Increased diversity of food in the first year of life may help protect against allergies

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A broad range of foods in a child’s first year of life may help to prevent the development of allergic diseases. A team of European researchers studied feeding practices by parents in Austria, Finland, France, Germany and Switzerland to measure the diversity of children’s diets against diagnoses of asthma, food allergies and allergic rhinitis. This is the first study that shows an association between increased exposure to certain foods in the first year of life and protection against later development of allergies.

Nutrition has the ability to influence the development of children’s immune systems. Early exposure to a range of different foods could increase the immune system’s acceptance of the antigens present in those foods (a substance or protein that, when introduced into the body, is recognised by the immune system), possibly by the acquisition of beneficial gut bacteria. The current study was part of a wider study designed to evaluate the risk factors and preventative measures against allergic diseases.

Women were recruited from the five European countries when pregnant and, after birth, they kept a monthly diary of the food given to their children from the age of three months until twelve months old. A series of questionnaires and blood tests were used regularly until the age of six to determine whether the child had an allergy (classified by a diagnosis from at least one doctor). The ‘food diversity score’ was defined as the number of different food items included in the child’s diet. In total, 856 infants were included in the study.

Results showed that children with a higher food diversity score (i.e. more different types of food in the diet), had a lower risk of allergic diseases. In particular, the introduction of some specific foods was found to result in a lower risk of diseases; milk products and fish introduced in the first year of life seemed to have a high protective effect against asthma and food allergies respectively. When children were tested at the age of six, a less diverse diet resulted in fewer proteins that are associated with the production of the immune cells that are involved in suppressing the immune response against our own cells. Children with lower food diversity scores were also found to have an increased likelihood of higher levels of the antibody IgE (molecule produced by the body in response to an antigen), which is involved in the immune response.

Another finding concerned the importance of the age at which foods were introduced. By studying food diversity scores both after six months and a year, the researchers observed a significantly higher protective effect against allergies after a year. Therefore, the period between six months and one year may be an important window for exposure to a variety of different foods to reduce the risk of allergic diseases.

Levels of allergic diseases were significantly higher in children with two allergic parents than children with no parents with allergies, and a higher proportion of children with one or both allergic parents had a low diversity score (less varied diet) than those where parents had no history of allergies. However, possible bias could be caused by the ‘reverse causality effect’, whereby if children start to show early symptoms of
the disease, or have parents with allergies, certain foods are likely to be introduced later. This would result in a lower food diversity score and higher likelihood of an allergic disease.

Current recommendations are for children to be introduced to solid food at around six months, and no earlier than four months old. Ensuring children are introduced to a wide variety of foods in infancy, especially between six and twelve months, may have a preventative effect against the child developing an allergy.