Therapy of Acute Otitis Media
Clinical and Economic Aspects

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Summary

Acute otitis media is a common health problem worldwide that accounts for significant morbidity, primarily among pre-school-age children, for which antimicrobial therapy is currently the treatment of choice. Approximately 25% of all prescriptions written in the US for children under the age of 10 years are for children diagnosed as having acute otitis media. Until adequately designed studies with appropriate patient populations are conducted, clinicians must base their decisions to treat acute otitis media with antimicrobial therapy, and their choice of drug, on local susceptibility patterns (if known), in vitro and in vivo studies, adverse effect profiles, tolerability, and affordability. Such studies will hopefully answer questions about selecting an antimicrobial for acute otitis media and address the comprehensive cost of using various antimicrobials for the condition. Because of the human and economic costs associated with acute otitis media, healthcare practitioners should also be aware of the epidemiology, pathophysiology and various treatment options for children with acute otitis media.

Acute otitis media is a common health problem. For example, 60% of participants in the Greater Boston Otitis Media Study Group experienced at least 1 acute otitis media episode by the age of 1 year, while at least 80% had an episode by age 3. Some children had 3 or more episodes before reach-
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ing their third birthday. Otitis media is also the most common reason for a child under the age of 10 years to receive antimicrobial treatment in the US, with prescriptions for such therapy accounting for approximately 25% of the total written for individuals in this age group. In addition to the human cost, the monetary cost for therapy can be substantial. In 1986, otitis media accounted for nearly 31 million physician visits in the US at an estimated cost of US$3.5 billion. Thus, healthcare providers need to learn more about acute and other types of otitis media, as well as treatment options that are currently available.

Otitis media is not a single entity, but may be a continuum of middle ear problems that differ in severity, the duration of middle ear inflammation, and the presence or absence of an effusion. Based on the clinical presentation and examination, otitis media can be subdivided into categories such as otitis media without effusion, acute otitis media, otitis media with effusion, and chronic otitis media (Table I). Otitis media with effusion (acute, subacute or chronic) may follow acute otitis media, while the chronic form may follow recurrent episodes of acute otitis media or otitis media with effusion. Purulent, serous and mucoid forms of the condition appear as stages that can occur during a continuum. Determining the type of otitis media present is important so that a therapeutic plan can be developed to meet the needs of a particular child.

1. Risk Factors

Although many children experience an occasional episode of acute otitis media, some children are classified as ‘otitis-prone’. These children more commonly are boys who experience their first middle ear infections at a young age, have a family history of acute otitis media, are more likely bottle-fed than breast-fed, and/or attend a large daycare facility. Studies have also identified certain populations to be at an increased risk for middle ear infections. Other factors that should be addressed are exposure to environmental hazards such as tobacco smoke and the presence of altered host defences.

1.1 Early Age

As with many childhood illnesses, boys are at an increased risk of acute otitis media compared with girls. Reasons for a higher risk of acute otitis media among young infants and children, regardless of gender, include more frequent respiratory infections, an immature immune system, and the angle of the Eustachian tubes during infancy and early childhood. This early onset is reflected by the fact that 35 to 73% of infants have an initial acute otitis media episode by age 6 months, with up to 74% having a first episode by age 18 months. In addition, some children have a family propensity for developing acute otitis media. Children who experience acute otitis media at an early age appear to be ‘otitis-prone’, and typically have a higher incidence for most types of the disease.

1.2 Feeding Practices

Differences in feeding practices during infancy may alter the susceptibility for acute otitis media. Infants breast-fed for at least 3 months have been

<table>
<thead>
<tr>
<th>Classification</th>
<th>Synonym</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td>Acute otitis media</td>
<td>Acute suppurative, bacterial or purulent otitis media</td>
<td>Infection of the middle ear as noted on physical examination</td>
</tr>
<tr>
<td>Otitis media without effusion</td>
<td>Myringitis</td>
<td>Erythema without the presence of an effusion. May be seen in the early stages of acute otitis media or as the otitis resolves</td>
</tr>
<tr>
<td>Otitis media with effusion</td>
<td>Mucoid, nonsuppurative, secretory or serous otitis media</td>
<td>Otitis media without signs or symptoms of acute infection, but there is the presence of a middle ear effusion. Based on the duration of the effusion, it may be subdivided into acute, subacute or chronic</td>
</tr>
<tr>
<td>Chronic otitis media</td>
<td>Chronic suppurative, intractable or purulent otitis media</td>
<td>Presence of pronounced middle ear pathology with or without a middle ear discharge through a perforated tympanic membrane</td>
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