Timolol is a beta-adrenergic blocker which when is applied locally is used in the treatment of patients with elevated intraocular pressure (patients with ocular hypertension, chronic open angle glaucoma and some forms of secondary glaucoma).

**Warning and precautions**

Do not use timolol eye drops:

- If you are allergic to timolol, beta-blockers or any other ingredients.
- If you have or previously have had respiratory problems such as asthma, chronic obstructive bronchitis (severe lung disease that can cause a whistling sound phenomena, shortness of breath and/or persistent cough).
- If you are suffering from various heart diseases such as bradycardia, heart failure, or disorders with heart rate.

**Be careful with the use of timolol eye drops**

Tell your doctor if you suffer from:

- Coronary heart disease (symptoms may include chest pain or fatigue, lack of air, or a feeling of choking), heart failure, or reduced blood pressure (hypotension).
- Breathing problem (asthma, chronic obstructive pulmonary disease).
- Impaired peripheral circulation (Raynaud's disease or syndrome).
Diabetes, timolol may mask the signs of low blood sugar. If your thyroid gland works too strong, because timolol may mask signs of increased thyroid operation.

Use with other medicines (*Interaction*)

Tell your doctor if you are taking or intend to use the medicine for lowering blood pressure, medicine to treat heart disease or medicine to treat diabetes. Also, tell your doctor or pharmacist if you have not long ago take any other medicines, including those obtained without a prescription. This is especially important if you are taking:

- Calcium channel blockers (*verapamil, diltiazem*) for the treatment of high blood pressure, angina, or abnormal heart rhythm.
- *Digoxin* for the treatment of heart failure or an abnormal heart rhythm.
- Medicines that cause a decrease in levels of catecholamines (*e.g. reserpine*), which are used for the treatment of high blood pressure.
- Epinephrine for the treatment of severe allergic reactions.
- Clonidine for the treatment of high blood pressure.
- Quinidine for the treatment of heart disease, and some forms of malaria.
- Other beta-blockers (*propranolol, levobunolol, nebivolol, metoprolol, bisoprolol*).
- Antidepressants (*fluoxetine, paroxetine*).
- Cimetidine, hydralazine, phenothiazines and alcohol: they can increase the level of timolol in plasma.

Tell your doctor if you are planning surgery because timolol can effect change of certain medicines that are used during anesthesia.

Dosage and administration

The recommended starting dose is one drop of timolol 2.5 mg/ml solution in about two times a day. If a clinical response is not satisfactory, the dose can be increased to one drop of 5 mg/ml solution in the eye, twice a day. If the effect is not satisfactory, and further with the use of a maximum dose of medicament, timolol can be simultaneously used with other antiglaucoma medicine. Application of two local beta-blockers is not recommended. Intraocular pressure is controlled to 4 weeks after initiation of therapy (*action of timolol stabilizes over 4 weeks*). Assuming that the control of intraocular pressure is satisfactory dose of timolol may be reduced to once a day. If you use another beta blocker, it is necessary to interrupt the use the day early and to start next day with one drop of timolol 2.5 mg/ml twice day. The dose may be increased to one drop of 5 mg/ml of solution twice daily if the response is not satisfactory.

Instructions for use/handling

In each medial angle of the eye by the dropwise addition of a single drop. Slight pressure in the area of watery bags or closing the eyelids for 2 minutes immediately after applying the drops will reduce the possibility of systemic absorption of timolol. This measure can lead to a reduction in the incidence of systemic side effects and to increase the local effect.

Children
Not recommended for use in children.

Elderly

The above dosage applies to older patients.

Pregnancy and breast-feeding

Pregnancy

Adequate controlled studies of timolol ocular use in pregnant women is not there and should be used if there is a preponderance of the potential benefits in relation to the harm to the fetus. Epidemiological studies have shown no effect on the development of malformations. However, studies have shown increased risk of fetal growth deceleration for oral administration of beta-blockers. The symptoms of beta-blockade (bradycardia, hypotension, respiratory distress, hypoglycemia) are recorded in a newborn when the beta-blocker is used during pregnancy. If timolol is used during pregnancy, the infant should be monitored closely during the first days after birth.

