Optometrists and
Dispensing Opticians Board
Te Poari o ngā Kaimātai Whatu me ngā Kaiwhakarato Mōhiti

# Condition: Allergic Eye Disease (Type 1 Hypersensitivity reactions)

## Description:

Seasonal allergic conjunctivitis is caused by seasonal allergens, especially grass pollen, whereas perennial conjunctivitis is caused by environmental allergens such as dust mites or animal dander and is less common and generally less severe. Degranulation of conjunctival mast cells releases histamine and other inflammatory mediators causing hyperaemia, oedema and itch.

## Significance:

Despite seasonal and perennial allergic conjunctivitis being relatively common and mild forms of ocular allergy, they can have a significant impact on a patient's quality of life.[1]

## Incidence:

It is estimated that 15-20% of the population suffers from allergy[2] and up to 8% of patients visiting optometry practices present with Type 1 hypersensitivity reactions. The most common form of ocular allergy is seasonal allergic conjunctivitis (90% of cases) followed by perennial allergic conjunctivitis (5% of cases).

## Mangagement category:

Optometric management is appropriate for seasonal or perennial allergic conjunctivits, but referral to an ophthalmologist is indicated in severe or non-resolving cases, where vision is affected or where there is corneal involvement. Management of vernal keratoconjunctivitis (VKC) and atopic keratoconjunctivitis (AKC) should be in collaboration with an ophthalmologist.

## Signs and symptoms:

Itch is the pathognomonic ocular symptom associated with seasonal and perennial allergic conjunctivitis. Patients also report redness, watery discharge and associated sneezing and

nasal discharge. Signs include mild to moderate lid oedema, bulbar and tarsal conjunctival chemosis, hyperaemia and a diffuse papillary reaction. There should be no corneal involvement or reduction in visual acuity.

**Differential diagnoses:**

- Vernal keratoconjunctivitis: can mimic the signs and symptoms of seasonal allergic conjunctivitis but has the potential for permanent vision loss due to corneal involvement. Patients tend to be young male children, who present with severe ocular itching and stringy discharge.
- Atopic keratoconjunctivitis: potentially blinding due to corneal involvement. Commonly observed with concomitant eczema (95%) and asthma (87%). More common in males and has a peak age of incidence of 30 - 50 years.
- Other allergic conjunctivitis: Giant papillary conjunctivitis (GPC) contact/atopic conjunctivitis to eye drop or preservative in eye drops.
- Dry eye – often exists concurrently with ocular allergy.
- Bacterial conjunctivitis
- Viral conjunctivitis
- Acne rosacea
- Chlamydial disease

**Management:**

*Non-pharmacological therapy*

1. Advice against eye rubbing, as this encourages mast cell degranulation and exacerbation of signs and symptoms
2. Avoidance of allergen
3. Cool compresses for symptomatic relief
4. Artificial tears to directly remove and dilute allergens. For patients requiring frequent dosing, consider non-preserved unit dose vials (single use) to avoid preservative toxicity from multi-dose artificial tears.

Both artificial tears and cool compresses, alone or in combination, are effective in reducing bulbar conjunctival hyperaemia and lowering ocular surface temperature.[3] Cool compresses also may have additive benefit when combined with topical antihistamine drops.

*Topical Treatment*

1. Topical antihistamine / mast cell stabiliser: dual-action treatments are fast and effective and have become the first line of pharmacological management in many cases. Twice daily dosing of these agents also improves patient compliance. Some studies report that olopatadine 0.1% (Patanol®) controls the signs and symptoms of seasonal allergic conjunctivitis more rapidly and to a greater extent than ketotifen 0.25% (Zaditen®),[4] [5] although ketotifen is more effective than both placebo and levocabastine in managing seasonal allergic conjunctivitis.[6] Effectivity increases over 2 – 4 weeks as the mast cells stabilise. These therapies are generally very safe to prescribe for children.
2. Topical mast cell stabilisers: Mast cell stabilisers have a slower onset of action (2 – 4 weeks) than antihistamines, require multiple (4 x) daily applications and require initiation before the mast cells degranulate to prevent the allergic inflammatory cascade. They are most useful in the seasonal management of chronic allergic eye disease.
3. Topical antihistamine: may be preferred over oral antihistamines as they are applied directly to the site, act more rapidly and are less likely to cause unwanted side effects. Many antihistamines also inhibit eosinophil activation and migration. These require 4 x daily dosing and have a short duration of action (3 – 4 hours only)
4. Topical non-steroidal anti-inflammatory drugs (NSAIDs): can be an effective short-term treatment option for instantly relieving the itch and pain associated with allergy-induced inflammation. NSAIDs relieve itching, but they don't block histamine release and need to be used in combination with antihistamine or dual-acting agents. They are useful up to 4 x daily for breakthrough itch in combination with a dual acting agent (Patanol® or Zaditen®).
5. Topical corticosteroids: tertiary treatment of ocular allergy is indicated when other topically instilled agents are ineffective.[7] Steroids with limited corneal penetration, e.g. FML, can be prescribed but may be associated with ocular complications such as raised IOP, viral infections and cataract formation. Topical corticosteroids thus remain the last choice for treating allergic eye disease, although they may be necessary for conditions such as vernal keratoconjunctivitis (VKC) and atopic keratoconjunctivitis (AKC).[8] As topical corticosteroids do not treat the early phase allergic reaction (release of histamine), they are best reserved for chronic, allergen-dependent T-cell reactions[9] such as seen in VKC and AKC.[10]

