Dry Eye Syndrome Prescribing Guidelines

Dry Eye Syndrome is a group of disorders of the ocular surface related to tear film abnormality, associated with ocular discomfort, visual symptoms and objective pathology of the ocular surface. DES is a common condition that has significant impact on quality of life measures. Although treatable, it is usually incurable.

Classification

Tears are a multi-layered complex primarily of an aqueous layer (produced by lacrimal gland), proteins (Goblet cells), and lipids (Lid margin meibomian glands).
Depending on the site of pathology, tear film deficiency may be classified into Aqueous deficiency, Evaporative (either due to tear abnormality or extrinsic factors), or commonly a combination of both. In addition, disease may be classified on the basis of the underlying pathology since there may be several specific alterations in function of parts of the tear generating system, and both systemic and local inflammatory or autoimmune disease may be causal in a significant proportion of cases.

A pragmatic approach to management classifies disease severity, the commonest being the DEWS classification from I (mild), II (moderate), III (severe) and IV+ (very severe) . Management is dependent on the stage of disease.

Symptoms

Variable, and do not predict disease severity in particular cannot distinguish between moderate & severe disease.

- Gritty, dry, sore, FB [foreign body], tired eye sensation.
- Watery eyes particularly when exposed to wind – reflex tearing
- Blurred vision
- Slightly sticky eyes / difficult to open in the morning

Possible Causes

- Idiopathic: commonly age related decline of tear function
- Disorders of eyelid aperture & blink
    - Low blink rate with VDU / screen usage [Phone, PC, Tablet, TV, etc]
    - Age related
    - Lid malposition & floppy eyelid
- Autoimmune
    - Sjogren's syndrome & rheumatoid arthritis

- Ocular pemphigoid,
- Thyroid, systemic sclerosis and sarcoid.
- Medication – For example Antihistamines, tricyclic antidepressants and selective serotonin reuptake inhibitors

Diagnostic Requirements: Moderate to severe disease

i) Identification of specific ocular surface defect for targeted therapy

- Mild disease can be treated symptomatically.
- For moderate disease onwards, slit lamp assessment by ophthalmic practitioner will guide formulation of targeted therapy.

ii) Differential diagnosis / ocular inflammatory & autoimmune disease

- A number of conditions are commonly misdiagnosed as dry eye and thus not managed appropriately.
- These include blepharitis, meibomian gland disease (MGD), allergic eye disease, cicatricial conjunctivitis, epithelial dystrophies, rosacea, blepharokeratis, floppy eyelid syndrome, pterygia amongst others.
- Exclusion of these requires slit lamp assessment and onward referral for specific management.

iii) Identification and management of risk factors and behavioural modification

- Contact lens related: common and requires assessment / regime alteration by contact lens practitioner.
- VDU use : advice
- Management of co-existent eyelid disease: lid hygiene , referral for pharmacotherapy
- Identification of implicated systemic medication : consideration of substitution

iv) Identification of systemic disease

- Should occur for all moderate disease onwards through systems evaluation & history
- Both pre-existing (known) & new diagnosis (suspected)
- Particularly rheumatoid , systemic sclerosis , thyroid

Therapeutic Rationale

Tear supplementation is the principal pharmacological therapy for mild to moderate disease, alongside behavioural modification and management of coexisting eyelid disease. Moderate & Severe disease may in addition require specific pharmacotherapy of ocular/systemic immune disease and meibomian gland disease. Rarely surgical therapy may be necessary.

Although high quality evidence is lacking for many specific products, good evidence exists for groups of agents in general, with both moderate quality evidence and valid physiological considerations supporting a rational choice of pharmacotherapy. Wherever possible agents with equivalent function or composition are selected on a cost rational basis, taking into consideration long-term rather than unit acquisition cost, and cost effective agents are recommended. Specific higher cost agents which may be of benefit in particular patient groups are noted along with the indication. Selected agents are reserved for hospital use only, both to ensure appropriate prior systemic assessment and treatment, and also consideration for non-tear replacement (immunomodulatory) therapy.

