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[Intervention Review]

Antibiotics for acute bronchitis

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ABSTRACT

Background

The benefits and risks of antibiotics for acute bronchitis remain unclear despite it being one of the most common illnesses seen in primary care.

Objectives

To assess the effects of antibiotics for patients with a clinical diagnosis of acute bronchitis.

Search methods

We searched the Cochrane Central Register of Controlled trials (CENTRAL 2010, Issue 3) including the Acute Respiratory Infections (ARI) Group's Specialised Register, MEDLINE (1966 to August Week 4, 2010) and EMBASE (1974 to September 2010).

Selection criteria

Randomised controlled trials (RCTs) comparing any antibiotic therapy with placebo or no treatment in acute bronchitis or acute productive cough, without other obvious cause, in patients without underlying pulmonary disease.

Data collection and analysis

At least two review authors extracted data and assessed trial quality. We contacted trial authors for missing data.

Main results

Fifteen trials with 2618 patients, that included smokers and non-smokers, were included in the primary analysis. The quality of trials was generally good, particularly for more recent studies. There was limited evidence to support the use of antibiotics in acute bronchitis. At follow-up, patients receiving antibiotics were marginally more likely to be clinically improved than those receiving placebo treatment (nine studies with 1754 patients, risk ratio (RR) 1.06; 95% confidence interval (CI) 1.02 to 1.10). At follow-up, patients given antibiotics were less likely to have a cough (four studies with 275 participants, RR 0.64; 95% CI 0.49 to 0.85; number needed to treat for an additional beneficial outcome (NNTB) 6); have a night cough (four studies with 538 participants, RR 0.67; 95% CI 0.54 to 0.83, NNTB 7); not improve according to the clinician's global assessment (six studies with 891 participants, RR 0.61; 95% CI 0.48 to 0.79, NNTB 25); and have an abnormal lung exam (five studies with 613 participants, RR 0.54; 95% CI 0.41 to 0.70, NNTB 6). Antibiotic-treated patients also had a reduction in days feeling ill (five studies with 809 participants, mean difference (MD) -0.64; 95% CI -1.16 to -0.13) and a reduction in days with limited activity (six studies with 767 participants, MD -0.49; 95% CI -0.94 to -0.04). The differences in presence of a productive cough at follow-up, proportions with activity limitations at follow-up, mean duration of cough and mean duration of productive cough did not reach statistical significance.

There was a non-significant trend towards an increase in adverse effects in the antibiotic group (10 studies with 1509 participants) (RR 1.15; 95% CI 0.92 to 1.44).

Authors' conclusions

There is limited evidence to support the use of antibiotics in acute bronchitis. Antibiotics may have a modest beneficial effect in some patients with acute bronchitis though data on subsets of patients who may benefit more from treatment is lacking. However, the magnitude of this benefit needs to be considered in the broader context of potential side effects, medicalisation for a self limiting condition, increased resistance to respiratory pathogens and cost of antibiotic treatment.

PLAIN LANGUAGE SUMMARY

Antibiotic treatment for people with a clinical diagnosis of acute bronchitis

Acute bronchitis is one of the most common illnesses and may be caused by either viral or bacterial infection. Antibiotics are commonly prescribed to treat this condition. However, in healthy communities, there is little evidence of bacterial infection in people with bronchitis and there is no practical test to distinguish between bacterial and viral bronchitis. Within this context the use of antibiotics to treat acute bronchitis is controversial but common. There have been concerns that prescribing unnecessary antibiotics will lead to increases in antibiotic resistance.

This review included 15 trials with 2618 participants who had been diagnosed with acute bronchitis and randomly assigned to receive antibiotic treatment or a placebo or no treatment. The quality of trials was generally good, particularly for more recent studies. There was limited evidence to support the use of antibiotics for acute bronchitis. Some people treated with antibiotics recovered a bit more quickly though the difference was of doubtful clinical significance as it amounted to a difference of less than a day. There was also a trend toward increased adverse side effects in patients treated with antibiotics. The limited benefits of antibiotics need to be considered in the context of the potential side effects, medicalisation for a self limiting condition and costs of antibiotic use, such as increasing resistance of organisms to antibiotics.