

Two Critical Questions Must be Answered Before Starting Antibiotic Treatment for Acute Otitis Media

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The physician who cares for children is frequently faced with a double predicament when the patient presents otitis media. Whether the doctor is a pediatrician, a generalist or an ENT specialist he must carefully consider two questions that not always have a certain or immediate answer.

The first question is: is this otitis media really acute?

The difficulties encountered in properly visualizing a child's eardrum cannot be overstated. The ear canal of infants is often narrow and partially occluded by wax (which the paediatrician must be prepared to clear). He cries, she moves and it may require a formidable effort to perform a satisfactory otoscopy.

If we conclude that the patient indeed has otitis media, it is because we have verified, ideally by performing a pneumatic otoscopy, that effusion is present in the middle ear. We know that the most common form of otitis media is, by far, the catarrhal stage that we call otitis media with effusion (OME). This one (minuscule letters when mild) is often present in children and tends to resolve spontaneously although it reappears with the many upper respiratory infections that they suffer. In a few cases this serous effusion evolves into a more severe and persistent form that we call glue ear (OME, capital letters). This can muddle the inexperienced otoscopist's interpretation because in this case the viscous effusion acquires a colour (bright or dusky amber) that may be confused with that of a purulent infection.

The diagnosis of acute otitis media (AOM), as Rosenfeld¹ states so clearly, is a sequential process that offers a rapid surfacing of clinical phenomena. AOM is revealed when a middle ear effusion, usually unrecognized up to that moment, augments its amount of illness by adding one or more signs or symptoms of severe inflammation. Earache (otalgia) is the most specific *symptom* and is manifested by diverse expressions of pain and irritability. The pain is actually provoked by the outward displacement of the tympanic membrane (TM) as the middle ear fills with pus. This leads to diagnostic *signs* that are associated with bacterial infection and are seen both through and on the TM. The milky yellow colour identifies a purulent effusion and the redness shows up the inflammation. Fullness or bulging of the eardrum are indicators that distinguish AOM from OME, and a sudden otorrhea, although infrequent, is the truest evidence of the emerging infection. This combination of sudden fretfulness, middle ear effusion and firm signs of tympanic

inflammation constitute the most accepted diagnostic triad for AOM.

This rigorous clinical appraisal aims at reducing the overdiagnosis of AOM that is often provoked by viral myringitis, hyperemia of crying and, mainly, different stages of OME. Although diagnostic certainty depends on the observer's acumen, we recognize that even the expert cannot eliminate indefiniteness. Nevertheless there is a disturbing gap in proficiency that experts consistently remark on. Wald³, Dagan and McCracken⁴ reasonably clamour for greater diagnostic rigour given that otoscopic accuracy is such a key element in this process. Medical schools and residency training programs usually fall short in teaching the art of otoscopic examination and therefore substantial improvements in diagnostic training must be implemented.

The second question is: does this patient, who has AOM, require immediate antibiotic treatment?

Many authors, based on careful meta-analysis of placebo-based trials, conclude that spontaneous cure of AOM is so frequent that there is no need to provide antimicrobials for most cases. Rovers² concluded that 20 children would need to be treated to prevent an extended course of illness in one child. By targeting children younger than 2 years with more severe disease (bilateral AOM with or without otorrhea) the benefits of antibiotic therapy are increased.

The increasing concerns about the potentially adverse effects of antimicrobials, primarily the accelerating bacterial multi-resistance, demand a more rational use of these drugs. Perhaps the key element, as emphasized by Rosenfeld,¹ is an honest self awareness and criticism of our diagnostic skill, particularly in our ability to discern whether or not there is effusion in the middle ear. Since some degree of diagnostic uncertainty is inevitable, pediatricians and ENT specialists must admit these doubts and build them into the decision process. This philosophy was the cornerstone of the consensus for the New York Region Otitis Project for AOM and was adopted, with some changes, by the American Academy of Pediatrics. The decision to indicate immediate antibiotic therapy is based on the child's age, the severity of the disease and the diagnostic certainty. To opt for an initial treatment of watchful waiting, using only pain relievers, an easy follow up must be assured with the patient's family within the following 3 days of observation. This guideline is difficult to apply within families that have no previous relationship with the physician, but when such a link is well established it is easier to share well proven evidence on the benefits of hesitation and thereby defer the decision to start antibiotics.

This strategy shapes a new understanding of a disease. Our grandparents had limited access to diagnostic and therapeutic resources for AOM. Today we are much more prepared to recognize and treat this infection but we choose to rationally limit specific treatment because we know the likelihood of a favourable spontaneous outcome and because we see the consequences of the rash over use of antibiotics.

References

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