Prescriber

- Mild disease should be treated on the basis of symptoms alone initially by non-ophthalmic practitioner
- Non targeted ‘blind’ therapy

- Higher risk patients should consider referral to ophthalmic practitioner, preferably within community
    - young patients (<30)
    - contact lens wearers
    - unilateral disease
    - known systemic association
    - significant visual disturbance

- Moderate / severe consider referral to ophthalmic practitioner, preferably within community

Mild Dry Eye Disease	**Treatment**	**Suggested agents**
• May be treated on the basis of symptoms alone initially by non-ophthalmic practitioner • Non targeted 'blind' therapy • ***Higher risk patients should consider referral to ophthalmic practitioner, preferably within community*** • These include ○ young patients (<30) ○ contact lens wearers ○ unilateral disease ○ known systemic association ○ significant visual disturbance	**Preferred 1st line agent : Carbomer**	**Clinitas Gel 10g £1.49** Low risk of toxicity as reduced frequency compared to hypromellose. Preserved with cetrimide vs BAK in hypromellose. If visual symptoms due to carbomer suggest referral to optometrist for evaluation / consideration **Second line agent**: **BLINK Intensive Tears 10 mL=£2.97** *suitable for contact lens users*

APPROVED BY: North East Essex Medicines Management Committee October 2015 **REVIEW DATE:** October 2017

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Moderate Dry Eye Disease	**Preferred 2nd Line agent:**	

• **Can be managed in a community setting in majority**
• **Require specialised ophthalmic examination with slit lamp to guide therapy & need for onward referral**
 	
• Specific systemic evaluation (Sjogrens / PSS)
 	
• Referral for evaluation and immunomodulatory therapy if ***objective ocular surface abnormality*** AND
  ○ unilateral / asymmetric disease
  ○ younger patients (<50)
  ○ known or suspected systemic association
  ○ Persistent signs / symptoms despite therapy
  ○ Signs outweigh symptoms
  ○ prominent visual disturbance
	Aqueous deficiency : Hyaluronate
	
	Alternate: Carmellose
	
	Alternate: Combined
		Low frequency – preserved BLINK Intensive Tears 10 mL=£2.97
		hyaluronate 0.2%, PEG 0.25%. BAK free; Na Chlorite 0.005% low toxicity. *Suitable for contact lenses*
		Only if high frequency (instilled every 2 hours or more frequently) /preservative allergy: Clinitas Multi 10ml=£6.99.
		Lowest cost. Higher concentration, 3 month life, bottle suitable for elderly / arthritics
		
		Evidence of inferiority to Hyaluronate/ higher cost. Only in specific indication e.g. corneal pathology.
		Carmellose 1% 30x 0.4ml = £3.00. *PF DROPS Carmellose 0.5 / 1% 10mL=£7.49*
		
		Recommended only if specific indication e.g. visual symptoms/ restricted instillation frequency.
		Systane :HPMG, PEG PG= £4.66(10ml). *Optive Fusion: Hyaluronate+Carmellose+Glycerol 10 mL = £7.49*

	Lid margin / meibomian gland disease / lipid deficiency	**1st line therapy hygiene / dietary.** **Only if** uncontrolled (high cost): **Systane Balance 10mL=£7.49** PPG/ HPG/sorbitol/mineral oil **Optive plus 10 mL=£7.49** carmellose / glycerol / Castor oil
	Nocturnal Paraffin : Carbomer : Carbomer / mineral oil	**1st line Xailin Night 5g=£2.49 .** Low cost. Lower viscosity /easier to instil Vit-a-pos 5g £2.75 Paraffin / Lanolin / Retinol. Slightly thicker **Alternative Clinitas Gel 10g £1.49** May be used for mild condition: limited retention 2nd line Artelac Nighttime gel 10 g = £2.96 lanolin sensitive or visual symptoms

