

[95% CI: 1.01–9.12]) at 10 years of age. Participants who had sleep problems but did not have eczema had statistically significant increased rates of hyperactivity/inattentiveness (OR: 3.09 [95% CI: 1.00–9.55]).

CONCLUSIONS. Infant eczema, if associated with concurrent sleeping problems caused by pruritus, seems to be a risk factor for the development of certain mental health problems.

REVIEWER COMMENTS. The impact of infant eczema and sleep on future mental health problems had not previously been studied in a prospective design. These results are consistent with those from previous cross-sectional and retrospective studies in which infant eczema and mental health problems were linked, and the results are also in concordance with those of previous studies that revealed early childhood sleep problems as a predictor of future anxiety, conduct, and hyperactivity problems. The mechanisms that connected eczema with mental health problems are currently unknown. The authors make an intriguing suggestion that sustained pro-inflammatory cytokine exposure might have an effect on brain development; however, other biopsychosocial possibilities should be examined, including socioeconomic factors and stigmatization by peer groups for children with eczema that could explain the associations revealed in this study.

URL: www.pediatrics.org/cgi/doi/10.1542/peds.2011-2107LL

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ALLERGIC RHINITIS

Does Allergic Rhinitis Exist in Infancy? Findings From the PARIS Birth Cohort

Herr M, Clarisee B, Nikasinovic L, et al. *Allergy*. 2011;66(2):214–221

PURPOSE OF THE STUDY. To examine the relationship of allergic rhinitis (AR)-like symptoms and atopy in infants aged 18 months or younger.

STUDY POPULATION. The study used data from the PARIS (Pollution and Asthma Risk: An Infant Study) birth cohort, which includes healthy, term, singletons born in one of a select group of hospitals in Paris, France. A free 18-month health screening examination was offered to the 3436 children who remained in the study at 1 year of age (82.3% of the original cohort).

METHODS. A standardized questionnaire was administered by a pediatrician to assess for AR-like symptoms, specifically the occurrence of runny nose, sneezing, or nasal blockage, within the previous 12 months not associated with a viral infection. Blood eosinophil counts, total

immunoglobulin E (IgE), and allergen-specific IgE were measured.

RESULTS. Included in the analysis were 1850 children who had data regarding AR-like symptoms and measurements of at least 1 biological marker from the 18-month visit. There was a 9.1% prevalence of AR-like symptoms in the population. There was no difference in eosinophil counts or total IgE between infants with AR-like symptoms and those without them; however, eosinophilia (defined as >470 eosinophils per μL) and sensitization to inhalant allergens, particularly dust mite, was significantly associated with AR-like symptoms. No such relationship was seen for food-allergen sensitization. Parental history of AR was a predictor of increased risk of AR-like symptoms, but parental history of asthma or eczema was not a predictor.

CONCLUSIONS. These findings suggest that AR might begin in infancy, as early as 18 months of age, and AR-like symptoms are associated with biological markers of atopic disease and parental history of AR.

REVIEWER COMMENTS. Results of previous studies have suggested an association between chronic inflammation from AR and medical complications including irreversible damage to the nasal mucosa in patient groups including children. Identification of AR markers in infancy might help to identify patients at increased risk for these complications as well as the development of asthma and other atopic disease. Findings also suggest that implementation of targeted medical therapy and environmental interventions for allergic disease might be reasonable approaches for managing nasal symptoms in infancy for those at risk. In addition, early testing might provide an opportunity for anticipatory guidance to parents as their child travels the atopic march.

URL: www.pediatrics.org/cgi/doi/10.1542/peds.2011-2107MM

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Is Physician-Diagnosed Allergic Rhinitis a Risk Factor for the Development of Asthma?

van den Nieuwenhof L, Schermer T, Bosch Y, et al. *Allergy*. 2010;65(8):1049–1055

PURPOSE OF THE STUDY. To define the prospective risk of asthma in patients diagnosed with allergic rhinitis (AR) in a primary care population. The association between these 2 diseases has been shown previously in smaller groups and in cross-sectional studies.

STUDY POPULATION. This study used a database that tracks >35 500 patients from 4 primary care practices in the Netherlands. The AR group consisted of all patients

diagnosed with AR before the age of 50 ($n = 2279$). The control group consisted of 2 people without AR matched to each patient according to age, gender, socioeconomic status, and the practice to which they were assigned ($n = 4558$). The mean age in both groups was 25 years, and the mean length of follow-up was 8.4 years.

METHODS. This is a historic cohort study. Cox proportional hazard analyses were used to assess the relative risk of asthma in patients with AR relative to controls.

RESULTS. In the AR group, 356 patients were also diagnosed with asthma: 198 before the AR diagnosis was made and 158 after it was made. Of those not yet diagnosed with asthma, the hazard ratio for developing asthma relative to controls was 4.86 (95% confidence interval: 3.50–6.73; $P < .001$). Atopic eczema and socioeconomic status were not found to significantly affect the risk of asthma.

CONCLUSIONS. Physician-diagnosed AR is an independent risk factor for a future diagnosis of asthma. A significant number of patients developed asthma before the diagnosis of AR, which suggests that, although there is a link between AR and asthma, the risk is not necessarily prospective. The assessment of which came first is limited by the fact that AR is often self-treated and might not be diagnosed by a physician.

REVIEWER COMMENTS. Data were not broken down according to age group, but the calculated hazard ratio is comparable to that of previous studies that only evaluated adults. Most AR cases were diagnosed by subjective symptoms, so this group undoubtedly contained many people with nonallergic rhinitis. In addition, the control group might have included some with AR who self-treated without being diagnosed by a physician. Because of these factors, the derived hazard ratio might be an underestimate. According to the authors, this is the largest prospective investigation of the association between AR and asthma in a primary care population with such a wide age range and length of follow-up. If so, this study provides the best definition to date of the risk of asthma for patients with AR in the primary pediatric population.

URL: www.pediatrics.org/cgi/doi/10.1542/peds.2011-2107NN

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

Rochat MK, Illi S, Ege MJ, et al; Multicentre Allergy Study (MAS) Group. *J Allergy Clin Immunol*. 2010;126(6):1170–1175

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.

URL: www.pediatrics.org/cgi/doi/10.1542/peds.2011-210700

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Is Physician-Diagnosed Allergic Rhinitis a Risk Factor for the Development of Asthma?

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Pediatrics 2011;128;S115

DOI: 10.1542/peds.2011-2107NN

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The online version of this article, along with updated information and services, is located on the World Wide Web at:

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