

Contact Lens Update

CLINICAL INSIGHTS BASED IN CURRENT RESEARCH

Summary: Iatrogenic report - Dry eye disease caused by a medical treatment or procedure

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Gomes JAP, Azar DT, et al. TFOS DEWS II Iatrogenic report. Ocul Surf 2017;15(3): 511-538.

The use of systemic and ocular medications or treatments can result in dry eye disease by impacting tear production and tear stability. Surgical procedures can further damage corneal nerves, which may result in dry eye disease directly or increase the condition in pre-existing dry eye patients.

Systemic medications

Systemic medications may cause dry eye due to reduced tear production, altered nerve input and reflex secretion, inflammatory effects on the various tear glands or direct irritation through secretion into the tears.

Examples of systemic medications: (e.g. antidepressants, antihypertensives, antihistamines, anti-inflammatory medications, steroids, hormone replacement therapy)

Topical ocular medications

Topical medications may result in dry eye due to allergic, toxic and/or immunoinflammatory effects. They do so by disrupting the lipid layer through detergent tensioactive effects or by reducing tear production. There can also be damage to goblet cells, the conjunctival and corneal epithelia, corneal nerves or even eyelids at the skin or meibomian gland level.

Examples of topical medications: (e.g. glaucoma medications, allergy medications, antiviral agents, decongestants, miotics, mydriatics, cycloplegics, preservatives, topical and local anesthetics)

Glaucoma medications containing preservatives such as benzalkonium chloride (BAK) are more likely to cause dry eye symptoms compared to non-preserved products.

Ophthalmic surgeries

LASIK and PRK may cause transient or permanent dry eye symptoms in up to 19% of patients due to neurotrophic effects of the surgery.

Cataract surgery is typically performed on older patients who have a higher incidence of pre-existing dry eye. Corneal denervation due to the surgery could impact blinking rates and the natural tearing reflex and may take up to two years to recover.

Contact lenses

Dryness symptoms are reported in up to 77% of contact lens wearers and is most likely experienced at the end of the day. Dry eye may be caused by a disruption of the tear film, leading to reduced tear stability, increased evaporation rates and small changes in the tear composition.

Non-surgical procedures

Botulinum toxin is frequently used for patients with blepharospasm and hemifacial spasm, but also finds application in patients wishing to reduce wrinkles. Dryness symptoms due to botulin toxin have been reported in 19% of blepharospasm patients.

The use of cosmetics including facial creams and makeup can cause dry eye symptoms when migrating into the tear film or when accumulating inside the meibomian glands.

Tattooing of the eyelids or eyebrow/ eyelid piercings may impact meibomian gland function, which could reduce tear stability and cause dryness.

It is important to educate patients on potential dry eye side effects related to systemic and topical medications or treatments. The use of preservative-free medications and lubricating eye drops is recommended in order to reduce dry eye symptoms. Ocular surgeries further carry the risk of temporary or permanent corneal nerve damage, which could result in dry eye, particularly in the elderly population with pre-existing dry eye disease.

REFERENCES

Gomes JAP, Azar DT, et al. TFOS DEWS II Iatrogenic report. Ocul Surf 2017;15(3): 511-538.

