Allergic Rhinitis as a Predictor for Wheezing Onset in School-aged Children

PURPOSE OF THE STUDY. To determine if rhinitis in early childhood is an independent predictor of wheezing between the ages of 5 and 13 years.

STUDY POPULATION. The study followed 1314 healthy children, from birth to the age of 13 years, as part of the German Multicenter Allergy Study.

METHODS. This was a prospective, multicenter birth-cohort study that used standardized questionnaires, interviews, and objective sensitization methods. To better characterize the association between sensitization and rhinitis on the incidence of wheeze, 4 rhinitis phenotypes were defined: (1) allergic rhinitis (rhinitis plus sensitization); (2) nonallergic rhinitis (rhinitis without sensitization); (3) atopy without rhinitis (sensitization only); and (4) none (control group). The occurrence of rhinitis, wheezing, and sensitization was assessed over time through the age of 13 years. Airway hyperresponsiveness was assessed at the age of 7 years, and specific allergen immunoglobulin E (IgE) was measured yearly.

RESULTS. Of the 1314 children recruited at birth, 83.1% were followed to the age of 2 years, 76.4% to 5 years, 71.5% to 7 years, and 58.3% to 13 years. Overall, the period prevalence of wheezing varied depending on the rhinitis phenotypes and the age of stratification. A difference existed between children sensitized versus those who were not at the age of 2 years. The greatest incidence of wheeze was seen in children who had atopy without rhinitis (relative risk: 1.70; \( P = .007 \)), whereas the incidence was lower in the nonallergic rhinitis and control groups. In contrast, all 4 rhinitis phenotypes at the age of 5 years tracked proportionally, and the nonallergic rhinitis group showed significantly higher period prevalence than the patients who had atopy without rhinitis. Overall, the probability of wheezing between the ages of 5 and 13 years was significantly increased in children with allergic rhinitis (relative risk: 3.85; \( P < .01 \)). This association was not attributable to the type or severity of sensitization or atopic dermatitis during the first 2 years.

CONCLUSIONS. Allergic rhinitis in the preschool age group was shown to be associated with the onset of wheezing after the age of 5 years.

REVIEWER COMMENTS. On the basis of findings from this study, preschool-aged children with rhinitis might benefit from early assessment of allergic sensitization to identify those who are at high risk of wheezing. Furthermore, identification of these children could lead to targeted treatment and early intervention to prevent asthma in school-aged children.

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