as two thirds of the airway caliber (the distance between the posterior and anterior pharyngeal wall). Patients were divided into 4 groups by age—1 to 3 years, 4 to 6 years, 7 to 12 years, and 13 to 18 years. The frequency of the following clinical symptoms was compared between the groups with and without AH: 1) otitis media (>6 episodes per year defined clinically); 2) lower respiratory infections (>3 episodes a year defined clinically as bronchitis, croup, or pneumonia); 3) sinusitis (>5 episodes per year defined radiographically as complete opacity, air fluid level or >4 mm mucosal thickening); 4) exposure to cigarette smoking (>2 weeks per month); 5) sleep disorders (positive history confirmed by doctors); 6) use of antihistamines/decongestants (>2 weeks per month over the last 3 years); and 7) percutaneous allergy testing to dust mites, molds, animal danders, cockroach, and seasonal pollens.

Results. The frequency of otitis media was statistically significantly more frequent in patients with AH aged 1 to 4 and the 4 to 6 years. The frequency of lower respiratory tract infections was statistically significantly higher in all age groups. The frequency of sinusitis was higher in AH patients for ages 4 to 6 and 7 to 12. Exposure to cigarette smoking was higher in all age groups with AH, but only statistically significant for ages 4 to 6 years. Frequency of sleep disorders was higher in AH patients for all age groups studied. Use of antihistamines/decongestants was statistically significantly greater in all AH patients except for the youngest ones measured at 1 to 3 years. Allergy skin testing was similar in both groups for measurements to dust mites, animal danders, and seasonal allergens. All AH patients had highly statistically significantly greater skin test reactivity to molds.

Conclusions. In this study population, children with allergic rhinitis along with adenoidal hypertrophy had a greater frequency of lower respiratory tract infections, sleep disorders, and skin test reactivity to molds. Otitis media occurred more frequently in younger-aged children, sinusitis more frequently in children between the ages of 4 to 12. Antihistamine/decongestants were used more frequently in all children except the youngest age group.

Reviewer’s Comments. Although there are a number of weaknesses in this retrospective study, the association of AR and adenoid hypertrophy in children has not been well-characterized. This was a retrospective study of a large number of consecutively seen patients with AH, but the control patients were apparently selected randomly. AH was defined radiographically rather than by fiberoptic examination. The definition of the clinical parameters was apparently clinically arbitrary, i.e., otitis media clinically defined, lower respiratory infection defined as bronchitis, croup, and pneumonia but no criteria were given, sleep disorders defined by history without polysomnogram and parameter of use of antihistamine/decongestants was not specified. Despite these critical problems, the study has some interesting findings. The frequency of lower respiratory infections was greater in the AH patients in addition to the expected increased frequency of sinusitis and otitis. Skin test reactivity was significantly greater only to molds. This may be representative of the geographic location of the study (Florida) with greater humidity and mold exposure, yet dust mite sensitivity was similar in both groups. Hopefully, additional prospective studies looking at this association will be forthcoming from other areas of the country looking at allergen sensitivity in children with AH.

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CHRONIC NASAL CONGESTION AT NIGHT IS A RISK FACTOR FOR SNOARING IN A POPULATION-BASED COHORT STUDY
Young T, Finn L, Palta M. Arch Intern Med. 2001;161:1514–1519

Purpose. Nasal congestion at night is thought to have a role in snoring and sleep apnea, but this hypothesis has not previously been tested in a population-based study.

Study Population and Methods. Baseline and 5-year follow-up data on self-reported nocturnal nasal congestion and snoring frequency were collected from a population-based sample of 4916 men and women (age range: 30–60 years at baseline) enrolled in the ongoing Wisconsin Sleep Cohort Study. In-laboratory polysomnography was performed on a subset (n = 1032) of the study population to determine the frequency of apnea and hypopnea episodes during sleep. Logistic regression was used to estimate odds ratios for snoring with chronic nasal congestion at night.

Results. Nocturnal nasal congestion frequency was independently associated with snoring frequency in cross-sectional analyses. The odds ratios (adjusted for sex, age, body habitus, and smoking) for habitual snoring with severe (always or almost always) nasal congestion versus none was 3.0 (95% confidence interval: 2.2–4.0). This association was not explained by habitual snorers with frank sleep apnea (ie, ≥5 apnea and hypopnea episodes per hour of sleep). Prospective analyses showed that persons with chronic severe nasal congestion had a high risk of habitual snoring according to the data from the 5-year follow-up survey: the odds ratio for habitual snoring and reporting congestion always or almost always at both baseline and follow-up was 4.9 (95% confidence interval: 2.8–8.8).

Conclusions. Nocturnal nasal congestion is a strong independent risk factor for habitual snoring, including snoring without frank sleep apnea. Intervention studies are needed to determine if snoring can be reduced with treatment of nasal congestion.

