

# A 14-day regimen of high-dose inhaled corticosteroids was more effective than placebo for persistent nocturnal cough

Davies MJ, Fuller P, Picciotto A, McKenzie SA. Persistent nocturnal cough: randomised controlled trial of high dose inhaled corticosteroid. Arch Dis Child. 1999 Jul;81:38-44.

## QUESTION

In children with isolated nocturnal cough, how effective is a short course of high-dose inhaled corticosteroids?

## DESIGN

16-day randomized (allocation concealed\*), blinded (clinicians and patients),\* placebo-controlled trial.

## SETTING

East London, England, UK.

## PATIENTS

50 children who were between 1 and 10 years of age (58% between 1 and 4 y, 60% girls) and had persistent nocturnal cough (coughing at night for > 3 wk). Exclusion criteria were upper respiratory tract infection, history of wheeze or fever, or identifiable cause for cough (whooping cough, persistent nasal discharge, or large tonsils). 44 children (88%) had outcomes measured on nights 3 and 4, and 47 (94%) had outcomes measured on nights 15 and 16.

## INTERVENTION

Children were allocated to inhaled corticosteroids (fluticasone propionate) ( $n = 26$ ) or placebo ( $n = 24$ ) delivered by metered-dose inhaler. Children received a dose of 1 mg twice daily for 3 days and were

observed for 2 nights; they then received 500  $\mu\text{g}$  twice daily for 11 more days and were observed for 2 more nights.

## MAIN OUTCOME MEASURES

Change in total coughs from baseline and proportion of children with  $\geq 75\%$  improvement from baseline on nights 3, 4, 15, and 16 measured by using a video-recording system.

## MAIN RESULTS

Children in both groups had fewer coughs than at baseline on nights 3, 4, 15, and 16. Children who received inhaled corticosteroids had a greater median decrease from baseline in coughs than placebo recipients on nights 15 and 16 (93% [from 92 to 8 median coughs] vs 68% [from 71 to 36 median coughs],  $P = 0.02$ ) but not on nights 3 and 4 (78% [from 92 to 23 median coughs] vs 43% [from 71 to 66 median coughs],  $P = 0.38$ ). The proportion of patients with a  $\geq 75\%$  improvement was

also greater in the inhaled-corticosteroids group than the placebo group on nights 15 and 16 ( $P = 0.03$ ) but not on nights 3 and 4 ( $P = 0.76$ ) (Table). Improvement over baseline coughing was not related to positive skin-prick test result, IgE level, or family history of atopy.

## CONCLUSIONS

In children with persistent nocturnal cough, substantial resolution occurred with time. A course of high-dose inhaled corticosteroids produced modest additional benefit after 14 days but not after 3 days.

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\*See Glossary.

## Inhaled corticosteroids vs placebo for persistent nocturnal cough†

75% improvement over baseline	Inhaled corticosteroids	Placebo	RBI (95% CI)	NNT (CI)
Nights 3 and 4	55%	45%	20% (-34 to 122)	Not significant
Nights 15 and 16	71%	35%	104% (15 to 292)	3 (2 to 14)

†Abbreviations defined in Glossary; RBI, NNT, and CI calculated from data in article.

## COMMENTARY

Isolated troublesome cough, particularly at night, is a common childhood symptom that in recent years has increasingly been labeled and treated as asthma. More recent studies have suggested that isolated cough is distinct from asthma (1).

Cough is unreliably reported; therefore, the development of practical methods for objective cough counting has been an important advance. 2 recent studies have used cough counting to examine the effects of asthma treatment in children with isolated cough. Chang and colleagues (2) studied children 6 to 10 years of age with recurrent cough (two 2-wk episodes in 12 mo) and found that neither salbutamol nor beclomethasone was superior to placebo in reducing cough.

Davies and colleagues studied children 1 to 10 years of age with isolated persistent nocturnal cough (night coughing > 3 wk). The children were referred from the community. The investigators excluded common causes of cough, and nocturnal cough was confirmed by cough counting on video before randomization to placebo or high-dose inhaled fluticasone for 2 weeks. In both groups, cough improved substantially during the 2-week follow-up.

However, a modest but significantly greater reduction in cough occurred after 2 weeks in patients receiving high-dose inhaled steroids.

Where does this leave the pediatrician? We should exclude other causes of cough; know that time will bring substantial resolution to most; and if coughing persists, recognize that a 2-week course of high-dose inhaled fluticasone may hasten resolution. Prolonged or repeated courses of high-dose steroids for isolated cough are not justified.

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## References

1. Chang AB. Isolated cough: probably not asthma. Arch Dis Child. 1999;80:211-3.
2. Chang AB, Phelan PD, Carlin JB, Sawyer SM, Robertson CF. A randomised, placebo controlled trial of inhaled salbutamol and beclomethasone for recurrent cough. Arch Dis Child. 1998;79:6-11.