Dear Colleagues,

Infectious diseases, including those that affect the eye, are a global health problem gaining increased attention in the ophthalmic community. At the 2016 Association for Research in Vision and Ophthalmology Annual Meeting, more than 650 people attended a special late-breaking session on emerging viruses, organized by Mass. Eye and Ear cornea specialist, James Chodosh, MD, MPH. Panelists included Todd Margolis, MD, PhD, Washington University; Steven Yeh, MD, Emory University; Ian Crozier, MD, World Health Organization; Paul Farmer, MD, PhD, Harvard Medical School and Partners in Health; and Lee Jampol, MD, Northwestern University. Global leaders agree that there is an urgent need to better understand infectious disease mechanisms, as well as to improve ophthalmic screening and care.

According to Dr. Farmer, it is critical that we consider the ecology of infectious diseases as we work to improve patient care. Dr. Jampol reported that he is now seeing cases of emerging viruses, such as Ebola and Zika, manifesting in the retina, and Dr. Crozier commented on the incidence of post-Ebola uveitis. While Ebola and Zika are often headline news, some commonly known infectious diseases are equally, if not more, concerning. In this issue of Eye Insights, we provide an update on emerging bacteria and viruses to help inform your clinical practice. We also review two of the most commonly managed infectious eye diseases in Mass. Eye and Ear's Emergency Department: bacterial keratitis and herpes zoster ophthalmicus.

We hope you find Eye Insights a helpful tool for supporting your patient management practices. Back issues are available online at MassEyeAndEar.org. If you have questions or comments, please email us at eyeinsights@meei.harvard.edu.

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- Should your patient get a shingles vaccine before age 60?
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Managing Bacterial Keratitis

Bacterial Keratitis

Approximately 25,000 to 30,000 Americans develop bacterial keratitis each year, and 24 percent of these patients will develop vision-threatening complications. Risk factors include wearing contact lenses, a weakened immune system, eye trauma/injury, and problems with eye tearing.

Symptoms

Symptoms develop quickly, and may include eye pain, reduced vision, light sensitivity, and tearing or discharge from the eye.

Treatment

Prompt treatment is critical. Depending on the etiologic agent, broad-spectrum or single-agent topical antibiotic eye drops are frequently applied; in some cases, a topical steroid may be necessary.

Prognosis

Even with proper and swift treatment, an infected eye may develop scarring and vision loss. When treatment is delayed, bacterial keratitis can lead to corneal perforation, scleral extension of infection, endophthalmitis, and anterior segment disorganization.

Educate your patients about these 8 risk factors for contact lens-related bacterial keratitis

1. Overnight wear
2. Wearing contact lenses while swimming
3. Not disinfecting contact lenses well
4. Not cleaning contact lens cases
5. Storing or rinsing contact lenses in water
6. Using visibly contaminated lens solution
7. “Topping off” lens solution rather than discarding used solution and replacing
8. Sharing non-corrective contact lens used for cosmetic purposes
Herpes Zoster Ophthalmicus

Herpes zoster ophthalmicus (HZO) is reactivation of a varicella zoster virus infection (shingles) involving the eye. In the acute phase, patients present with a dermatomal herpesvirus rash and severe pain around the infected area. Inflammation of anterior segment tissues and, less commonly, posterior structures of the eye are potential complications. HZO is considered the most common cause of infectious uveitis and other posterior eye infections.

In the United States, 30.9 out of 100,000 people will develop herpes zoster ophthalmicus. With one of the largest herpes zoster ophthalmicus patient populations in the country—Mass. Eye and Ear is a participating site for the Zoster Eye Disease Study (ZEDS). This clinical trial will evaluate whether prolonged suppressive oral treatment with valacyclovir reduces complications of herpes zoster ophthalmicus.

Principal Investigators: James Chodosh, MD, MPH and Matthew F. Gardiner, MD

Patient enrollment begins in 2017

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Keep pace in a Changing Microbial World

Algorithm guides treatment of bacterial keratitis, reduces costs

Culturing all suspected cases of bacterial eye infection can be costly, time-consuming, and often unnecessary. A new algorithm developed at Mass. Eye and Ear can help clinicians in answering a set of simple rules, now help clinicians in the Emergency Department identify cases that need to be cultured and immediately started on aggressive broad-spectrum anti-infective therapy. By identifying the cause of the eye infection, adjustments can be made to the treatment regimen in order to more appropriately target the correct organism. For instance, if fungal elements are seen, intravitreal antibiotics can be administered and the patient can be made to receive oral therapy. Rapid diagnostic testing for posterior eye infections

A new, state-of-the-art rapid PCR diagnostic test for infections of the eye, developed at Mass. Eye and Ear, will soon hasten the accurate diagnosis and treatment of the most common agents of infectious uveitis. This highly sensitive test—which targets cytomegalovirus, varicella zoster, herpes simplex 1 and 2, and Toxoplasmosis gondii—takes less than two hours. Upon Clinical Laboratory Improvement Amendments (CLIA) approval, the test will be employed in routine clinical care and is expected to benefit patients with infectious retinitis, posterior uveitis, and other posterior eye infections.