



## PAN MERSEY AREA PRESCRIBING COMMITTEE GUIDELINES FOR THE NON-SPECIALIST MANAGEMENT OF DRY EYE SYMPTOMS

The diagnosis of dry eye symptoms is generally made on the history. Symptoms tend to affect both eyes.

One of the most common causes of 'dry eyes' is an unstable tear film due to blepharitis or other diseases of the eyelids such as that associated with acne rosacea. In such cases, although some of the symptoms may be temporarily relieved using artificial tears, they soon recur and patients then end up trying many different types and formulations of artificial tears.

If blepharitis is present, it can be recognised by red and inflamed lid margins often with the presence of scales along the eye lashes. In such cases application of a topical antimicrobial ointment such as chloramphenicol to the lid margins can be helpful.

If acne rosacea is present this is usually accompanied by obstruction of the meibomian glands along the lid margin. This often responds to warm lid compresses, for example a cotton ball placed in warm water and then applied to the lids of a closed eye for 5-10 seconds in the mornings and evenings.

- Referral to secondary care recommended if:**
- Symptoms are severe or the diagnosis is uncertain e.g. marked redness, photophobia, acute onset or unilateral disease.
  - Symptoms are uncontrolled despite adequate treatment (patient reliably taking their drops and risk factors minimised).
  - Vision deteriorates or cornea is affected.
  - Assessment for underlying disease needed.

### IF TREATMENT WITH AN ARTIFICIAL TEARS PREPARATION IS INDICATED:

Is the answer to any of the following 'yes'?

1. Does the patient wear contact lenses and cannot avoid wearing them during treatment? **or**
2. Is the patient taking other eye medications which contain preservatives? **or**
3. Does the patient have an existing documented allergy to preservatives?

No

Yes

|                            | Preserved preparations   |   | Preservative-free (PF) preparations   |
|----------------------------|--|---|---|
| <b>1<sup>st</sup> line</b> | Hypromellose 0.3% eye drops <b>or</b> polyvinyl alcohol 1.4% eye drops   | At any stage in treatment, consider switching to a preservative free option if the patient: <ul style="list-style-type: none"> <li>• develops an allergy to preservatives (e.g. worsening symptoms despite adequate treatment)</li> <li>• is requiring frequent administration (&gt;6 times per day)<sup>b</sup> <b>or</b></li> <li>• will require prolonged treatment<sup>b</sup></li> </ul> | Hypromellose 0.3% PF eye drops <b>or</b> polyvinyl alcohol PF eye drops   |
| <b>2<sup>nd</sup> line</b> | Carbomer-980 0.2% eye gel  |   | Carbomer-980 0.2% PF eye gel  |
| <b>3<sup>rd</sup> line</b> | Optive Fusion <sup>®</sup> eye drops <sup>a</sup> <b>or</b> Systane <sup>®</sup> eye drops <b>or</b> sodium hyaluronate eye drops <sup>c</sup> |   | Carmellose 0.5% PF eye drops <b>or</b> Systane <sup>®</sup> PF eye drops <b>or</b> sodium hyaluronate PF eye drops <sup>d</sup> |

<sup>a</sup> Contains preserving system that disintegrates on contact with the eye. May be considered in patients with a known allergy to another preservative (e.g. benzalkonium chloride).

<sup>b</sup> Patients requiring frequent administration of 1<sup>st</sup> line preserved treatments could be trialled on 2<sup>nd</sup> line preserved options as the required frequency of administration may be lower with these products.

<sup>c</sup> The product with the lowest acquisition cost should be selected. At the time of writing, this is **Blink Intensive Tears (10ml bottle)**.

<sup>d</sup> The product with the lowest acquisition cost should be selected. At the time of writing, this is **Vismed (10ml bottle)**.

