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International Council of Ophthalmology/
International Federation of Ophthalmological Societies

ICO International Clinical Guidelines

Bacterial Keratitis (Management Recommendations)

(Ratings: A: Most important, B: Moderately important, C: Relevant but not critical
Strength of Evidence: I: Strong, II: Substantial but lacks some of I, III: consensus of expert opinion in absence of evidence for I & II)

Follow-up Evaluation

- Frequency depends on extent of disease, but follow severe cases initially at least daily until clinical improvement or stabilization is documented. **(A:III)**

Patient Education

- Educate about the destructive nature of bacterial keratitis and need for strict compliance with therapy. **(A:III)**
- Discuss possibility of permanent visual loss and need for future visual rehabilitation. **(A:III)**
- Educate patients with contact lenses about increased risk of infection associated with contact lens, overnight wear, and importance of adherence to techniques to promote contact lens hygiene. **(A:III)**
- Refer patients with significant visual impairment or blindness for vision rehabilitation if they are not surgical candidates. **(A:III)**

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Antibiotic Therapy of Bacterial Keratitis [A:III]

Organism	Antibiotic	Topical Concentration	Subconjunctival Dose
No organism identified or multiple types of organisms	Cefazolin with Tobramycin / Gentamicin or Fluoroquinolones	50 mg/ml 9-14 mg/ml 3 or 5 mg/ml	100 mg in 0.5 ml 20 mg in 0.5 ml
Gram-positive Cocci	Cefazolin Vancomycin* Bacitracin* Moxifloxacin or Gatifloxacin	50 mg/ml 15-50 mg/ml 10,000 IU 3 or 5 mg/ml	100 mg in 0.5 ml 25 mg in 0.5 ml
Gram-negative Rods	Tobramycin /Gentamicin Ceftazidime Fluoroquinolones	9-14 mg/ml 50 mg/ml 3 or 5 mg/ml	20 mg in 0.5 ml 100 mg in 0.5 ml
Gram-negative Cocci**	Ceftriaxone Ceftazidime Fluoroquinolones	50 mg/ml 50 mg/ml 3 or 5 mg/ml	100 mg in 0.5 ml 100 mg in 0.5 ml
Non-tuberculous Mycobacteria	Amikacin Clarithromycin*** Fluoroquinolones	20-40 mg/ml 3 or 5 mg/ml	20 mg in 0.5 ml
Nocardia	Amikacin Trimethoprim/Sulfa methoxazole: Trimethoprim Sulfamethoxazole	20-40 mg/ml 16 mg/ml 80mg/ml	20 mg in 0.5 ml

* For resistant Enterococcus and Staphylococcus species and penicillin allergy. Vancomycin and Bacitracin have no gram-negative activity and should not be used as a single agent empirically in treating bacterial keratitis.

** Systemic therapy is necessary for suspected gonococcal infection.

*** Dosage for oral systemic therapy in adults is 500 mg every 12 hours. Topical therapy has had some success but the medication is irritating and clinical experience is limited.

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Adapted from the [American Academy of Ophthalmology Summary Benchmarks, November 2006 \(www.aaopt.org\)](#)

(For more ICO International Clinical Guidelines, see www.icoph.org/guide)

Preface to the Guidelines:

International Clinical Guidelines are prepared and distributed by the International Council of Ophthalmology on behalf of the International Federation of Ophthalmological Societies.

These Guidelines are to serve a supportive and educational role for ophthalmologists worldwide. These guidelines are intended to improve the quality of eye care for patients. They have been adapted in many cases from similar documents (Benchmarks of Care) created by the American Academy of Ophthalmology based on their Preferred Practice Patterns.

While it is tempting to equate these to Standards, it is impossible and inappropriate to do so. The multiple circumstances of geography, equipment availability, patient variation and practice settings preclude a single standard.

Guidelines on the other hand are a clear statement of expectations. These include comments of the preferred level of performance assuming conditions that allow the use of optimum equipment, pharmaceuticals and/or surgical circumstances. Thus, a basic expectation is created and if the situation is optimum, the optimum facets of diagnosis, treatment and follow up may be employed. Excellent, appropriate and successful care can also be provided where optimum conditions do not exist.

Simply following the Guidelines does not guarantee a successful outcome. It is understood that, given the uniqueness of a patient and his or her particular circumstance, physician judgment must be employed. This can result in a modification in application of a guideline in individual situations.

Medical experience has been relied upon in the preparation of these guidelines, and they are whenever possible, evidence-based. This means these Guidelines are based on the latest available scientific information. The ICO is committed to provide updates of these guidelines on a regular basis (approximately every two to three years).

(Also see the Introduction to the ICO International Clinical Guidelines at www.icoph.org/guide/guideintro.html and the list of other Guidelines at www.icoph.org/guide/guidelist.html.)