

Review: antibiotics are not effective for upper respiratory tract infection in children

Fahey T, Stocks N, Thomas T. Systematic review of the treatment of upper respiratory tract infection. *Arch Dis Child* 1998 Sep;79:225-30.

Question

What is the effectiveness of antibiotic treatment for upper respiratory tract infection (URTI) in children?

Data sources

Studies were identified by searching Medline (from 1966) and Embase/Excerpta Medica (from 1982) using the terms cough, bronchitis, sputum, and respiratory tract infection; the Cochrane Controlled Trials Register using the terms bronchitis, chest infection, and common cold; Science Citation Index; references of published studies; and by contacting study authors and UK drug companies.

Study selection

Studies were selected if they were randomised, placebo controlled trials of children aged 0-12 years who attended a family practice clinic, hospital outpatient department, or community health clinic with onset of URTI (non-specific symptoms of the respiratory tract) in the previous 2 weeks and who had not received antibiotic treatment in the preceding week.

Data extraction

Data were extracted on age and number of participants, setting, diagnostic labels and clinical features, drug dosage and duration, outcomes, and study quality. Main outcomes were proportion of children with worsened or unchanged clinical outcomes at 5-7 days; proportion of children who had complications or progression of illness (eg, otitis media, pharyngitis, bronchitis, and

pneumonia); and the proportion of children who had side effects (eg, diarrhoea, vomiting, rash, hyperactivity, and stomatitis).

Main results

12 studies met the inclusion criteria and 6 were included in the analysis; 2 studies were excluded because they involved treatment of children with persistent cough (judged to have different characteristics at recruitment) and 4 were excluded because of data inadequacies. Meta-analysis was done using a fixed effects model. The antibiotic treatment and placebo groups did not differ for worsened or unchanged clinical outcomes (5 studies, $n=1482$, {weighted event rates 43.3% for both, $p=1.00$ }*), subsequent complications or illness progression (5 studies, $n=842$, {weighted event rates 7.9% v 9.6%, $p=0.3$ }*), or treatment side effects (5 studies, $n=1448$, {weighted event rates 5.1% v 5.4%, $p=0.7$ }*).

Conclusion

Antibiotic treatment does not improve clinical outcomes or reduce illness complications or progression in children with upper respiratory tract infection.

*Calculated from data in article.

Source of funding: The Royal College of General Practitioners Scientific Foundation Board.

For correspondence: Dr T Fahey, Division of Primary Care, University of Bristol, Canynge Hall, Whiteladies Road, Bristol BS8 2PR, UK. Fax +44 (0)117 928 7340.

Commentary

This review by Fahey *et al* is timely given the increasing use of antibiotics and the associated emergence of resistant organisms. Prescribing of antibiotics for URTI by practitioners is widely variable and may be based more on the need to manage patients' expectations of receiving prescriptions than on evidence of effectiveness. As the authors note, earlier observational reviews suggest that URTI is a self limiting condition that does not benefit from antibiotic treatment.^{1,2}

This meta-analysis included data from 6 of 12 studies that were found to be of relevance. The overall number of patients was small and the quality of the RCTs was variable. Further study would be appropriate to determine the effect of antibiotics on URTI in older groups of children and to assess whether children perceived to be at high risk of developing complications from URTI would benefit from early intervention with antibiotics. The results

also highlight the need for more precise diagnostic criteria for URTI and consistency in the criteria for prescribing antibiotics.

The findings of this study are relevant to paediatric, practice, and community nurses whose caseloads include infants and children. They emphasise the need to educate healthcare practitioners who overestimate the incidence of complications from URTI or who use prescriptions to "close the consultation" rather than allow time for discussion and explanation. The authors cite an early study that found that 24% of children were re-evaluated by general practitioners during a single episode of URTI.³ It would be worthwhile to determine whether similar rates of re-evaluation occur in current settings and whether children who return for re-evaluation develop complications such as otitis media. An exploration of the reasons that parents return for re-

evaluation (eg, dissatisfaction with the previous consultation or an expectation of drug treatment for minor problems) would also be informative.

All practitioners in positions to prescribe antibiotics for URTIs in children should be made aware of the findings of this study and the need for education to change overprescribing of antibiotics.

Alex Little, RGN
Clinical Nurse Specialist
Respiratory Medicine
Victoria Hospital
Kirkcaldy, Fife, UK

1 Davis SD, Wedgwood RJ. Antibiotic prophylaxis in acute viral respiratory diseases. *Am J Dis Child* 1965;109:544-53.

2 Soyka LF, Robinson DS, Lachant N, *et al*. The misuse of antibiotics for treatment of upper respiratory tract infections in children. *Pediatrics* 1975;55:552-6.

3 Stott NC. Management and outcome of winter upper respiratory tract infections in children aged 0-9 years. *BMJ* 1979;i:29-31.