Conjunctivitis - Allergic, Seasonal & Perennial (1 of 6)

1. Patient presents w/ symptoms suggestive of allergic conjunctivitis

2. DIAGNOSIS
   Does the clinical presentation confirm seasonal or perennial allergic conjunctivitis?
   - Yes
   - No

   ALTERNATIVE DIAGNOSIS

A. Non-pharmacological therapy

B. Pharmacotherapy
   - Acute Symptoms
     - Lubricants
     - or any one of the following:
       - Ophthalmic antihistamines w/ or w/o vasoconstrictor
       - Ophthalmic mast cell stabilizers/antihistamine
   - Adjunctive Therapy
     - Oral antihistamines
     - Short course topical corticosteroids (<7 days)

FOLLOW-UP
   Is condition responding to therapy?
   - Yes
   - No

   CONSIDER EXPERT REFERRAL

PREVENTIVE THERAPY
A. Non-pharmacological therapy
   - Avoidance of trigger factors

B. Pharmacotherapy
   - Ophthalmic mast cell stabilizers
   - Ophthalmic mast cell stabilizers/antihistamines

Not all products are available or approved for above use in all countries. Specific prescribing information may be found in the latest MIMS.
Conjunctivitis - Allergic, Seasonal & Perennial (2 of 6)

1 SYMPTOMS

Conjunctivitis - Allergic

- Direct exposure of ocular mucosal surfaces to the environment that causes an immediate hypersensitivity reaction in which triggering antigens couple to reaginic antibodies (IgE) on the cell surface of mast cells & basophils, leading to the release of histamines from secretory granules. The released histamine causes capillary dilation & increased permeability & thus, conjunctival injection & swelling. It also stimulates nerve endings, causing pain & itching.

Symptoms of Allergic Conjunctivitis

- Ocular/periocular itching w/ redness, tearing, burning, stinging, photophobia, watery discharge, &/or ecchymosis ("allergic shiner"); characterized by exacerbations & remissions
- May be associated w/ allergic rhinitis

- Allergic conjunctivitis may also be related to topical medications, solutions or contact lenses

Seasonal Allergic Conjunctivitis (SAC)

- SAC usually occurs & recurs at a certain period of the yr (eg summer)

Perennial Allergic Conjunctivitis (PAC)

- PAC manifests & recurs throughout the yr w/ no seasonal predilection

2 DIAGNOSIS

Seasonal & perennial allergic conjunctivitis are usually diagnosed by history & clinical presentation.

Symptoms

- As described above

- Itching is considered the cardinal symptom

Clinical Signs

- Clinical signs are usually bilateral & vary based on patient age, mediating cell type & association w/ other conditions

- Conjunctival chemosis, hyperemia & a predominantly papillary conjunctival reaction

Determine Trigger Factors for Allergic Conjunctivitis

- Medical history
- Physical exam
- Review history w/ regards to:
  - History of exposure to allergens
  - Date & timing of onset & progress of symptoms
  - Occupational exposure
  - Travel
  - Use of eye care products

Lab Tests

- Rarely needed to make diagnosis of SAC or PAC

Cytological Exam of Tear Fluid

- Collect tear sample w/ capillary tube, spread on slide & stain

- Allergic response is indicated by presence of eosinophils, neutrophils &/or lymphocytes

- Tear histamine or tryptase levels can also be measured

Conjunctival Scrapings

- If +ve for eosinophils it is strongly suggestive of allergy

- -ve scraping is inconclusive

Differential Diagnosis

- Bacterial or viral conjunctivitis
- Blepharoconjunctivitis
- Keratitis sicca/Dysfunctional Tear Syndrome (Dry Eye)
- Superior limbal keratoconjunctivitis

Other Ocular Allergic Conditions

- Atopic keratoconjunctivitis
- Contact lens associated papillary conjunctivitis
- Contact oval allergy or toxic keratoconjunctivitis
- Vernal keratoconjunctivitis
A

NON-PHARMACOLOGICAL THERAPY

Identification & Avoidance of Trigger Factors

Identification of Trigger Factors

- Rarely needed: Skin testing or allergen challenge may be useful for identifying specific problematic antigens

Avoidance of Trigger Factors

- Once antigens are identified patient should attempt to avoid them
- Eg closing windows, filtering air, removing pets & stuffed toys, vacuuming & dusting regularly, etc
- House mites are a common allergen & can be reduced by using dust mite-proof encasings on pillows & mattresses & washing sheets in hot water
- Sensitive patients should attempt to limit exposure to outdoors during times of high pollen count or other allergen counts

