

FEV₁ values (76% vs 84%), a lower proportion of male subjects (54% vs 82%), and a higher prevalence of rhinosinusitis and nasal polyposis than the 51 negative subjects, but these trends did not reach statistical significance ($P > .05$, Table II).

Previous studies have linked short-term clinical responsiveness to LTRA therapy in patients with mild-to-moderate asthma,^{6,7} with genetic polymorphism in the terminal enzyme for cysteinyl-leukotriene synthesis, leukotriene C₄ synthase (-444A/C), although other studies have showed negative results.⁸ To the best of our knowledge, our data are the first to demonstrate a significant association between LTRA responsiveness and an HLA allele in the long-term management of patients with AIA. The study was performed in a real-life setting of the chronic management of AIA within a Korean population. The lack of significant differences between the DPB1*0301-positive and DPB1*0301-negative groups in a range of characteristics, including age, sex, clinical history, duration of asthma, atopic status, spirometry, and methacholine responsiveness, reinforces the difficulty of identifying those patients with AIA most likely to benefit clinically from LTRA therapy. Our data might enable such predictions, as well as providing clues to the pathogenesis of AIA.

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Primary care physicians' approach to food-induced anaphylaxis: A survey

To the Editor:

Food-induced anaphylaxis is the most common cause of anaphylaxis outside of the hospital, and a trend for the increasing incidence of this cause of anaphylaxis has been recently reported. Severe anaphylaxis may occur without skin symptoms, and specific symptoms may mimic those observed in related allergic (asthma) and non-allergic (choking and myocardial infarction) disorders, making diagnosis challenging.¹⁻³ In addition, although there may be some debate on treatment approaches, it is recognized that prompt intervention with epinephrine is an important cornerstone of therapy for severe reactions. In regard to potential confusion in diagnosis and management, there is only 1 article describing the approach of physicians to anaphylaxis in the emergency room setting.⁴ Here we report the results of a survey regarding diagnosis and management of food-induced anaphylaxis that was administered to medical staff at Mount Sinai Medical Center, New York.

An anonymous survey, approved by the Mount Sinai Institutional Review Board, was distributed to participants at pediatric and internal medicine grand rounds conferences when the lecture topic was unrelated to allergy. The participants were presented with a case (adjusted for the pediatric or internal medicine audience) of a patient allergic to peanuts who was experiencing peanut-induced anaphylaxis. A total of 121 audience members completed the survey (response rate of 52%), but 8 medical students were excluded. Of the remaining 113 participants, 66 were attending physicians and 47 were residents and fellows; 61 participants were from pediatrics departments, and 52 participants were from internal medicine departments.

The questions and responses are shown in Table I. The majority (72%) of the participants recognized this case as food-induced anaphylaxis and recommended treatment with epinephrine; however, it is remarkable that half selected the incorrect concentration (1:10,000) and the subcutaneous route of administration less likely to result in optimal absorption.^{5,6} Residents and fellows were more likely than attending physicians to identify this case as

TABLE 1. Survey distributed to participants at pediatric and internal medicine [version shown in brackets] grand rounds conferences

Percentage choosing each answer			
	Pediatrics	Internal medicine	Total
A 12-year-old boy [27-year-old male] is brought to the ED because of hives and cough after the ingestion of a snack bar containing mixed nuts 30 minutes previously. He was given 1 tsp of diphenhydramine [took 1 tablet] and 4 puffs of albuterol MDI at home. He has a history of allergy to peanuts; his most recent reaction was at the age of 5 years [age 18 years] when he developed hives after having a taste of peanut butter. He also has a history of mild persistent asthma for which he takes montelukast 10 mg PO QHS and albuterol MDI PRN. In the wintertime, he sometimes gets courses of inhaled steroid (fluticasone) but has not required oral steroids in the past 2 years.			
On arrival to the ED, he is alert, cooperative, and in no apparent distress. Vital signs: T 98, HR 120/min [HR 100/min], BP 100/65 [BP 110/75], RR 30/min [RR 24/min], and O ₂ saturation on room air 96%. Peak flow is 275 L/min (personal best 400 L/min) [500 L/min (personal best 700 L/min)]. Physical findings: pruritic evanescent rash on his trunk, eyes with conjunctival injection and watery discharge, lungs: CTA, symmetric breath sounds, decreased air movement bilaterally.			
1. What is the most appropriate treatment at this time?			
a. Observation	0%	4%	2%
b. Albuterol nebulized treatment 2.5 mg	4%	7%	6%
c. Diphenhydramine 25 mg [50 mg] PO	3%	7%	4%
d. Epinephrine 1:10,000, 0.3 mL SC	39%	35%	37%
e. Prednisone 1 mg/kg [60 mg] PO	3%	30%	16%
f. Epinephrine 1:1000, 0.3 mL IM	51%	17%	35%
2. He receives the appropriate treatment, and 30 min later his rash resolves, RR 24/min, peak flow 310 L/min [600 L/min]. What is the most appropriate next step?			
a. Discharged to home promptly with a short burst of oral steroids	4%	12%	7%
b. Keep under observation in the ED for 2 h	34%	28%	31%
c. Continue/repeat the treatment in the ED and keep under observation for 4-6 h	44%	44%	44%
d. Admit to the inpatient unit	11%	10%	11%
e. Admit to the intensive care unit	7%	6%	7%
3. On discharge from the ED or from the hospital it is most important to prescribe:			
a. Fluticasone MDI 110 µg, 2 puffs BID	2%	6%	4%
b. Salmeterol MDI, 1 puff BID	2%	0%	1%
c. Diphenhydramine 25 mg PO QID for 24 h	11%	16%	13%
d. EpiPen (Dey, Napa, Calif) 0.3 mg	85%	78%	82%
4. Risk factors for severe/fatal allergic reactions to foods include—select all that apply*			
a. Severe asthma	34%	25%	30%
b. Asthma of any severity	51%	48%	50%
c. History of severe reactions	93%	92%	93%
d. Allergy to peanuts/nuts	80%	73%	77%
e. Age < 10 y	36%	35%	35%

Correct answers are printed in bold and italic font.

