THE CHILDREN'S MEDICAL CENTER OF DAYTON

Pediatric Clips

Otitis media — Sherman J. Alter, MD

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Pediatric Clips from The Children's Medical Center are quick reviews of common pediatric conditions.

The Children's Medical Center is the region's pediatric referral center for a 20-county area. As the only facility in the region with a full-time commitment to pediatrics, Children's offers a wide range of services in general pediatrics as well as in 35 subspecialty areas for infants, children and teens. We welcome your inquiries about services available — call 937-641-3666 or e-mail marketing @childrensdayton.org.

the children's medical center
Dayton, Ohio

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CASE: ACUTE OTITIS MEDIA IN A CHILD

An 18-month-old boy presented with a one-day history of fever to 38.5° C. He developed a runny nose two days previously. For 24 hours he was irritable with decreased appetite. Seven weeks prior to the visit, the child completed treatment with amoxicillin for bilateral otitis media.

Medical history reflects no significant illnesses other than three diagnosed episodes of ear infections in the last year. His immunizations are up-to-date. He attends a day care center four days a week. An older sibling had "many" ear infections as a toddler. The father smokes cigarettes.

On examination, he was cranky and had a temperature of 39° C. His left tympanic membrane was noted to be reddish-blue in color, bulging with loss of normal landmarks and had limited mobility with pneumatic otoscopy. He had a mucopurulent rhinorrhea. His oropharynx was minimally injected. Ascultation revealed transmitted upper airway sounds. The remainder of the examination was normal.

CASE DISCUSSION

Acute otitis media (AOM) is one of the most common infectious diseases seen by primary care clinicians. Recently, the American Academy of Pediatrics (AAP) along with the American Academy of Family Physicians developed the clinical practice guideline, *Diagnosis and Management of Acute Otitis Media*. The guideline applies only to otherwise healthy children from 2 months through 12 years of age with uncomplicated AOM.

The importance of making the correct diagnosis of AOM (rather than otitis media with effusion) is emphasized. Since many studies have failed to demonstrate the effectiveness of antibiotics in treating cases of AOM, the guideline endorses a waiting period of 48 to 72 hours before prescribing antibiotics in select children. Finally, recommended antibiotic therapy recognizes increasing antimicrobial resistance among pathogens frequently causing AOM.

RECOMMENDATION 1

A diagnosis of AOM requires:

1. A history of recent, usually abrupt, onset of signs and symptoms **AND**
2. The presence of middle-ear effusion indicated by any of the following:
   - Bulging of the tympanic membrane
   - Limited or absent mobility of the tympanic membrane
   - Air fluid level behind the tympanic membrane
   - Otorrhea **AND**
3. Signs and symptoms of middle-ear inflammation as indicated by either
   - Distinct erythema of the tympanic membrane OR
   - Distinct otalgia (discomfort that interferes with normal activity or sleep)

When combined with color and mobility, a bulging tympanic membrane is the best predictor of AOM.

RECOMMENDATION 2

Management of AOM should always include an assessment and treatment of pain.

RECOMMENDATION 3A

Observation without the use of antibiotics in children with uncomplicated AOM is an option for select children based on diagnostic certainty, age, severity of illness and assurance of follow-up. In some children, antibiotics for AOM may be deferred 48 to 72 hours and management may be limited to symptomatic relief. With observation, caregivers must communicate with the clinician and a reevaluation system must be in place. If necessary, the caregiver must be able to obtain medication.

Criteria for antibiotics vs observation:

Age: <6 months
Certain Diagnosis: Antibiotic therapy
Uncertain Diagnosis: Antibiotic therapy

Age: 6 months – 2 years
Certain Diagnosis: Antibiotic therapy
Uncertain Diagnosis: Antibiotics if severe illness.* Observation in non-severe illness.

Age: >2 years
Certain Diagnosis: Antibiotics if severe illness. Observation in non-severe illness
Uncertain Diagnosis: Observation option

*Moderate to severe otalgia or fever = 39° C.
A certain diagnosis of AOM meets all three criteria: 1) rapid onset, 2) signs of middle-ear effusion, and 3) signs and symptoms of middle-ear inflammation.

