Results. Isolated PN allergy was reported by 3482 registrants (68%), isolated TN allergy was reported by 464 individuals (9%), and allergy to both by 1203 individuals (23%). Other self-reported food allergies included egg (29%), cow’s milk (22%), soy (11%), wheat (6%), fish (4%), and shellfish (2%). Atopic disorders included atopic dermatitis (50%), asthma (46%), and allergic rhinitis (27%). Participants were more likely to have been born in October (50%), asthma (46%), and allergic rhinitis (27%). Patients were more likely to have been born in October, November, or December (P < .0001). Eighty-two percent (n = 3877) had been breastfed for a median of 7 months. The median age at first known exposure to PN was age 12 months (mean = 18.5 months), while the first known reaction was at a median age of 14 months (mean = 29.5 months). Seventy-four percent reported that the first reaction to PN occurred with the first exposure, and ingestion was reported as the most common route of exposure (91%). The first reactions occurred primarily in the home, beginning a median of 3 minutes after exposure, 76% requiring medications. The median age at first known exposure to TN was 24 months (mean = 48 months), while the median age at first reaction to TN was 36 months (mean = 77 months). Sixty-eight percent reported that the first reaction occurred with the first exposure, and the majority of first TN reactions (61%) occurred in the home. Ingestion was the most common route of exposure to TN (88%). Half of all the reactions involved >1 organ system. A second reaction to PN was described by 2226 registrants (48%), and 1072 (23%) reported a third reaction. A second reaction to TN was reported by 564 people (34%) and 240 (14%) described a third. Subsequent PN and TN reactions attributable to accidental ingestion were more severe, more common outside the home and more likely to require treatment with epinephrine, when compared with initial reactions. Ninety percent of the participants reported having epinephrine available at all times. Of the 10% who did not, 45% had not been given a prescription.

Conclusions. This registry is the largest collection of patients with food allergies and emphasizes important and novel features of PN and TN reactions. Reactions are often severe, often occur on the first exposure, and require some type of medication or medical intervention. Subsequent reactions to PN and TN reportedly worsened in most patients. The majority of patients reported having epinephrine on hand, but it is worrisome that >500 patients did not have epinephrine readily available, and almost half of these patients had not ever been given a prescription.

Reviewers’ Comments. This study provides valuable insight into a very important aspect of food allergy. Because 89% of the registrants are children, this data is very valuable for pediatricians, as it provides new insights into the features of these PN and TN allergies, reaffirms previous observations, and provides a valuable source of information for health care providers.

THE US PEANUT AND TREE NUT ALLERGY REGISTRY: CHARACTERISTICS OF REACTIONS IN SCHOOLS AND DAY CARE


Purpose of the Study. To describe clinical features of allergic reactions to peanuts and tree nuts occurring in school or day care environments.

Study Population. Participants were from the US National Peanut and Tree Nut Allergy Registry (PAR), which is a voluntary, self-reported, or parental reported registry of individuals who are allergic to peanuts and/or tree nuts. This group of individuals from the database had experienced peanut and/or tree nut allergic reactions in a school or day care setting.

Methods. One hundred subjects were randomly selected from PAR database and telephone interviews were performed to characterize the number of allergic reactions, causative food, initial symptoms, severity of final reactions, method of food contact, and the treatment rendered/school response.

Results. Of 4586 total database registrants, 750 (16%) reported allergic reactions to peanuts and/or tree nuts while in school or day care. One hundred subjects or parental surrogates described 115 reactions to peanuts and 9 reactions to tree nuts. For 25% of these subjects, a school reaction was the first indication of peanut or tree nut allergy. A total of 32% had 1 prior reaction, 37% had 2, 11% had 3 and 20% had >3 prior reactions. A total of 64% occurred in preschool with the remainder in elementary school or higher. Mode of contact included 60% occurring from ingestion, 24% from skin contact/possible ingestion, and 16% from inhalation/possible skin contact or ingestion. Peanut butter craft projects accounted for the most common ingestion. Treatment was given in 90% of reactions. Antihistamines were given in 84% and epinephrine in 28%. Epinephrine was administered by teachers, nurses, parents, and others. A nurse was on location for only 23% of reactions. Treatment delays were secondary to delayed recognition of reactions, calling parents, not following emergency plans, and, in 1 case, inability to administer self-injectable epinephrine.

Conclusions. Peanut and tree nut allergic reactions are common in school and day care environments. Both accidental exposures and new onset reactions can occur. School personnel need to be educated to recognize and treat food-allergic reactions.