ED, Emergency department; HR, heart rate; BP, blood pressure; MDI, metered dose inhaler; QHS, every night; BID, 2 times per day; QID, 4 times per day; RR, respiratory rate; PRN, as needed; CTA, computed tomographic angiography; PO, by mouth; IM, intramuscular; SC, subcutaneous; T, temperature; BS, breath sounds.

*Twenty-six percent identified all risk factors.

anaphylaxis and treat with epinephrine (attending physicians 65%, residents and fellows 83%; $P = .03$, χ^2 test); however, there was no difference regarding the choice of epinephrine dose and route, observation period, choice of discharge medication, or identification of risk factors. Pediatricians were more likely than internists to treat with epinephrine ($P < .01$, χ^2 test). Of those who chose epinephrine, there was no statistical difference between pediatricians and internal medicine participants' choices in terms of the dose and route of epinephrine. Because there is a possibility for a biphasic reaction with recurrence of symptoms 1 to 4 hours after a reaction, it is remarkable that 38% indicated an inadequate (< 4 hours) observa-

tion period after therapy. Only 26% were able to identify all of the risk factors for severe food-induced anaphylaxis including a history of asthma and allergy to peanut or nut.⁷

There were several limitations to this study, but most of them would have favored selection of correct choices. Those participating may have been more confident about their knowledge, and physicians attending grand rounds in a center with a strong allergy training program may have been better educated about anaphylaxis. Finally, the fact that multiple choices were available that included correct answers may have increased the chance of the participant selecting an appropriate course of action.

Despite the limitations of the survey, a high rate of mistreatment and misunderstanding regarding anaphylaxis was evident, as has recently been noted in the emergency room setting.⁸ This result is in striking contrast with that of Gompels et al,⁴ who found overdiagnosis and overuse of epinephrine by senior house officers in the emergency department in the United Kingdom. Our study indicates a clear need for improved education regarding anaphylaxis and food-induced allergic reactions directed toward primary care physicians who are likely to evaluate the teenagers and young adults who are at highest risk. The American Academy of Asthma, Allergy and Immunology has published guidelines for the management of anaphylaxis.⁹ The results of our survey demonstrate an urgent need to further propagate these guidelines among primary care physicians.

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Effect of pimecrolimus cream 1% on skin condition and sleep disturbance in children with atopic dermatitis

To the Editor:

Atopic dermatitis (AD) is a chronic, relapsing, pruritic inflammatory disease.¹ Children with AD have disturbed

sleep patterns.^{2,3} The mechanisms underlying the scratch-itch cycle and its relationship to sleep disturbance are poorly understood. We evaluated the efficacy of pimecrolimus 1% cream in improving skin condition and itching and subsequently improving sleep. Nineteen patients, age 7 to 17 years, with mild to moderate AD were randomized to either vehicle control (6 female, 4 male; mean age, 10.7 years $\pm$ 3.1 years) or pimecrolimus 1% cream (6 males, 3 females; mean age, 9.8 years $\pm$ 3.3 years) applied twice daily for 2 weeks. Participants were excluded if they had been treated with any topical medication in the previous 4 weeks.

This study was approved by the National Jewish Medical and Research Center Institutional Review Board in Denver. Each participant attended a total of 3 visits at 1-week intervals. This study was a double-blind, placebo-controlled study. At the first visit (visit 1), subjects underwent informed consent (parent) and assent (child). Eczema Area and Severity Index (EASI) scores were used to characterize the extent of AD at each visit. The EASI score is a validated objective method to characterize the severity and extent of AD.⁴ An EASI score of 15 to 20 indicates approximately a 10% to 15% body involvement of atopic dermatitis. Mild AD is defined by areas of scaling, papulation, erythema, and lichenification of 5 to 10 cm involving less than 15% total body surface area. Typical areas of involvement would include the wrists, antecubital fossa, knees, popliteal fossa, and ankles. Children's Dermatology Life Quality Index (CDLQI) scores were also obtained at the first visit and each subsequent visit. The CDLQI is a validated measure consisting of 10 questions that inquire about the effect of AD on a child's quality of life.⁵ Also, each family's perception of pruritus and general appearance was obtained by a standard point scale at each visit. All participants underwent a 1-week washout period using only an over-the-counter moisturizer (Vanicream, Aquaphor, or Eucerin) to the affected areas of skin. Subjects were instructed to stop all oral antihistamines, topical corticosteroids, sleep medications, and antibiotics for the duration of the study. After the second visit, each participant was randomized to either pimecrolimus 1% cream or vehicle control.⁶ There were no statistically significant changes in EASI scores during the washout period.

The Actigraph Motionlogger (Ambulatory Monitoring, Ardsley, NY), which has the appearance of a wristwatch, was used to assess periods of sleep and wakefulness.⁷⁻⁹ Each participant was instructed to wear the actigraph on the nondominant wrist continuously until the next visit. Exceptions for removal included bathing and prolonged water exposure. At each weekly follow up visit, the actigraph data were downloaded, and the actigraph was returned to the participant.

All statistical analyses were performed with JMP (SAS Institute, Cary, NC). *Visit 1* refers to data collected after the 1-week washout period, and *visit 3* refers to data collected at the end of the study. Baseline characteristics