FPIN's Clinical Inquiries

Antibiotics for Viral Upper Respiratory Tract Infections in Children

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Clinical Inquiries provides answers to questions submitted by practicing family physicians to the Family Physicians Inquiries Network (FPIN). Members of the network select questions based on their relevance to family medicine. Answers are drawn from an approved set of evidence-based resources and undergo peer review. The strength of recommendations and the level of evidence for individual studies are rated using criteria developed by the Evidence-Based Medicine Working Group (http://www.cebm.net/?o=1025).

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Clinical Question

Is antibiotic administration appropriate in children with presumed viral upper respiratory tract infections?

Evidence-Based Answer

Antibiotic therapy does not benefit children with bronchiolitis, the common cold, or nonstreptococcal pharyngitis. If purulent rhinitis is present for more than 10 days, antibiotics shorten the duration of runny nose symptoms. (Strength of Recommendation [SOR]: A, based on systematic reviews of randomized controlled trials [RCTs].) Using strategies that delay or avoid antibiotic prescription for viral upper respiratory tract infections will significantly reduce antibiotic use without increasing long-term complications. (SOR: A, based on a systematic review of RCTs including patients of all ages.)

Evidence Summary

BRONCHIOLITIS

A Cochrane review identified one RCT comparing antibiotics versus placebo in 52 children younger than two years with bronchiolitis diagnosed in a hospital setting.[1] Antibiotic use did not improve the main primary outcome, length of illness (9.5 versus 9.7 days for antibiotics and placebo, respectively). No deaths were reported in either group.[2]

COMMON COLD AND ACUTE PURULENT RHINITIS

A systematic review that included five RCTs compared antibiotics versus placebo in 966 children recruited from primary care settings and treated for the common cold and acute purulent rhinitis.[3] Investigators found no significant difference in the persistence of common cold symptoms by day 7 with antibiotics or placebo. They also found no difference in the frequency of adverse effects, which were mainly gastrointestinal. However, antibiotic use significantly reduced the duration of runny nose in children with acute purulent rhinitis whose symptoms persisted longer than 10 days (relative risk = 0.60; 95% confidence interval, 0.37 to 0.95; number needed to treat = 4 to 8).[3]

SORE THROAT

A systematic review evaluating antibiotic therapy for sore throat included two RCTs that addressed sore throat not caused by group A β-hemolytic streptococcus.[4] The first study included 122 children two to 10 years of age from a suburban group practice. Patients were randomized to receive amoxicillin, trimethoprim/sulfamethoxazole (Bactrim, Septra), or placebo. All throat cultures were negative for group A β-hemolytic streptococcus. The second study included 186 adults 18 to 50 years of age randomized to receive antibiotics or placebo. Neither study showed a significant difference in resolution of sore throat symptoms with antibiotics versus placebo.[4]

DELAYED ANTIBIOTICS FOR UPPER RESPIRATORY TRACT INFECTIONS

A systematic review of nine RCTs including 1,000 patients of all ages compared outcomes with three prescribing strategies for upper respiratory tract infections: immediate antibiotics, delayed antibiotics (for at least 48 hours), and no antibiotics.[5] Three good-quality studies (n = 248) evaluated patients ▶

with the common cold and with cough, and found no differences in clinical outcomes or patient satisfaction between the three prescribing strategies. The studies evaluating patients with sore throat were of poorer quality and reported heterogeneous symptom outcomes. However, none of the prescribing strategies produced significant differences in reconsultation rates or long-term complications. All studies published after 1992 demonstrated reduced antibiotic use for upper respiratory tract infections (e.g., common cold, cough, sore throat) with the delayed antibiotic and no antibiotic strategies.[5]

Recommendations from Others

The Institute for Clinical Systems Improvement guidelines for diagnosis and treatment of upper respiratory tract illness in children and adults recommend differentiating viral upper respiratory tract illness from more serious conditions.[6] The guidelines also recommend educating patients about symptomatic treatment for self-limited viral illness and reserving antibiotics for bacterial illnesses diagnosed by appropriate testing.

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