



# DUR Capsules

News and Information for West Virginia Providers from the West Virginia Bureau for Medical Services (WVBS)

## Bacterial Conjunctivitis

November 2011

By Ko Eun Bae, Pharm.D. Candidate 2012  
and Douglas Brink, Pharm.D., BCPP

### Introduction

Conjunctivitis is a common ophthalmic disease that can affect anyone, regardless of age, gender, social status, or race.<sup>1,2</sup> Currently there are no reliable statistics regarding the prevalence or incidence of different types of conjunctivitis. However, conjunctivitis has been noted to be a frequent reason for patient self-referrals.<sup>1</sup> Bacterial conjunctivitis is an inflammation of the conjunctiva caused by bacteria.<sup>1,2</sup> The American Optometric Association (AOA) clinical practice guideline<sup>2</sup> classifies bacterial conjunctivitis as hyperacute, acute, or chronic, while the American Academy of Ophthalmology (AAO) guideline<sup>1</sup> differentiates it as nongonococcal, gonococcal, or chlamydial conjunctivitis. Treatment varies depending on classification. The focus of this newsletter will be on nongonococcal conjunctivitis, also known as acute bacterial conjunctivitis. Nongonococcal conjunctivitis is usually self-limited in adults, resolving in less than three weeks without treatment.<sup>2</sup> Although rare, it can progress to complications such as corneal infection or preceptal cellulitis.<sup>1</sup>

### Etiology

Pathogens responsible for causing bacterial conjunctivitis include *Neisseria* species, chlamydial species, *Staphylococcus* species, *Haemophilus* species, *Streptococcus pneumoniae*, and *Moraxella* species.<sup>2,3,4</sup> Acute bacterial conjunctivitis is commonly caused by *S. aureus*, *S. pneumoniae*, and *Haemophilus* species. In children, *Streptococcus* and *Haemophilus* infections occur frequently.<sup>2</sup>

### Risk Factors

Acute bacterial conjunctivitis usually occurs in epidemic outbreaks and the risk factors related to those outbreaks are not clearly defined.<sup>2</sup> The most important predisposing factor for acute bacterial conjunctivitis is contact with an infected individual.<sup>1,2</sup> Eye abnormalities, such as nasolacrimal duct obstruction, lid malposition, and severe tear deficiency, can also increase the probability of bacterial conjunctivitis due to decrease in the natural resistance mechanisms of the eyes. Immunosuppression and trauma can weaken the host's immune system, which allows opportunity for infection as well. Transmission of acute bacterial conjunctivitis can be reduced via good hygiene practices, such as frequent hand-washing and limiting direct contact with infected individuals.

## Signs and Symptoms

Typical clinical signs and symptoms of acute bacterial conjunctivitis include purulent or mucopurulent discharge, irritation, diffuse conjunctival hyperemia, and bulbar conjunctival injection.<sup>1,2</sup> These signs have an acute onset and initially present unilaterally. The infection almost always becomes bilateral in 48 hours.<sup>2</sup>

## Diagnosis

Acute bacterial conjunctivitis is diagnosed with patient history and comprehensive medical eye evaluation, including an external examination, slit-lamp biomicroscopy, and measurement of visual acuity. Additional diagnostic tests are not necessary, but can be helpful for recurrent or severe purulent conjunctivitis and conjunctivitis unresponsive to medications. These include cultures, stains, smears, immunoassays, and conjunctival biopsy.<sup>1,2</sup>

## Treatment

Acute bacterial conjunctivitis is empirically treated with a broad-spectrum topical antibiotic.<sup>1-5</sup> Treatment with a broad-spectrum topical antibiotic for five to seven days is usually effective. Because acute bacterial conjunctivitis may resolve spontaneously, treatment is not required. However, treatment with broad-spectrum topical antibiotics can reduce symptoms, duration of the disease, and the chances of recurrence. Treatment with topical antibiotics produces earlier clinical and microbiological remission in days 2 to 5 of treatment when compared with placebo.<sup>1,5</sup>

The following is a table of commonly used topical antibiotics for bacterial conjunctivitis per AOA guideline<sup>2</sup>:

Generic Name	Trade Name	PDL Availability
Aminoglycosides • Gentamicin • Tobramycin	Garamycin; Gentak Tobrex; AK-Tob	No
Bacitracin	Ocu-Tracin; AK-Tracin	Yes
Chloramphenicol*	Econochlor; Chloroptic	No
Erythromycin	Romycin; Ilotycin	Yes
Fluoroquinolone** • Ciprofloxacin • Ofloxacin • Levofloxacin	Ciloxan Ocuflax Quixin; Iquix	Yes
Polymyxin B/Neomycin*	Statrol	No
Polymyxin B/Trimethoprim Sulfate	Polytrim	Yes
Sodium Sulfacetamide	Bleph-10	Yes
Sulfisoxazole Diolamine*	Gantrisin	No
Tetracycline*	Achromycin	No

\*Discontinued drugs in the U.S..

