

Review: children <2 years of age with bilateral acute otitis media and children with otorrhoea benefit most from antibiotics

Rovers MM, Glasziou P, Appelman CL, *et al.* Antibiotics for acute otitis media: a meta-analysis with individual patient data. *Lancet* 2006;**368**:1429–35.

Clinical impact ratings GP/FP/Primary care ★★★★★☆ Infectious disease ★★★★★☆ Surgery—ear nose throat ★★★★★☆ Paediatrics ★★★★★☆

Q In children with acute otitis media (AOM), which subgroups of children benefit from treatment with antibiotics?

METHODS

 **Data sources:** Cochrane Library, PubMed, EMBASE/Excerpta Medica, and proceedings of international symposia.

 **Study selection and assessment:** randomised controlled trials (RCTs) that compared antibiotics with placebo or no treatment in children 0–12 years of age with AOM and assessed pain and fever. 6 RCTs (n = 1643, mean age 3.4 y [range 0–11], 50% boys) met the selection criteria, and the authors were willing to supply raw data. In a quality assessment based on 4 criteria (randomisation procedure; allocation concealment; follow up; and blinding of patients, caregivers, and outcome assessors), the methodological quality was generally high.

 **Outcomes:** a composite outcome of an extended course of AOM consisting of pain (yes or no on parent diary), fever (temperature ≥38° C), or both at 3–7 days. Secondary outcomes were pain and fever assessed separately, and adverse effects.

MAIN RESULTS

Overall, antibiotics reduced an extended course of AOM, pain, or fever (table). Subgroups of children <2 years of age with bilateral AOM and children with otorrhoea benefited the most from antibiotics (table). The most common adverse effects were diarrhoea (4–21% v 2–14% in the antibiotic and control groups, respectively) and rash (1–8% v 2–6%).

CONCLUSION

In children with acute otitis media (AOM), treatment with antibiotics reduces pain and fever at 3–7 days and is particularly

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beneficial in children <2 years of age with bilateral AOM and children with otorrhoea.

A modified version of the abstract appears in *Evidence-Based Nursing*.

Commentary

Children presenting with AOM in the UK are usually prescribed antibiotics,¹ although most do not need them.² The individual patient data meta-analysis by Rovers *et al* confirmed earlier, cruder meta-analysis predicting better treatment response from antibiotic use in children with bilateral AOM, age <2 years, and ear discharge.² Practitioners could use this information to prescribe antibiotics more selectively. Mastoid infection is a complication of AOM, and so its absence in the control group is very reassuring.

In addition to the 4–21% rates of diarrhoea, prescribing antibiotics causes rapid antibiotic resistance.³ It also increases re-attendance for acute respiratory infections by encouraging false beliefs of effectiveness,¹ and may also reduce individual immunity.

However, antibiotic treatment decisions are influenced by factors other than illness duration, including social and psychological issues. These can be sidestepped by delaying prescribing antibiotics to achieve lower prescribing rates, perhaps by 24 hours for patients in the worst prognostic groups in this meta-analysis, rather than the 72 hours previously recommended for all children.⁴ The benefit to harm ratio is so modest we should be trying harder to reduce prescribing.

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Antibiotics v placebo or no treatment for acute otitis media (AOM) in children*

Patient groups	Outcomes at 3–7 days	RRR (95% CI)	NNT (CI)
All children	Extended course of AOM†	17% (11 to 22)	8 (6 to 11)
	Fever	5% (2 to 8)	20 (13 to 50)
	Pain	14% (9 to 19)	10 (7 to 15)
Children <2 years with bilateral AOM	Extended course of AOM†	36% (20 to 38)	4 (3 to 8)
Children with otorrhoea		48% (27 to 63)	3 (2 to 6)

*Abbreviations defined in glossary; CI for the NNT calculated from data in article. A fixed effects model was used.
†Pain, fever, or both.