

Dry Eye Prescribing Guidelines

Amendment History

VERSION	DATE	AMENDMENT HISTORY
V1.0	2011	Comments
V1.1	2013	Updated
V1.1	2017	Draft Updated Thealoz Duo replaces carmellose Optive in severe dry eye on the previous pathway. This would replace sodium hyaluronidate 0.2%, clinitas 0.4% as it is more cost effective.
V2.0	June 2017	Final version ratified

REVIEWERS

This document had been reviewed by:

NAME	DATE	TITLE/RESPONSIBILITY	VERSION
ACE		Assurance Framework for managing clinical policies and guidelines	8

APPROVALS

This document has been approved by:

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Review date			

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RELATED DOCUMENTS

These documents will provide additional information:

REFERENCE NUMBER	DOCUMENT TITLE	VERSION

APPLICABLE LEGISLATION

N/A

GLOSSARY OF TERMS

TERM	ACRONYM	DEFINITION
Clinical Commissioning Group	CCG	
Area Clinical Effectiveness Committee	ACE	

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DRY EYE SYNDROME

Dry eye syndrome is a multifactorial disease of the tears and ocular surface that results in a range of symptoms, including discomfort, visual disturbance, tear film instability and potential damage to the ocular surface. It is accompanied by increased osmolarity of the tear film and inflammation of the ocular surface.

The key features of dry eye syndrome are:

- Decreased tear production
- Increased tear evaporation
- Incorrect composition of tears

These result in inadequate lubrication of the eyes.

Symptoms

Patients typically present with:

- feelings of dryness, grittiness, foreign body sensation, red eyes, staining of cornea, or soreness in both eyes, which get worse throughout the day
- eyes water, particularly when exposed to wind, and reflex tearing or blurring whilst reading or driving
- eyelids stuck together on waking

Causes

Dry eye syndrome prevalence increases with age (15-33% in people 65+ years); 50% more common in women than in men; a frequent complaint in post-menopausal women and rheumatoid patients.

It is an extremely common eye condition and has a wide range of causes, including:

- Decreased tear production: blepharitis (most common cause) tear film instability; adverse effect of systemic drugs (e.g.: antihistamines, tricyclic antidepressants, SSRIs; preservatives in topical eye medications); allergic conjunctivitis; dehydration (e.g. secondary to diabetes)
- Increased evaporation of tears - environmental factors at home / work (less commonly, caused by Lagophthalmos)/ most commonly with meibomian gland dysfunction
- Abnormal ocular surface / disruption of the afferent sensory nerves
- Decreased lipid production by Meibomian glands

Underlying conditions associated with dry eye syndrome include:

- allergic conjunctivitis
- Sjögren's syndrome (ask about dry mouth)
- Rheumatoid arthritis
- Rosacea (or ocular rosacea with inflammation and meibomian secretion abnormality)
- facial or trigeminal neuropathy
- herpes zoster affecting the eye
- chronic dermatoses of eyelids

- previous ocular or eyelid surgery, trauma, radiation therapy, burns
- Less commonly, people present with a complication of dry eye syndrome, e.g.:
- Conjunctivitis
- Ulceration of the cornea, suggested by severe pain, photophobia, marked redness, and loss of visual acuity

General management

- Treatment should initially focus on identifying and addressing lifestyle/environmental factors that may cause or exacerbate dry eye syndrome.
- The patient's medication history should also be reviewed, as topical and systemic antihistamines have been associated with dry eye syndrome. Similarly, HRT, TCAs and SSRIs can aggravate ocular symptoms.
- Reassure - when there is no underlying medical condition, most people with dry eyes have only discomfort and no lasting loss of vision though visual symptoms are common as severity increases. Rarely, the cornea develops ulcers. Mucus filaments adhere and may be painful in more severe forms.

Treatment

Artificial tears alone are usually sufficient to provide relief for mild dry eye and can be bought by the patient without a prescription.

- Hypromellose is a widely used product,. Products containing carbomers or polyvinyl alcohol are longer-acting. Sodium Hyaluronate is becoming more widely used because of its water-retaining properties and low resistance to blinking (viscoelastic property).
- If the patient has known allergy to preservative consider switching to one that is preservative-free. Products that do not contain preservatives are packed as single doses and are more expensive than multi-dose preparations in most cases but are more suitable where frequent use is needed or ocular surface disturbance is significant.
- Preservative drops are not compatible with contact lenses – contact lens wearers should get advice from their optometrist .
- Eye ointments - such as paraffins - physically lubricate and protect the eye surface from epithelial erosion and are particularly useful when the eye is closed during sleep .
- Eye ointments containing paraffin may be uncomfortable and blur vision, they should only be used at night and never with contact lenses some alternatives are available.
- Where ointments are too greasy carbomers or combination carbomer with lipid are available (artelac nighttime gel)
- Significant ocular surface disturbance may require specialist advice and treatment in the corneal service.

