data to mixed populations such as in the United States. However, the large cohort size and long observation period are key strengths of this longitudinal study, the results of which provide insight into the natural history of this chronically relapsing and remitting disease.

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Correlation Between Serum 25-Hydroxyvitamin D Levels and Severity of Atopic Dermatitis in Children

Peroni DG, Piacentini GL, Cametti E, Chinellato I, Boner AL. *Br J Dermatol.* 2011;164(5):1078–1082

PURPOSE OF THE STUDY. To determine if low levels of vitamin D correlate with the severity of atopic dermatitis (AD).

STUDY POPULATION. Thirty-seven children (20 boys and 17 girls) with AD, between the ages of 8 months and 12 years, were evaluated in an outpatient clinic in Verona, Italy.

METHODS. The Severity Scoring of Atopic Dermatitis (SCORAD) index was used to determine the severity of AD in these children. Serum 25-hydroxyvitamin D (25[OH]D) levels were determined by using a chemiluminescent method. Values were used as a continuous variable, and vitamin D amounts were also categorized, in a descriptive analysis, as sufficient (≥30–40 ng/mL), insufficient (20–30 ng/mL), or deficient (<20 ng/mL). The ImmunoCAP test (Phadia, Uppsala, Sweden) was used to assay for specific immunoglobulin E (sIgE) to *Staphylococcus aureus* enterotoxins and to *Malassezia furfur*. Skin-prick testing was performed for common environmental and food allergens, and mean diameters were added together to create a total allergy score.

RESULTS. Using the SCORAD index, subjects were classified as having severe (9 of 37), moderate (13 of 37), or mild (15 of 37) AD. Mean serum 25(OH)D levels were found to be significantly higher in patients with mild AD (36.9 ± 15.7 ng/mL) compared with those with moderate (27.5 ± 8.3 ng/mL) or severe AD (20.5 ± 5.9 ng/mL). Although not statistically significant, the prevalence of patients with sIgE to microbial antigens increased with the severity of AD and the presence of vitamin D deficiency. There was no significant difference in the total allergy scores between those with mild, moderate, and severe AD.

CONCLUSIONS. Vitamin D deficiency might be related to the severity of AD.

REVIEWER COMMENTS. These results support the idea that vitamin D deficiency might be related to the severity of AD and adds to the current body of epidemiologic studies. The study also reinforces that studies that evaluate treatment of vitamin D deficiency and treatment with vitamin D for the management of AD are needed.

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Infant Eczema, Infant Sleeping Problems, and Mental Health at 10 Years of Age: The Prospective Birth Cohort Study LISAplus

Schmitt J, Chen CM, Apfelbacher C, et al; LISA-plus Study Group. *Allergy.* 2011;66(3):404–411

PURPOSE OF THE STUDY. This study investigated the relationship between infant eczema, infant sleeping problems, and the risk of mental health problems at 10 years of age.

STUDY POPULATION. Included were newborns (N = 1578) recruited as a birth cohort between 1997 and 1999 from 4 German maternity hospitals.

METHODS. Participants were followed regularly from birth until 10 years of age. Parental questionnaires were used to gather information regarding physician-diagnosed eczema, parent-reported sleeping problems secondary to pruritus, and known environmental risk factors for atopy. Mental health at 10 years of age was measured by using the validated German Strengths and Difficulties Questionnaire to determine possible/probable versus unlikely mental health problems. Multivariate logistic regression analyses adjusted for environmental and lifestyle factors (exclusive breastfeeding, single parents, and day care attendance), allergic comorbidity, and family history of eczema. Participants with infant eczema with sleep problems or sleep problems caused by pruritus were compared to children with no reported sleep problems and no eczema (reference group).

RESULTS. Of the 1578 participants eligible for analysis at the age of 10 years, 266 had infant eczema (first 2 years of life), 92 had parent-reported sleep problems caused by pruritus, 54 had infant eczema with sleep problems, 385 had ever been diagnosed with eczema, and 1162 never had eczema or sleeping problems (reference group). Children with eczema and/or sleeping problems did not differ significantly in regards to gender, study site, or breastfeeding status compared with those in the reference group. When adjusted for environmental exposures, demographic confounders, and comorbid atopic airway disease, children with infant eczema were at increased risk of hyperactivity/inattention at 10 years of age (odds ratio [OR]: 1.78 [95% confidence interval (95% CI): 1.02–3.09]). Infant eczema with concurrent sleeping problems was related to emotional problems (OR: 2.63 [95% CI: 1.20–5.76]) and conduct problems (OR: 3.03

[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.

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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.

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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

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