

“Eye-spy” a bright eye: OTC eye drops reviewed

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Introduction

Several eye drops are available without prescription. It is important to understand the role of the active ingredients included in over-the-counter (OTC) eye products before recommending an eye drop. In addition, it is also important to understand the basics of common eye conditions and to know when to refer the patient to the doctor for further investigation.

Conjunctivitis

The conjunctiva is the thin membrane that lines the sclera (whites of the eyes) and the inner surface of the eyelids and it is generally transparent. Conjunctivitis is the medical term for inflammation of the conjunctiva and when inflamed the conjunctiva looks pink or red at a distance. Red eye and discharge are among the common symptoms associated with conjunctivitis (Table I).

Possible causes of conjunctivitis include:

- Infection (bacterial and viral)
- Allergy (when airborne allergens come in contact with the eye) or
- A non-specific condition such as foreign body (i.e. dust or eyelash) or chemical splash in the eye or dry eyes.

It is important to remember that some eye conditions may be related to problems that are more serious and that not everyone with a red eye has conjunctivitis. Patients presenting with the following signs and symptoms should be referred to the doctor:

Table I. Common symptoms associated with conjunctivitis.

Type of conjunctivitis	Symptoms
Viral	Redness, discharge (watery or mucus), a sandy, burning, or gritty feeling in one eye. Some patients may have morning crusting followed by watery discharge, which may be accompanied by a slight mucus discharge throughout the day. Within 24-48 hours, the second eye usually becomes infected.
Bacterial	Redness and thick discharge (yellow, white, or green) from one eye, although both eyes can become infected. The affected eye may drain throughout the day and is often “stuck shut” in the morning.
Allergic	Redness, watery discharge and ocular itchiness affecting both eyes.
Non-specific	Redness and discharge. Symptoms generally improve spontaneously within 24 hours. Dry eye: Redness (intermittent or chronic), foreign body sensation, gritty or burning feeling, tearing (excessive), blurred vision, light sensitivity or general irritation.

- Tenderness of the eye
- Trouble seeing clearly
- Sensitivity to light or if they have trouble keeping the eye open
- Severe headaches with nausea
- New/recent trauma to the eye
- Contact lens wearers
- Fixed pupil
- Corneal cloudiness

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Eye drops

Decongestants

- Examples: naphazoline, oxymetazoline, tetrahydrozoline and phenylephrine⁴

Decongestants/vasoconstrictors cause vasoconstriction (narrowing of the blood vessels) in the eye and reduce conjunctival oedema (swelling). Decongestants can be used for the treatment of red eye due to minor eye irritation.

Decongestants and anti-allergics

Decongestants are sometimes used in combination with antihistamines such as antazoline. Antihistamines included in eye drops may reduce histamine-induced itching and are indicated for symptomatic relief of allergic conjunctivitis.

Eye drops containing decongestants and antihistamines provide symptomatic relief of allergic conjunctivitis. However, these drops are not without potential side effects and should not be used in patients complaining of eye irritation without a definite diagnosis. These drops should be used intermittently or for a short period (i.e. less than two weeks) only to relieve symptoms. Prolonged use may cause rebound hyperaemia⁴ (when the patient stops using these eye drops he/she may have increased eye redness for several days).

Antihistamines with mast cell-stabilising properties

- Examples: olopatadine, azelastine, epinastine, ketotifen and emedastine

Antihistamines with mast cell stabilising properties block histamine receptors in the conjunctiva and eyelids and inhibit mast cell degranulation. They may be used long term for the treatment of allergic conjunctivitis.

Although the onset of action is within minutes for most of the eye drops containing antihistamines with mast cell-stabilising properties, at least two weeks of therapy should be allowed in order to evaluate their full effectiveness. This would allow for enough time for the inflammation to be controlled and the symptoms to subside completely. These eye drops may be recommended for patients with seasonal or perennial allergic conjunctivitis or for patients who have frequent episodes of allergic conjunctivitis (i.e. occurring more than two days per month).

Mast cell stabilisers

- Examples: Sodium cromoglycate and lodoxamide

Once treatment is started, it takes about 5-14 days for mast cell stabilisers to reach their full effect. Because they take long to start working, they are not useful for acute symptoms but may be considered as an option for patients with seasonal allergic conjunctivitis who can anticipate when their symptoms will start and who cannot tolerate other treatments.

