COMMENTARY

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Contact lens–related eye infections appear to be greatly underreported.[1] Although there were approximately 1 million outpatient and ED visits for keratitis in 2010, only 1,075 reports of contact-related corneal infections were provided from any source to MedWatch, the official FDA Safety Information and Adverse Event Reporting Program.[2] Microbial keratitis can require prolonged treatment courses and may lead to permanent visual impairment.[3] This issue of the *Morbidity and Mortality Weekly Report* reports a case series of 6 patients with corneal infections for which sleeping in lenses was the primary risk factor for infection. Patients typically presented with eye pain, eye redness, and vision impairment. Most patients required months of treatment; some developed ulcers and perforations that necessitated corneal transplant.

Microbial keratitis can be difficult to treat, often requiring hourly application of broad-spectrum and fortified antibiotic drops, frequent follow-up, and surgical intervention. Treatment-resistant infections may be due to *Acanthamoeba*, requiring topical polyhexamethylene biguanide and chlorhexidine. Microbial keratitis can rarely induce endophthalmitis, with typically very poor outcomes, including prolonged rehabilitation and occasionally enucleation.[4]

Corneal culture reveals a causative agent in only approximately half of cases with *Staphylococcus aureus* and *P aeruginosa* as the primary bacterial isolates.[5-7] Recent reviews of the causative pathogens in microbial keratitis suggest geographic variation in microbial profiles.[6,7] Resistance patterns in the Pacific United States showed a predominance of Gram-positive organisms (mostly methicillin-sensitive *Staphylococcus aureus*) with increasing Methicillin-resistant *Staphylococcus aureus* prevalence and fluoroquinolone resistance.[7] One small prospective trial found gatifloxacin to be more effective than ciprofloxacin,[8] and another trial revealed that gatifloxacin, moxifloxacin, and combination therapy of cefazolin and tobramycin were equivalent.[9] *Acanthamoeba* should be considered in infections recalcitrant to initial therapies, although it may require confocal microscopy or polymerase chain reaction techniques for definitive diagnosis.[10]

The primary risk factor for microbial keratitis outside of trauma is inappropriate contact lens use, which is the focus of this report. As demonstrated by the cases, extended use outside of recommended guidelines, wearing contact lenses while sleeping, and poor hygiene and disinfection contribute to infection risk. Important items to obtain in the history are how long the lenses were worn and how they were cleaned. If tap water is involved, organisms such as *Acanthamoeba* need to be considered. Cornerstones of management are early referral to an ophthalmologist and broad-spectrum antibiotics. An ophthalmologist may prefer to obtain corneal scrapings for culture before empiric antibiotic treatment. Moxifloxacin or gatifloxacin as a monotherapy or combinations of cefazolin and tobramycin or gentamicin are appropriate empiric therapies.[11] Microbial keratitis can progress quickly; empiric antibiotics should be started on initial evaluation, and follow-up within the next 24 hours should occur to ensure response to therapy.[2] The FDA encourages clinicians to report contact lens–related problems; patients can also be instructed to go to http://www.fda.gov/MedWatch to report it themselves.

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