

## THE A DRY EYE UNIVERSITY DISCUSSION ABOUT DRY EYE RELATED TO ALLERGIES, EXPOSURE, AND CONTACT LENS WEAR

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Dry eye disease is multifactorial and complex with multiple contributing factors.<sup>1</sup>At Dry Eye University we try to focus on some of the most common types and sub-types of dry eye disease and discuss strategies to recognize and address these to promote better overall control of the disease. Allergies, exposure, and contact lens-related dry eye are the focus of this excerpt from our program.

### ALLERGIES

Allergies and dry eye disease can go hand in hand due to their cross over of common ocular symptoms and both have inflammation occurring as a core mechanism. With their similarities, it is important to note that allergies and dry eye disease are separate conditions. Each has their own complex cascade of events. Due to their similar ocular presentations, we find that many clinicians have some difficulty diagnosing which is which. We also find that dry eye and allergies can co-exist and possibly make each other worse.

Allergies cause a lot of inflammation and have their own very complex inflammatory cascades

that they cause in our bodies. Dry eye also has a complex cascade of events that creates inflammation. Uncontrolled inflammation can seem to fuel dry eye disease, and we suspect that inflammation from concurrent ocular allergies can worsen dry eye disease.

It has been our experience that patients with both dry eye and allergic eye disease can be misdiagnosed and therefore mistreated. We see this, especially in cases of low-grade allergic response where only dry eye is diagnosed, or in a case of a full-blown allergic conjunctivitis where it is easily diagnosed and the underlying dry eye disease is missed. In these cases, the clinician may fail to realize that the patient is presenting with two problems to address, and they may only treat one of them.

In the case where the patient with both, dry eye and allergies, and if only allergies are diagnosed, then the treatment may relieve some symptoms, but leave the patient un-treated for the chronic dry eye, causing worsening over time.<sup>2</sup> It is also important to remember that antihistamine treatment, if used long term, are known to contribute to dry eye disease.<sup>3</sup> In the

case where dry eye is recognized and addressed, but allergies are missed, the patient will have a source of uncontrolled inflammation and prolonged symptoms that would be best to be managed appropriately as soon as possible.

In the world of dry eye disease diagnosis, we have an ever-expanding array of diagnostic tools we can use to help us to diagnose dry eye disease correctly and sooner than ever before. In the world of allergies, eye care physicians have started to use longstanding allergy skin tests to aid in the correct diagnosis and assessments of allergy patients and therefore prescribing correct treatments for best outcomes. No longer do we have to guess if allergies are present and you do not have to send the patient for an allergy referral to obtain quick and easy environmental allergy testing. At Dry Eye University we use Bausch & Lomb Dr.'s Allergy Formula Testing with great success in confirming the diagnosis.

When it comes to treating allergies in the presence of dry eye disease, it is important to remember that we need to address the patient's ocular surface and dry eye contributing factors as a whole. As with any attempt to address dry eye disease, our treatments need to address its multifactorial nature. We view allergies as just another contributing factor that needs to be assessed and treated. But once the allergy component has become controlled or the patient is out of season, we must continue to treat the dry eye disease on going and stop any antihistamine or decongestant treatments.

When beginning allergic conjunctivitis treatment, I will usually try to use steroids only, unless ocular itching is moderate or higher. I do this because antihistamines can worsen dry eye disease. If antihistamines (oral or topical) are used, I try to limit the use as much as possible. All the while I am prescribing appropriate dry eye treatments just as I would any other patient

and I continue to see the patient back as a dry eye patient as per our standard of care. I will order the ocular allergy testing as soon as possible, but we must remember that the allergy testing has to be performed within a five-day window of no antihistamine use (oral, topical and nasal). So, if the patient is symptomatically moderate or higher, I will usually treat them and obtain the allergy testing once the situation is better controlled and the patient is off of the antihistamines.

There are many choices in topical antihistamine and mast cell stabilizers available to ECPs. In our practice, we always prescribe a name brand medication first, second, or even third-line if possible. We do this in all medical treatment of any condition because we feel the name-brand medications are more effective in most cases and we always want to recommend the best agents for our patients. If insurance coverage and/or cost becomes an issue we will always make an effort to compete for prior authorizations but if ultimately, we have to downgrade to generics, we always allow the patient to play a role in that decision.

We have our ocular allergy patients return frequently to monitor the acute phase of their condition and then continue less frequent observation exams as the condition stabilizes. This may allow us to stay ahead of the acute flare-ups, guide antihistamine use appropriately, and advise on some dry eye prevention treatments. If the patient also has dry eye disease, we will continue our ongoing efforts and follow-ups to address it appropriately in a case by case manner.