Note: Topical vasoconstrictors are not recommended for the treatment of ocular allergy as their cosmetic effects are short-lived, they do not treat the underlying cause, and prolonged use may cause rebound hyperaemia.[11]

*Oral Treatment*

Oral antihistamines: can reduce ocular itching, tearing and conjunctival hyperaemia associated with seasonal allergic *rhino*conjunctivitis,[12] however they can have a slower onset in treating ocular symptoms than topical medications, and may be associated with excessive drying and tear film dysfunction in many patients.[13] However, the effects of oral antihistamines are long-lasting and may be useful, in combination with topical treatments, for the treatment of ocular disease. Second generation antihistamines have fewer side effects and are less likely to cause sedation and drying.[2] Examples of second generation antihistamines include:

Fexofenadine hydrochloride (Telfast®): For relief of the symptoms of hayfever the usual adult dosage is 60 mg once to twice per day. This dose should be halved for paediatric patients 7-12 years of age and is not recommended for children under 2 years of age. Oral antihistamines should be used in children only after consultation with the patient's family physician or paediatrician. It is not necessary to adjust the dose for the elderly, or patients with kidney or liver impairment. Fexofenadine is contraindicated in patients with a known hypersensitivity to fexofenadine or any of its ingredients. The most common side effects are headache, drowsiness, nausea, fatigue and dizziness, which are observed to a similar extent in patients on placebo medication.

Chlorpheniramine maleate (Histafen Elixir®): is a red thin liquid with the characteristic odour of raspberries. The typical dosage for adults and children over 6 years of age is 5 mL up to 8 times daily. Histafen Elixir® should not be used in children under 6 years old. Sedation is uncommon but some patients can experience drowsiness, lassitude, dizziness and lack of coordination. Patients should be cautioned not to drive or operate heavy machinery if they experience any of these symptoms.

Antihistamines have an additive effect with anticholinergics, adrenergic agonists, phenothiazines and monoamine oxidase inhibitors, and should be used in caution with patients already taking any of these medications. Consultation with the patient's family practitioner is recommended in this situation. Antihistamines should not be taken with alcohol or any other central nervous system depressants. Due to their anticholinergic effect,

antihistamines should be used with caution in patients at risk of angle closure, patients with urinary retention and patients with prostatic hypertrophy.

*Review*

Each patient must be treated individually based on subjective complaints and clinical signs. The frequency of follow-up varies with the severity of the condition and the potential for ocular morbidity. Follow-up should be designed for careful monitoring of disease progression and to ensure that the selected treatment regimen is effective. For mild allergic conjunctivitis, follow-up is recommended every 5-7 days, whereas patients with moderate-severe signs and symptoms require more careful monitoring every 1-4 days. As signs and symptoms improve, the frequency of follow-up can be reduced.

**Referral criteria:**

Seasonal and perennial allergic conjunctivitis are rarely referred for further evaluation as there is little to no risk even with continued use of twice daily dosing of dual action drops such as Patanol or Zaditen. Referral to an ophthalmologist should occur if the patient experiences changes in vision, develops corneal involvement, complains of ocular pain or if a diagnosis of uveitis is suspected. Vernal and atopic keratoconjuncitivitis with corneal involvement should be referred as early as possible for ophthalmological assessment due to their sight-threatening potential.

**Informed consent:**

As with all healthcare interventions, the therapeutic optometrist is responsible for ensuring that the patient has been advised of the possible benefits and risks associated with the prescription medication, in order that the patient can make an informed decision and provide consent to the treatment plan.

**References:**

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*These guideline documents are not exhaustive and should be considered 'living' documents that will be added to over time. Conditions outside those described in these guidelines may be deemed out of scope for independent optometric management and require referral to a medical practitioner. If in doubt, please check with the Board for advice.*

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