ous studies have found a positive relationship between pet ownership and allergic disease, leading to the widely ac-
cepted recommendation of refraining or removal of pets from the home. The current study, as well as others, found
that pet ownership may have a protective effect against the develop-
ment of allergic disease. Children who were ex-
posed to pets at birth had a lower prevalence of allergic
rhinitis, asthma, and infant eczema, although this study
did not account for those families who did not own pets
because of a family history of atopy. This would lead to
selection bias because those families without a history of atopy
would be more likely to own pets. Also, the number of
participants with pet exposure was low (22%), and results may differ in a population with a higher prevalence
of pet ownership.

**ASSOCIATION OF SPECIFIC ALLERGEN SENSITIZATION WITH SOCIOECONOMIC FACTORS AND ALLERGIC DISEASE IN A POPULATION OF BOSTON WOMEN**

**Study Population**. Participants were mothers (n = 458)
of children in the Epidemiology of Home Allergen and
Asthma Study (a longitudinal birth and family cohort study) with the following inclusion criteria: 1) delivered a
child between September 1994 and June 1996 in Boston, Massachusetts, 2) ability to speak English or Spanish, and
3) mother or father had a doctor’s diagnosis of asthma, hayfever, or allergen sensitivity.

**Methods**. Markers of race, SES, and diagnosis of
asthma, hay fever, or allergy were elicited by question-
naire. Using 1990 US Census data, a marker of poverty in
the zip code of residence was evaluated in terms of the
proportion of the population living below the poverty
level. Serum was collected for total immunoglobulin (IgE)
and specific IgE to mites, cat, cockroach, dog, ryegrass,
ragweed, Alternaria, and Aspergillus using the UNICAP
system.

**Results**. The population was 18 to 46 years old, mostly
white (79%), educated to a college level or above (78%),
and lived with a household income >$50,000 (70%). Only
5% smoked. Hayfever was reported in 43%, asthma in 31%,
and eczema in 22%. When restricted to women with allergi-
card diseases and/or asthma, asthma was more common in
areas of poverty while hayfever was more common in
areas of affluence (P < .007). Eczema was not related to any
markers of SES. Allergen sensitivity was found in 60%,
with mite the commonest (36%) and Aspergillus the rarest
(4%). Multiple sensitivities were typical, while only mite
allergy occurred commonly as a sole sensitivity. Eleven
percent had cockroach sensitivity with 94% also sensitive
to 1 or more other allergens. Subjects living in areas of
greatest poverty were at greatest risk for allergen sensitiv-
ities with cat, ragweed, and dog sensitivity common in
high poverty areas. Sensitivity to cockroach allergen was
much higher in relation to area poverty (P < .001). Sensi-
tivities to mite and mold were equally common across all
markers of SES. Ryegrass was the only allergen more com-
mon with markers of high SES. The mean total IgE levels
was higher across areas of poverty (P < .001). Allergen
sensitivity was increased in women of household incomes
< $50,000. Asthma was significantly associated with cock-
roach, mite, and dander sensitivity, especially in those with
higher specific IgE levels. Hayfever was associated with
ragweed, ryegrass, and cat sensitivities. Eczema correlated
with allergen sensitivity, but not to any specific allergen.

**Conclusions**. A socioeconomic gradient was demon-
strated showing that the poorest had higher total and
specific IgE levels, increased allergen sensitization, and
asthma. Cockroach, cat, dog, and ragweed sensitivities
were higher in the poorer areas, with additional risk the
higher the specific IgE level. An increased risk for asthma
was associated with cat, dog, and cockroach sensitivity. In
contrast to asthma, hayfever was found to be more com-
mon in areas of affluence.

**FOOD ALLERGY**

**THE NATURAL HISTORY OF PEANUT ALLERGY**

**Purpose of the Study**. It has traditionally been thought
that peanut allergy, once established, almost always lasts
dlifestyle. These investigators sought to determine the fre-
quency with which peanut allergy is actually outgrown
and identify any characteristics in these children that
might predict this tendency.

**Study Population**. A total of 223 patients with a diag-
osis of peanut allergy were identified by chart review in
two tertiary care allergy clinics and one private practice.
Patients were determined to be peanut allergic if they had
a positive history and positive results to a skin test, ra-
dioallergosorbent test (RAST) or challenge; or in some
cases positive tests in the absence of any known exposure.

**Methods**. A questionnaire was administered to all
study patients that detailed the nature of the reaction, age
of onset, any other food sensitivities and their resolution or
lack thereof, and history of other atopic diseases. Most
patients were skin tested for peanut, and CAP RASTs were
obtained. Patients with histories of strictly cutaneous
histories of more severe reactions were asked to participate
in challenges only if RASTs were < 20 kU/L. Both double-
blind, placebo-controlled and open food challenges were
used. All negative challenges were confirmed by open
challenge.

**Results**. Seventy-five percent of the patients had a his-
tory of acute reaction to peanut, while 5% had positive
peanut skin tests or RASTs and a history of marked im-
provement in atopic dermatitis with a peanut-restricted
diet. Approximately 25% had positive test(s) but were not
known to have ever ingested peanut. Of the 223 patients
(ages 4–20 years) evaluated, 126 were eligible for chal-
lenges, and 85 subsequently underwent such challenges.
Forty-eight (21.5%) had negative results, and 37 reacted. Peanut RASTs of those who underwent challenge were different for those who passed (median 0.69 kU/L) versus those who failed (median 2.06 kU/L) at time of challenge but not a time of diagnosis. Patients who had negative challenges were significantly more likely to have had an initial reaction with involvement of the skin alone than with those ongoing peanut allergy. Yet, 17% of those with cutaneous only reactions had RASTs >20 kU/L, and therefore were ineligible for challenge. One child with a reaction involving cutaneous, respiratory, and gastrointestinal systems outgrew his allergy. Six patients with negative RASTs had positive challenges that ranged from simple cutaneous to multisystem involvement.

