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Short Communication

Treatment Update for Dry Eyes and Blepharitis

Shahid Bashir Ahmad*

Ophthalmologist, Scunthorpe General Hospital, England, UK

***Corresponding Author:** Shahid Bashir Ahmad, Ophthalmologist, Scunthorpe General Hospital, England, UK.

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These ocular conditions are very common but difficult to treat. Treatment strategy depends upon the severity of signs and symptoms. Following is a general guideline on the different tools available for managing these poorly-understood and multi-factorial conditions.

For mild dry eyes: Artificial tears can be used at a frequency of four times a day or as needed.

Patient education on lifestyle and environmental modification including smoking cessation, use of room humidifier, avoiding fierce central heating/air conditioning, wearing closely fitting glasses with side panels, lowering computer screen level, blinking more frequently etc. should be emphasized.

Dietary modification including increasing Omega-3/Omega-6 ratio is desirable.

Oral Flax-seed oil or fish oil rich in Omega-3 fatty acids at a dose of 1 - 2g per day and Omega-7 at a dose of 2g per day should be encouraged.

For moderate dry eyes: Artificial tears are used more frequently like every 2 - 4 hourly preferably in a preservative-free form. Hydroxypropyl-cellulose lower fornix inserts are available for patients who cannot put eye drops that frequently. Tear Gels or creams can be added for night time.

If there is an inflammatory component to dry eye, then Ciclosporin 0.05% drops twice a day or 0.1% once a day can be used for long term.

Mild steroids can also be used for short term for example Loteprednol 0.5% 2 - 4 times a day for up to one month. Other similar options include Prednisolone 0.1 - 0.5% or Fluorometholone 0.1%.

Punctal occlusion can be tried at this stage initially for lower lids. If successful then punctal cautery either thermal or laser can be performed for long term. Different types of punctal plugs are available. Some are self-dissolving like Collagen, Polymer and Thermal labile polymer plugs. Others are long lasting for example silicon plugs. If punctal plugs are inserted after 2 weeks of steroid use, the results are even better.

If dry eye is associated with Meibomian gland dysfunction then that should be treated with warm compresses, lid massage, lid hygiene and doxycycline etc. It is discussed in more details later on in this article.

For severe dry eyes: Preservative-free tears should be used every 1 - 2 hours.

Lubricating gel/ointment can be added in addition to drops at a frequency of 2 - 4 times a day or on as needed basis.

Ciclosporin 0.05% twice a day should be used for a minimum period of 6 months and can be maintained for 2 years or even indefinitely. Twice daily dosing should be maintained for first year which can then be reduced to once a day in the following year if symptoms are under control.

Ointment Tacrolimus 0.03 - 0.1% used twice a day is an alternative to ciclosporin.

Topical Lifitegrast 5% is a recent addition. It is given twice a day and works in two weeks but can be maintained indefinitely.

Punctal occlusion should be done to both upper and lower lids to conserve natural tears, initially temporary and then permanent occlusion can be done if no epiphora is seen.

Moisture chamber with plastic film, specialty goggles, spectacle with side-shields, wrap-around glasses and sleep masks are all good options to conserve the natural tears.

Acetylcysteine 5% or 10% four times a day is beneficial if mucus plaques/filamentary keratitis is present.

Ointment Vitamin A (All-trans retinoic acid 0.01 - 0.1%) four times a day or at night should be considered for conjunctival keratinization for a period of 2 - 6 months. Retinyl palmitate 0.05% eye drops four times a day is an alternative. In documented vitamin-A deficiency, systemic treatment should also be given.

Autologous serum drops 20 - 50% diluted in artificial tears given 4 - 8 times per day or Autologous blood acquired by finger prick and inserted into lower fornix are also very helpful.

Umbilical cord serum drops 20 - 100%, allogeneic serum and platelet lysate are alternative options if autologous serum/blood cannot be obtained.

Bandage contact lens (Silicone hydrogel) or rigid gas permeable scleral contact lens should be considered if corneal integrity is at risk.

Secretagogues are secretion promoting agents. Topical secretagogues include Rebamipide 2%, Diquafosol sodium 3% and Tavilermide. Oral secretagogues including pilocarpine 5 mg four times a day or oral Cevimeline is used for dry mouth and dry eyes in Sjogren syndrome.

