Acute Otitis Media

Key Points

- Acute otitis media (AOM) is a clinical diagnosis.
- Not all AOM require antibiotic treatment.
- Pain control is an important part of therapy.
- Chronic or repeat infections can lead to impaired hearing and speech delay in young children

Diagnosis:

1. Acute onset of signs and symptoms
2. Signs of middle ear effusion
    a. Bulging of the TM
    b. Limited or absent mobility of the TM
    c. Air-fluid level behind the TM
    d. Otorrhea – drainage from the ear
3. Presence of signs and symptoms of middle-ear inflammation
    a. Distinct erythema of TM

All three findings are necessary for a diagnosis of AOM. If a child has middle ear effusion without signs of inflammation (pain, erythema), then the diagnosis is otitis media with effusion (OME)

Treatment:

- First- start immediate pain control
    - Use simple analgesics (acetaminophen, ibuprofen)
- Determine timing for/need of antibiotics
    - Patients < 6 months of age
        - Start antibiotics at time of diagnosis
    - Patients 6-24 months
        - If certain diagnosis of AOM or severe illness
            - Begin antibiotics immediately
        - If uncertain diagnosis of AOM and non-severe illness
            - May delay antibiotics, observe and treat pain for 48-72 hours
    - Patients > 2 years
        - If certain diagnosis of AOM and severe illness
            - Begin antibiotics upon diagnosis
        - If certain diagnosis of AOM and non-severe illness
            - May delay antibiotics, observe and treat pain for 48-72 hours
        - If uncertain diagnosis of AOM
            - May delay antibiotics, observe and treat pain for 48-72 hours
- If delaying antibiotic use
    - Ensure patient has easy access to follow up
    - May give a prescription that family will only fill if symptoms worsen
    - Only an option in otherwise healthy children
    - Children with concomitant chronic illness or cochlear implant should be treated immediately with antibiotics and have close follow-up with their primary care provider.

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Choosing an Antimicrobial:

Empiric Antimicrobial Selection and Duration		
Outpatient Therapy		**Duration**
First line therapy	Amoxicillin	Age < 2 years: 10 days Age ≥ 2 years: 5 days Ceftriaxone: 1-3 days
If amoxicillin has been taken within the past 30 days, if concurrent purulent conjunctivitis is present, or if the child has a history of recurrent AOM unresponsive to amoxicillin	Amoxicillin-clavulanate	
Beta lactam allergies Amoxicillin/penicillin Cephalosporin	 Cefuroxime or cefpodoxime or ceftriaxone or cefdinir[1] Clindamycin[2]	
Failure to initial therapy after 72 hours Amoxicillin Amoxicillin-clavulanate	 Amoxicillin-clavulanate Ceftriaxone	

[1] Cefdinir has poor bioavailability and should only be considered if other cephalosporin options are unavailable.
[2] Clindamycin does not cover *H. influenzae* or *M. catarrhalis*.

Antimicrobial Dosing				
Antimicrobial	**Weight Based Dose (mg/kg/dose)**	**Maximum Dose (mg)**	**Route**	**Interval (hr)**
Amoxicillin[1]	45	1000	Oral	Q12
Amoxicillin-Clavulanate[2]	45	875 (tablets) 900 (suspension)	Oral	Q12
Cefdinir	7	300	Oral	Q12
Cefpodoxime	5	200	Oral	Q12
Ceftriaxone	50	1000	Intramuscular	Q24
Cefuroxime[3]	15	500	Oral	Q12
Clindamycin[4]	10	600	Oral	Q8

[1] Use 400mg/5mL suspension or 500mg tablets
[2] Use 600mg-42.9mg/5mL suspension or 875mg-125mg tablet
[3] Only tablet formulation available. Do not crush. Crushed tablet has strong, persistent, bitter taste.
[4] Use capsules when possible. Oral suspension has bitter taste.

Follow-up

- Not routinely recommended
- May consider follow-up after treatment - young child with severe disease, recurrent disease, parental request
- Consider ENT referral if patient has 3 otitis media infections in 6 months or 4 in 1 year with at least 1 in the last 6 months

References:

Lieberthal AS, Carroll AE, Chonmaitree T, et al. The Diagnosis and Management of Acute Otitis Media. *Pediatrics* (2013) 131 (3): e964–e999.