## EXPOSURE

Exposure-related dry eye can offer some of the most challenging patients that you may encounter. I always tell patients that no matter

how many drops we can pour into your eye, if the lids don't close, we will have a hard time reaching a stable point in their disease process. When it comes to exposure we often think about the traditional causes or contributing factors such as thyroid eye disease, ectropion, floppy eyelid syndrome, myasthenia gravis, history of trauma or surgery, CPAP or oxygen use and nocturnal lagophthalmos. But, today we also need to be aware of the exposure, due to incomplete blinking and staring, that is occurring much more frequently in a high number of patients due to digital device use.<sup>4</sup> We know that digital device use is a growing risk factor for dry eye disease due to increased exposure and evaporative stress.<sup>5</sup> This incomplete blinking can be readily measured with the Lipiview II system. With that device, you can playback slow motion, high-resolution video of your patients blinking patterns and it also counts the number of full blinks versus incomplete blinks. This can be a powerful tool to identify patients earlier and better address their condition.

Addressing exposure is difficult. In the case of incomplete blinking due to digital device use, we will frequently recommend blinking exercise and educate patients to regularly take breaks and blink their eyes naturally throughout the day. We stress not to squeeze the lids shut but promote normal blinking. We combine the blinking exercises with aggressive dry eye and MGD treatments to not allow exposure keratopathy to manifest later in life. In those with more advanced exposure due to any etiology, we will use Prokera devices regularly. The Prokera is an amniotic tissue membrane that is frozen for preservation, not dried. This freezing technology allows the most important components of the amniotic tissue, the heavy chain hyaluronic acid and pentraxin 3 along with other growth factors to remain viable and more available for the ocular surface than the dry

amniotic tissues. This is why we choose to use Prokera in nearly every case. If the chronic ocular surface breakdown is present or suspected then we will also use autologous serum tears long term. We love to use a company called Vital Tears to give the patients better access to these needed eye drops. Other appropriate but aggressive dry eye treatments will also be employed in exposure patients as needed.

## CONTACT LENS

Contact lens wear is a known risk factor for dry eye disease. Contact lens wearers may be four times more at risk of dry eye than non-contact lens wearers.<sup>3</sup> At Dry Eye University and our practice, we see all contact lens patients as possible dry eye suspects. We will proactively educate patients with no signs or symptoms of dry eye, who wear contacts, about the risks of developing the condition. We will also start a proactive treatment for all contact lens wearers to, hopefully, reduce the incidence of developing dry eye. A first step is to attempt to get all contact lens patients to wear a daily modality lens suited for their expectations. I generally do not fit the same lens on every patient. I will customize my lens of choice for them, based on their HVID, visual expectations, and daily activities.

The proactive treatments that we start on all contact lens patients include high-quality warm compresses twice daily and lid scrubs done daily with a healthy but mild lid cleanser. Preservative-free lubricants daily and nutraceuticals can help reduce the inflammatory insult that contact lens wear may cause. Some examples are listed below.

Warm Compresses with a DERM or Bruder mask for at least 10 mins. Twice daily.

Lid scrubs with Eyeeco gentle scrub daily.

Oasis tears PF done four times per day.

Hydroeye Vitamins used as directed.

If a contact lens patient presents with signs and symptoms of dry eye, then we take on a much more aggressive approach. We again start with patient education that they have a disease that is being aggravated by their contact lens wear, and likely other factors. We discuss the reality that if we do not gain better control of their dry eye disease, they have a high probability of dropping out of contact lens wear altogether. This usually will get their attention, as we all know, contact lens patients frequently will do nearly anything to still be able to wear their contacts, including wearing them even when their eyes are red, inflamed, and irritated.

We also discuss the likely fact that most contact lens patients abuse their lenses. Most over wear them and many sleep in them and do not change them according to their indications. We discuss how correct lens wear is a risk factor for dry eye, but then if they abuse them it adds further insult and opens the door for severe complications. Once we have laid that foundation of knowledge for the patient to understand, we then begin to tailor the dry eye treatment. Just as with any dry eye case, we use the diagnostics to help guide our treatment plans. If the patient has positive MMP-9 then we will be more aggressive with anti-inflammatory treatments. If the patient has reduced lipids, gland obstruction, or atrophy we will order Thermal Pulsation treatments as a first-line. Microblepharoexfoliation is always ordered for dry eye patients, to be done at 6-month intervals (at least). For contact lens patients, clearing the bacterial biofilm is especially important to also reduce the bacterial load around the contact lens while on the eye. Immunomodulators are also a first-line treatment for all of our dry eye patients, and we find that our contact lens wearers benefit greatly from early utilization of either cyclosporin A or lifitegrast which is chosen on a case by case basis.

Other treatments such as IPL are employed in patients who fit the proper skin type, with great results when used in conjunction with all of the other appropriate core and supportive treatments. We will then follow the patients just as in any dry eye situation with appropriate visits to monitor and continue to manage their chronic disease, as well as maintain their successful contact lens wear.

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