Treat exposure keratopathy by correcting ectropion, proptosis or lagophthalmos. Permanent lateral tarsorrhaphy can be done if needed. Botox tarsorrhaphy, adhesive-tape tarsorrhaphy or swimming goggles at night are temporary options.

Mucous membrane grafting and Amniotic membrane grafting can be done for corneal complications of severe dry eye. Salivary gland auto-transplantation is an option in extreme cases.

Referral for systemic diseases for systemic anti-inflammatory therapy is needed if dry eye is associated with a systemic condition.

Novel treatment options that are being investigated include Lacrimal neurostimulation (via nose), serum albumin 5% drops four hourly for 4 weeks, topical androgen hormones Like DHEA and topical Dapsone 0.25% four times a day for 2 weeks and then twice a day indefinitely.

For blepharitis/meibomian gland dysfunction

Lid Hygiene is fundamental in long term management (warm compress for 5 min + lid massage/expression of meibomian gland secretions + lid cleansing) twice daily during acute exacerbation and once daily for maintenance of remission.

One can use commercial lid wipes/scrubs or dilute warm solution of baby shampoo or sodium bicarbonate impregnated cotton buds for cleaning the lid margins.

Antibiotic ointment should be put after completing lid hygiene in acute flare-ups. Options include fusidic acid, chloramphenicol, erythromycin, azithromycin and bacitracin used once at night or twice a day for 3 weeks.

Lid hygiene is more important in managing anterior blepharitis whereas warm compresses and lid massage are crucial for managing posterior blepharitis.

Moist heat with hot flannel/towelette is recommended method of heat application.

Hot shower with water focused on closed lids for few minutes followed by lid massage is also a feasible option. Heat masks either USB-operated or microwaveable masks are commercially available for this purpose.

Emulsion drops and sprays are available that can soften dried lipids.

Steroids like Fluorometholone 0.1% or Loteprednol 0.5% given four times a day for a week can be useful for inflammation or steroid-antibiotic combination can be prescribed e.g. ointment Tobradex during flare-ups at a frequency of 1 - 4 times a day for a couple of weeks.

Oral Doxycycline (50 - 100 mg) twice a day for a week then once a day for 6 - 24 weeks is useful especially if associated with acne rosacea or chalazion.

Tab Azithromycin is alternative to doxycycline at a dose of 500 mg once a day for 3 days repeated in 3 cycles with one week interval in between (Pulsed Therapy).

Other systemic tetracyclines or topical Tetracycline ointment four times a day or doxycycline eye drops 0.025 - 0.1% given twice a day are other options. Topical Azithromycin has been reported to be better than oral Azithromycin and oral doxycycline at a dose of 15 mg/g twice a day for 2 days then once a day for 2 - 4 weeks. Azithromycin is considered better for anterior blepharitis whereas Doxycycline is considered better for posterior blepharitis.

In resistant cases, especially if associated with acne rosacea, other options to be considered include: Ointment Clindamycin 1% once at night for 6 months, Ointment Metronidazole 0.75% for 4 weeks to 6 months, Dapsone eye drops 4 times a day for 2 weeks then twice a day indefinitely, hormone drops like DHEA (dehydroepiandrosterone) 0.5 - 1.0% 2 - 6 times per day.

For children younger than 12 years, doxycycline is contra-indicated. Alternative option is oral Erythromycin 250 mg 1 - 2 times a day.

To treat Demodex mite-associated blepharitis: Clean lids, eyebrows and peri-ocular skin once daily with Tea tree oil 50% scrub and 5% ointment. Tea tree shampoo and facial soap can be used long term. Ivermectin 1% cream or oral 200 microgram/kg, 2 doses at one week interval and Topical permethrin are other options. High temperature cleaning of bedding and treatment of the partner is essential to avoid recurrences.

Novel therapies for treating MGD or blepharitis include

Intense Pulsed light application, Meibomian gland intraductal probing, Lipiflow device, MiBoThermoFlo device and BlephEx treatment device. These are usually office-based procedures performed by experts [1-10].