

75-Therapeutic Outcomes of Acanthamoeba Keratitis

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Acanthamoeba keratitis is one of the most-feared, visually-threatening causes of infectious corneal ulcers that the average ophthalmologist is likely to face. In recent years, with the use of newer agents, the medical treatment of Acanthamoeba keratitis has improved significantly. James P, McCully, MD, of Dallas, Texas presented the results of a multicenter trial of Brolene and neomycin in the treatment of Acanthamoeba keratitis. Sylvia L. Hargrove, MD, also from Dallas, was senior author on this paper, and Ziad M. Hussein, MD, of Beirut, Lebanon, was co-author.

Acanthamoeba is a ubiquitous, free-living organism that has recently been recognized to be an important cause of infectious, intractable keratitis. 60 patients with clinical Acanthamoeba keratitis were selected for inclusion in this trial.

All patients were treated with a standardized combination therapy consisting of intense topical propamidine isethionate (Brolene) with neomycin. 10 centers were included in the study. Complete patient demographic information was obtained on each patient, including the existence of risk factors such as contact lens wear. 75% of all patients were contact lens wearers, but only 28% of these contact lens wearers even claimed to be following their contact lens care instructions precisely. All types of contact lenses were represented in this subpopulation.

95% of patients presented with severe ocular pain. Many patients had been incorrectly diagnosed before entry into the study. The most common

misdiagnosis was herpes simplex keratitis, followed by bacterial keratitis. Many patients had received multiple topical medications, including antibacterials, antivirals, antifungals, and steroids.

Major clinical signs on presentation included corneal epithelial abnormalities (60%), ring infiltrate (29%), decreased corneal sensation (29%), and radial keratoneuritis (2%). Ring infiltrate was found to be a relatively late sign of *Acanthamoeba* keratitis, while the pathognomonic sign of radial keratoneuritis was, unfortunately, rarely present.

Of 60 eyes that were enrolled in the study, 50 (83%) were cured, 7 (12%) failed, and 3 (5%) withdrew. Of the 50 patients that were cured, 30 adhered to the treatment protocol. Of the remaining 20 cures that breached protocol, 10 added a third drug, and 10 had a penetrating keratoplasty (PK).

All treatment failures had a PK either before or after entry into the study. Of the 17 patients who had a PK prior to clinical eradication of the infectious process with medical therapy, fully 41% (7 patients) eventually required enucleation. In conclusion, the combination of Brolene and neomycin is an effective medical therapy for the treatment of *Acanthamoeba* keratitis. Every attempt should be made to eradicate the infection with medical therapy before PK is performed, or else the risk of eventual enucleation will be high.

This paper was discussed by Alice Y. Matoba, MD, of Houston, Texas. Dr. Matoba noted that this study may be broadly applicable, since the combination of Brolene with neomycin is the most popular form of medical therapy for *Acanthamoeba* keratitis used in the US today. She noted that 25% of study patients had only a clinical, rather than a laboratory diagnosis of *Acanthamoeba* keratitis. This may be problematic, given the difficulty of making this diagnosis. Why does PK in an active case of *Acanthamoeba* keratitis do so poorly? Dr.

Matoba hypothesized that this is because the new corneal button may actually provide a fresh source of corneal stromal “food” for the actively replicating *Acanthamoeba* trophozoites.

What is the best medical regimen for treating *Acanthamoeba* keratitis? Dr. Matoba noted that the percentage of medical cures (83%) in the current study are in keeping with other studies using a similar regimen. She pointed out, however, that in a recent 1997 study out of Moorfield’s Eye Hospital using “triple” therapy (that is, adding polyhexamethylene biguanide (PHMB or Baquacil)), fully 100% of entered patients were “medically controlled.” Recent investigators have looked at using chlorhexidine, which is used as a surgical scrub solution, as the third agent. Several studies have shown that both PHMB and chlorhexidine may be more effective than the other agents against the cyst forms of A.

Current recommended therapy, according to Dr. Matoba, thus consists of propamidine (Brolene), plus neomycin, plus either PHMB (Baquacil) or chlorhexidine. Keratoplasty should be reserved for impending perforation or for visual rehabilitation after medical control.