Do inhaled beta-agonists control cough in acute bronchitis?

**Bottom line**

The value of inhaled β₂-agonists in patients with acute bronchitis is unclear and any potential benefit remains unproven. (Two small randomized controlled trials [RCTs] using different agents reached different conclusions.) Beta-agonists may have a role in patients with acute bronchitis who are wheezing. (SOR C, based on expert opinion and subanalysis of an RCT).

**Evidence summary**

**Fenoterol**

A double-blind, randomized, placebo-controlled trial studied the effect of fenoterol aerosol 0.2 mg 4 times daily in adults with acute bronchitis.¹ Patients recorded daily symptoms of day- and nighttime cough, sputum production, dyspnea, chest pain, clamminess, and fatigue and scored each symptom from 0 to 2 in order of severity.

At 7 days, mean decrease in total symptom score from baseline was 67% for fenoterol (n=37) and 51% for placebo (n=36) (P=.06). A significant increase in forced expiratory volume in 1 second was detected with fenoterol versus placebo (5.1% vs 0.5%; 95% confidence interval, 1.4%–7.8%); however, no significant improvement was noted in peak expiratory flow rate (10.7% increase for fenoterol vs 8.1% for placebo, P not given).

At enrollment into the study, 49% of fenoterol users and 47% of placebo users presented with abnormal lung findings suggestive of obstructive lung conditions. Upon stratification, this subset exhibited marked symptom improvement on day 2 (mean decrease in symptom score of 52% for fenoterol vs 10% for placebo; P not given) and day 7 (54% for fenoterol vs 32% for placebo; P not given). Eighteen patients in the fenoterol group reported tremor and 7 reported palpitations. No tremor was reported in the placebo group, and 1 patient reported palpitations.

**Albuterol**

Another RCT evaluated the effectiveness of inhaled albuterol compared with placebo in adults with a productive cough of less than 30 days’ duration and without pneumonia, asthma, chronic obstructive pulmonary disease, or cardiac disease.² Patients received either inhaled albuterol (n=23) or placebo (n=23) plus erythromycin 250 mg or placebo. Primary outcome was resolution of cough after 7 days of treatment; secondary outcomes were percent of patients with productive cough and persistent night cough. Additionally, patients recorded presence of cough, night cough if applicable, ability to perform work, and general well-being.

Significantly more patients in the albuterol group than in the placebo group experienced resolution of cough at 7 days (91% albuterol vs 61% placebo; P=.02). After stratification by erythromycin use, the albuterol group continued to demonstrate statistically significant decreases in cough after 7 days compared with placebo (Mantel-Haenszel statistic=4.30, P=.04), independent of the effect of the antibiotics. Due to significant divergence in primary outcomes being achieved after 46 patients, the study was suspended before reaching the intended enrollment of 132 participants. Secondary outcomes such as productive cough present at 7 days (57% albuterol vs 48% placebo) and percentage of patients with persistent nighttime cough (26% albuterol vs 45% placebo) were not significantly different between groups (P not given). Side effects were similar in the groups.²

**American College of Chest Physicians recommendations**

The 2006 American College of Chest Physicians guideline on treatment for acute bronchitis recommends against the routine use of β₂-agonists to alleviate cough (quality of evidence, fair; benefit, none; grade of recommendation, D [negative recommendation]).³ In patients with wheezing in addition to cough, β₂-agonists may provide some benefit (quality of evidence, fair; benefit, small/weak; grade of recommendation, C [weak recommendation]).³

---

Yushi Li, PharmD candidate
Connie Kraus, PharmD
U of WI School of Pharmacy
Madison, WI

**REFERENCES**