Severity	Symptoms & Signs	Treatment Options
Mild	Discomfort: mild Frequency of discomfort: episodic Visual symptoms: nil/mild Corneal staining with fluorescein: nil/min Conjunctival staining: nil/min FBUT variable Schirmer test variable	Hypromellose 0.3%/0.5% Carbomer eye drops (Cetrimide preservative) Hydroxypropyl gum (Systane Ultra) Optive Fusion*
Moderate	Discomfort: moderate Frequency of discomfort: episodic or chronic Visual symptoms: episodic, limiting activity Corneal staining with fluorescein: variable Conjunctival staining: variable FBUT < 10 seconds	Optive Fusion * Sod. Hyaluronate 0.15% (Hyabak) ^{RP*} Carmellose 1% * VitaPOS/ Liquid paraffin eye ointment for use at night Artelac Night-time gel (carbomer/triglyceride) ⁺
Severe	Discomfort: severe Frequency of discomfort: constant/disabling Visual symptoms: constant, activity limiting and disabling Corneal staining with fluorescein: marked severe punctate erosions Conjunctival staining: moderate to marked Corneal signs: mucus filaments or clumping, increased tear debris, corneal ulceration FBUT < 5 seconds Schirmer test < 5mm at 5mins	Sod.hyaluronate 0.2% (Hyloforte) ^{RP*} Sod.hyaluronate 0.4%(Clinitas) ^{*#} Hydroxypropyl gum (Systane Ultra unit dose) Specialist Initiation/recommendation only Theoloz Duo (Trehalose, Sodium hyaluronidate)

* Products suitable for patients who cannot tolerate preservatives.

Clinitas dose units can be reclosed for up to 12 hours with multiple applications.

^R Hyabak and Hyloforte are supplied in a soft bottle that some patients may find easier to squeeze such as those rheumatoid arthritis.

^P phosphate free buffered solutions

Where severe ocular surface disease is encountered and/or calcium deposition has occurred a non-phosphate buffered preparation should be considered (Hyabak or Hyloforte) though response to treatment will need reviewed and phosphate buffered solutions should still be considered in these circumstances. Specialist preparations may be necessary but are monitored in the hospital based service

⁺ When ointments are too greasy/poorly tolerated.

Meibomian gland dysfunction predominates

Optive plus or Systane balance

Other special agents (monitored in corneal and external diseases clinic) **Specialist**

Initiation/recommendation only

Acetylcysteine

Preservative free steroids

Ciclosporin 1mg/ml (Ikervis) unit dose (approved by NICE for treating severe keratitis in adult patients with dry eye disease that has not improved despite treatment with tear substitutes)

Manual dexterity

If patient has difficulty administering drops due to reduced manual dexterity consider carbomer gel. Hyabak and Hyloforte are supplied in a soft bottle that some patients may find easier to squeeze such as those with rheumatoid arthritis.

Eye hygiene

- If meibomian gland dysfunction is present, hot compresses (e.g. clean flannel rinsed in hot water) may benefit. Microwaveable mask.
- Eyelid hygiene will also help to control the blepharitis that most people with dry eye syndrome have.

Environment and other measures

Advise patients to minimise environmental and other factors that aggravate dry eye syndrome:

- if smokers, try to stop as it exacerbates symptoms
- avoid air conditioning
- take regular breaks if use computer for long periods / avoid staring at the screen for long periods
- wear wrap-around glasses outside.
- Omega 3 fatty acid supplements may be of help in blepharitis (self purchase supplements)

References

1. Behrens A, Doyle JJ, Stern L et al. Dysfunctional tear syndrome A Delphi approach to treatment recommendations. Cornea 2006 25:900-7
2. Management and therapy of dry eye disease: Report of the management and therapy subcommittee of the international dry eye workshop (2007). Ocul Surf 2007;5(2): 163-178.
3. Ophthalmology Referral Guidelines, Oxfordshire PCT, March 2012
4. Clinical Knowledge Summaries <http://www.cks.nhs.uk/dryeyesynndrome#-320107>

