Migration clue to nut allergy

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Australian-born children with Asian mothers have higher rates of nut allergy than Asian-born children who migrate to Australia, new research has found.

It suggests the Asian environment is protective against food allergy but

Australian-born Asian children, possibly because they have been exposed to a different diet, bacterial and UV environment, are at much higher risk of developing food allergies, according Murdoch Childrens Research Institute researcher Professor Katie Allen.

The Murdoch Childrens Research Institute and University of Melbourne study of more than 57,000 five-year olds also revealed that children from urban areas are more likely to have nut allergy than children from rural regions, and that nut allergy is more common amongst children of mothers with higher education and socio-economic status.

The findings are helping to shed light on Australia's allergy epidemic, as scientists piece together clues to determine why food allergy rates continue to rise.

Peanut and tree nuts are two of the most common foods that cause allergic reactions, and are the most persistent and dangerous, with the highest lifetime risk for anaphylaxis.

Researchers analysed the results of the 2010 School Entrant Health Questionnaire, a report filled out by a parent or guardian about their child's health and wellbeing at the beginning of primary school in Victoria. Researchers assessed the overall prevalence of parent-reported nut allergy (tree nuts and peanut), and whether this was altered by region of residence, socio-economic status, country of birth or history of migration.

Of the 57,000 respondents, 2892 parents reported a food allergy (five per cent) and 1761 (3.1 per cent) reported a nut allergy. While Australian-born children of Asian descent were more likely to have nut allergy than non-Asian children, children born in Asia who migrated to Australia were at decreased risk.

Professor Allen said that migration from Asia after the early infant period appears to be a protective factor against the development of nut allergy.

"We know there are rising rates of migration from East Asia to Australia. Our finding that migration from Asia to Australia after birth can protect against early onset allergic disease such as food allergy provides a potent clue for us to follow when trying to understand why food allergy is on the rise", said Professor Allen.

Professor Allen said the results suggest that removing children from the Asian environment, or conversely exposing them to environmental risk factors in our Western environment- such as diet changes, microbial and UV exposure- uncovers a genetically-determined risk of food allergy in children of Asian descent.

Professor Allen echoed this sentiment for children raised in rural areas.

"The overall presence of nut allergy in metropolitan Melbourne was 3.4 per cent, compared with 2.38 per cent in non-metropolitan areas. While the question still remains as to why allergy rates are on the rise, the urban-rural difference could be down to the hygiene hypothesis- which raises the possibility that our urban environment with less diverse microbial exposure may contribute to the rise in allergies," said Professor Allen.

"It strongly suggests that early life environmental factors linked to the modern lifestyle play a key role in allergy development. Understanding these factors better will provide opportunities to intervene to prevent food allergy in the future."

The analysis of the School Entrant Health Questionnaire also revealed that nut allergy was more commonly reported amongst children of mothers with higher education levels, and a high socio-economic index.

In the paper, published in *Clinical and Experimental Allergy*, the research team suggest that mothers with higher levels of education and income from urban areas are more likely to seek medical advice for a food reaction and therefore more likely to report a nut allergy in their child.

The study builds on more than a decade of leading allergy research by the Murdoch Childrens Research Institute. This is the first large, population-based study to show the prevalence of nut allergy, with data captured from the majority of children who began school in Victoria in 2010.

Previous research from the HealthNuts study led by Professor Allen has shown unexpectedly high rates of nut allergy in Melbourne with 3 per cent of one year old infants demonstrating peanut allergy during medically-supervised food challenges. Findings from the HealthNuts study have led to Melbourne being dubbed the food allergy 'capital' of the world.

Provided by University of Melbourne