Cool Compresses

- Cool compresses cause vasoconstriction & this can improve patient comfort by reducing itching

B

PHARMACOTHERAPY

Acute Symptoms

Lubricants

- Ophthalmic lubricants consist of saline soln combined w/ wetting & viscosity agents
- Should be used at least 3-4 x/day to be effective
- Non-preserved formulations are recommended if used frequently & chronically
- Effects: Assist in the removal & dilution of allergens that come in contact w/ the eye surface
- Do not alter the pathophysiology of the disease

Vasoconstrictors

- For mild allergic conjunctivitis
- Decreases conjunctival congestion but does not diminish the allergic response or alter the pathophysiology of the disease
- May cause rebound hyperemia after discontinuation
- Action: Vasoconstriction of conjunctival blood vessels which blocks the initial changes associated w/ inflammation (eg vasodilation & increased capillary permeability)

Antihistamine w/ or w/o Vasoconstrictor

- Antihistamines
  - Action: Compete for the histamine receptor sites on the cells of the conjunctiva & lids
  - H1 antagonists primarily reduce pain & itch
  - H2 antagonists primarily inhibit vascular response
- Antihistamine/vasoconstrictor
  - Useful for mild allergic conjunctivitis
  - Have been found to be more effective than either agent used alone
  - Relieve ocular itchiness, reduces eye redness & other symptoms of allergic conjunctivitis

1Many ophthalmic lubricants (artificial tears) are available. Please see the latest MIMS for specific formulations.

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**Acute Symptoms (Cont’d)**

**Mast Cell Stabilizers/Antihistamines**
- Relieve the acute symptoms (e.g., ocular itchiness & redness) & prevent recurrence of allergic conjunctivitis
- **Action:** These agents have both mast-cell stabilizing & antihistaminic activity

**Adjunctive Therapy**

**Oral Antihistamines**
- May be used as adjunctive therapy for moderate to severe allergic conjunctivitis
- Useful in cases accompanied by non-ocular allergies (e.g., allergic rhinitis)
- More likely than topical antihistamines to cause side effects

**Ophthalmic Corticosteroids**
- Should be used only for severe acute symptoms of allergic conjunctivitis that have not responded to other agents. Should only be used for a short period of time
- Should only be used under the guidance of an experienced ophthalmologist
  - Chronic use of topical steroids is associated with glaucoma, cataract formation, & infections of the cornea & conjunctiva

**Other Adjunctive Therapy**
- Intranasal corticosteroids
  - An increasing evidence supports its use in reducing ocular symptoms associated with allergic rhinitis

**Preventive Therapy**

**Mast Cell Stabilizers**
- Typically used to prevent recurrence of symptoms
- May take several days to weeks to become clinically effective

**Mast Cell Stabilizers / Antihistamines**
- May be used for both preventive, maintenance therapy & treatment of acute allergic episodes

### Dosage Guidelines

**ANTIHISTAMINES**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Available Strength</th>
<th>Dosage</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| Emesastine  | 0.05% ophth soln  | Instill 1 drop bid-qid | Adverse Reactions
|             |                    |                 | • Topical effects (transient ocular burning/stinging, bitter taste, blurred vision) |
| Epinastine  | 0.05% ophth soln  | Instill 1 drop bid |                                      |
| Levocabastine| 0.05% ophth soln | Instill 1 drop qid | • Systemic effects (headache, rhinitis) |

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Specific prescribing information may be found in the latest MIMS.
### Conjunctivitis - Allergic, Seasonal & Perennial (5 of 6)

#### Dosage Guidelines

##### ANTIIHISTAMINES/VASOCONSTRICTORS\(^1\)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Available Strength</th>
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</table>
| Antazoline/ naphazoline           | 0.5%/0.025% ophth soln 0.5%/0.05% ophth soln | Instill 1 drop tid-qid                                                  | • Topical effects (transient ocular burning/stinging, bitter taste, blurred vision, mydriasis)  
• Systemic effects (headache, rhinitis, hypertension, dizziness, cardiac irregularities) Special Instructions  
• Prolonged or over usage may result in rebound congestion  
• Avoid in patients w/ narrow angle glaucoma or occludable iridocorneal angles |
| Antazoline/ tetrahydrozoline       | 0.05%/0.4% ophth soln | Acute treatment: Instill 1 drop 3-5x/day  
Continuous use: Instill 1 drop bid-tid |                                                                                          |
| Naphazoline/ pheniramine           | 0.025%/0.3% ophth soln | Instill 1 drop q4h or less frequently as required                       |                                                                                          |
| Phenylephrine/ pyrilamine          | 0.12%/0.1% ophth soln | Instill 1 drop q4h as required                                         |                                                                                          |

\(^1\)Some ophthalmic antihistamines/vasoconstrictors are combined w/ Zn sulfate. Please see the latest MIMS for specific formulations.

