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ORIGINAL ARTICLE

Prevalence and factors associated to peanut allergy in Mexican school children

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KEYWORDS

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Prevalence;
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Abstract

Background: In our country, the prevalence and the factors associated to peanut allergy are unknown, a health problem that has been emerging worldwide.

Objective: To establish the prevalence and the factors that are associated to peanut allergy amongst school children.

Methods: This is a population-based cross-sectional study. We included 756 children aged 6–7 years. The children's parents were questioned about their peanut intake habits. A structured questionnaire was applied, it included questions regarding peanut intake; family and personal history of asthma; rhinitis; and atopic dermatitis. Allergic reactions to peanuts were registered as: probable, convincing and systematic. The statistical analyses included logistical regression models to look for associated factors.

Results: Males were 356/756 (47.1%). Peanut allergy prevalence: probable reaction: 14/756 (1.8%), convincing reaction: 8/756 (1.1%) and systemic reaction: 3/756 (0.4%). Through multivariate analysis, the presence of symptoms of allergic rhinitis (OR=4.2 95% CI 1.3–13.2) and

Abbreviations: 95% CI, confidence intervals at 95%; OR, odds ratio.

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atopic dermatitis (OR = 5.2; 95% CI 1.4–19.5) during the previous year, showed significant association to probable peanut reaction. The former year, the presence of atopic dermatitis was the only variable that was substantially associated to a convincing reaction (OR = 7.5; 95% CI 1.4–38.4) and to a systematic reaction (OR = 45.1; 95% CI 4.0–510.0), respectively.

Conclusions: The reported prevalence of peanut allergy was consistent with that found in previous studies; symptoms of allergic rhinitis and atopic dermatitis were identified as associated factors to peanut allergy.

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Introduction

The prevalence for the perception of food allergy in children ranges from 3.9% to 8.0%.^{1–3} Some studies have shown a significant increase in the past few years for food allergy prevalence, amongst these, peanuts are one of the most common foods.^{1,4,5}

Peanut allergy in children has been linked to various factors, such as, family history of peanut allergy, personal history of dermatitis, the topical use of compositions based on peanut oil and the exposure to soy proteins.⁶ Other causes, such as the amount of peanut intake, also increase the probability of developing an allergy to these types of foods.⁷ However, its early introduction to the diet of infants, is reflected in a lower frequency.⁸ Although perinatal factors, such as breastfeeding⁹ and the manner in which the child was born,¹⁰ have been associated to allergic illnesses, their connection to peanut allergy has been less explored.

In our country, the epidemiological profile for peanut allergy is unknown for Mexican children; this represents a problem if we consider that there is a change in the intake pattern of peanuts between industrialised and non-industrialised countries.

This study describes the prevalence of a probable reaction, a convincing reaction and a systematic reaction to peanuts amongst school-aged children; as well as the factors associated with each type of reaction.

Methods

Ethics

The parents of each child signed a written consent form so that their child could participate. The Ethical Research Committee to which the head researcher is ascribed approved this study. Furthermore, this study was approved by Jalisco's Department of Education; which enabled us to apply this study in schools.

Design

In this cross-sectional study, we used a sample size of 756 children aged 6–7; they were enrolled in elementary schools located within the city of Guadalajara, in the Mexican state of Jalisco.

Sample size

The initial participant pool consisted of 30,234 children, distributed throughout 205 public and private schools during the 2013–2014 term; for a confidence interval of 95%, a permitted margin of error of 1% and an expected frequency of 2% for hyper-sensibility to peanut,¹¹ the final sample included 770 children.

Sample type and description

The participants were incorporated through a conglomerate sampling from April to December 2014, Fig. 1.

The city of Guadalajara is divided into seven administrative zones; these were taken as strata and within each of these a sub-sample was calculated based on the number of enrolled students. Through random selection, at least one school per zone was selected for the sub-sample, and in case it did not meet the required size estimate, we continued to randomly select schools until the sample size was completed.

Questionnaire

The questionnaire included questions associated to peanut exposure, intake patterns and discomfort linked to peanut allergy; moreover, subjects were asked about their family medical history regarding parent allergic disease; in order to detect asthma, allergic rhinitis, and atopic dermatitis, as well as their symptoms during the previous year of the child's life, we used *The International Study of Asthma and Allergies in Childhood*.¹²

Definitions of allergic reactions to peanut

We considered a probable allergic reaction to peanut if the subject answered affirmatively to the question: Does your child (a) have some type of discomfort, reaction or symptom after ingesting a peanut or foods with peanuts? A convincing allergic peanut reaction was recorded if after having answered affirmatively to the previous question; the affected organs and symptoms were commonly observed in allergic reactions (skin: urticaria and angio-oedema; respiratory symptoms: difficulty breathing, wheezing and throat oppression; gastrointestinal system: vomiting and diarrhoea) and if it began within two hours after having

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