Reviewers’ Comments. There are 2 weaknesses from this article that stem from the reliance on self-reported information. First, this could represent an overestimation of severity of school peanut and tree nut reactions as described in the article. Second, when nonmedically trained personnel report such events, reliability and historical recall need to be taken into account. However, in the school and day care environment, nonmedically trained personnel will be the first to recognize signs and symptoms of allergic reactions and therefore need to be educated regarding food allergies. Successful management includes prevention, prompt recognition, availability of medications, written emergency plans, and early administration of epinephrine by teachers, nurses, parents, cafeteria workers, and other school and day care personnel.

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SCHOOL READINESS FOR CHILDREN WITH FOOD ALLERGIES


Purpose of the Study. The purpose of this study was to identify and characterize the level of knowledge about food allergy and the prevention and treatment policies for food-allergic children in elementary schools.

Study Population. A total of 273 public elementary schools were randomly selected from the 2082 public elementary schools listed by the Michigan State Education Directory.
AN ETIOLOGICAL ROLE FOR AEROALLERGENS AND EOSINOPHILS IN EXPERIMENTAL ESOPHAGITIS


Purpose of Study. An experimental model was established to test the hypothesis that eosinophilic esophagitis is mechanically linked to eosinophilic allergic responses in the lung.

Study Population. Eight- to 10-week-old BALB/c mice, interleukin (IL)-5 gene-targeted mice, and eotaxin-deficient inbred mice were maintained with age- and sex-matched controls.

Methods. Using previously published protocols, mice were exposed to repeated inoculations of Aspergillus fumigatus antigens by oral, intragastric, and intranasal routes. Eosinophils levels in the esophagus were analyzed by anti-major basic protein immunostaining. The tissue distribution of eosinophils after intranasal allergen was examined in the blood, bronchoalveolar lavage fluid, stomach, and small intestine. Pathologic changes were defined using histologic examination of the esophagi and electron microscope analysis of tissue eosinophil morphology. Experimental eosinophilic esophagitis was induced in eotaxin gene-targeted mice and in IL-5 gene-targeted mice.

Results. Allergen-challenged mice developed marked levels of esophageal eosinophils, free eosinophil granules, and epithelial cell hyperplasia, which mimic pathophysiologic changes observed in humans with eosinophilic inflammation of the esophagus. Of note, eosinophil levels in the stomach and small intestine did not significantly increase after allergen challenge. As opposed to the intranasal route, exposure of mice to oral or intragastric allergen does not promote eosinophilic esophagitis, indicating that hypersensitivity in the esophagus occurs with simultaneous development of pulmonary inflammation. In the absence of eotaxin, eosinophil recruitment is attenuated, and furthermore, in the absence of IL-5, eosinophil accumulation and epithelial hyperplasia were ablated.

Conclusions. These results establish a pathophysiologic connection between allergic hypersensitivity responses in the lung and esophagus and demonstrate an etiologic role for inhaled allergens and eosinophils in gastrointestinal inflammation. Moreover, these investigations dissect the cellular and molecular mechanisms involved in eosinophil homing into the esophagus. Aeroallergens may be contributing to the pathogenesis of eosophageal inflammation in a subset of patients with primary eosinophilic esophagitis and gastroesophageal reflux disorders.

Reviewer’s Comments. Just when you thought you had heard of the last potential trigger for gastroesophageal reflux disorders, this very provocative investigative model of experimental eosinophilic esophagitis was published. These data suggest that eosinophilic esophagitis can be mediated by extrinsic allergens and establish a causal link between the development of allergic hypersensitivity in the respiratory tract and in the esophagus. This model not only implicates a role for aeroallergens in the pathogenesis of eosophagitis, but also provides a novel system to evaluate the treatment of eosinophilic esophageal disorders, which include gastroesophageal reflux, allergic eosinophilic esophagitis, eosinophilic gastroenteritis, primary eosinophilic esophagitis, and drug reactions.

ANAPHYLAXIS

CAN EPINEPHRINE INHALATIONS BE SUBSTITUTED FOR EPINEPHRINE INJECTION IN CHILDREN AT RISK FOR SYSTEMIC ANAPHYLAXIS?

School Readiness for Children with Food Allergies
Helen Skolnick
*Pediatrics* 2002;110;435

The online version of this article, along with updated information and services, is located on the World Wide Web at:
/content/110/Supplement_2/435.1.full.html