Why’s and how’s of judicious antibiotic prescribing for URIs

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A new AAP clinical report released Nov. 18 outlines three principles of judicious antibiotic prescribing for pediatric upper respiratory tract infections (URIs). The document also identifies situations in which antibiotic overuse is significant (common cold and bronchitis) and highlights risks associated with antibiotic use, including the growing threat of antimicrobial resistance and increasing rates of *Clostridium difficile* diarrhea.


For the three most common bacterial URIs — acute otitis media, acute bacterial sinusitis and group A streptococcal (GAS) pharyngitis — the principles focus on:

1. using stringent clinical criteria to establish the diagnosis;
2. understanding the benefits and harms of antibiotic therapy; and
3. implementing judicious prescribing strategies, including use of narrow-spectrum agents as first-line therapy for most children, minimizing therapy duration and initial observation in place of antibiotics in certain cases.

**Acute otitis media**

The clinical report highlights the diagnostic and treatment recommendations from the AAP clinical practice guideline for acute otitis media (*Pediatrics*. 2013;131:e964-e999). Criteria for diagnosis of acute otitis media include identification of middle ear effusion with signs of inflammation (e.g., bulging). Watchful waiting without antibiotics should be considered for children older than 2 years of age who have unilateral disease without severe symptoms.

Amoxicillin remains the first-line therapy (amoxicillin with clavulanate if amoxicillin was used in the prior six weeks or when high local prevalence of amoxicillin-resistant *Haemophilus influenzae* is confirmed). A seven-day course instead of 10 days may be considered for older children. Practitioners also should recognize that early initiation of antibiotic treatment of otitis media is unlikely to prevent more serious complications such as mastoiditis.

**Acute bacterial sinusitis**

The clinical report amplifies the key points in the AAP clinical practice guideline for evaluation and treatment of acute bacterial sinusitis (*Pediatrics*. 2013;132:e262-e280). The report identifies three situations in which practitioners should consider treatment for sinusitis: 1) severe disease with high fever and purulent rhinorrhea, 2) persistent rhinorrhea and cough without improvement 10 days into the course, and 3) situations where clinical worsening follows initial improvement in URI symptoms.

First-line therapy is similar to that for acute otitis media. Practitioners should not consider azithromycin for treatment of acute otitis media or acute bacterial sinusitis because of the high rates of resistance for pneumococcus, the most common etiologic agent. Additionally, the Academy recommends initial observation instead of antibiotic therapy for selected patients who have persistent symptoms only.

The evidence base regarding antibiotic therapy for acute sinusitis is somewhat limited. Two studies have shown symptom resolution after three and 14 days in children treated with antibiotics compared to placebo. In both studies, patients were diagnosed using validated stringent clinical criteria. Another study that relied on physician diagnosis showed no benefit of antibiotics, which emphasizes the importance of applying strict diagnostic criteria to maximize the benefit of therapy and minimize antibiotic overuse.

No studies have shown that antibiotic therapy prevents suppurrative complications, such as orbital cellulitis or intracranial abscess.

**GAS pharyngitis**

Recommendations to optimize antibiotic use in GAS pharyngitis include always testing and confirming before prescribing an antibiotic, and testing only when two of the following are present: fever, tonsillar exudate/swelling, swollen/tender anterior cervical nodes and absence of cough.

Testing generally is not recommended for those younger than 3 years of age and in patients with symptoms suggestive of viral illness, e.g., cough, nasal congestion, conjunctivitis, hoarseness, diarrhea or oropharyngeal lesions (ulcers, vesicles).

Once daily amoxicillin for 10 days is recommended as the appropriate approach to therapy. The major benefits to antibiotic treatment of GAS pharyngitis is prevention of rheumatic fever, although this is relatively rare in the United States. Other benefits are that symptoms are shortened by approximately one day, and household transmission may be reduced. A modest reduction in suppurrative complications, including otitis media and sinusitis, also may be found. However, prevention of more serious complications, such as peritonsillar abscess, requires treatment of more than 4,000 patients to prevent one episode.

In summary, this clinical report emphasizes three principles of judicious antibiotic prescribing for upper respiratory tract infections that can be applied broadly to antibiotic use in general: using stringent clinical criteria to establish the diagnosis, understanding the benefits and harms of antibiotic therapy, and implementing judicious prescribing strategies, including use of narrow-spectrum agents as first-line therapy for most children, minimizing therapy duration and initial observation in place of antibiotics in certain cases.
gent clinical criteria to establish a diagnosis of a bacterial infection; understanding the benefits and harms associated with antibiotic use; and implementing strategies that minimize the harms of antibiotic overuse.

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