



## Q / Are inhaled steroids effective for a postviral cough?

### EVIDENCE-BASED ANSWER

**A** / No. Inhaled corticosteroids (ICS) don't improve postviral cough in adults with subacute (3-8 weeks) or chronic (>8 weeks) cough, adolescents with a history of asthma but without recent

asthma activity, or children with a history of episodic viral wheezing without asthma (strength of recommendation [SOR]: **B**, preponderance of small randomized controlled trials [RCTs]).

### Evidence summary

A systematic review of 7 RCTs with a total of 477 adults that examined the efficacy of ICS compared with placebo for treating subacute (3-8 weeks) and chronic (>8 weeks) cough found inconsistent, but mostly negative results.<sup>1</sup> Most trials combined patients with non-specific subacute and chronic cough.

The evaluated steroids included beclomethasone, budesonide, fluticasone, and mometasone; daily "budesonide equivalent" doses ranged from 320 mcg to 1600 mcg. Six of the 7 trials found that ICS didn't improve cough. The seventh didn't treat patients with postviral cough. The authors of the review couldn't pool data because of heterogeneity.

### Steroids don't affect methacholine challenge in teens

A double-blind, placebo-controlled RCT of 56 adolescents found that giving ICS after viral upper respiratory infection didn't change the methacholine dosing necessary to produce a 20% reduction in the forced expiratory volume in one second (FEV<sub>1</sub>).<sup>2</sup> Investigators included patients if they had a previous diagnosis of asthma but no use of asthma medications in 2 years, a baseline FEV<sub>1</sub> greater than 70% of predicted, and a concentration of methacholine that produced a 20% fall in FEV<sub>1</sub> less than 8 mg/mL.

They randomized patients to inhaled budesonide (2 200-mcg puffs bid) or placebo (2 500-mcg puffs micronized lactose bid). Pa-

tients underwent spirometry and methacholine challenge testing every 3 months over a 9-month period. The groups didn't differ in bronchial hyperresponsiveness or FEV<sub>1</sub>.

### Lower respiratory symptoms don't respond to ICS in nonasthmatic children

A systematic review of 5 RCTs with a total of 339 patients found that in 4 of the 5, ICS didn't improve lower respiratory symptoms in children with episodic viral wheeze and no history of asthma.<sup>3</sup> Investigators evaluated ICS efficacy using lower respiratory symptom scores (based primarily on cough and wheeze) and decreased use of oral steroids or reduced emergency room visits.

Four trials found no benefit from ICS; one trial (52 children with viral-induced wheeze) found that nebulized budesonide (400 mg qid for 2 days, then bid for 7 days) decreased respiratory symptom scores (weighted mean difference= -0.17; 95% confidence interval, -0.34 to -0.003) compared with placebo. Investigators didn't assess cough separately from wheezing, however. **JFP**

### References

1. Johnstone KJ, Chang AB, Fong KM, et al. Inhaled corticosteroids for subacute and chronic cough in adults. *Cochrane Database Syst Rev*. 2013;3:CD009305.
2. Koh YY, Sun YH, Lim HS, et al. Effect of inhaled budesonide on bronchial hyperresponsiveness in adolescents with clinical remission of asthma. *Chest*. 2001;120:1140-1146.
3. McKean M, Ducharme F. Inhaled steroids for episodic viral wheeze of childhood. *Cochrane Database Syst Rev*. 2000;(2):CD001107.

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