RESULTS. On the basis of the SPT, 44 (86% [95% confidence interval (CI): 74%–95%]) of 51 infants had IgE-FS (cow’s milk, 16%; egg, 73%; peanut, 51%). Using age-specific 95% predicted cutoff values, CAP-FEIA identified 34 (83% [95% CI: 68% to 93%]) of 41 infants with IgE-FS (cow’s milk, 23%; egg, 99%). Forty-six (90%) infants had IgE-FS to at least 1 food item according to either the SPT or CAP-FEIA test.

CONCLUSIONS. Atopic eczema was found to be closely associated with IgE-FS in infants attending a dermatology department.

REVIEWER COMMENTS. These data should continue to fuel the ongoing debate, especially between allergists and dermatologists, regarding the role of food allergy in infants with atopic dermatitis (AD). This study addressed IgE-FS in infants who already had moderate-to-severe AD and who presented to a dermatology clinic for evaluation and management. These patients had test results (ie, skin testing or in vitro–specific IgE measurements) demonstrating likely clinical allergy to eggs, cow’s milk, and/or peanuts on the basis of previous studies correlating test results with oral food-challenge outcomes. The vast majority (90%) of these infants with AD were sensitive to at least 1 of these foods, demonstrating a very strong association between infants with AD and IgE sensitization to common food allergens. Despite extensive data from this study and previous investigations demonstrating a relationship, the specific role of food allergy in AD remains a “hotly contested” area of clinical research and debate. At this point in time, the balance of clinical evidence favors a specific role of IgE-FS in the pathogenesis of AD.

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Pathophysiology of Nocturnal Scratching in Childhood Atopic Dermatitis: The Role of Brain-Derived Neurotrophic Factor and Substance P

PURPOSE OF THE STUDY. To determine if brain-derived neurotrophic factor (BDNF) and substance P are associated with disease severity, quality of life, and nocturnal scratching in atopic dermatitis (AD).

STUDY POPULATION. This was a prospective study of 28 children with AD (mean age: 11.1 ± 3.3 years) recruited from a pediatric dermatology clinic at a university teaching hospital in Hong Kong. Eighty-nine percent had moderate-to-severe AD on the basis of Scoring Atopic Dermatitis (SCORAD) scores.

METHODS. AD severity, as well as pruritus and sleep loss (in the preceding 3 days), was evaluated by using the SCORAD index. The Children’s Dermatology Life Quality Index (CDLQI) was used to measure the quality of life over the preceding 7 days. Serum BDNF, substance P, AD-associated chemokine (cutaneous T-cell–attracting cytokine [CTACK] and thymus and activation-regulated chemokine [TARC]), total immunoglobulin E (IgE), and eosinophil counts were measured. Patients wore a DigiTrac monitor (IM Systems, Baltimore, MD) on their dominant wrist while sleeping to record limb motion from 10 PM to 8 AM the following morning. On the basis of the group’s previous work showing that the wrist activities between 1 and 3 Hz for the first 3 hours of sleep were indicators of AD severity, the same parameters were used for analyses of correlations.

RESULTS. The mean SCORAD score was 48.1 ± 21.5, and mean CDLQI score was 8.7 ± 5.4. The mean plasma concentrations of BDNF, substance P, CTACK, and TARC were 1798 ± 935, 94 ± 42, 1424 ± 719, and 824 ± 1000 pg/mL, respectively. BDNF correlated significantly with both the SCORAD (P < .010) and CDLQI (P < .004) scores, whereas substance P had a significant correlation only with the CDLQI score (P < .019). Both BDNF and substance P were highly significantly correlated with average (P < .001) and frequency-specific (P < .001) wrist activities measured by the DigiTrac. In contrast, the chemokine (CTACK and TARC), serum total IgE, and eosinophil counts did not correlate with scratching. It is interesting to note that there was no correlation between BDNF or substance P level and pruritus or sleep-loss scores reported by the parents in the SCORAD.

CONCLUSIONS. Serum levels of BDNF and substance P were significantly linked to disease activity, quality of life, and levels of nocturnal scratching.

REVIEWER COMMENTS. Pruritus can be very distressing for children with AD. Unfortunately, the pathophysiology of nocturnal itching and the mediators involved have not been well elucidated. This article is the first to demonstrate that BDNF and substance P levels are significantly linked to nocturnal scratching. Certainly additional studies are needed to show that these neuropeptides are the causative factors in itching. Inclusion of control groups and those with other dermatologic conditions that also cause pruritus would be helpful. However, this article also suggests that perceived symptoms of itch, especially by parents of those with AD, may not be precise and that perhaps the extent of nocturnal itching has been underappreciated.

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