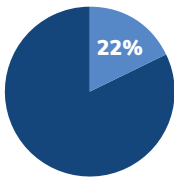


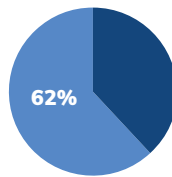
# IATROGENIC DRY EYE — MEDICATIONS CHECKLIST

***Iatrogenesis is the causation of a disease, a harmful complication, or other ill effect by any medical activity<sup>1</sup>***

**Topical and systemic medications can cause iatrogenic dry eye disease<sup>2</sup>:**



**Among the 100  
top selling drugs  
- 22% are known  
to cause dry eye<sup>2</sup>**



**Up to 62% of dry eye  
in the elderly can be  
attributed to systemic  
drying medications<sup>3</sup>**

**\*Taking a comprehensive patient history, including a medications check, can help identify the root cause of the dryness.**

## **Recommendations for Management<sup>2</sup>:**

- Identify potential causative agents when taking a patient history
- Consider withdrawal or reduction in dose frequency
- Move to a preservative free regime where possible or alternate preservative
- Consider non-medical approaches for IOP management if quality of life is impacted (e.g. laser trabeculoplasty or surgery)
- Use topical lubricants (preservative free)

### References:

1. "Iatrogenic", Merriam-Webster.com, Merriam-Webster, Inc., [Accessed December 2022]
2. Gomes, J.A.P., Azar, D.T., Baudouin, C. et al TFOS Dews II iatrogenic report. The ocular surface, 15(3), pp.511-538.
3. Schein, O.D., Hochberg, M.C., Munoz, B. et al Archives of internal medicine, 159(12), pp.1359-1363.
4. Fraunfelder FT, Fraunfelder FW, Chambers WA. Drug-Induced Ocular Side Effects. London: Elsevier Saunders; 2015.

## ✓ CHECKLIST

### How can medications cause dry eye disease?

Systemic Medications	Topical Medications
<ul style="list-style-type: none"> <li>• Decrease tear production</li> <li>• Alter nerve inputs and reflex tearing</li> <li>• Cause inflammation in the secretory glands</li> <li>• Directly irritate the ocular surface when secreted in tears after systemic absorption</li> </ul>	<ul style="list-style-type: none"> <li>• Due to their allergic, toxic and immuno-inflammatory effects on the ocular surface</li> <li>• Preservatives, such as benzalkonium chloride, may further aggravate DED</li> </ul>
<p><b><u>Analgesics</u></b> *Ibuprofen/*Aspirin/Opioids</p> <p><b><u>Antihistamines</u></b> *Cetirizine/*Fexofenadine/Olopatadine/ *Chlorpheniramine</p> <p><b><u>Antidepressants</u></b> Citalopram/Amitriptyline/Venlafaxine/ Fluoxetine</p> <p><b><u>Antihypertensives</u></b> Beta-Blockers: Atenolol/*Propranolol Diuretics: Bendroflumethiazide</p> <p><b><u>Anxiolytic/Hypnotic</u></b> *Diazepam/*Lorazepam</p> <p><b><u>Chelators/Calcium Regulator</u></b> Alendronate/Risendronate</p> <p><b><u>Depressants</u></b> *Ethanol</p> <p><b><u>Hormones</u></b> HRT/Estrogen/Progesterone/Tamsulosin</p> <p><b><u>Herbal &amp; Vitamins</u></b> Isotretinoin/Echinacea</p>	<p><b><u>Preservatives</u></b> Benzalkonium chloride</p> <p><b><u>Anti- Glaucoma medications</u></b> Beta-Blockers e.g. Betaloxol/Timolol Adrenergic Agonist e.g. Apraclonadine/Brimonidine Carbonic Anhydrase Inhibitors e.g Brinzolamide/Dorzolomide Prostaglandin Analogues e.g Bimatoprost/Latanoprost /Travoprost</p> <p><b><u>Anti-Allergy</u></b> Olopatadine</p> <p><b><u>Antivirals</u></b> Aciclovir/Trifluridine</p> <p><b><u>Topical ocular NSAIDS</u></b> Bromfenac/Diclofenac/Kerorolac/ Nepafenac</p> <p><b><u>Product excipients</u></b> Surfactants/Co-Solubilizers/Preservative aids/Antioxidants</p>

\*Drugs marked with an asterisk are classified as having a certain causative relationship to dry eye symptoms as described by Fraunfelder et al<sup>4</sup>

This is not an exhaustive list but highlights the most common medications associated with dry eye. For a full list please refer to the TFOS DEWS II Iatrogenic Report: <https://www.sciencedirect.com/science/article/pii/S1542012417301040?via%3Dihub>