



DRY EYE, SLEEP, AND POOR LID PERFORMANCE



A closer look at the connection.

BY LESLIE O'DELL, OD, FAAO

As the standard dry eye diagnostic protocol grows ever more expansive, optometrists shouldn't lose sight of one critically important factor: sleep. Sleep affects almost every aspect of our patients' overall health. For dry eye patients, recent research shows that what happens at night—specifically, compromised lid seal and exposure leading to desiccating stress—can have a large impact on symptom severity.¹

In 2017, Korb et al presented compelling data showing that 61% of symptomatic dry eye patients—including those with mild, moderate, and severe symptoms—demonstrated compromised lid seals.¹ Among patients with grade 1 lid failure, 79% had mild or worse dry eye signs and symptoms. Conversely, 80% of asymptomatic patients showed healthy lid function and demonstrated grade 0 lid seal compromise.¹

A NEW APPROACH TO ASSESSMENT

This research changed the way I think about the impact of sleep and nighttime desiccating stress in my dry eye patients, as well as the way I manage these patients. Previously, I would typically wait for patients to tell me about certain symptoms before assessing their lid performance and implementing an aggressive nighttime regimen. Now, on my first consultation with a patient presenting with dry eye signs or symptoms, I use the Korb-Blackie lid light test and lid snap test to assess his or her lid performance. I perform these tests before the patient even sits down at the slit lamp.

Korb-Blackie Lid Light Test

The Korb-Blackie lid light test allows clinicians to investigate whether a patient's apparently normal closed eyelids are actually protecting the eye during sleep.² It is a valuable tool and easy to perform, requiring only a chair and a transilluminator. To perform the test, the examiner places a transilluminator against the patient's closed outer upper eyelids, one at a time, and looks for light leakage from the lid area between the lashes. If minor to significant light leakage is detected,

the patient's eyelids may not be protecting the patient from desiccating stress when the eyes are seemingly shut during sleep. This is valuable information in our mission to manage symptoms effectively.

Lid Snap Test

The lid snap test is similarly easy to perform. The examiner pulls down the patient's lower eyelid with a cotton swab and lets it snap back into place to reveal the lid's elasticity. Lids with poor elasticity are more likely to underperform while the patient is asleep, exacerbating aggravating factors. Liu et al found that tear film abnormalities leading to rapid tear evaporation are common among patients displaying floppy eyelid syndrome.³ Floppy eyelid syndrome appears frequently in patients who experience obstructive sleep apnea, further suggesting the importance of sleep habits in our patients with dry eye.

TREATMENT

In patients in my practice, I've noticed a correlation between presentation of moderate to severe dry eye disease signs and symptoms and the joint presence of meibomian gland dysfunction (MGD) and poor lid performance. For these patients, I implement an aggressive, two-pronged management regimen involving in-office and at-home moist heat therapy.

I administer meibomian gland treatments with both the LipiFlow Thermal Pulsation System (Johnson & Johnson Vision) and the TearCare System (Sight Sciences) to help restore healthy meibomian gland function. These treatments help to clear blocked channels that render the eye unable to deal with broader desiccating stresses, such as light and airflow. Other beneficial treatment technologies include the iLux MGD Treatment System (Alcon) and intense pulsed light therapy.

I also recommend that patients purchase a therapeutic sleep mask to protect their compromised eyes

AT A GLANCE

- Sleep habits may play a role in the pathophysiology of dry eye and compromised lid performance.
- The author has noted a correlation between presentation of moderate to severe dry eye disease signs and symptoms and the joint presence of meibomian gland dysfunction and poor lid performance.
- Consider performing lid light and lid snap tests before assessing a patient's lid performance.

and that they continue administering moist heat therapy at home. There are several excellent products for these purposes on the market, including masks tailored specifically to eyes of varying sizes and patient preferences regarding light-blocking, such as Eyeseals 4.0 for nocturnal protection and Tranquileyes XL for moist heat (both from Eye Eco). These two solutions, especially when combined, have helped many of my patients achieve improved wetting of the eyes, and they report fewer symptoms in the morning and throughout the day.

It's worth noting that, although over-the-counter topical gels and ointments continue to play a role in my treatment algorithms, production shortages, rising costs, and general patient discomfort are making these options less attractive compared to device-based solutions that are typically more patient-friendly.

Finally, as we consider the role of nighttime desiccating stress in dry eye disease, it's important to take a vigilant stance with patients who wear contact lenses. Given the high overlap between contact lens wear and MGD, contact lens wearers who complain about dryness, poor lens performance, or fluctuating vision should be screened for MGD before being prescribed a new lens brand or changes in wear time or cleaning solution. Fully examining the root causes of a patient's complaints takes time, but it's time well spent.

A LITTLE INVESTIGATING GOES A LONG WAY

Patients and practitioners are fortunate that dry eye research, innovation, and treatment options have burgeoned over the past decade. Earlier unsophisticated approaches to management—starting by dismissing patient complaints, then proceeding to a reliance on drugs as a cure-all solution—has given way to a more nuanced, investigative philosophy that considers multiple etiologies, relevant factors, and treatment protocols, often in combination.

In this spirit, it is helpful to take a close look at your patients' risk for nighttime desiccative stress and lid performance issues. Implementing a rigorous assessment takes little time and potentially reaps large rewards, including restoring comfort for your patients with dry eye. Why not start now? ■

1. Korb D, Blackie C, Nau A. Prevalence of compromised lid seal in symptomatic refractory dry eye patients and asymptomatic patients. *Invest Ophthalmol Vis Sci.* 2017; 58:2696.

2. Korb D, Blackie C. The Korb-Blackie lid light test. *Invest Ophthalmol Vis Sci.* 2013; 54:942.

3. Liu D, Di Pascuale MA, Sawai J, Gao YY, Tseng SC. Tear film dynamics in floppy eyelid syndrome. *Invest Ophthalmol Vis Sci.* 2005;46(4):1188-1194.

LESLIE O'DELL, OD, FAAO

- Optometrist, Dry Eye Center of PA at Wheatlyn Eye Care, Manchester, Pennsylvania
- Co-Chief Medical Editor, *Modern Optometry*
- helpmydryeyes@gmail.com; Instagram: @helpmydryeyes; Twitter: @HelpMyDryEyes
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