Drug Name	Indications	Dose	Proprietary name	Ingredients	Excipients	Pack Size	Price*
CARBOMERS (Polyacrylic acid)	dry eyes including keratoconjunctivitis sicca, unstable tear film	Apply 3-4 times daily or as required	Clinitas Gel*	carbomer 980 (polyacrylic acid) 0.2%		10 g	£1.49
Benzalkonium chloride containing products should be prescribed by BRAND			Viscotears*	carbomer 980 (polyacrylic acid) 0.2%	cetrimide	10g	£1.59
			Lumecare Long Lasting Tear Gel	carbomer 980 (polyacrylic acid) 0.2%	cetrimide	10g	£1.51
			Carbomer '980' 0.2% eye drops	Carbomer '980' 0.2%	benzalkonium chloride	10g	£2.80
			GelTears*	carbomer 980 (polyacrylic acid) 0.2%	benzalkonium chloride	10g	£2.80
			Liposic*	carbomer 980 (polyacrylic acid) 0.2%	cetrimide	10g	£2.96
			Artelac Nighttime gel	Carbomer 0.2%, Medium Chain Triglycerides	Cetrimide	10g	£2.96
			Liquivisc*	carbomer 974P (polyacrylic acid) 0.25%	benzalkonium chloride	10g	£4.50
			Viscotears*	carbomer 980 (polyacrylic acid) 0.2%		30 x 0.6-mL	£5.42
CARMELOSE SODIUM	dry eye conditions	Apply as required	Carmellose	carmellose sodium 1%		30 x 0.4 mL	£3.00
			Celluvisc*	carmellose sodium 1%		30 x 0.4 mL	£3.00
			Carmize*	carmellose sodium 1%		30 x 0.4 mL	£3.00
			Carmellose	carmellose sodium 0.5%		30 x 0.4 mL	£5.75
			Carmize*	carmellose sodium 0.5%		30 x 0.4 mL	£5.75

			Celluvisc*	carmellose sodium 0.5%		30 x 0.4 mL	£4.80
			Optive*	carmellose sodium 0.5%, glycerol		10ml	£7.49
			Optive Plus* (for meibomian gland dysfunction)	Carmellose sodium 0.5%, Castor oil 1%, Glycerin 0.25%		10ml	£7.49
HYPROMELLOSE	tear deficiency	Apply as required	Isopto Plain*	hypromellose 0.5%	benzalkonium chloride	10ml	81p
			Isopto Alkaline*	hypromellose 1%	benzalkonium chloride	10ml	94p
			Hypromellose	hypromellose 0.3%	benzalkonium chloride	10ml	£1.42
			Tears Naturale*	hypromellose 0.3%, dextran '70' 0.1%	benzalkonium chloride, disodium edetate	10ml	£2.99
			Artelac*	hypromellose 0.32%	cetrimide, disodium edetate	10ml	£4.60
			Lumecare Preservative Free Tear Drops	hypromellose 0.3%		30 x 0.5 mL	£5.72
			Tear-Lac*	hypromellose 0.3%		10ml	£5.75
			Hydromoor*	hypromellose 0.3%		30 x 0.4 mL	£5.75
			Tears Naturale Single Dose	hypromellose 0.3%, dextran '70' 0.1%		28 x 0.4 mL	£13.26
			Artelac SDU	hypromellose 0.32%		30 x 0.5 mL	£16.95
LIQUID PARAFFIN	dry eye conditions	Apply as required	VitA-POS* (expiry of 3 months once opened)	Retinol palmitate 250 units/g, white soft paraffin, light liquid paraffin, liquid paraffin, wool fat		5g	£2.75

	dry eye conditions	Apply as required	Lacrilube	Liquid paraffin 425 mg per 1 gram White soft paraffin 573 mg per 1 gram Wool alcohols 2 mg per 1 gram	3.5 - 5g	£2.94 - £3.88	
	dry eye conditions	Apply as required	Xailin night	White soft paraffin, white mineral oil, lanolin alcohols	5g	£2.49	
MACROGOLS (Polyethylene glycols)	dry eye conditions	Apply as required	Systane Ultra*	polyethylene glycol 400 0.4%, propylene glycol 0.3%, hydroxypropyl guar	10ml	£6.69	
Hydroxypropyl Guar			Systane Ultra*	polyethylene glycol 400 0.4%, propylene glycol 0.3%, hydroxypropyl guar	30 x 0.7 mL	£6.69	
			Systane Balance*	polyethylene glycol 400 0.6%	10ml	£7.49	
SODIUM HYALURONATE	dry eye conditions	Apply as required	Oxyl*	sodium hyaluronate 0.15%	10ml	£4.15	
Due to differences in chain length and viscosity the strengths do not indicate equivalence			Lubristil*	sodium hyaluronate 0.15%	20 x 0.3 mL	£4.99	
			Ocusan*	sodium hyaluronate 0.2%	20 x 0.5 mL	£5.25	
			Clinitas*	sodium hyaluronate 0.4%	Note Each unit is resealable and may be used for up to 12 hours	30 x 0.5 mL	£5.37
			Hyabak*	sodium hyaluronate 0.15%		10ml	£7.99
			Hylo-Forte*	sodium hyaluronate 0.2%		10ml	£9.50

* Prices as per BNF 72 (September 2016 - March- 2017) <http://www.bnf.org/bnf/index.htm>