Severe Dry Eye Disease		***Example Selected Specific Indications***
Managed in hospital service • Utilises range of tailored intervention including all above • ***Unit dose necessary when higher sterility requirement e.g epithelial defect / post surgical*** • Moderate disease that fails to respond to initial therapy : may benefit immunomodulatory therapy • Moderate disease with systemic disease : may benefit disease modifying therapy	**Hyaluronate Multidose** **Hyaluronate Unit dose**	**Vismed Gel Multi :** higher viscosity / irregular corneas. Easy to instill **Hyloforte**: Phosphate free: suitable for epithelial defect. **Hyabak**: Low viscosity & easy to instill **Vismed Gel UD** : hypotonic / low phosphate / higher viscosity
	Other specific preparations	**Carbomer Unit dose :** moderate viscosity & low residue **Carmellose pres free / unit Dose:** high viscosity – particular EBMD / scar, high residue **Systane ultra unit dose:** enhanced retention **Emustil Unit dose** : for severe lipid deficiency e.g congenital / chemical injury
	Disease modifying Agents: Consultant Use Only	• **Includes topical steroids, mast stabilisers, antihistamines, ciclosporin, tacrolimus** • **Blood products including autologous serum** • **Systemic including steroids, tetracyclines, immunosuppresants**

Prescriber notes

Make sure the patient can use the preparation prescribed.

- Some dropper bottles are very stiff and arthritic hands cannot undo or squeeze the bottle
- Consider softer bottle
- Use of aides such as Compleye, Opticare or Opticare Arthro may be useful and are prescribable on an FP10 .
- Tubes squeeze easily) e.g. Carbomer.

Avoid multiple agents within the same treatment tier without examination

- If initial therapy fails, will benefit from Slit lamp assessment & targeted pharmacotherapy.

Consider the long term costs rather than unit cost.

- Patients with intermittent episodes may benefit from agents with a long in-use life .
- Do not automatically provide repeat prescriptions as may be needed infrequently.
- Some unit doses can be re-capped & used throughout the day and may be more cost effective for intermittent users.

Ensure the patient understands the frequency and timing of use

- Most regimes work best used regularly rather than only when symptomatic, as surface changes are prevented from occurring
- During higher need, e.g. VDU / air con , presumptively instill drop before symptoms

Minimise preservative toxicity

- Avoid the preservative benzyalkonium chloride due to toxicity with prolonged use
- Hypromellose, hydroxyethylcellulose, and polyvinyl alcohol have little evidence to support their use, besides as a placebo.

MILD DRY EYE

Symptomatic diagnosis

Higher risk

- young patients (<30)
- contact lens wearers
- unilateral disease
- known systemic association
- significant visual disturbance

Yes → Moderate dry eye

No

First Line: Clinitas Gel 10g £1.49

Second Line agent: **BLINK Intensive Tears 10 mL=£2.97** *Suitable contact lens*

Persistent despite trial 2 agents : refer to Community or Hospital depending on severity

MODERATE DRY EYE

Community management:

Require ophthalmic slit lamp examination to guide therapy / onward referral

Refer if objective ocular surface abnormality AND

- unilateral / asymmetric disease
- younger patients (<50)
- known or suspected systemic association
- Signs outweigh symptoms
- prominent visual disturbance

Yes → Severe dry eye

No

First Line: BLINK Intensive Tears 10 mL=£2.97

Suitable for contact lenses

Nocturnal: Xailin Night 5g=£2.49

Second Line agent: **Clinitas Multi 10ml=£6.99** if high frequency /preservative allergy

Persistent symptoms or signs despite trial 2 agents: refer to Hospital

SEVERE DRY EYE

Hospital Eye Service

Nurse led dry eye clinic

- Triage & assessment
- Management inc punctal occlusion

Consultant Clinic

- Persistent corneal disease
- Suspicion coexisting ocular / systemic disease
- Assess for immunomodulation
- Non tear replacement therapy

Range of agents including:
Clinitas Multi
Vismed Gel Multi
Hyloforte

Clinitas / Vismed Gel/ Carbomer / Carmellose /Systane ultra unit dose