\*\*Other fluoroquinolones that are also approved for acute bacterial conjunctivitis per Facts & Comparisons include besifloxacin and gatifloxacin.<sup>5</sup>

The Harriet Lane Handbook<sup>3</sup> recommends erythromycin, bacitracin/polymyxin B, or polymyxin B/trimethoprim for 5 days. Although many topical broad-spectrum antibiotics were once available, use is limited by development of bacterial resistance as well as

safety concerns. For example, chloramphenicol use has been discontinued due to increased bacterial resistance as well as rare cases of bone marrow toxicity and irreversible aplastic anemia.<sup>5</sup> On the other hand, aminoglycosides cannot be considered a broad-spectrum therapy due to their poor activity against Streptococci.<sup>5</sup> As a result, when choosing to treat an acute bacterial conjunctivitis, the spectrum of antimicrobial activity as well as resistance should be considered among the available agents. First-line broad-spectrum topical antibiotics for acute conjunctivitis include erythromycin ointment, sulfacetamide drops or polymyxin/trimethoprim drops.

The West Virginia Medicaid Preferred Drug List (PDL) provides appropriately recommended therapeutic options for acute bacterial conjunctivitis. All generic forms of ophthalmic erythromycin, sulfacetamide, and polymyxin/trimethoprim, polymyxin/bacitracin and bacitracin are preferred. Furthermore, saline lavage can be used as a supportive therapy with or without treatment to provide comfort and to help reduce inflammation.<sup>2</sup> Patients should be asked to return for a follow-up visit if they have no improvement in three to four days.<sup>1</sup>

### **Conclusion**

Acute bacterial conjunctivitis is a disease that usually resolves on its own. Use of broad-spectrum topical antibiotics is not necessary, but can help decrease the duration of the infection. The choice of treatment for acute bacterial conjunctivitis should be based on the available guidelines and antibiotic resistance profiles. Clinicians should choose the most convenient or the least expensive treatment option due to the lack of major differences in efficacy with topical antibiotics. The West Virginia Medical Preferred Drug List covers the recommended first-line agents.<sup>1</sup>

For your convenience, the ophthalmic antibiotic therapeutic class from the PDL has been included for your convenience.

### **References**

1. American Academy of Ophthalmology Cornea/External Disease Panel, Preferred Practice Patterns<sup>®</sup> Guidelines. Conjunctivitis – Limited Revision. San Francisco: American Academy of Ophthalmology; 2011. Available at: [www.aao.org/ppp](http://www.aao.org/ppp) (accessed 10/28/11).
2. American Optometric Association. Care of the patient with conjunctivitis, 2nd edition. St. Louis: American Optometric Association; 2002. Available at: [www.aoa.org](http://www.aoa.org).
3. Conjunctivitis. In: Tschudy MM, Arcara KM eds. The Harriet Lane Handbook: a manual for pediatric house officers, 19th edition. Philadelphia: Mosby Elsevier; 2012: 423.
4. Henderer JD, Rapuano CJ. Ocular Pharmacology. In: Brunton LL, Chabner BA, Knollmann BC. Goodman & Gilman's The Pharmacological Basis of Therapeutics, 12th edition. McGraw-Hill; 2011. Available at: [www.accesspharmacy.com/content.aspx?aID=16681771](http://www.accesspharmacy.com/content.aspx?aID=16681771).
5. Karpecki P, Paterno MR, Comstock TL. Limitations of current antibiotic treatment of bacterial conjunctivitis. *Optom Vis Sci.* 2010;87(11):908-19.

**OPHTHALMIC ANTIBIOTICS (FLUOROQUINOLONES & SELECT MACROLIDES)<sup>AP</sup>**

<p>ciprofloxacin MOXEZA (moxifloxacin) ofloxacin VIGAMOX (moxifloxacin)</p> <p>**The American Academy of Ophthalmology guidelines on treating bacterial conjunctivitis recommend as first line treatment options: erythromycin ointment, sulfacetamide drops, or polymyxin/trimethoprim drops. Alternative treatments include bacitracin ointment, sulfacetamide ointment, polymyxin/bacitracin ointment, fluoroquinolone drops, or azithromycin drops. All generic forms of ophthalmic erythromycin, sulfacetamide, and polymyxin/trimethoprim, polymyxin/bacitracin and bacitracin are preferred.</p>	<p>AZASITE (azithromycin) BESIVANCE (besifloxacin) CILOXAN (ciprofloxacin) levofloxacin OCUFLOX (ofloxacin) QUIXIN (levofloxacin) ZYMAXID (gatifloxacin)</p>	<p>Five (5) day trials of each of the preferred agents are required before non-preferred agents will be authorized unless one of the exceptions on the PA form is present.</p> <p>**A prior authorization is required for the fluoroquinolone agents for patients under 21 years of age unless there has been a trial of a first line treatment option within the past 10 days.</p>
---	--	---

The DUR Capsules is a quarterly newsletter published for West Virginia Medicaid Providers. Information concerning West Virginia Medicaid can be accessed online at <http://www.dhhr.wv.gov/bms/>

Bureau for Medical Services  
Nancy Atkins, Commissioner  
Bureau for Medical Services  
Office of Pharmacy Services  
Peggy King, RPh Pharmacy Director  
Vicki Cunningham, RPh DUR Coordinator



350 Capital Street, Room 251  
Charleston, WV 25301-3709