**Patients should be given at least a 4 week trial of treatment at each step before reviewing.**

**Patients who continue to have symptoms despite adequate treatment with 2<sup>nd</sup>/3<sup>rd</sup> line treatment options should be considered for referral to an ophthalmologist for assessment.**

## GENERAL SUPPORTING INFORMATION

### About dry eyes

Tears are made up from a complex mixture of water, salts, proteins, lipids and mucins. The tear film is made up of three distinct layers, each having its own role in ensuring good tear maintenance: aqueous, lipid and mucin. Tears are produced under nervous and hormonal control by the lacrimal gland (responsible for producing the aqueous components of tears), the meibomian gland (producing lipid components) and the conjunctival goblet cells (which produce mucin). Dry eye symptoms are the final outcome of any process which alters the production of the components of the tear film.

### Prevalence of dry eye symptoms

- Prevalence increases with age
- In people over 65 years of age, the reported prevalence is as high as 33%.
- It is 50% more common in women than men.

### Causes of dry eyes

Most people with dry eyes have no measurable abnormality of tear production, and no serious disease affecting tear composition. Common causes of dry eye symptoms include:

**Decreased tear production**, commonly caused by:

- Blepharitis
- Adverse drug reaction
- Allergic conjunctivitis

**Increased evaporation of tears**, commonly caused by:

- Low humidity (e.g. from air conditioning)
- Low blink rate (e.g. prolonged computer use)
- High wind velocity
- Adverse drug reaction
- Allergic conjunctivitis

#### **Less common causes of dry eye symptoms**

**include:** lagophthalmos, Sjögren's syndrome, trauma, dehydration, diet low in omega-3 fatty acids, keratoconjunctivitis, complications of contact lens usage, ocular manifestations of HIV disease, post-Stevens Johnson syndrome, exophthalmos, blink disorders (e.g. Parkinson's disease), vitamin A deficiency.

#### **Drugs associated with dry eye symptoms:**

antihistamines, tricyclic antidepressants, SSRIs, diuretics, beta-blockers, antimuscarinics (e.g. antipsychotics), isotretinoin.

### Non-pharmacological management of dry eyes

Advise that the symptoms of dry eyes can be reduced by taking suitable precautions:

- If using computer for prolonged period, ensure screen is below eye level, avoid staring at the screen, and take frequent breaks to blink or close eyes
- Reducing contact lens use, if these are source of irritation
- Smoking cessation may reduce symptoms
- Stopping medication that may cause or exacerbate dry eyes symptoms
- Use of a humidifier to moisten ambient air

### Preservatives and dry eye symptoms

Ocular surface inflammation can be exacerbated by preservatives used in ocular preparations. Benzalkonium chloride (BAK) is commonly used in ocular preparations and it has been shown to destabilise the tear film and damage the corneal epithelium. In patients with mild symptoms, BAK-containing products may be well tolerated. In patients with more severe symptoms, BAK toxicity is more likely due to reduced tear secretions. Other preservatives may also cause toxicity. Patients with severe dry eye symptoms should always be prescribed PF preparations. Preservative-toxicity is dose related and patients requiring preserved drops >6 times per day should be reviewed and have an alternative preparation prescribed.

### Licensing of products for treatment of dry eyes

Increasingly, ocular lubricants are being licensed as medical devices rather than medicinal products. Medical devices do not have a summary of product characteristics. Medical devices can be identified as they carry the CE mark. Medical devices only require safety data to gain the CE mark and therefore clinical trial data to support the use of these products and to define their place in therapy is not available.

### References

1. The Ocular Surface, 2007. Report of the International Dry Eye workshop (DEWS) [online]. Available at: [www.tearfilm.org/dewsreport](http://www.tearfilm.org/dewsreport)
2. NICE Clinical Knowledge Summary: Dry Eye Syndrome [online] Available at: <http://cks.nice.org.uk>
3. Electronic Medicines Compendium (various SPCs) [online] Available at: [www.medicines.org.uk/emc](http://www.medicines.org.uk/emc)
4. Electronic Drug Tariff. March 2017
5. Patient Plus. Dry Eyes Syndrome [online] Available at: [www.patient.co.uk](http://www.patient.co.uk)