Ocular allergies …

Red, itchy eye triggers and OTC ophthalmic treatments

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It is estimated that ocular allergy, also known as allergic conjunctivitis, affects at least 20 per cent of the population.[1-3] A recent published review stated that up to one-third of patients with allergic conjunctivitis "continue to be underdiagnosed and undertreated".[4]

Allergic conjunctivitis usually does not threaten vision and is considered a relatively benign ocular disease.[1] However, it can cause considerable suffering for those who are affected and it could have a significant impact on the affected person's quality of life.[1,4]

The allergic response

Allergic conjunctivitis occurs when an airborne allergen comes into contact with the conjunctiva (the membrane that lines the eyelid and covers the white of the eye) of a person who is allergic to that specific allergen.[1-3,5]

Allergic conjunctivitis is a classic type I immunoglobulin E (IgE)-mediated hypersensitivity reaction.[1] Mast cells are the "primary instigators of the allergic response".[6]

In patients with allergic conjunctivitis, mast cells which are present in high concentrations in the conjunctival epithelium, increase further.[1] The allergic cascade usually starts within seconds to minutes after the allergen challenge.[4,7] Crosslinking of allergens to IgE molecules on the surface of mast cells, results in mast cell degranulation and the subsequent release of inflammatory mediators.[1,4-6]

The main mediator released in the early phase allergic response is histamine which causes ocular itching, vasopermeability and vasodilatation.[1,6] Patients with seasonal allergic conjunctivitis (SAC) have been found to have higher levels of histamine in tears.[1]

The late phase of the allergic cascade begins a few hours after the allergen challenge,[1,6] and is characterised by the infiltration and accumulation of inflammatory cells (such as neutrophils, basophils, eosinophils and lymphocytes) within the conjunctiva.[1,4,6] Activity of these cells results in continued inflammation and persistent symptoms.[1,4]

The different types of allergic conjunctivitis

Allergic conjunctivitis can be divided into acute, SAC and perennial allergic conjunctivitis (PAC). The differences between the three types are listed in Table I.[1,6-8]

Table I: Differences between acute, SAC and PAC[1,6-8]

Types	Causes	Notes
Acute allergic conjunctivitis	Isolated exposure to usually known allergens such as cat dander	• Sudden-onset hypersensitivity reaction • Symptoms: ◦ May be intense ◦ Develop within minutes to hours after exposure ◦ Resolve usually within 24 hours following the removal of the allergen
SAC	Outdoor airborne allergens such as tree, grass or weed pollens	• Usually follows a less dramatic, more gradual onset than acute allergic conjunctivitis • Develops over days to weeks • Course is predictable which typically corresponds to one or more specific pollen seasons • Often associated with rhinitis
PAC	Year-round, usually indoor allergens such as mould spores, pet dander and dust mites	• A chronic and mostly mild form of allergic conjunctivitis • Waxing and waning may occur throughout the year

Signs and symptoms of allergic conjunctivitis

Allergic conjunctivitis usually affects both eyes, but one eye can be affected more than the other.[1] Signs and symptoms – which may vary from mild to severe – include:[1,4]

- Ocular itching
- Burning
- Redness of the eye (hyperaemia)
- Conjunctival oedema (chemosis)
- Eyelid oedema
- Mild photophobia
- Mild crusting upon awakening
- Tearing or watery, non-purulent discharge

Allergic conjunctivitis is often associated with other allergic co-morbidities such as allergic rhinitis, eczema and asthma.[1,4]

Important considerations

- Other ocular diseases such as dry eye disease, toxic conjunctivitis and blepharitis may mimic allergic conjunctivitis.[1]
- Ocular pain is not a typical symptom of allergic conjunctivitis and patients experiencing eye pain should be referred for further investigation.[1]
- The absence of ocular itching, which is considered a prominent symptom of allergic conjunctivitis, should prompt the health-care professional to consider other disorders.[1]

Over-the-counter (OTC) ophthalmic agents

Treatment is aimed at stopping or minimising the inflammatory cascade associated with the allergic response in order to alleviate symptoms, prevent complications and improve the quality of life.[4,7]

Artificial tears

Frequent use of refrigerated artificial tears or lubricating gels may help to alleviate symptoms.[7] Tear substitutes may help to:

- Provide a better barrier against allergens (via stabilisation of the tear film).[9]
- Dilute and remove/flush the allergens as well as inflammatory mediators from the ocular surface.[4,5,7]
- Treat comorbid dry eye disease.[7]

Preparations without preservatives may be considered when artificial tears are used more than four times a day or for prolonged periods.[7]

Some eye drops, for example antihistamines with mast cell-stabilising properties, may cause burning and stinging upon instillation. Instilling refrigerated artificial tears before instilling these drops may be helpful.[5]

Topical decongestants and/or antihistamines

Topical alpha-adrenergic receptor stimulants such as naphazoline, oxymetazoline, phenylephrine and tetryzoline alleviate ocular redness, but have little effect to no effect on ocular itching.[5,7,9,10]

