Pediatric Acute Otitis Media (AOM) Guideline (Children > 2 Months of Age)

EVALUATION AND TREATMENT

Pediatric Patient > 2 Months of Age Presents with Signs/Symptoms Suggestive of Otitis Media

Ear pain, ear drainage, irritability, restlessness, or poor feeding

Exclusion Criteria

- Children < 2 months of age, consider sepsis evaluation
- Immunodeficiences
- Sensory deficits
- PE tubes
- Neurologic abnormalities
- Craniofacial abnormalities (i.e. Down Syndrome, Cleft Palate)

Do Not Use This Guideline

Individualize patient evaluation for excluded groups

Assess Risk Factors for Acute Otitis Media (AOM)

- < 2 years of age
- Smoke exposure
- Daycare
- Pacifier use
- Bottle propping
- Sub-optimal breast feeding
- Unimmunized or Under-immunized
- Past medical history of AOM
- Family history of AOM

*Diagnosis for AOM

AOM Requires Three Components:

1. History of acute onset of symptoms
2. Presence of middle ear effusion indicated by one of the following:
   - A. Bulging TM (ear drum)
   - B. Decreased mobility of TM confirmed by otoscopy or tympanogram
   - C. Discharge from the ear
3. Presence of middle ear inflammation indicated by one of the following:
   - A. Red tympanic membrane
   - B. Discomfort affecting normal activity and/or sleep (earache or otalgia)

* Consider irrigating the ear canal if cerumen blocks visualization of tympanic membrane

Yes

High Probability of Acute Otitis Media (AOM)

Institute Appropriate Pain Management (TABLE A)

Age consideration of patient

Age: 2-6 Months

Treat with high dose Amoxicillin for 10 days **(TABLE B)**

Follow up in 48-72 hours

Age: > 6 months

Ill-Appearing After Pain Management

Consider 7-10 days of high dose Amoxicillin for AOM **(TABLE B)**

Well-Appearing

Family Education **(TABLE C)**

Consider SNAP Therapy **(TABLE D)**

No

High Probability of Otitis Media with Effusion (OME) (TABLE E)

Other

Review other causes of acute presentation

Confirmed OME

Follow up with PCP in 3-4 weeks to assess effusion

Refer to ENT for effusions lasting greater than 12 weeks

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TABLE A Appropriate Pain Management	
Medication	**Dose**
Acetaminophen *OR*	10-15 mg/kg/dose. Can be given every 4-6 hours as needed for discomfort.
Ibuprofen *OR*	10 mg/kg/dose. Can be given every 6-8 hours for discomfort. Not recommended for children younger than 6 months of age.
Auralgan (Benzocaine and Antipyrine)	Fill external ear canal with 1-2 drops every 1-2 hours as needed for discomfort. Contraindicated if perforated TM or PE tubes in place. Local reactions with burning and stinging are common along with hypersensitivity reactions. Risk of benzocaine-induced methemo-globinemia is increased in infants < 3 months of age.

TABLE B
Antibiotic Treatment for Pediatric Patient with Acute Otitis Media (AOM)

First line antibiotic therapy is Amoxicillin 80-90 mg/kg/day divided two times a day for 10 days

Second line therapy is Amoxillicin-clavulanate (Augmentin) and dosing is dependent upon concentration:
At 600 mg/5 ml, give 80-90 mg/kg/day divided two times a day for 7-10 days
At 400 mg/5 ml give 40-45 mg/kg/day divided two times a day for 7-10 days

Antibiotic Treatment for Pediatric Patient with Penicillin Allergy

For patients with penicillin allergy treat for 7-10 days with one of the following:
- Cefdinir (Omnicef)14 mg/kg/day taken once daily or the dose can be divided two times a day
- Cefprozil (Cefzil) 30 mg/kg/day divided two times a day
- Azithromycin (Zithromax) at 10 mg/kg /day for day one and then 5 mg/kg /day given once daily for days 2-5; recent dosing at 20 mg/kg/day given daily for 3 days can also be used, but may show higher GI intolerance. **Please note that the concentration of Azithromycin (Zithromax) within the middle ear is unknown and therefore should be used sparingly.**

TABLE C
Family Education

- Observe for worsening symptoms over the next 48-72 hours
- Pain treatment as appropriate **(TABLE A)**
- Consider Safety Net Antibiotic Prescription therapy (SNAP) or follow up with PCP if symptoms are worsening or not getting better in the next 2-3 days **(TABLE D)**
- Discuss preventable risk factors for recurrence: avoid smoke exposure, stop pacifier use, no bottle propping at night

TABLE D
Safety Net Antibiotic Prescription Therapy (SNAP)

- Prescribe an antibiotic that a parent or caregiver can fill and use if the patient's symptoms are not better or if they worsen in 2-3 days
- Consider this for patients whose access to care is limited

TABLE E
Otitis Media with Effusion (OME)

- Otitis media with effusion (OME) is defined as the presence of middle-ear effusion (MEE) in the absence of acute signs of infection
- The gold standard to make the diagnosis is pneumatic otoscopy
- Tympanometry showing flat line or decreased area under the curve supports the diagnosis as well
- The tympanic membrane in children with OME is usually gray or translucent
- The tympanic membrane is usually in a neutral or retracted position
- The fluid-filled middle ear prevents mobility of the tympanic membrane when positive pressure is applied with the bulb during pneumatic otoscopy; however, some movement may be seen when negative pressure is applied initially to the tympanic membrane by depressing the bulb and then inserting the otoscope tip into the ear canal

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Clinical Pearls

- **Goal:** To assist providers to make an accurate diagnosis and appropriately treat pediatric patients with AOM.
- **The diagnosis of AOM requires all three criteria:**
  1. Abrupt onset of signs and symptoms
  2. Presence of middle ear effusion which is the most important component
  3. Signs and symptoms of middle ear inflammation
- **High risk groups are excluded from the algorithm,** such as patients with immunodeficiencies, craniofacial abnormalities (i.e. Down Syndrome, Cleft palate), neurological abnormalities, or sensory deficits and those with PE tubes.
- Children with a recent (< 1 month) diagnosis of AOM should be examined with caution and treated appropriately.
- Remember that viral infections account for 40% of AOM, so providers are encouraged to refrain from antibiotic use when clinical or lab confirmation of a viral illness is made. Close follow up by the patient's PCP is warranted in these patients since they may be at risk for persistent middle ear effusion and therefore later development of AOM and/or hearing loss.
- Treatment includes pain management and prescription for antibiotics where appropriate, especially in children 2 to 6 months of age.
- Other therapies such as prophylactic antibiotics, steroids, antihistamines or decongestants are not recommended.
- Access to follow up is very important and when not available, SNAP option should be considered.

  SNAP = safety net antibiotic prescription (TABLE D)
- If diagnosis is unsure and the patient looks well, follow up with the patient's PCP or ENT is appropriate rather than prescribing an antibiotic without a definite diagnosis.
- Middle ear effusion should be followed and referred to ENT if persistent beyond 12 weeks.
- Audiologic referral should be made when any caregiver is concerned about a child's hearing, speech or language development, or when there are 3 ear infections in 6 months or 4 ear infections within a year.
- Be alert to complications of AOM, such as meningitis and mastoiditis, and the clinical signs and symptoms most likely to occur with these diagnoses.

References

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