Contact Lenses and Infiltrates

Poor lens care habits may be more to blame than lenses or care products.

Contact lenses are remarkable medical devices that provide safe, effective vision correction. Although complications are rare, a small percentage of patients may develop corneal infiltrates.

In this article, we discuss recent research exploring the potential causes for corneal infiltrative events (CIEs).

Infectious vs. sterile

CIEs can be infectious (microbial keratitis) or noninfectious (sterile), and differentiating the two is important for treatment.

Patients with infectious CIEs — about four in 10,000 contact lens wearers — are usually highly symptomatic, presenting with a single CIE triggered by an infecting microbe in the compromised cornea.\(^1,2\)

In clinical practice, we are more likely to see sterile CIEs, which usually manifest as multiple small subepithelial opacities, resulting from an infiltration of inflammatory cells and proinflammatory mediators. Sterile CIEs may be located in the cornea’s periphery or diffusely spread across it. Patients with sterile CIEs are usually less symptomatic than those with infectious CIEs.\(^3,4\)

Figure 1. Note the expiration dates of products, which range from January 2010 to September 2010, used by a 28-year-old contact lens wearer to care for her lenses. She presented with these products in November 2011.

The annual incidence of symptomatic sterile CIEs in contact lens wearers ranges from 0.5% to 3.3%.\(^5\) Previous reports have linked contact lenses and care solutions with noninfectious infiltrative keratitis, but a recent large multicenter retrospective study disputes this.

Seeking links

Researchers evaluated the association of symptomatic soft contact lens-related CIEs with lens material, care products and other risk factors.\(^6\) Five academic institutions captured data for symptomatic CIE patients. Each soft contact lens wearer who’d had an eye exam within the previous two years was time-matched with three controls who’d had an eye exam within +/-2 weeks of the patient who presented with a CIE. Four experts who were masked to lens type and lens care solution brand reviewed half the cases, so that all cases were reviewed by two adjudicators. The adjudication panel assigned a CIE diagnostic category for each case, including any case in which no CIE had occurred, in the panel’s opinion.

A multivariate analysis revealed risk factors remarkable for increasing the incidence of CIEs includes reusable soft contact lenses, extended-wear lenses, silicone hydrogel lenses and young age. The researchers found no associations between CIEs and any specific brands of care solutions or contact lenses.

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Impact on patient care

Most of the research we have cited thus far concludes that patients’ lens care habits may be more to blame for CIEs than the lenses or care products themselves. This underscores the need for us to be vigilant when discussing proper lens care. Unfortunately, we may never know the real-world habits of our contact lens patients. Generally, we know which lenses they are wearing, and we have a reasonable idea of how often they replace their lenses, but we may not know for sure what care products they use and how they use them, as we must rely on their recollections and interpretations.

Several years ago, we started a procedure in our practice to help us better understand how patients are caring for their lenses: When contact lens wearers schedule an appointment, we instruct them to bring their lens case, care solutions and any other products they use for their lenses or eyes. When we can see the products patients are using (see Figure 1, page 80), we can initiate a conversation about the importance of proper lens care and, perhaps, correct some poor habits or misconceptions. This education — and in many cases, re-education — helps you, the eyecare practitioner, manage one of the variables that affect ocular health and emphasize to patients that they are responsible for the proper care of their lenses.

Safe, comfortable lens wear

We are constantly seeking ways to minimize contact lens complications while maximizing successful, comfortable wear. Although specific lens care products do not increase the incidence of corneal infiltrates, they can have a significant effect on a patient’s comfort and success in contact lenses. Knowing what products patients are using to clean, disinfect and lubricate their lenses and how they go about using them also helps us in our efforts to create a more comfortable lens-wearing experience. We may realize, for example, that modifying a patient’s care regimen and correcting poor habits, rather than prescribing a different lens brand, may be all that’s needed to improve comfort.

Although the aforementioned research found no statistically significant increase of CIEs with a specific lens or care solution, it documented a slightly increased risk with silicone hydrogel lenses and a protective effect with daily disposable lenses. Given the low rate of sterile CIE events with silicone hydrogel lenses, we may decide the benefits of increased oxygen permeability and, for many, a more comfortable wearing experience, outweigh the disadvantages.

Improving the experience

Having a better understanding of how patients care for their contact lenses will better equip us to make more effective management decisions to improve their wearing experience. The next time a contact lens patient schedules an appointment or the next time your office calls to confirm an appointment, we urge you to have your staff tell the patient to bring in his lens case, care solution and any other products he uses to care for his contact lenses. You may be surprised at what you see.


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