New clues in understanding how to prevent food allergies by breastfeeding

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Breastfeeding mothers may be encouraged to eat eggs to help prevent babies from developing an egg allergy, according to new studies by researchers at The University of Western Australia.

Study leader Professor Valerie Verhasselt, from UWA's School of Molecular Sciences, said the findings were important because in western countries up to 10% of children already have a food allergy at one year of age.

"Among high-risk population, one third are already sensitized to egg at four months of age and may experience severe allergic reaction if egg is introduced into their diet," Professor Verhasselt said.

"Our study shows that protection could be induced through breastfeeding and before the introduction of any solid food to the child's diet."

The researchers were able to discover that some breastmilk components were more successful than others in preventing allergy.

"Ten years ago, we demonstrated in an animal model that you could educate the immune system of a baby to accept egg protein as well as protect the baby from egg allergy later on," Professor Verhasselt said.

"Our new study shows for the first time that this may also happen in humans. We've found that cases of egg allergy in children are four times less likely when they have been exposed to breastmilk containing egg protein, compared to those exposed to breastmilk without detectable egg protein."

Targeting house dust mites allergens in breastmilk may be an additional key to ensure food allergy prevention in breastfed children.

The team at UWA was also able to uncover that some mothers shed house dust mite allergens in breastmilk. House dust mite allergens are known to be responsible for respiratory allergies such as rhinitis and asthma.

"By conducting preclinical experiments, we demonstrated the very new concept that respiratory allergens in a baby's gut may represent a risk factor for food allergies," Professor Verhasselt said.

"Targeting respiratory allergens may be essential for prevention of egg allergy in breastfed children."

Professor Verhasselt, who is also the Larssen-Rosenquist Chair in Human Lactology at UWA, said the studies, published in the journals *Allergy* and *Journal of Allergy and Clinical Immunology*, showed researchers were on the path to preventing egg allergy through breastfeeding.

"Our data still needs to be confirmed in large randomized control trials to bring formal proof of this promising new approach of exposing babies to egg protein through breastmilk," she said.

"Our research is aiming to find ways to prevent allergy and stop this modern world epidemic," Professor Verhasselt said.

More information: Akila Rekima et al. A role for early oral exposure to house dust mite allergens through breastmilk in IgE-mediated food allergy susceptibility, *Journal of Allergy and Clinical Immunology* (2020). DOI: 10.1016/j.jaci.2019.12.912

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