinetics in older patients when compared to younger adults. No correlation between age and plasma concentrations of dexamethasone was observed after oral administration of dexamethasone as well.

Renal impairment

The pharmacokinetics of tobramycin or dexamethasone with Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension and Tobramycin + Dexamethasone (Tobradex®)

Sterile Ophthalmic Ointment administration have not been studied in this patient population.

Hepatic impairment

The pharmacokinetics of tobramycin or dexamethasone with Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension and Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Ointment administration have not been studied in this patient population.

CLINICAL STUDIES

Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension and Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Ointment are well-established products.

NON-CLINICAL SAFETY DATA

Non-clinical data revealed no special hazard for humans from topical ocular exposure to tobramycin or dexamethasone based on repeated-dose topical ocular toxicity and genotoxicity studies. No carcinogenicity studies are available with dexamethasone. In a 2-year inhalation study in rats with tobramycin, no carcinogenic effect was observed up to the highest dose of 25.7 mg/kg/day, corresponding to 14 times the MROHD based on BSA. For information on developmental toxicity studies, (see Section PREGNANCY, LACTATION, FEMALES AND MALES OF REPRODUCTIVE POTENTIAL).

In standard fertility studies, subcutaneous administration of tobramycin up to 100 mg/kg/day did not impair fertility in rats, corresponding to 56 times the MROHD, based on BSA. No standard fertility studies have been conducted with dexamethasone. In a non-standard study, dexamethasone enhanced fertility in a gonadotropin-primed, immature rat model.

INCOMPATIBILITIES

Not applicable

AVAILABILITY

Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension:
White low-density polyethylene Droptainer x 5 mL

Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Ointment:
Aluminum tube x 3.5 g

STORAGE

Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension:

Store at temperatures not exceeding 30°C.

Store suspension upright.

Shake well before using.

Do not freeze.

Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension should not be used after the date marked “EXP” on the pack.

Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Suspension must be kept out of the reach and sight of children.

Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Ointment:

Store at temperatures not exceeding 25°C.

Do not refrigerate.

Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Ointment should not be used after the date marked “EXP” on the pack.

Tobramycin + Dexamethasone (Tobradex®) Sterile Ophthalmic Ointment must be kept out of the reach and sight of children.

CAUTION:

Food, Drugs, Devices, and Cosmetics Act prohibits dispensing without prescription.

For suspected adverse drug reaction, report to the FDA: www.fda.gov.ph

The patient is advised to seek IMMEDIATE medical attention at the first sign of adverse drug reaction.

INSTRUCTIONS FOR USE AND HANDLING

No special requirements.

Registration Number/Date of Renewal of Authorization:

Tobramycin/Dexamethasone (TOBRADEX®) Sterile Ophthalmic Suspension:

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Tobramycin/Dexamethasone (TOBRADEX®) Sterile Ophthalmic Ointment:

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