Products containing topical decongestants are also not suitable for long-term use. Regular use (e.g. for more than two weeks) could result in rebound hyperaemia.[5,7,9] These products may cause increased eye redness for several days after treatment has been discontinued.[5]

Topical antihistamines such as antazoline, emedastine and levocabastine target ocular tissue directly and provide rapid symptomatic relief of histamine-induced symptoms such as ocular itching.[4,5,8-10] Compared to oral antihistamines, topical antihistamines have a faster onset of action and tend to have a more favourable safety profile (cause less systemic side-effects).[4,5] They are most useful in the acute phase reactions and have no effect on other mediators (such as leukotrienes and prostaglandins) of the allergic response.[4]

Single agent eyedrops, for example, products that only contain an antihistamine or decongestant are seldom sufficient as monotherapy.[4] Combination products (antihistamines combined with a decongestant) allow for more effective short-term topical treatment of eye allergies.[5,7,10]

Mast cell stabilisers

Mast cell stabilisers such as lodoxamide and sodium cromoglycate require a preloading period and their full efficacy is only reached 5 to 14 days after therapy has been initiated.[5-9] Mast cell stabilisers do not alleviate existing symptoms and are therefore not suitable for the management of acute symptoms.[5,7]

Mast cell stabilisers are "best utilised on a prophylactic basis".[4] They may be an option for patients with SAC, who are not able to use other therapies and who are able to anticipate when their symptoms will start.[4,5] Treatment should be initiated two to four weeks before the pollen season starts.[5]

Antihistamines with mast cell stabilising properties

Azelastine, epinastine, ketotifen and olopatadine are examples of topical antihistamines with mast cell-stabilising properties.[5,7-9] These products have a dual action. They inhibit the effects of histamine which has already been released by competitively and reversibly blocking histamine receptors in the conjunctiva and eyelids and they act as mast cell stabilisers. Due to these collective mechanisms, they are able to address both the acute and chronic aspects of allergic conjunctivitis and are consequently considered to be the first-line treatment option for allergic conjunctivitis (SAC and PAC).[5,7,8]

Although most of the antihistamines with mast cell-stabilising properties start to work within minutes, it may take a while for the inflammation to be controlled and for the symptoms to subside completely.[5] As a result, patients should allow for at least two weeks of treatment, in order to assess the full efficacy of prophylactic treatment.[5]

General advice for patients with allergic conjunctivitis

Allergen avoidance or reducing contact with known allergens are important first-line measures in the management of allergic conjunctivitis.[5,7-9]

Patients should also be advised to:[5,6]

- Not rub their eyes; rubbing can cause mechanical mast cell degranulation which, in turn, may worsen symptoms.[5,6]
- Apply cool compresses, which provide decongestant effects and may help to reduce periorbital and eyelid oedema.[5,9]
- Wait about three to five minutes after instilling the one drop before instilling the next drop (patients using multiple eye drops). This will ensure that the first drop is not washed out when the second drop is instilled.[5]
- Close their eyelid(s) for a few seconds after instilling the drop(s) as this helps with absorption into ocular tissue.[5]
- Avoid repetitive blinking. Repetitive blinking creates negative pressure and causes eye drops to be washed out of the ocular surface more quickly.[5]

Since allergens have the tendency to adhere to contact lens surfaces, individuals who are wearing contact lenses, should be advised to not wear them during symptomatic periods.[5]

OTC management of allergic conjunctivitis – In a nutshell

- Allergen avoidance forms an integral part of the routine management of allergic conjunctivitis.[4]
- Treatment should be individualised and tailored to the patient's symptoms.[4]
- Contraindications and precautions of the different products should be taken into consideration, for example, products containing topical decongestants are contraindicated in patients with narrow-angle glaucoma and angle-closure glaucoma.[7,10]
- Acute allergic conjunctivitis is usually self-limiting and typically lasts less than 24 hours. Most patients therefore do not require long-term treatment.[5] Short-term (e.g. less than two weeks) or episodic use of topical vasoconstrictor/antihistamine combination products may be considered for patients with acute allergic conjunctivitis.[5]
- Topical antihistamines with mast cell-stabilising properties are considered first-line treatment in allergic conjunctivitis and are preferred for SAC and PAC.[4,5,8]
- Patients who fail to respond to at least three weeks of treatment with antihistamines with mast cell-stabilising properties should be referred to an ophthalmologist for further investigation.[7]
- Concomitant use of intranasal corticosteroids and/or non-sedating oral antihistamines such as loratadine, desloratadine, cetirizine, fexofenadine and levocetirizine may be helpful for patients with concomitant rhinitis.[3,5,9] However, oral histamines may decrease tear production and cause drying of the mucous membranes, which could potentially exacerbate dry eye symptoms in patient who have dry eyes.[5,9]

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