Review: Antibiotics are ineffective for acute bronchitis


Objective
To determine the effectiveness of antibiotic and bronchodilator treatment of acute bronchitis in patients without underlying lung disease.

Data sources
A search was done in MEDLINE (1966 to 1995) using the term bronchitis, and bibliographies of retrieved studies were reviewed.

Study selection
Studies were selected if they were randomized, double-blind trials that compared antibiotics with placebo or bronchodilators in patients with acute bronchitis (cough with sputum). Studies of patients with chronic bronchitis or underlying lung disease (chronic obstructive pulmonary disease) were excluded.

Data extraction
Data were extracted on study design, drug dosage, patient follow-up, outcomes, and results. Outcomes included patient and physician symptom records, resolution of cough or fever, and return to work.

Main results
9 studies (753 patients) met the selection criteria. A meta-analysis was not done because the studies differed for outcome measures. 4 studies (483 patients) compared doxycycline with placebo. None of the studies found an overall difference between groups. One of the studies found that patients > 55 years of age who received doxycycline had fewer days of cough and fewer days of feeling ill than did patients who received placebo ($P < 0.01$). One study (67 patients) compared trimethoprim and sulfamethoxazole with placebo. After 7 days, fewer patients who received trimethoprim and sulfamethoxazole were coughing than patients who received placebo (93% vs 99%, $P < 0.05$). 2 studies (115 patients) compared erythromycin with placebo for ≤ 10 days. No difference was found between drug and placebo groups, but in 1 study a reduction in congestion on day 10 was found in patients who received erythromycin ($P < 0.05$). One study (42 patients) compared liquid erythromycin with liquid albuterol. After 7 days, 59% of patients who received albuterol were free of cough compared with 12% of patients who received erythromycin ($P = 0.002$). Of the patients who smoked, 53% of those who received albuterol were free of cough compared with none of those who received erythromycin ($P = 0.03$). In a 4-group follow-up study, 46 patients were randomly assigned to inhaled albuterol plus a placebo capsule, albuterol plus erythromycin, erythromycin plus a placebo inhaler, or placebo capsule and a placebo inhaler. More patients who received albuterol had resolution of cough than did patients who received erythromycin or placebo (39% vs 9%, $P = 0.02$); recipients of albuterol were also more likely to return to work sooner ($P = 0.05$).

Conclusions
Antibiotics offer no benefit to patients with acute bronchitis. 2 studies, each with a small number of patients, showed albuterol to be more effective than placebo or erythromycin.

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The potential biases in this systematic review tend to support the use of antibiotics, but virtually no effect was found in the 9 studies reviewed. Therefore, it seems highly unlikely that additional data would support the use of antibiotics. This review provides strong evidence for the practice of not using antibiotics in the management of acute bronchitis in adults without underlying lung disease.

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Reference
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