##### CORTICOSTEROIDS\(^2\)

<table>
<thead>
<tr>
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</tr>
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</table>
| Betamethasone                     | 0.1% ophth soln    | Instill 1 drop 3-5x/day                                                | Adverse Reactions  
• Increased intraocular pressure that is dependent on concentration, frequency & duration of use; & can lead to secondary open angle glaucoma (irreversible optic nerve damage and possible irreversible blindness)  
• May slow corneal wound healing; infection of the cornea/conjunctiva; cataract formation  
• Rarely: Transient stinging, burning; ocular discharge, potential for systemic side effects Special Instructions  
Topical corticosteroid treatment should be monitored by an ophthalmologist  
• Should be used w/ caution & only in severe cases of allergic conjunctivits  
• Short course pulse treatment is preferred (<1 wk) during the acute symptomatic phase is desirable rather than prolonged chronic treatment |
| Dexamethasone                     | 0.1% ophth susp, gel | Instill 1 drop 3-5x/day                                                |                                                                                          |
| Fluorometholone                   | 0.02%/0.1% ophth susp | Instill 1 drop 3-5x/day                                                |                                                                                          |
| Loteprednol etabonate             | 0.5% ophth drops   | Instill 1 drop qid                                                     |                                                                                          |
| Prednisolone                      | 0.12%/1% ophth susp | Instill 1 drop 3-5x/day                                                |                                                                                          |
| Rimexolone                        | 1% ophth drops     | Instill 1 drop qid                                                     |                                                                                          |

\(^2\)Corticosteroids combined w/ vasoconstrictors are available. Please see the latest MIMS for specific formulations.

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## Dosage Guidelines

### MAST CELL STABILIZERS

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</tr>
</thead>
<tbody>
<tr>
<td>Cromoglicic acid</td>
<td>2% ophth soln</td>
<td>Instill 1 drop qid</td>
<td>Adverse Reactions: • Topical effects (transient ocular burning/stinging) • Conjunctival injection, itching, dryness, eye discharge have been reported</td>
</tr>
<tr>
<td>(Disodium cromoglycate, Na cromoglycate)</td>
<td>4% ophth soln</td>
<td>Instill 1 drop bid</td>
<td></td>
</tr>
<tr>
<td>Lodoxamide</td>
<td>0.1% ophth soln</td>
<td>Instill 1 drop qid</td>
<td></td>
</tr>
<tr>
<td>Nedocromil</td>
<td>2% ophth soln</td>
<td>Instill 1 drop bid</td>
<td></td>
</tr>
<tr>
<td>Pemirolast</td>
<td>0.1% ophth soln</td>
<td>Instill 1 drop bid</td>
<td></td>
</tr>
</tbody>
</table>

### MAST CELL STABILIZERS/ANTIHISTAMINES

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Ketotifen</td>
<td>0.025% ophth soln</td>
<td>Instill 1 drop bid</td>
<td>Adverse Reactions: • Occasional topical effects (changes in visual acuity, dry eyes); Systemic effects (headache, fatigue, skin rash) • Rare topical effects (burning/stinging, conjunctivitis, allergic reactions, sensitivity to light)</td>
</tr>
<tr>
<td>Olopatadine</td>
<td>0.1% ophth soln</td>
<td>Instill 1 drop bid</td>
<td></td>
</tr>
</tbody>
</table>

### VASOCONSTRICTORS

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Naphazoline</td>
<td>0.05%, 0.1% ophth soln</td>
<td>Instill 1 drop tid-qid</td>
<td>Adverse Reactions: • Topical effects (transient ocular stinging/burning, reddening of the eyes, increase in intraocular pressure) • Systemic effects can occur (hypertension, dizziness, cardiac irregularities) Special Instructions: • Prolonged or over usage may result in rebound congestion • Avoid in patients w/ narrow angle glaucoma or occludable iridocorneal angles</td>
</tr>
<tr>
<td>Tetrahydrozoline</td>
<td>0.05% ophth soln</td>
<td>Instill 1 drop tid-qid</td>
<td></td>
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Conjunctivitis - Allergic, Seasonal & Perennial


