Contemporary Concepts in Management of Acute Otitis Media in Children

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KEYWORDS

• Acute otitis media • Middle ear effusion • Tympanostomy tubes
• Clinical practice guidelines • Ear infections

KEY POINTS

- Acute otitis media (AOM) should be distinguished from chronic otitis media with effusion.
- Clinical practice guidelines have been updated to refine the "observation" option for treatment of AOM, with an emphasis on precise diagnosis.
- The bacteriology of AOM has been changed by the use of pneumococcal vaccines, but high dose amoxicillin or amoxicillin–clavulanate are good choices when initial antibiotic therapy is prescribed for AOM.
- Tympanostomy tubes are an option for children with recurrent AOM, particularly when there is evidence of ongoing Eustachian tube dysfunction.
- Complications of AOM are rare, but must be detected early to avoid serious morbidity.

INTRODUCTION AND DEFINITIONS

Acute otitis media (AOM) is a common disorder of early childhood, and among the most common reasons for referral of a young child to the otolaryngologist. Although the majority of children with AOM are managed by primary care providers without the need for specialty consultation, children with recurrent episodes, severe symptoms, or complications of AOM can require prompt otolaryngologic evaluation and surgical treatment. Although AOM affects many children, and tympanostomy tube placement is the most commonly performed operative procedure in young children, consensus is still being reached about the most appropriate use of surgery for children with AOM.

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We review the relevant concepts in the management of AOM in children, with an emphasis on changes in microbiology over the last 2 decades. We also discuss management paradigms for AOM advanced by evidence-based clinical practice guidelines published in 2013. Surprisingly, these guidelines are the first to recommend tympanostomy tube placement as an option for children with recurrent AOM, despite decades of tympanostomy tube placement for this indication. New emphasis is placed on accurate diagnosis based on strict criteria, with additional refinement of the selection of children most appropriate for observation without antibiotics at initial diagnosis of AOM. This review focuses on AOM and recurrent AOM, and we do not directly discuss management of middle ear effusion (MEE) that is asymptomatic other than hearing loss (otitis media with effusion [OME]). It is important to distinguish AOM from OME, which are separate entities with unique management considerations (**Table 1**).

EPIDEMIOLOGY

AOM is a common disease in children. In the United States, 8.8 million children (11.8%) under the age of 18 were reported to have ear infections in 2006, with an estimated total treatment cost of $2.8 billion.[5] Antibiotics are prescribed for AOM more frequently than for any other illness of childhood.[6] The epidemiology of AOM has evolved over the past decade, with a decrease in clinician visits for suspected AOM by 33% from 1995–1996 to 2005–2006.[6] The reasons for the decrease in clinician visits is unclear, with possible explanations including financial considerations, health care access issues, public educational campaigns about the viral etiology of most upper respiratory tract infections, the introduction of the 7-valent pneumococcal vaccine (PCV7) and influenza vaccines, and publication and implementation of clinical practice guidelines.[7]

Interestingly, clinician prescribing patterns have not changed significantly for children with AOM, with the rate of antibiotic prescription per visit remaining approximately stable (80% in 1995–1996 to 76% in 2005–2006).[6,8] More recent study of prescribing patterns for AOM shows treatment strategy may vary among medical disciplines, with 1 report showing a drop in early antibiotic use for AOM by pediatricians and otolaryngologists between 2002 and 2009, but an increase in antibiotic use by

Table 1
Classification of otitis media

Term	Definition
Acute otitis media (AOM)	The rapid onset of signs and symptoms of inflammation of the middle ear Symptoms include otalgia, irritability, insomnia, anorexia Signs include fever, otorrhea, full or bulging opaque TM, impaired TM mobility, TM erythema
Recurrent acute otitis media (RAOM)	Three or more well-documented and separate AOM episodes in the past 6 mo, or ≥4 well-documented and separate AOM episodes in the past 12 mo with ≥1 in the past 6 mo
Otitis media with effusion (OME)	The presence of fluid in the middle ear without signs or symptoms of acute ear infection (AOM)
Chronic otitis media with effusion (COME)	OME persisting for ≥3 mo from the date of onset (if known) or from the date of diagnosis (if onset unknown)

Abbreviation: TM, tympanic membrane.
Adapted from Refs.[1–4]