Reviewer’s Comments. This is the first study to identify chronic nasal congestion as a risk factor for simple (ie, without hypopneas or apnea) snoring. Previously, it had been my understanding that nasal congestion was not felt to be an important single independent risk factor for snoring or other sleep-disturbed breathing (SDB) syndromes. Because simple snoring may be an early manifestation of SDB, implications for diagnosis and therapy are apparent. Nasal congestion attributable to allergic causes was not a stronger prediction of snoring than other causes of nasal congestion.

ALLEN ADINOFF, MD
Aurora, CO

COGNITIVE AND OTHER ADVERSE EFFECTS OF DIPHENHYDRAMINE USE IN HOSPITALIZED OLDER PATIENTS

Purpose of the Study. Diphenhydramine hydrochloride is a commonly prescribed medicine in hospitalized patients, but its adverse effects on older patients remain unclear.

Study Population and Methods. A total of 426 hospitalized medical patients aged 70 years or older were enrolled in a prospective cohort study in a university hospital. Measurements included baseline and daily assessments including Mini-Mental State Examination scores, Confu-
Asthma

PATHOPHYSIOLOGY

INCREASED INCIDENCE OF ASTHMA-LIKE SYMPTOMS IN GIRLS WHO BECOME OVERWEIGHT OR OBESE DURING THE SCHOOL YEARS


Purpose of the Study. Recent cross-sectional studies have shown an association between obesity and an increased risk of asthma, especially in females. These authors used data from the Tucson Children’s Respiratory Study to search for an increase in asthma in children who became overweight between 6 and 11 years of age.

Study Population. The participating children are a birth cohort enrolled between 1980 and 1984 and followed longitudinally. All are resident in the Tucson, Arizona, area.

Methods. Symptom questionnaires were completed by parents when the children were 6, 8, 11, and 13 years of age. Weight and height were measured at age 6 and 11. Home peak flow readings were gathered at age 11. Only those children providing peak flow measurements twice daily on at least 4 days over 1 week were included in the analysis. Spirometry including bronchodilator response was also obtained at age 11.

Results. Of the 426 patients, 114 (27%) received diphenhydramine during hospitalization and shared similar baseline characteristics including age, sex, delirium risk, and Mini-Mental State Examination scores compared with nonexposed patients. The diphenhydramine-exposed group was at an increased risk for any delirium symptoms (relative risk [RR]: 1.7; 95% confidence interval [CI]: 1.3–2.3) and for individual delirium symptoms, including inattention (RR: 3.0; 95% CI: 1.5–5.9), disorganized speech (RR: 5.5; 95% CI: 1.0–29.8), and altered consciousness (RR: 3.1; 95% CI: 1.6–6.1). Exposed patients also had increased risk for urinary catheter placement (RR: 2.5; 95% CI: 1.0–6.0) and longer median length of stay (7 vs 6 days; P = .009). A dose-response relationship was demonstrated for most adverse outcomes. Overall, 24% of diphenhydramine doses were administered inappropriately.

Conclusions. Diphenhydramine administration in older hospitalized patients is associated with an increased risk of cognitive decline and other adverse effects with a dose-response relationship. Careful review of its use is necessary in this vulnerable population.

Reviewer’s Comments. Adverse reactions were mainly cognitive or related to anticholinergic effects. Most of the patients (2/3) received diphenhydramine as a routine sleep aid; another 20% prophylactically before blood transfusion (in the absence of a previous transfusion reaction). Neither would seem to be legitimate indications. It probably goes without saying that the elderly (and very young) are most vulnerable to medication side effects. So remember: be careful and don’t poison granny! This study also makes a strong case for the use of nonsedating antihistamines in this age group.

ALLEN ADNOFF, MD
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BODY MASS INDEX AND ASTHMA IN THE MILITARY POPULATION OF THE NORTHWESTERN UNITED STATES


Purpose of the Study. To examine the association between asthma and obesity among adults.

Study Population. Enrollees in a military managed care program, ages 17 to 96 years.

Methods. The investigators obtained data from 45743 enrollment questionnaires that were completed between January 1997 and December 1998. After excluding those with emphysema/chronic bronchitis or implanatable or missing body mass index (BMI) data, case-control analysis was performed on 2577 asthma cases and 36347 controls. Because asthma was self-reported, the investigators selected random samples of 1000 cases and 1000 controls for verification. Status of the subject as a case or a control was verified by cross-referencing the cases and controls with medication profiles obtained from a computerized military health record system. Univariate analysis and multiple logistic regression was performed on both the larger case-control group and the verified case-control sample.
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Cognitive and Other Adverse Effects of Diphenhydramine Use in Hospitalized Older Patients
Allen Adinoff
Pediatrics 2002;110;442

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