Data analysis of UK PIFA birth cohort to understand the incidence and risk factors for food allergy in children aged 0-2 years

Area of research interest: Food hypersensitivity
Study duration: 2013-02-01
Project code: FS305010
Conducted by: University of Southampton

Background

The FSA funded PIFA study (Project T07046) formed the UK-part of the EuroPrevall birth cohort work package. This examined the prevalence and pattern of food allergy in the first two years of life, including whether specific complementary feeding patterns were associated with allergy. EuroPrevall was a large-scale European Union funded project setup to explore the causes of food allergy in infancy across Europe, with the overall aim of improving the quality of life of those with food allergy. A total of 12,049 babies and their families were recruited as part of EuroPrevall, including 1,170 in the UK birth cohort.

There is currently a lack of reliable published data on the actual, as opposed to reported, prevalence of food allergy in the UK, especially among young children. In addition, there is a real need to understand the risks associated with the development of food allergy. Unlike other studies, the PIFA study aimed to establish the prevalence of food allergy in a representative sample of the population, using the same end points and diagnostic criteria in young children.

Research Approach

Additional analyses will be undertaken on the PIFA study dataset which will be used to determine the incidence and risk factors associated with the development of food allergy in UK infants. These data will also be used to generate a UK peer reviewed publication to ensure maximum dissemination of the work funded by the FSA. In addition, the results and publications from this project will contribute to work being undertaken by the Committee of Toxicology (COT) to provide advice to the FSA on the risks arising from the diet that are related to the development of atopic disease (including food allergy) and autoimmune disease in infants and young children.

Results

Prevalence

The study found that the overall cumulative prevalence in UK infants being followed up until 2

years of age for food allergy was 5%. The prevalence of IgE-mediated food allergy was 2.6%. This varied for individual IgE-mediated food allergies for example hens' egg 2.7%; cow's milk 2.4%; peanut 0.7%; soy 0.4%; wheat 0.2% and 0.1% for fish. The prevalence for non-IgE mediated food allergy was 2.4%.

Risk Factors

The main risk factors which increase the risk of developing food hypersensitivity in UK infants being followed up to 2 years of age were found to be wheeze, maternal atopy, increasing gestational age, age at first solid food introduction and mean healthy dietary pattern score. There were significant differences between the two phenotypes of food allergy; IgE and non IgE food allergy.

The main risk factors for increasing the risk of developing IgE-mediated food allergy in UK infants being followed up to 2 years of age were found to be eczema, rhinitis, healthy dietary pattern score, maternal atopy, wheeze with an upper respiratory tract infection and vitamin D supplementation during pregnancy. A similar result was seen across Europe in the larger Europrevall study were increasing eczema severity was associated with an increasing likelihood of egg allergy across all European infants being followed up to 2 years of age however, age of introduction of egg into the diet was not associated with egg allergy across European children.

The main risk factors for increasing the risk of developing non-IgE-mediated food allergy in UK infants being followed up to 2 years of age were having a dog in the home , healthy dietary pattern score, maternal consumption of probiotics during breastfeeding, age at first solid food introduction, maternal age, paternal age, other household smoking and anti-reflux medication use.

This study presented unique data from the UK on both IgE-mediated food allergy and non IgE-mediated food hypersensitivity in early childhood. The results suggested that different factors may affect the development of IgE-mediated and non-IgE-mediated reactions to food in infants and young children except for a healthy infant diet which was associated with less risk for both phenotypes. However, it is important that these results are confirmed in other cohorts for example the analysis of the EuroPrevall data from all the birth cohort centres for all food reactions can build upon this work and investigate any geographical differences to food hypersensitivity reactions.

Published Papers

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