Acute otitis media

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Acute otitis media (AOM) is predominantly a disease of children. The most important risk factors for AOM are young age and attendance at a day-care facility or nursery.

- Acute otitis media is the second most common reason for an FP visit; it accounts for 10% to 15% of all childhood visits to the doctor.
- It is the most common reason for prescribing antimicrobial drugs.
- Around 60% to 85% of children have AOM during the first year of life.
- After 5 years of age, the incidence rate starts to drop rapidly.

Acute otitis media is the most frequently diagnosed bacterial infection in children. Over the past 2 decades, there has been no substantial change in the main bacterial pathogens that cause AOM, which are similar in both adults and children.

- Acute otitis media is predominantly a bacterial infection; viruses cause one-third of cases.
- One-third of bacterial infections are due to *Streptococcus pneumoniae*; one-third to *Haemophilus influenzae*; one-sixth to *Moraxella catarrhalis*; and the rest to a mixture of species.
- In small infants, other bacteria can also be found.
- There is a weak correlation between nose and middle-ear bacterial infection.

Clinical course and diagnosis

The symptoms of otitis media are earache, discharge from the ear, hearing loss, ear popping, ear fullness, dizziness, and fever. The natural history of untreated AOM is known from the experience of placebo-group subjects in antibiotic trials; most cases of AOM resolve spontaneously, and complications are very rare.

- Acute otitis media is usually a self-limited condition.
- About 80% to 90% of children recover within 3 days, and full recovery takes 7 days.
- In antibiotic trials, the failure rate of treatment-group subjects is about the same as persistent illness in the untreated placebo groups.
- In developed countries, the incidence of suppurative complications is now very low.

Although textbooks recommend use of a pneumatic otoscope, few FPs use one, and no studies have been published comparing regular with pneumatic otoscopy in family practice. Tympanometry and acoustic reflectometry have high sensitivity and specificity, but have not been tested in primary care. There is no scientifically derived and validated diagnostic decision rule for AOM as there is for sore throat.

- Diagnosis of AOM is difficult. There is no criterion standard and no specific laboratory test.
- The clinical signs with the highest predictive value for AOM are bulging eardrum, clouding of the eardrum, reduced eardrum mobility, and hearing loss.
- Pneumatic otoscopy can reliably distinguish AOM from myringitis.
- Tympanometry and acoustic reflectometry have been found to have high sensitivity and specificity in research studies, but there are no studies of their value in primary care.

Treatment

Systematic reviews of antibiotic treatment conclude that there is only weak evidence that routine antibiotic treatment improves the course and outcomes of AOM. Fewer than 20% of patients will slightly improve, and there will only be short-term benefits.

- Antibiotic treatment for AOM is controversial.
- Antibiotics do not prevent subsequent infections nor decrease the number of children with long-term hearing loss.
- Antibiotics slightly reduce the duration of clinical signs and symptoms.
  - Full clinical cure is improved by 12% (number needed to treat [NNT] = 8).
  - Pain is reduced by 4.8% (NNT = 21).

  - Contralateral otitis media is reduced by 5.8% (NNT = 17).
- Use of antibiotics produces side effects (number needed to harm = 11).

Amoxicillin is acknowledged to be the best first-line antibiotic; the choice of agent when amoxicillin fails (or patient is allergic to penicillin) remains unclear; consider trimethoprim-sulfamethoxazole or erythromycin-sulfamethoxazole.

Trials have shown that ibuprofen and acetaminophen are equally effective in controlling pain and fever (NNT = 5); however, they do not affect recovery time. Comfort measures for the sick child are supported by the experience and common sense of countless mothers, not by scientific evidence.

The best current advice is that the FP should explain to the parent of an otherwise healthy child that, given the lack of benefit of antibiotics, conservative management—watchful waiting—is the best initial strategy. The FP can either arrange to check the child again in 2 to 3 days or give a delayed prescription for antibiotics, which can be used if the child does not improve.

- Amoxicillin remains the recommended first-line therapy.
- Clinical progress is the same when treatment is given for 5 days rather than 10 days.
- The clinical failure rate is slightly higher if the shorter course is used (NNT = 17).
- The relapse rate is slightly higher if the shorter course is used (NNT = 31).

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Competing interests

None declared

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