When used long-term to prevent symptoms, these products are effective as anti-allergic and anti-inflammatory agents in patients with allergy-related eye symptoms, particularly in those suffering from seasonal allergies.

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Artificial tears or lubricants

- Examples: hypromellose (hydroxypropylmethylcellulose), liquid paraffin, polyvinyl alcohol, anhydrous liquid lanolin, carmellose (carboxymethylcellulose sodium) and carbomers

Dry eyes is an extremely common disorder and may be due to excessive evaporative loss or decreased tear production. Some patients may have dry eyes and allergic conjunctivitis and in these patients, dry eyes may worsen the allergic conjunctivitis.

Cellulose is usually included in artificial tears to maintain viscosity. Polyethylene glycol or polyvinyl alcohol are spreading agents and are included to prevent evaporation.

Carbomers can be used as substitutes of tear fluid for management of dry eyes.

In general, patients with poor corneal lubrication, especially older patients may present with red eyes, despite adequate tear volume. Pure tear substitutes is the approach of choice and may well be effective in the treatment of these patients.

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Anti-infective agents

- Examples of OTC products: propamidine, sulphacetamide

Bacterial conjunctivitis can be treated with topical antibiotics, some of which are available without a prescription.

Sulphacetamide is indicated for the treatment of eye and eye socket infections, styes and trachoma. Propamidine can be used for eye and eyelid infections and to prevent eye infection after minor eye injury.

Patients with bacterial conjunctivitis should respond to treatment by showing a decrease in discharge, redness and irritation within one or two days. Patients should be referred to the doctor if they do not respond to treatment.

Other ingredients

- Zinc sulphate

Zinc sulphate is sometimes included in eye drops because it has astringent properties; it reduces excessive lacrimation (secretion of tears) which often accompanies irritative and allergic eye conditions.

- Preservatives

Preservatives are included in eye drops to prevent contamination. However, eye drops containing benzalkonium chloride as a preservative should not be used frequently and it may also accumulate on soft contact lenses. Some eye drops are available in single-use formulations and are preservative-free.

A word of advice

It is imperative that the patient use the eye drop properly. When instilling the eye drop, the patient should be instructed to tilt the head back slightly, look up and to pull the lower lid down to form a pouch. Then, instill the drop in the pouch, release the lower lid and blink a few times to distribute the drop evenly over the eye.

Some of the ingredients in the eye drop may cause side effects which can be minimised by either keeping the eye closed for five minutes after instilling the eye drop or by applying pressure for one to two minute on the lacrimal sac (the area against the nose at the inner corner of the eye).

Advise the patient to:

- Instil one drop at a time. The volume of the conjunctival sac is less than one drop, instilling more than one drop is wasteful.
- Wait for at least three to five minutes before instilling a different or second drop.
- Close eyelids for a few seconds after instilling the drop, this helps with absorption into the ocular tissue.
- Once opened, discard any remaining eye drops after one month.
- Seek medical attention within 48 hours if the redness or irritation of the eye is not relieved.

Advise the patient not to:

- Touch the eyelashes or any surface with the tip of the container, thus preventing possible contamination.
- Squeeze the eyelids closed after instilling the eye drop. This may cause the drop to be eliminated from the conjunctival sac.
- Blink repetitively after instilling the eye drop. This may cause the drop to be washed out more quickly.
- Share eye drops from the same container with another person.

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Advice for persons wearing contact lenses:

People wearing contact lenses should be advised to remove the contact lenses prior to instilling eye drops. Although some manufacturers recommend that the lenses may be reinserted after 15 minutes, lenses should preferably not be worn during the treatment period, especially if the eye drop contains benzalkonium chloride or if an eye ointment is used. Lenses should also not be worn if the patient has an eye infection.

Conclusion

In general, acute conjunctivitis is a mild, self-limiting condition that can be treated easily. In order to recommend the most suitable OTC eye product for a patient, one needs to understand the role of the active ingredient or the purpose for its inclusion in the product. In addition, one should remember that eye drops may also be absorbed systemically and possible contraindications and precautions to the use of the eye drop or ointment should be taken into consideration before recommending an eye drop.

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