RECOMMENDATION 3B AND 4

Most children who receive an antibiotic should be treated with amoxicillin 80-90 mg/kg/day (Table). In patients with severe illness and in those for whom additional coverage for beta-lactamase positive *Haemophilus influenzae* and *Moraxella catarrhalis* is desired, therapy should be initiated with amoxicillin-clavulanate (90 mg/kg/day of amoxicillin component, with 6.4 mg/kg/day of clavulanate). For younger children and those with severe disease, a standard 10-day course is recommended. For children six years and older and those with mild to moderate disease, a five- to seven-day course is appropriate. Regardless of the management option selected in children with AOM, the importance of recognizing and evaluating the child with treatment failure within a 48- to 72-hour period is emphasized.

MANAGEMENT OF CASE

The patient discussed above was recently on antibiotics, is under the age of two years, and has an obvious AOM with a fever of 39° C. With such a presentation, the patient should receive antibiotic treatment, perhaps with amoxicillin-clavulanate. Follow-up is needed if the child fails to improve in 48 to 72 hours.

Continued

Continued from the front.

Recommended antibacterial agents for patients who are being treated initially with antibacterial agents or who have failed 48 to 72 hours of observation or have failed initial management with antibacterial agents.

Temp = 39° C +/or severe otalgia	At diagnosis for patients being treated initially with antibiotics		Clinically defined treatment failure at 48-72 hours after initial management with observation option		Clinically defined treatment failure at 48-72 hours after initial management with antibiotics	
	Recommended	Alternative for Penicillin Allergy	Recommended	Alternative for Penicillin Allergy	Recommended	Alternative for Penicillin Allergy
No	Amox 80-90 mg/kg/day	Non-type I: cefdinir, cefuroxime, cefpodoxime, Type I: azithromycin, clarithromycin	Amox 80-90 mg/kg/day	Non-type I: cefdinir, cefuroxime, cefpodoxime, Type I: azithromycin, clarithromycin	Amox 90 mg/kg/day +	Non-type I: Ceftriaxone IM – 3 days
Yes	Amox 90 mg/kg/day+ clavulanate 6.4 mg/kg/day	Ceftriaxone IM 1 or 3 days	Amox 90 mg/kg/day+ clavulanate 6.4 mg/kg/da	Ceftriaxone IM 1 or 3 days	Ceftriaxone IM 3 days	Tympanocentesis clindamycin

RESOURCES

- Klein JO, McCracken GH Jr. Current assessments of diagnosis and management of otitis media. *Pediatr Infect Dis J.* 1998;17:539.
- Hendley JO. Otitis Media. *N Engl J Med.* 2002;347:1169.
- Wald ER. Acute otitis media: more trouble with the evidence. *Pediatr Infect Dis J.* 2003;22:2.
- AOM guideline is posted on the AAP website (www.aap.org/policy/AOMfinal.pdf).

FEATURED SPECIALIST

Sherman J. Alter, MD, serves as medical director of the infectious disease department at Dayton Children's. He received his medical degree from The Ohio State University College of Medicine and completed his fellowship in infectious disease at Cincinnati Children's Hospital Medical Center. Dr. Alter is an associate clinical professor of pediatrics at Wright State University School of Medicine.

INFECTIOUS DISEASE

The department of infectious disease offers a diagnostic and treatment program for children and adolescents with diagnoses or conditions including recurrent and chronic infections, unexplained skin rashes, HIV and related infections, opportunistic infections and unexplained febrile illnesses. In addition to patient evaluation and treatment, the department is available for phone consultations with physicians who have patient-related questions, can provide information about support groups and can evaluate the internationally adopted child and the pediatric traveler.

CONTACT INFORMATION

To contact Dr. Alter or to make a referral, call infectious disease at 937-641-3329 or email alters@childrensdayton.org.

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