

Guidelines Acute Otitis Media

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Background

- European Union:
“Copenhagen declaration” 1998
- Belgium:
Belgian Antibiotic Policy Coordination
Committee

Working group ambulatory medicine

- Belgische Vereniging voor Infectiologie en Klinische Microbiologie
- Belgische Vereniging voor Kindergeneeskunde
- Wetenschappelijke Vereniging van Vlaamse Huisartsen
- Société Scientifique de Médecine Générale
- Belgische Vereniging voor Pneumologie
- Koninklijke Belgische Vereniging voor Oto-Rhino-Laryngologie, Gelaat- en Halschirurgie

Methodology

- Meta-analyses, reviews and randomised clinical trials (RCT)
- “Sufficient quality” : minimal score of 50% for 12 items (reviews and meta-analyses) or 15 items (RCT)

Level of evidence

1. One or more meta-analyses of sufficient methodological quality or several RCT's of sufficient methodological quality
2. One RCT of sufficient methodological quality
3. A. Foreign consensus report validated and suitable for the Belgian situation or valid non-RCT studies
3. B. Contradictory results and non-validated consensus reports

Background of the audience

Clinical microbiologist, infectiologist: 1

General practitioner: 2

Pediatrician: 3

Otorhinolaryngologist: 4

Other practitioner: 5

Questions

1. Do antibiotics have an influence on the clinical course?
2. Can antibiotics prevent complications?
3. Can antibiotics prevent recurrences?
4. Are some antibiotics better suited?
5. What is the optimal duration for a treatment with antibiotics?

Definitions otitis media

- *Acute otitis media* is the rapid onset of signs and symptoms of acute infection within the middle ear
- *Otitis media with effusion* is an inflammation of the middle ear in which a collection of liquid is present in the middle-ear space and there is an absence of the signs and symptoms of acute infection

Diagnosis

- SYMPTOMS:
recent earache and/or general symptoms
- SIGNS:
effusion **with** signs of an acute infection

Diagnostic accuracy

$> 75\%: 1$

$50 - 75\%: 2$

$< 50\%: 3$

Diagnostic accuracy

According to the age of the patient: 58 – 73 %

Question 1

Do antibiotics have an influence on the clinical course?

Yes = 1

No = 2

Influence clinical course ?

Yes, **BUT**...

Clinical course

Below 2 years:

- Symptomatic improvement at day 4
- **NNT: 8**
- 2 days of fever instead of 3
- Less intense but no shorter pain

Level of evidence: 2

Clinical course

Between 2 months and 15 years:

- Less frequent earache between day 2 to 7
- **NNT: 20**
- Adverse effects: 1/20

Level of evidence 1

Clinical course

Between 2 months and 15 years:

- Earache not influenced at 24 hours
- 2/3 spontaneous cure at 24 hours

Level of evidence 1

Question 2

Can antibiotics prevent complications?

Complications

Intratemporal:

- **Acute mastoiditis, hearing loss, facial nerve paralysis, labyrinthitis, residual perforation, pockets, cholesteatoma, ossicular damage, ...**

Intracranial:

- **Meningitis, abscess, encephalitis, thrombophlebitis sigmoid sinus, ...**

Question 2

Can antibiotics prevent complications?

Yes = 1

No = 2

Prevention complications ?

No, **BUT**...

Hearing loss

Below 2 years:

- No prevention by amoxicillin

Level of evidence 2

Between 2 months and 15 years:

- No prevention by antibiotics

Level of evidence 1

Acute mastoiditis

Below 2 years:

- Not a single case seen in the RCT's

Level of evidence 2

Between 2 months and 15 years:

- Not a single case in the placebo groups
- One case in a penicillin treated group

Level of evidence 1

Meningitis

Below 2 years:

- One case in the amoxicillin treated group

Level of evidence 2

Between 2 months and 15 years:

- No data available

Level of evidence 3B

Acute mastoiditis

- 1954, Sweden: 17 % of AOM
- 1971-88, The Netherlands: 0.2 %
- 1993-96, Groningen = Ghent
- The Netherlands: 3.8/ 100 000 py
- U.S.A.: 2.0/ 100 000 py

Acute mastoiditis

- The Netherlands : 3.8/ 100 000 py
- Norway : 3.5
- Denmark : 4.2
- Other European countries, USA, Canada, Australia : 1.2- 2.0

Acute mastoiditis

- Retrospective studies: 48-56 % of the children received antibiotics
- More frequent among children below 2 years; 87 % of them received antibiotics (45 % even amoxi-clav.)
- Antibiotics can mask symptoms of mastoiditis as well as of the other complications

Question 3

Can antibiotics prevent recurrences?

