

Evidence-Based Emergency Medicine

Clinical Synopsis

TAKE-HOME MESSAGE

Short-course antibiotic therapy (2 to 4 days) is probably as effective as a standard duration of therapy (7 to 14 days) in treating children with their first lower urinary tract infection.

METHODS

DATA SOURCES

The authors searched the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE from 1966 to 2005, and EMBASE from 1988 to 2005, without language restriction.

STUDY SELECTION

Randomized and quasirandomized controlled trials comparing short-term (2 to 4 days) with standard (7 to 14 days) oral antibiotic therapy in children aged 3 months to 18 years, with culture-proven urinary tract infections.

DATA EXTRACTION AND SYNTHESIS

Two authors independently assessed study quality and extracted data from included trials. A random-effects model was used to analyze data. Only randomized controlled trials were included; only 2 clearly described allocation concealment, whereas none of the trials defined appropriate blinding or used an intention-to-treat analysis.

An installment of the Systematic Review Abstract series:

What Is the Appropriate Antibiotic Course for the Treatment of Urinary Tract Infections in Children?

EBEM Commentator Contact

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Commentary

Lower urinary tract infection is a common occurrence in children, but unlike the generally benign course in adults, urinary tract infection in the pediatric population is well recognized as a cause of hypertension and renal insufficiency in adulthood.¹ Although antibiotics provide effective therapy, it is unclear what the appropriate duration of therapy should be. Shorter courses of antibiotics (less than 7 to 14 days) have the potential to reduce the rate of adverse events, decrease cost, and improve compliance but may place the patient at risk for relapse and long-term sequelae. The authors of this review pooled data to determine whether a short course of antibiotics is safe and as effective as a standard duration of therapy. The results indicate that there is no difference in the frequency of failed treatment or recurrence; however, there were insufficient data to estimate the effects on symptom resolution, development of bacterial resistance, adverse events, compliance, or cost savings.

Additionally, the authors analyzed the risk of relapse between children with recurrent urinary tract infection (a higher-risk group) and those with their first infection. Although there was not a large enough sample to reach a definitive conclusion, the data suggest that for this high-risk group, short-course antibiotic therapy is probably not appropriate. Current guidelines support the findings of this systematic review. They specify a 3-day course for uncomplicated urinary tract infection in children and a longer course with appropriate subspecialty evaluation for all others.²

RESULTS

A total of 10 trials met inclusion criteria (652 children).

Short-course antibiotic therapy versus standard duration.

Presence of Urinary Tract Infection	Relative Risk (95% CI)
End of treatment	1.06 (0.64–1.76)
3 mo after treatment	0.83 (0.46–1.47)
3–15 mo after treatment	1.05 (0.73–1.52)

1. Chang SL, Shortliffe LD, Chang SL, et al. Pediatric urinary tract infections. *Pediatr Clin North Am*. 2006;53:379-400.
2. National Collaborating Centre for Women's and Children's Health. *Urinary Tract Infection in Children: Diagnosis, Treatment and Long-Term Management*. London, England: National Institute for Health and Clinical Excellence; 2007. Clinical Guideline No. 54.

This is a systematic review abstract, a regular feature of the *Annals'* Evidence-Based Emergency Medicine (EBEM) series. Each

features an abstract of a systematic review from the Cochrane Database of Systematic Reviews and a commentary by an emergency physician knowledgeable in the subject area. The source for this systematic review abstract is: Michael M, Hodson EM, Craig JC, Martin S, Moyer VA. Short versus standard duration oral antibiotic therapy for acute urinary tract infection in children. *Cochrane Database Syst Rev* 2009, Issue 1: CD003966. DOI: 10.1002/14651858.CD003966. The *Annals* EBEM editors assisted in the preparation of the

abstract of this Cochrane systematic review.

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