

In Case You Want to Know

□ THE FIRST IN A SERIES

Ocular surface disease in glaucoma patient often overlooked

Eye lubricant relieves dry eye symptoms, helps improve condition of ocular surface

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Ocular surface disease is a common comorbid finding in glaucoma patients, in part because its prevalence, like that of glaucoma, increases with age. Nevertheless, the diagnosis of ocular surface disease in the glaucoma patient is often overlooked because the focus of management is on the evaluation of IOP and markers of glaucomatous disease progression.

However, ocular surface disease is an important condition to recognize and treat. Not only may it cause significant discomfort and problems with vision, but in addition, it can be theorized to be a contributing factor in poor treatment responses to glaucoma medications. For ex-

ample, patients with corneal epithelial disease and inflammation may have an increased blink rate that can hasten washout and minimize contact time of topical glaucoma medications. Furthermore, patients with a compromised ocular surface may be more prone to experience stinging and burning upon instillation of their topical glaucoma drops. Motivation to adhere to prescribed therapy may already be low since early glaucoma itself is a silent disease. When a patient perceives the treatment as worse than the disease, compliance is likely to suffer.

About 18 months ago, I began routinely evaluating my glaucoma patients for ocular surface disease. For patients with signs and symptoms consistent with that diagnosis, I am recommending use of artificial tears 10 to 15 minutes before or after use of any glaucoma medication and as needed during the day.

The newer tear supplement, Systane,

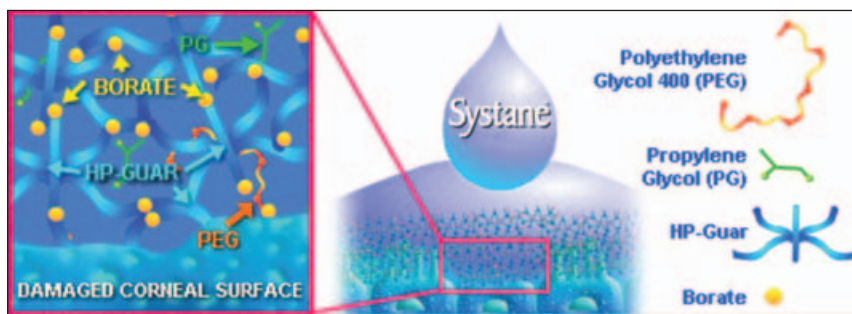
Alcon Laboratories, Fort Worth, TX, seems especially well-suited for this application. Systane is uniquely formulated to result in creation of a gel-like membrane on the ocular surface that helps to maintain the product's demulcent system on the eye and improve tear stability.

Systane contains the active demulcents, polyethylene glycol and propylene glycol, as well as the inactive ingredients HP-Guar and borate. Upon contact with the tear film, HP-Guar and borate undergo a pH-induced polymerization reaction, cross-linking with each other to form a gelled matrix that helps retain the demulcents on the ocular surface. Systane acts like a Band-Aid to protect healthy epithelial cells and allow the damaged cells to regenerate.

Clinical study results demonstrate the benefits of Systane for providing rapid onset, long-lasting relief from the signs and symptoms of dry eye as well as allowing for corneal epithelial repair.¹ I have found similar benefits using it in my glaucoma patients with ocular surface disease.

By providing an extended duration of ocular surface protection,² Systane also has the benefit relative to conventional artificial tear products of minimizing dosing frequency. I find patients need to administer Systane no more than four times a day and many patients find they are comfortable using it even less often. Reducing the frequency of administration is a well-recognized factor in increased patient satisfaction and compliance with any treatment, and it is particularly relevant for glaucoma patients who are already putting other medication(s) into the eye.

The following case example illustrates the occurrence of ocular surface disease in a patient with glaucoma and the potential for it to go unrecognized without appropriate evaluation. >>>



Systane is specially formulated to create a gel-like membrane on the ocular surface that helps maintain the product's demulcent system on the eye and improve tear stability. Systane consists of the active demulcents, polyethylene glycol (PEG) and propylene glycol (PG), and inactive ingredients HP-Guar and borate. When Systane comes in contact with the tear film, HP-Guar and borate undergo a reaction, cross-linking with each other to form a gelled matrix to help keep the demulcents on the ocular surface. Systane helps protect healthy epithelial cells and allow for epithelial repair. FIGURE COURTESY OF ALCON LABORATORIES INC.

