Diagnosing and treating OSD effectively

by Vanessa Caceres EyeWorld Contributing Writer

A soup to nuts look at OSD conditions

It can be hard to keep up with the latest diagnosis and treatment pearls for various conditions associated with ocular surface disease (OSD). EyeWorld has rounded up some insight and advice from experts on topics ranging from dry eye to ocular pain to limbal stem cell deficiency (LSCD) to blepharokeratoconjunctivitis. Read on to get state-of-the-art guidance.

Treating dry eye and blepharitis

Anat Galor, MD, associate professor of clinical ophthalmology, Bascom Palmer Eye Institute, Miami, will examine both the eye anatomy and the tear film to try and get a better handle on the cause of a patient’s dry eye and blepharitis—realizing that “dry eye” is a broad term that can have many subcomponents.

On the anatomy side, she will look for eyelid laxity, conjunctival chalasis, and pterygium, among other issues. For the tear film, she will evaluate the quality of oil, osmolarity, and tear volume.

“I also have a lot of people come in who clearly have skin issues contributing to eye issues,” she said. In those patients, Dr. Galor will work with a dermatologist to help treat rosacea or seborrheic dermatitis. Usually, the treatment involves better lid hygiene, an antibiotic, and a low-dose steroid for 2–3 weeks.

If Dr. Galor suspects that dry eye symptoms and signs indicate Sjögren’s syndrome (SS), she will test for SS-related antibodies and treat with topical anti-inflammatorys, artificial tears, and topical cyclosporine (Restasis, Allergan, Dublin, Ireland). She’ll start the patient on fluorometholone for 1 month to prepare the eye for the use of cyclosporine.

Neuropathic pain is often a problem in patients with OSD, and Dr. Galor has found successful treatment with autologous tears.

The use of omega-3 fatty acid supplements are also part of the treatment plan to help fight inflammation. “I believe the eye is one piece of the puzzle for the rest of the body, and omega-3 fatty acids have a lot of benefits that go beyond eye health,” she said. She will also advocate for patients to eat a balanced diet and to think about possible environmental causes of their dry eye symptoms.

Ocular pain

It can be a tangled web to diagnose and treat ocular pain, said Kristin M. Hammersmith, MD, associate professor of ophthalmology, Jefferson Medical College and Wills Eye Institute, Philadelphia.

Ocular pain is also underrecognized, she thinks.

Although a clinician may initially look for symptoms or signs associated with pain—including foreign body sensation, burning, and light sensitivity—the cause of ocular pain is not always clear, Dr. Hammersmith said. “In cases where signs don’t match symptoms, we start to think about what component of this could be neuropathic pain. I don’t think we do a great job of diagnosing or treating it,” she said.

The pain that these patients experience may be associated with pain syndromes such as fibromyalgia or depression. However, even in those cases, the actual cause of pain can be murky. For example, she said, is the depressed patient with ocular pain overinterpreting normal sensations, does he or she have a charged-up nervous system causing more pain, or is he or she taking medications with ocular side effects such as drying?

Dr. Hammersmith will consult with a patient’s primary care physician when appropriate to prescribe medications like pregabalin to address pain. Sometimes the medication helps—sometimes it doesn’t.

She has also seen some success with the use of the BostonSight PROSE (prosthetic replacement of the ocular surface ecosystem) lens, which creates a moisture chamber around the eye.

Experimental therapies for dry eye

Ophthalmologists in the U.S. currently have only one pharmacologic agent approved for dry eye, said Deborah S. Jacobs, MD, medical director, Boston Foundation for Sight, Needham, Mass. That makes clinicians eager for new dry eye therapies, she said.

“We’d all like to find one drug that would work for all of these patients. Unfortunately, the experience in the last 10 to 20 years [has demonstrated that] it’s hard to show effectiveness across broad
populations. So, we have agents available that might work for some but not all patients," she said.

