

Q2 Dry Eye Disease

Which *one* of the following statements regarding dry eye disease is *false*?

- 1. Aerobic exercise decreases tear secretion.
- 2. Artificial tears are the first-line treatment.
- 3. Overuse of artificial tears can cause toxic conjunctivitis.
- 4. Artificial tears with vasoconstrictors to reduce redness can cause rebound redness due to tachyphylaxis.

Educational Point: Dry eye disease (DED) is a relatively common condition characterized by abnormal tear film composition and ocular surface inflammation. Patients with DED often present with foreign body sensation and blurred vision.

DED can be categorized into 2 main groups: aqueous tear deficiency and evaporative DED. Many patients have a combination of both types. Aqueous tear deficiency is due to reduced lacrimal secretion or inadequate tear volume. Evaporative DED, which is a more common condition and develops in the setting of normal lacrimal secretion, involves excessive evaporation of the tear film, which may result from an insufficient lipid layer of the tear film.

Aerobic exercise increases tear secretion, and incorporation of light exercise and a diet with low glycemic index foods are associated with improved dry eye symptoms.

Restoration of tear film homeostasis is the primary goal when treating DED. The optimal strategy for a patient depends on specific causative factors, and multiple treatment modalities may be necessary to disrupt the cycle of DED. **Lubrication with artificial tears and ointments are first-line treatments for DED and can provide at least partial relief of symptoms.**

Patients with suspected or confirmed DED that does not adequately respond to a trial of over-the-counter treatments should be referred to an ophthalmologist. However, primary care physicians should be aware of several key concepts, including that most over-the-counter artificial tear formulations contain a preservative. **Patients should be advised to use these eye drops no more than 4 to 6 times per day because exposure to elevated amounts of preservatives can damage the ocular surface and cause toxic conjunctivitis, resulting in symptoms that may be similar to DED.** Preservative-free artificial tears are less irritating to the ocular surface and may therefore be used more frequently, although toxic conjunctivitis is still possible.

Some artificial tear formulations contain a vasoconstrictor such as tetrahydrozoline. While these eye drops may be used occasionally for lubrication or to help reduce eye redness, regular use may lead to rebound redness from vasodilation secondary to tachyphylaxis. Lubricating ophthalmic gels and ointments are often recommended for use at bedtime as the higher viscosity results in greater contact time on the ocular surface, but they may also cause unwanted blurring of vision while patients are awake.

In addition to lubricants, ophthalmologists may recommend topical anti-inflammatory medications such as a steroid, cyclosporine, or lifitegrast. Topical steroids can cause secondary glaucoma, cataract formation, or both when used long term (>4 weeks), so these medications should only be prescribed by an ophthalmologist.

The correct answer is 1.

Reference: Hakim FE, Farooq AV. Dry Eye Disease: An Update in 2022. *JAMA*. 2022;327(5):478–479.

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