Guidelines for the Management of Upper Respiratory Tract Infections

Part 2: Otitis Media

Working Group of the Infectious Diseases Society of Southern Africa
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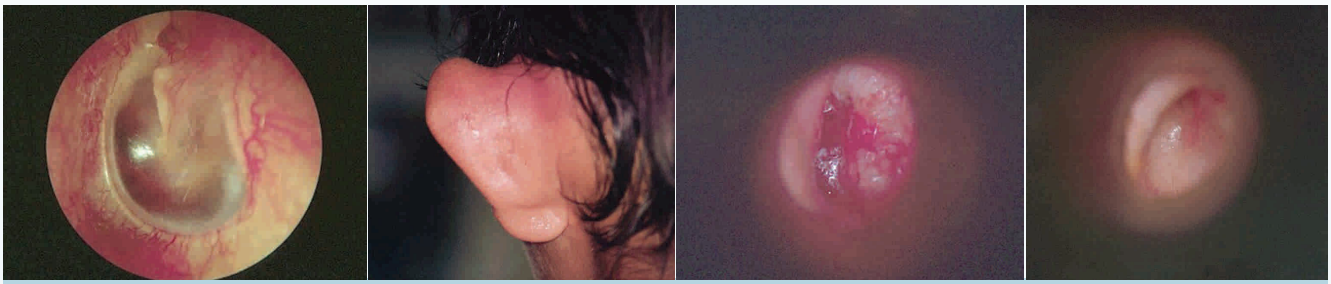

Introduction: Inappropriate use of antibiotics for upper respiratory tract infections (URTIs), many of which are viral, adds to the burden of antibiotic resistance. Antibiotic resistance is increasing in *Streptococcus pneumoniae,* responsible for most cases of acute otitis media (AOM) and acute bacterial sinusitis (ABS).

Method: The Infectious Diseases Society of Southern Africa held a multidisciplinary meeting to draw up a national guideline for the management of URTIs. Background information reviewed included randomised controlled trials, existing URTI guidelines and local antibiotic susceptibility patterns. The initial document was drafted at the meeting. Subsequent drafts were circulated to members of the working group for modification. The guideline is a consensus document based upon the opinions of the working group.

Output: Penicillin remains the drug of choice for tonsillopharyngitis. Single-dose parenteral administration of benzathine penicillin is effective, but many favour oral administration twice daily for 10 days. Amoxycillin remains the drug of choice for both AOM and ABS. A dose of 90 mg/kg/day is recommended in general, which should be effective for pneumococci with high-level penicillin resistance (this is particularly likely in children < 2 years of age, in day-care attendees, in cases with prior AOM within the past 6 months, and in children who have received antibiotics within the last 3 months).

Alternative antibiotic choices are given in the guideline with recommendations for their specific indications. These antibiotics include amoxycillin-clavulanate, some cephalosporins, the macrolide / azalide and ketolide groups of agents and the respiratory fluoroquinolones.

Conclusion: The guideline should assist rational antibiotic prescribing for URTIs. However, it should be updated when new information becomes available from randomised controlled trials and surveillance studies of local antibiotic susceptibility patterns.

Working Group of the Infectious Diseases Society of Southern Africa

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Disclosure statement

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Relationship code: AB = Advisory Board; B = Board member; CL = Collaborator; C = Consultant; EG =Educational grant; ES = Educational support; GI = Grant investigator; I = Investigator; LA Licensing agreement; RC = Research contractor; RG = Research grant; RR = Research relationship ; RS = Research support; SA = Scientific advisor; S = Shareholder; SB = Speakers bureau; U = Unknown.

Otitis media symptoms

Acute otitis media with bulging eardrum

Acute otitis media with red tympanic membrane

Acute otitis media with yellow tympanic membrane

with or without

EFFUSION

EFFUSION ALONE
No antimicrobial therapy indicated

Temperature >38°C

Acute otitis media

NEONATE

YES

Exclude neonatal sepsis eg:
- Blood culture
- Urine-MC&S
- LP

NEONATAL SEPTICAEMIA EXCLUDED

Treat neonatal AOM only if neonatal sepsis is excluded:

Amoxycillin-clavulanate
PLUS
additional amoxicillin (to 90mg/kg amoxycillin per day) in three divided doses for 10 days

NO

REFER TO ENT SPECIALIST IF:
- The tympanic membrane is not visible.
- No response after 3 days of treatment.
- Suspected intracranial extension.
- Lower motor neuron palsy of the facial nerve.

Refer if work-up is not possible

SEPSIS

Treatment according to cultures

Compelling reasons for antibiotic therapy?
- Recurrent AOM
- Immuno-compromised
- Neonate
- Structural ENT abnormalities
- Fever >38°C
- Pain >48hours

TREATMENT OF CHOICE: Oral

Amoxycillin
Children
- 90mg/kg/day in 2-3 divided doses for 5-7days (twice daily accepted)
- If < 2years: 7-10days
- Complicated cases: 7-10 days

Adults
- 1000mg tds for 5days

ALTERNATIVES FOR CHILDREN SEVERE BETA LACTAM ALLERGY

- Azithromycin, 10-20mg/kg once daily for 3 days
- Clarithromycin, 7.5-15mg/kg bd for 5-7 days
- Cefpodoxime proxetil, 8-16mg/kg bd for 5-7days
- Cefprozil, 15-30mg/kg bd for 5-7 days
- Cefuroxime axetil, 15-30mg/kg bd for 5-7days