Some chronic graft-versus-host-disease patients have received favorably to topical anakinra, a human interleukin-1 receptor antagonist related to the drug EBI-005 (Eleven Biopharmaceuticals, Cambridge, Mass.), the latter of which is in trials for dry eye disease and allergic conjunctivitis.

Dr. Jacobs also noted that new drug such as lifitegrast or EBI-005 is likely to be useful in a subset of patients," she said.

Colleagues in Japan have seen an increase in the use of rehifamid for some types of OSD. Rehifamid is a secretagogue approved and available there, Dr. Jacobs added.

"The barriers to U.S. approval seem to preclude introduction of that drug or other secretagogues here," Dr. Jacobs said. "It is disappointing in the current environment; the quest for broad indications means that patients with moderate to severe disease related to specific etiologies don’t have access to drugs from which they might benefit," she said.

**Blepharokeratoconjunctivitis in children**

Blepharitis in the pediatric population tends to be underrecognized and frequently misdiagnosed as allergic conjunctivitis or chronic conjunctivitis by the child’s primary care provider, said Jose de la Cruz, MD, assistant professor of ophthalmology, Illinois Eye and Ear Infirmary, Chicago. "Only after a more thorough slit lamp examination can the findings of lid inflammation, meibomian gland inspissation, and/or findings of lid rosacea be discovered," he said.

Causes of blepharokeratoconjunctivitis in children include bacteria such as *Staphylococcus*, acne rosacea, or scalp dandruff.

Aggressive lid hygiene with baby shampoo is the first line of defense to counteract the inflammatory response, Dr. de la Cruz said.

"In the pediatric population, the expectation that the child will use a warm compress daily for at least 20 minutes is perhaps unrealistic," he said. Because of this, medications to help with acute irritation and discomfort are often used.

This includes a short burst of low concentration corticosteroid in an ointment or drop applied directly to the lid margin.

Another helpful agent is an azithromycin ophthalmic drop directly applied to the lid margin twice a day for 7 to 10 days. "The combination of both provides a fast track to stabilizing the irritation to the ocular surface," Dr. de la Cruz said.

It is also important for physicians to treat seborrheic blepharitis and acne rosacea, Dr. de la Cruz said. However, he advises great care with the use of systemic medications such as doxycycline in children and recommends consulting the child’s pediatrician or dermatologist to assess any associated long-term risks.

**Limbal stem cell deficiency**

Chemical injuries and severe immunologic disease such as Stevens-Johnson syndrome are some of the most common causes of LSCD as seen by Ali Djalilian, MD, associate professor of ophthalmology, cornea service, and director, Corneal Epithelial Biology and Tissue Engineering Laboratory, Illinois Eye and Ear Infirmary. Other causes include congenital conditions such as aniridia and contact lens-induced LSCD.

When diagnosing LSCD, Dr. Djalilian looks for the presence of conjunctival cells over the cornea. "It appears as an opaque epithelial sheet along with superficial neovascularization," he said.

He also recommends that clinicians identify a fluorescein staining pattern. "Conjunctival epithelium can be distinguished from corneal epithelium by its greater fluorescein uptake and a wavy pattern."

To treat LSCD, Dr. Djalilian aims to optimize the health of the ocular surface by having patients discontinue contact lens wear or stop the use of drops with benzalkonium chloride. He advises the use of nonpreserved lubricants and the treatment of meibomian gland disease as well as local anti-inflammatory therapy.

More advanced cases require limbal stem cell transplantation, such as conjunctival limbal autograft in unilateral cases. In bilateral cases, a living-related conjunctival limbal graft or cadaver-based kerato-limbal allograft is used. "The key to the success of allograft procedures is systemic immunosuppression postoperatively," Dr. Djalilian said.

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Contact information

de la Cruz: jnapoli@hotmail.com
Djalilian: adjalili@uic.edu
Galor: agalor@med.miami.edu
Hammersmith: khammersmith@williseye.org
Jacobs: djacobs@bostonsight.org