Conclusions. Peanut allergy is outgrown in approximately 22% of children, especially in those with histories of cutaneous only reactions and with currently low peanut RASTs. Although children with initial RASTs >10 kU/L are unlikely to lose their sensitivity, younger patients should have RASTs monitored annually until at least age 4 years. Challenges in controlled settings should be offered to appropriate patients, because the benefit provided to those who are no longer allergic clearly outweighs the risk of a carefully performed challenge.

Reviewer’s Comments. This reviewer recently peanut challenged a 4-year-old asthmatic girl with a history of persistent cow milk allergy, distant history of positive peanut puncture skin test, no known lifetime exposure to peanut, and currently negative peanut RAST, with resultant biphasic anaphylaxis. Earlier studies have shown that asthma is a major risk factor for life-threatening allergic reactions to peanut, yet only some asthmatic children lost their peanut sensitivity in this study. These various observations do not suggest less aggressive avoidance measures or less diligence with adrenaline contingency plans; but closer monitoring of peanut immunoglobulin E with an eye toward ultimate challenge in qualifying children. Does avoidance of peanut at a critical time in life in sensitized children truly alter the natural history of this allergy in some? Also, it would be interesting to know if the natural history of peanut allergy is different in that smaller group of persons who begin with such sensitivity in adulthood.

JAMES R. BANKS, MD
Arnold, MD

THE NATURAL HISTORY OF PEANUT ALLERGY IN YOUNG CHILDREN AND ITS ASSOCIATION WITH SERUM PEANUT-SPECIFIC IgE


Purpose of the Study. To characterize adverse reactions after accidental peanut exposure in young children with peanut allergy and to determine the usefulness of serum peanut-specific immunoglobulin E (IgE) levels during follow-up.

Study Population. One hundred two children were identified who had clinical peanut hypersensitivity before 4 years of age. Inclusion criteria included 1) a convincing history of clinical peanut hypersensitivity and/or a positive double-blind, placebo-controlled food challenge (DBPCFC) response to peanuts and 2) a positive skin prick test response to peanuts.

Methods. Research subjects were contacted at least yearly to track adverse reactions caused by accidental exposure to peanuts. Nineteen participants discontinued their participation in the study or were lost to follow-up, leaving 83 for inclusion in the analysis. Peanut-specific serum IgE levels were determined in 51 of 83 subjects using the Pharmacia CAP system (Uppsala, Sweden).

Results. Thirty-one of 53 (58%) of the subjects followed for 5 years experienced adverse reactions from accidental peanut exposure. Regardless of the nature of their initial reaction, the majority with subsequent reactions (31/60; 52%) experienced potentially life-threatening symptoms. The group with isolated skin symptoms (11/51; 22%) had lower serum peanut-specific IgE levels (median: 1.25 kUa/L vs 11.65 kUa/L; P = .004; Wilcoxon rank sum) than the group with respiratory and/or gastrointestinal symptoms (40/51; 78%). There was no threshold level below which only skin symptoms appeared to occur. Of note, 4 subjects had negative DBPCFC results to peanuts during the follow-up period.

Conclusions. The majority of children with peanut allergy followed for up to 5 years will have adverse reactions from accidental peanut exposure. Symptoms may not be consistent with symptoms reported during initial reactions. A minority of children with peanut allergy can lose their clinical hypersensitivity.

Reviewer’s Comments. This report addresses 2 common questions asked by parents of children with peanut allergy: a) will the reactions become progressively worse? and b) will the reactions ever subside? Despite appropriate counseling on peanut avoidance, the majority of the children experienced an accidental peanut ingestion during follow-up. Moreover, initial clinical reactions involving only the skin can subsequently progress to involve the respiratory and/or gastrointestinal systems. A minority of subjects with low serum peanut-specific IgE levels developed oral tolerance to peanut. This investigation has expanded the growing body of evidence in this research area and has provided practical clinical information for addressing allergic reactions to peanuts. With the inevitability of accidental ingestions, the general trend for worsening of clinical reactions with subsequent exposures, and the inability to predict severity of future reactions, the take-home messages should be that all patients with peanut allergy need proper education about the potential seriousness of future accidental exposures and self-injectable epinephrine to manage future, severe allergic reactions.

JOHN M. JAMES, MD
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A VOLUNTARY REGISTRY FOR PEANUT AND TREE NUT ALLERGY: CHARACTERISTICS OF THE FIRST 5149 REGISTRANTS


Purpose of the Study. To define features of peanut (PN) and tree nut (TN) allergy among 5149 members of a voluntary registry.

Study Population. Food-allergic subjects (n = 5149) were enrolled from May 1977 to May 2000, with 75% voluntarily registered through membership in the Food Allergy and Anaphylaxis Network (FAAN) and 25% recruited by physicians. Eighty-nine percent of the registrants were children <18 years of age (median age = 5 years; 67% male). Only 16 individuals were ≥65 years of age (28% male).

Methods. A structured questionnaire was distributed to 7000 lay members and 1000 health professional members of the FAAN, as well as to 4000 members of the American Academy of Allergy, Asthma, and Immunology (AAAAI). Participants or parental surrogates provided demographic information and details about allergic reactions to PNs and TNs. Data were analyzed by χ2 analysis.
# The Natural History of Peanut Allergy

James R. Banks and Arnold

*Pediatrics* 2002;110;433

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