A recent edition of this column featured the article, “Identifying Subgroups of Dry Eye Patients,” which discussed the benefits of defining patient databases to build a practice and expedite future clinical trials. A careful examination and proper questioning of patients with dry eye symptoms lead to individualized diagnoses and rewarding treatment plans for eye care specialists and their patients. This process also helps practitioners to fully understand their clinic’s population, because patients who fit into a certain disease category are likely to have other conditions. For example, several factors are believed to influence the prevalence of ocular surface disease (OSD), such as age, gender, and race/ethnicity.2 Glaucoma patients are reportedly at a higher risk of developing OSD, because both conditions more commonly occur in older patients. It is therefore important for eye care specialists to monitor glaucoma patients for other ocular diseases, to evaluate them extensively, and to treat them when appropriate.

**GLAUCOMA AND OSD**

One report found that 66% of patients with severe OSD also have glaucoma, and another study estimated that nearly 60% of medically treated patients with glaucoma have symptoms of OSD.3,4 Both OSD and glaucoma have an age-dependent prevalence: OSD affects approximately 11% of patients aged 40 to 59 years and 18% of those aged more than 80 years. Glaucoma affects approximately 1% of individuals between the ages of 40 and 49 and 8% of patients aged more than 80 years.5,6 Patients who complain of dry eyes should be evaluated for OSD prior to the assessment of their IOP. The combination of an anesthetic and fluorescein used to measure IOP can “flood the field,” preventing the clinician from accurately assessing ocular surface staining and tear film breakup time.

**TREATMENTS AFFECTING GLAUCOMA AND OSD**

The high prevalence of OSD symptoms among patients with glaucoma suggests an interaction between the two conditions and/or their treatment regimens. Glaucoma patients are generally treated with pressure-lowering eye drops that contain preservatives. Found in roughly 72% of all formulations, benzalkonium chloride (BAK) is the most common preservative in topical multiuse ophthalmic preparations.7 Unfortunately, this preservative has been implicated in the development or exacerbation of the signs and symptoms of OSD.8,9 Some studies have concluded that BAK may have a disruptive effect on the tear film because of its detergent effect on the lipid layer. The preservative’s activity reduces the stability of the lipid layer and causes excessive evaporation of tears, resulting in increased ocular dryness.10-12 One study found that the use of more BAK-containing eye drops by glaucoma patients was significantly associated with more staining of their corneal/conjunctival surfaces, indicating the presence of OSD.4 Furthermore, preservatives can decrease the density of goblet cells in the conjunctival epithelium,13 potentially reducing the stability of the precorneal tear film and compromising its ability to protect the cornea.4

It is also important to note that the treatment modalities for OSD can increase a patient’s risk of developing glaucoma or disease progression. For example, patients undergoing ocular surface reconstruction often use topical corticosteroids for indefinite periods, and these agents may cause secondary glaucoma or exacerbate preexisting glaucoma.3 Additionally, limbal stem cell surgery may cause trauma and scarring, impairing the venous outflow and leading to postoperative ocular hypertension and glaucoma.3

Ultimately, eye care specialists must decide whether the high microbial effectiveness of BAK outweighs the risks associated with the long-term dosing of a preservative. Patients with both glaucoma and dry eye are most susceptible to BAK-induced adverse effects, which can reduce their compliance with treatment and increase damage to the ocular surface. Preservative-free and soft-preservative agents are alternatives to BAK-preserved glaucoma drops.

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It is crucial to carefully consider the patient’s individual symptoms when determining the best treatment modality for both glaucoma and OSD.

TREATMENT OPTIONS FOR OSD AND GLAUCOMA

In an ongoing study, investigators are comparing the effect of latanoprost (Catioprost; Novagali Pharma) and travoprost ophthalmic solution 0.004% (Travatan Z; Alcon Laboratories, Inc.) on OSD in subjects with glaucoma or ocular hypertension and OSD.\(^\text{14}\) Catioprost is a preservative-free cationic emulsion containing 0.005% latanoprost being developed to control IOP and treat ocular surface damage.

CONCLUSION

The similar patient population and age dependency of glaucoma and OSD significantly increase individuals’ likelihood of having both diseases. Finding a proper treatment modality for these diseases as they occur together is complicated by their conflicting therapeutic regimens. It is important to consider the whole patient and assess his or her glaucoma and potential OSD on a case-by-case basis. When treating glaucoma patients (or identifying patients for a glaucoma study), the undesirable effect that OSD can have on results may be significant. Clinicians must be cognizant of the importance of treating not only the patient’s glaucoma but any additional ocular conditions as well.

Tom Mundorf, MD, is a glaucoma specialist in Charlotte, North Carolina. Dr. Mundorf is active in glaucoma research and has lectured on glaucoma both nationally and internationally. He acknowledged no financial interest in the products or companies mentioned herein. Dr. Mundorf may be reached at (704) 334-3222.