Back to Basics: Conjunctival Staining

Rob Ensley

Studies have shown that upwards of fifty percent of contact lens wearers report symptoms of dry eye. Accordingly, it should be no surprise the most common reason for contact lens dropouts is discomfort. When evaluating contact lens patients for dryness, the use of vital dye can provide a quick and easy diagnostic tool. While the cornea and tear film are often examined, staining of the conjunctiva should not be overlooked.

As with the cornea, three dyes are utilized to stain the conjunctiva. Sodium fluorescein (NaFl) has long been used to measure tear break up time and epithelial cell junction integrity. If disrupted or compressed, NaFl will pool into the empty spaces. Rose bengal stain had been thought to stain dead/dying, devitalized cells; however, it is now known to stain healthy, living cells that have lost their mucin layer. Additionally, rose bengal's toxicity leads to stinging, causing it to fall out of favor with many practitioners. In its place, lissamine green (LG) is becoming a popular choice, yielding a similar staining pattern to rose bengal. LG will stain dead or devitalized cells with less discomfort to the patient. A mixture of NaFl and LG can also be used simultaneously.

Staining with both NaFl and LG typically indicate a more symptomatic patient. However, contact lens wearers can exhibit conjunctival staining with both NaFl and LG that is induced by the contact lens (CLICS). CLICS, which can be asymptomatic, may result from a tight fitting lens that disrupts the tear film and creates friction on the conjunctiva. Compression by the lens edge may also create an epithelial flap or ridge, leading to pooling of NaFl. Therefore for contact lens wearers, LG has been shown to be more discriminatory for symptoms of dryness. Careful attention for staining of the upper marginal conjunctiva with NaFl and LG can also detect lid wiper epitheliopathy (LWE). LWE is highly indicative of dry eyes, especially in the absence of other signs.

References:


Robert is the AOSA national liaison to the Contact Lens and Cornea Section. He is currently a fourth year student at the University of Missouri-St. Louis College of Optometry.

Please close this browser window to return to the CLCS Newsletter.