Breastfeeding

Timolol, administered locally, and other beta-blockers, are excreted into breast milk. However, the application of a therapeutic dose of timolol eye drops is not likely to achieve concentrations in breast milk that could cause symptoms of beta-blockade in children.

Driving and using machines

With proper use, timolol have no effect on ability to drive and machines. You must warn patients that can occur visual disturbances, transient eye irritation, watery eyes, fatigue and dizziness.

Side effects

Like other locally applied medicines into the eye, timolol is absorbed in systemic circulation. This may cause similar side effects that have been reported in applied systemic beta-blockers. The incidence of systemic side effects after local application of the beta-blocker was significantly lower than for systemic administration. The above mentioned side-effects were observed in the group of beta-blockers for ocular application.

Disorders of the immune system

Systemic allergic reactions including angioedema, urticaria, generalized or localized rash, itching, anaphylactic reactions.

Psychiatric disorders

Insomnia, depression, nightmares, memory loss.
### Nervous system disorders
Syncope, cerebrovascular accident, cerebral ischemia, dizziness, worsening of myasthenia gravis, paresthesia, headache.

### Eye disorders
Eye irritation (*burning, tingling, itching, watery eyes, redness*), blepharitis, keratitis, blurred vision, choroidal detachment after surgery of the eye, dry eye, decreased sensitivity of the cornea, corneal erosion, diplopia, ptosis, conjunctivitis.

### Cardiac disorders
Bradycardia, chest pain, palpitations, edema, arrhythmia, congestive heart failure, AV block, cardiac arrest, cardiac failure.

### Vascular disorders
Hypotension, Raynaud's phenomenon, cold extremities, intermittent claudication.

### Respiratory, thoracic and mediastinal disorders
Bronchospasm (*primarily in patients with existing disease*), dyspnea, cough, respiratory depression, nasal congestion.

### Gastrointestinal disorders
Disturbance of taste, nausea, diarrhea, dyspepsia, dry mouth, abdominal pain, emesis.

### Skin and subcutaneous tissue disorders
Alopecia, worsening of psoriasis or psoriasis-like rash, skin rash

### Musculoskeletal and connective tissue disorders
Muscle aches.

### Reproductive system
Sexual dysfunction, decreased libido.

### General disorders and administration site conditions
Asthenia, fatigue. The following side effects have been reported, but a causal relationship has not been established with timolol eye drops: Metabolism and nutrition disorders: anorexia. Psychiatric disorders: mood disorders, including confusion, hallucinations, anxiety, disorientation, nervousness, somnolence, mental disorders. Eye disorders: cystoid macular edema. Cardiac

**Overdose**

In the event of an overdose with timolol may result in bronchospasm, bradycardia, hypotension and acute heart failure. Overdose cases treated in a hospital setting:

- Gastric lavage, if is it taken orally. Timolol can not be removed by hemodialysis.
- Treating bradycardia with an atropine administered intravenously at a dose of 0.25 to 2 mg for adults. If bradycardia is persisting should be given isoprenaline hydrochloride. In the most severe cases the pacemaker can be set.
- The treatment of hypotension: dopamine, dobutamine or noradrenaline. More severe cases are treated to glucagon.
- The treatment of bronchospasm: give an isoprenaline hydrochloride, and can be administered aminophylline.
- Acute heart failure: treatment with digitalis, diuretics, oxygen should be immediately begin. Aminophylline, and glucagon may be added.
- Heart block: grade II or III, give an isoprenaline hydrochloride, or can be incorporated pacemaker.

This medicine is also known as: Betimol, Istanol, Timoptic Ocudose, Timoptic Ocumeter, Timoptic Ocumeter Plus, Timoptic-XE