Yes = 1

No = 2

Prevention recurrences?

No ?

Prevention recurrences

Below 2 years:

- Data too scarce to allow conclusions

Level of evidence 3B

Between 2 months and 15 years:

- No prevention by antibiotics

Level of evidence 1

Question 4

Are some antibiotics better suited?

penicillin : 1

amoxicillin : 2

amoxi-clav : 3

cefaclor : 4

erythromycin: 5

other : 6

Choice antibiotics?

Absence of valid studies that demonstrate a higher efficacy of one particular antibiotic with respect to another

Choice of antibiotics

- *Streptococcus pneumoniae*: 30 – 44%
- *Haemophilus influenzae* : 10 – 25%
- *Moraxella catarrhalis* : 10 – 25%

Choice of antibiotics

Bacteriological cure:

- *Haemophilus influenzae*: 50%
- *Moraxella catarrhalis*: 80%
- *Streptococcus pneumoniae*: 20%

Choice of antibiotics

- Unfavourable clinical evolution:
treatment without antibiotics:
Streptococcus haemolyticus (Group A)
treatment with antibiotics:
Streptococcus pneumoniae (resistant)
- Complications:
Streptococcus haemolyticus (Group A)
Streptococcus pneumoniae

Choice of antibiotics

- amoxicillin 75 mg/kg/day in 3 doses

Level of evidence 3A

- cefaclor has a clear-cut inferior activity against *Streptococcus pneumoniae*

Choice of antibiotics

Documented allergy to penicillin:

- no macrolides (erythromycin and neo-macrolides)
- trimethoprim-sulfamethoxazole?

Question 5

What is the optimal duration for a treatment with antibiotics?

> 7 days: 1

5 - 7 days: 2

< 5 days: 3

Optimal treatment duration

Children age 12 years and younger:

- RCT's no difference between “short” (2 to 5 days) and “long” (7 to 10 days)
- Meta-analysis of all studies (non-RCT's included): no statistically significant differences for treatments ranging from 2 to 10 days

Optimal treatment duration

- 5 days
- to be reconsidered in case of unfavourable clinical evolution

Level of evidence 3A

Choice of analgesics

- paracetamol:
60 mg/kg/day (oral or rectal) in 4 to 6 doses
- ibuprofen:
20 to 30 mg/kg/day (oral) in 3 to 4 doses

Referral to ENT surgeon

- A seriously ill child in whom a precise diagnosis of AOM cannot be made
- Suspected complication
- Absence of improvement after 48 hours of antibiotic treatment

Referral to ENT surgeon

- Persistent otorrhea in spite of antibiotic treatment for 5 to 7 days
- Persistent isolated otorrhea for >15 days
- Persistent perforation for more than 6 weeks
- Persistent hearing loss for 2 months
- Recurrent AOM

Indications myringotomy

- Suppurative complications
- Persistent or recurrent pain/fever in spite of antibiotic treatment
- Neonatal AOM
- Immune depression
- (Critically ill child)
- (Important ear pain that needs to be relieved immediately)

Guidelines

- Children younger than 6 months: antibiotics
- Presence of risk factors (Down syndrome, cleft palate, immunodeficiency): antibiotics
- Persistent acute isolated otorrhea:
antibiotics

Guidelines

Children between 6 months and 2 years:

- Altered general condition: antibiotics
- Not bothersome: symptomatic treatment first 48 hours
- Not better after 48 hours: antibiotics

Guidelines

Children older than 2 years:

- First 72 hours: symptomatic treatment
- If worse within 72 hours: antibiotics
- Persisting symptoms (ear pain, fever) after 72 hours: antibiotics

Conclusions

- There is no golden standard for the diagnosis of AOM; diagnosis should be based on symptoms and signs **with an otoscopy** *Level of evidence 3A*
- Spontaneous cure is the natural evolution in at least 85% *Level of evidence 1*

Conclusions

- For children younger than 2 years antibiotics have a positive symptomatic effect, but with a NNT of 8

Level of evidence 2

- For children between 2 months and 15 years antibiotics have an effect on the ear pain between day 2 and 7, NNT 20

Level of evidence 1

Conclusions

- There is no proof that antibiotics can prevent complications

Level of evidence 2

Conclusions

- There is no proof that nasal or systemic decongestants, ear drops or mucolytica can modify the course of AOM

Level of evidence 3B

Overall assessment

Would you recommend these guidelines for use in practice?

- Strongly recommend: 1
- Recommend with provisos or alterations: 2
- Would not recommend: 3
- Unsure: 4