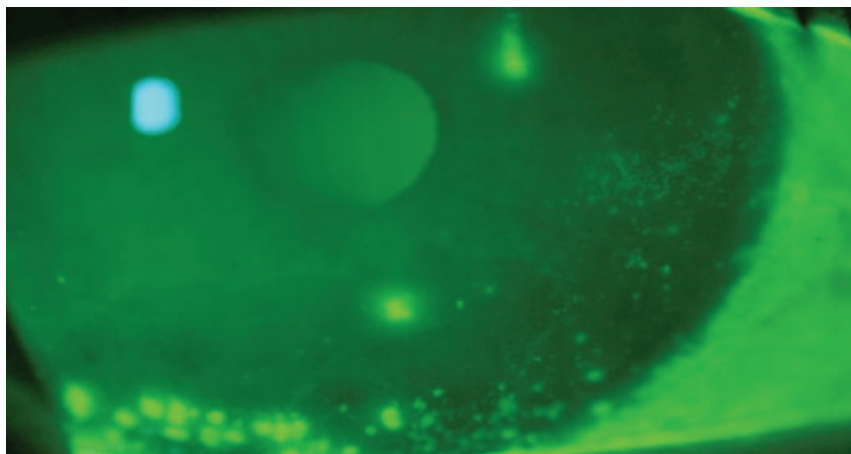
Case

A 65-year-old white male was first seen several months earlier on referral for management of glaucoma with variable IOP. He was also aware of a decrease in vision in his left eye. He was using bimatoprost 0.03% once daily in the evening. Previous treatment included trials of beta-blockers and brimonidine tartrate 0.2%, but he was unable to tolerate any of those medications.

The patient had type I insulin dependent diabetes and rheumatoid arthritis. His ocular history included branch retinal artery occlusion OS, cataract surgery OU,

Schirmer test. The findings were roughly equivalent in both eyes. The man had no history of dry mouth or collagen vascular disease. There was no evidence of glaucoma progression nor were any other causes found for his decreased vision.

A diagnosis of dry eye with punctate keratitis was made. Treatment was started with Systane q.i.d. and instructions that it should be used 10 to 15 minutes before or after use of other ocular medications. Decisions on further management of ocular surface disease will be made based on evaluation at the next follow-up visit.



Dry eye can be diagnosed with a brief history and ocular examination, including fluorescein staining to assess the condition of the ocular surface. In this eye, punctate epithelial erosions can be seen 5 minutes following fluorescein staining. PHOTO COURTESY OF MARIANNE ANDERSON, OD

and panretinal photocoagulation for proliferative diabetic retinopathy (OU) with vitrectomy (OS). The decrease in vision in the left eye was attributed to glaucoma progression as well as prior treatment for diabetic retinopathy.

Trabeculectomy with adjunctive mitomycin-C was performed OS with an excellent result, and he continued using bimatoprost OD. However, recently he was aware of a decrease in clarity when reading and working at the computer, and visual acuity testing showed a loss (2 to 3 lines) in both eyes. Due to ocular discomfort with itching, the patient had self-initiated use of OTC anti-allergy medication and artificial tears, but he stated those agents were unsuccessful in addressing his discomfort and blurred vision.

A complete ocular examination was performed, including a work-up for dry eye. The latter revealed the presence of punctate epithelial erosions, a slightly decreased tear break-up time, and a positive

Simple exam

Evaluating glaucoma patients for ocular surface disease can be accomplished with a brief history and ocular examination and does not need to present a significant added burden for an already busy practitioner. Patients should be asked about symptoms of dry eye and use of systemic medications or other diseases that can cause ocular dryness. However, in interpreting their responses, it is important to remember that there can be a poor correlation between the severity of symptomatic complaints and the severity of disease-related ocular findings.

The ocular examination should include an assessment for eyelid disease and anatomic abnormalities that may be underlying causes for evaporative tear loss, along with measurement of tear break-up time to determine tear film stability. Fluorescein dye may have already been applied for applanation tonometry and can provide enough information about the

condition of the ocular surface so that use of other stains is not necessary in the majority of patients.

I consider Systane for any patient with signs or symptoms consistent with the diagnosis of ocular surface disease and instruct them to use Systane up to four times daily as needed. Patients using a topical glaucoma medication can also instill Systane around the same time. However, I recommend administering Systane first and then waiting 10 to 15 minutes before dosing the IOP-lowering medication.

Clinicians must remember that Systane may be just one element in the management of ocular surface problems. Consideration must also be given to addressing other contributing factors, including any potential inflammatory component of the disease, and depending on disease severity, more aggressive intervention may be needed.

Summary

Ocular surface disease is common in glaucoma patients and can be associated with discomfort, other symptoms, and the potential to interfere with patient use of topical glaucoma medications. Establishing the diagnosis can be achieved in a simple examination that takes just a few extra minutes. It is time well spent because of the value patients derive from appropriate intervention.

Artificial tears are a mainstay in the management of ocular surface disease. The novel ocular lubricant Systane offers ocular protection of an extended duration that minimizes instillation frequency. Clinical experience in glaucoma patients with ocular surface disease indicates its use may be beneficial for providing prolonged relief from bothersome symptoms of ocular dryness and improving the condition of the ocular surface.¹

References:

- 1 Christensen MT, Cohen S, Rinehart J, Akers F, Pemberton B, Bloomenstein M, Leshner M, Kaplan D, Meadows D, Meuse P, Hearn C, Stein JM. Clinical evaluation of an HP-Guar gellable lubricant eye drop for the relief of dryness of the eye. *Curr Eye Res* 2004. Jan;28(1):55-62.
- 2 Christensen MT, Stein JM, Stone RP, Meadows DL. Evaluation of the effect on tear film break-up time extension by artificial tears in dry eye patients. Abstract presented at 23rd Biennial Cornea Research Conference, Oct. 3-4, 2003.