Failed initial therapy for otitis media?
See next page

ALTERNATIVES FOR ADULTS SEVERE BETA LACTAM ALLERGY

- Azithromycin, 500mg once daily for 3 days
- Clarithromycin (Modified release), 1000mg once daily for 10 days
- Erythromycin estolate, 500mg qid for 10 days
- Telithromycin, 800mg once daily for 5-10 days
- Cefpodoxime proxetil, 200-400mg bd for 10 days.
- Cefprozil, 500-1000mg bd for 10 days.
- Cefuroxime axetil, 500-1000mg bd for 10days
- Gatifloxacin, 400mg once daily for 5-10 days
- Levofloxacin, 500mg once or twice daily for 10 days
- Moxifloxacin, 400mg once daily for 7-10 days
- Clindamycin, 450mg tds for 10 days

Failed initial therapy for otitis media?
See next page

Failed initial therapy for otitis media

Identify the reason(s) for failed initial therapy:

1. Check for complications. Refer if necessary.
2. Check compliance (dose and duration).
3. Check recent previous antibiotic exposure.
4. Check for risk factors for intermediate or high level resistant *S. Pneumoniae* OR risk factors for a beta-lactamase producing organism: *H. Influenzae*
5. In cases of clinical failure (e.g. persistent fever) after 72 hours of appropriate, compliant initial antibiotic therapy, consider referral to an otorhinolaryngologist for tympanocentesis and MEF culture. This is of relevance in areas with a high prevalence of antibiotic-resistant *S. pneumoniae,* as is the case for the majority of major urban centres in South Africa, particularly in the private.

A. RISK FACTORS FOR INTERMEDIATE/HIGH LEVEL RESISTANT *S.PNEUMONIAE* INFECTIONS:

- Child is 2 years old.
- Child is in a day care centre
- Child is a sibling of a day care attendee.
- Prior AOM in past 6 months.
- Antibiotics in the past 3 months

B. RISK FACTORS FOR BETA-LACTAMASE PRODUCING *H. INFLUENZAE* INFECTIONS :

- **Immunocompromised patient**
- **Neonate**

ALTERNATIVE ANTIBIOTIC CHOICES

FAILED INITIAL THERAPY: GENERAL

CHILDREN

- Amoxycillin-clavulanate, plus additional amoxycillin (to a total dose of amoxycillin of 90mg/kg/day) divided into 2 or 3 doses for 5-7 days for failed initial therapy with amoxycillin alone
- Ceftriaxone, IVI or IMI, 50-75mg/kg once daily for 3 days. This is also recommended in the case of isolates of known high-level antibiotic resistance and in severe presentations, e.g. threatened mastoiditis and preferably in consultation with an otorhinolaryngologist.

ADULTS

- Amoxycillin-clavulanate, 1g twice daily plus amoxycillin 500mg twice daily for 10 days for failed initial therapy with amoxycillin alone ℘
- * Respiratory fluoroquinolones:
  - Gatifloxacin, 400mg once daily for 5-10 days
  - Levofloxacin, 500mg once or twice daily for 10 days
  - Moxifloxacin, 400mg once daily for 7-10 days
- Telithromycin, 800 mg once daily for 5-10 days
- Ceftriaxone, IVI or IMI, 1-2g once daily for 3-5 days. Ceftriaxone or the respiratory fluoroquinolones may also be used as first line therapy in severe initial presentations e.g. periorbital oedema and preferably in consultation with an otorhinolaryngologist

CONSIDER BETA-LACTAMASE-STABLE ANTIBIOTICS IF RISK FACTORS ARE PRESENT FOR BETA-LACTAMASE PRODUCING ORGANISM(S)

CHILDREN

- Amoxycillin-clavulanate, plus additional amoxycillin (to 90mg/kg amoxycillin per day in three divided doses for 5-7 days)
- Cefpodoxime proxetil, 8-16mg bd for 5-7 days
- Cefprozil, 15-30mg/kg bd for 5-7 days
- Cefuroxime axetil, 15-30mg/kg bd for 5-7 days

ADULTS

- Amoxycillin-clavulanate, 1000mg bd plus additional amoxycillin, 500mg bd for 10 days ℘
- Cefpodoxime proxetil, 200-400mg bd for 10 days*
- Cefprozil, 500mg-100mg bd for 10 days*
- Cefuroxime axetil, 500mg-1000 mg bd for 10 days*

* The higher dosages of cephalosporins recommended would cover for most pneumococcal isolates of intermediate resistance to penicillin, but not necessarily for pneumococcal isolates with high-level resistance. The particular choice of cephalosporins would depend on physician or patient preference, availability and cost.

℘ Subsequent to the recent publication of the recommendations for the antibiotic treatment of upper respiratory tract infections in SAMJ (2004), a new slow release formulation of amoxycillin-clavulanate (2000mg SR bd) was licensed for use in South Africa. This formulation would be a suitable replacement for the previously recommended amoxycillin-clavulanate and additional amoxycillin, formulation.

Disclaimer: These recommendations are published for educational purposes only. The recommendations are based on currently available scientific evidence together with the consensus opinion of the authors