Study Population. Subjects were asthmatic children aged 6 to 18 years who had no other chronic illness. There were 347 children assigned to the vaccine group and 349 assigned to the placebo group.

Methods. The primary outcome was the number of asthma exacerbations associated with virologically proven influenza infection. Study subjects and their families scored daily symptoms in a diary, and when symptoms reached a predefined level, a pharyngeal swab for influenza was taken. The symptom diary was maintained from the day after administration of inactivated influenza vaccine or placebo on approximately November 1 until April 1 of the following year. Secondary outcomes included the duration and severity of the asthma exacerbations, adverse effects of vaccination, and the number, duration, and severity of all asthma exacerbations. Influenza virus–specific antibody titers were measured before vaccination, 14 to 21 days afterward, and at the end of the influenza season.

Results. In each group, 344 participants provided diary data for the primary outcome. The groups were generally similar in baseline characteristics, with almost 90% of children having used maintenance medication for asthma in the previous 12 months. There were 486 reports of symptom scores that met the predefined criteria for an asthma exacerbation (vaccine group: 251; placebo group: 235), with 42 of the resultant throat swabs testing positive for influenza (vaccine group: 24; placebo group: 18). The difference in the number of asthma exacerbations was not significant (95% confidence interval: 34% reduction to 161% increase). There were no significant differences found between the 2 groups for any of the secondary outcomes measured. Antibody levels 14 to 21 days after vaccination were increased only in the vaccine group. However, when comparing the 14- to 21-day titers to those at the end of the season, ~23% of subjects in the placebo group and 10% in the vaccine group had a fourfold increase in influenza-specific titers.

Conclusions. The authors concluded that influenza vaccination was not more effective than placebo in reducing the number of asthma exacerbations caused by influenza infections in children.

Reviewers' Comments. Current guidelines that recommend the use of influenza vaccination in asthmatics are based on epidemiologic evidence. A recent Cochrane review on influenza vaccination in asthmatics found insufficient evidence to make conclusions about the risks or benefits of influenza vaccination, primarily because of a lack of randomized trials. Although this study was a randomized trial, the low attack rate of influenza (~6% of subjects tested positive by pharyngeal swab) makes it difficult to draw conclusions from the results. The study's sample size was calculated based on the assumption of a 30% influenza attack rate, leaving it significantly underpowered to detect an effect at such a low attack rate. If the question of efficacy of influenza vaccine in reducing asthma morbidity is ever to be answered convincingly, a large randomized trial, probably over several influenza seasons, will be needed.

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RHINITIS THERAPY AND THE PREVENTION OF HOSPITAL CARE FOR ASTHMA: A CASE-CONTROL STUDY

Corren J, Manning BE, Thompson SF, Hennessy S, Strom BL. *J Allergy Clin Immunol*. 2004;113:415–419

Purpose of the Study. To examine the effect of treatment of allergic rhinitis on hospitalization and emergency department visits in patients with concomitant allergic rhinitis and asthma.

Study Population. Three hundred sixty-one subjects and 1444 control patients with allergic rhinitis and asthma who were at least 6 years of age.

Methods. A case-control analysis of patients with asthma and concomitant allergic rhinitis was performed between 1996 and 1997 in a large managed care organization in northeastern United States. Diagnosis, procedure, laboratory, health care utilization, and pharmacy records were analyzed to determine if treatment of allergic rhinitis affected the frequency of asthma exacerbations. Patients fulfilled the requirements for diagnosis of asthma and allergic rhinitis within a 12-month period. Patients were defined as asthmatic if they had ≥2 claims with diagnostic codes for asthma; had claims with 1 asthma diagnosis code and 1 asthma-related prescription; or filled 2 asthma-related prescriptions. Patients with allergic rhinitis had ≥2 claims with allergic rhinitis diagnosis codes; ≥2 prescriptions for second-generation antihistamine; ≥2 prescriptions for nasal corticosteroids; 1 prescription for a second-generation antihistamine and 1 prescription for a nasal corticosteroid; or a claim with 1 allergic rhinitis diagnosis code and at least 1 prescription for a second-generation antihistamine and a nasal corticosteroid.

Results. Treatment of allergic rhinitis was associated with a lower frequency of emergency department visits and hospitalization resulting from asthma. Patients receiving monotherapy with a nasal corticosteroid had significantly lower risk of emergency department visits (odds ratio [OR]: 0.75) and hospitalization (OR: 0.56). A similar trend was seen with treatment with a second-generation antihistamine alone. Treatment with a combination of nasal corticosteroids and second-generation antihistamines was associated with additional lower risk of emergency department visits (OR: 0.37) and hospitalization (OR: 0.22).

Conclusions. Treatment of allergic rhinitis lowers the risk of asthma-related health care utilization in patients with concomitant allergic rhinitis and asthma.

Reviewer's Comments. This was a useful study in that it supports the National Heart, Lung, and Blood Institute guidelines for long-term successful management of patients with asthma and concomitant allergic rhinitis. This is the first large case-control study to definitively show a positive relationship between treatment of allergic rhinitis and lowered risk for asthma health care utilization. Findings support the idea of "one airway," and physicians should remain cognizant of the benefits of treating the upper airway in patients with lower-airway disease.

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HOW DO PATIENTS DETERMINE THAT THEIR METERED-DOSE INHALER IS EMPTY?

Rubin BK, Durotoye L. *Chest*. 2004;126:1134–1137

Purpose of the Study. To evaluate how patients determine that their metered-dose inhalers (MDIs) are empty and to measure doses available of MDIs in different laboratory conditions.

Study Population. Fifty consecutive patients attending a pediatric asthma center at Wake Forest University (Winston-Salem, NC).

Methods. Fifty new pediatric patients and their caregivers who used MDIs regularly were asked the question "How do you know when it is time to replace your inhaler?" and then were asked to elaborate on their answers.

Rhinitis Therapy and the Prevention of Hospital Care for Asthma: A Case-Control Study

Tamara T. Perry

Pediatrics 2005;116;563
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