

SHORT COMMENTARY

Effect of maternal supplementation with fish oil during pregnancy and lactation on allergy development in childhood

Allergic diseases have increased rapidly during the past few decades, and both environmental and genetic factors appear to play a role. For example, observational studies have found associations between maternal fish intake during pregnancy and protection against allergic disease in their offspring (1). Oily fish is rich in omega-3 long-chain polyunsaturated fatty acids (LCPUFAs), and several attempts has been made to influence allergic development in offspring by providing maternal supplementation with fish oil during pregnancy and/or lactation.

In a double-blind randomised controlled trial in Linköping, Sweden, from 2003 to 2005, 145 pregnant mothers at risk of having infants with allergies were given either omega-3 LCPUFA supplementation or a soya bean oil placebo from gestational week 25 until three months after they gave birth. The children were followed up clinically at three, six, 12 and 24 months of age (2). At 12 months of age, maternal fish oil supplementation was associated with a lower prevalence of food allergy, immunoglobulin E (IgE)-associated eczema, sensitisation to egg and any positive skin prick test. At 24 months of age, no associations were found between maternal fish oil supplementation and allergic diseases or sensitisation (2).

In this issue of *Acta Paediatrica*, a follow-up study by Warstedt et al. (3) aimed to examine the association between maternal omega-3 LCPUFA supplementation, omega-3 LCPUFA proportions in breast milk and allergic diseases at two years of age. Higher proportions of omega-3 LCPUFAs were observed in the breast milk of the

supplemented mothers and were associated with lower levels of IgE-associated eczema and food reactions in the first two years of life.

This randomised controlled study was conducted more than 10 years ago, yet only allergy diagnoses at two years of age were reported. It is well known that allergic phenotypes may change throughout the first years of life and that eczema and food allergies are most prevalent around one and two years of age, while respiratory allergy usually appears for the first time after four years of age. In young children, wheezing phenotypes are often caused by viral respiratory infections rather than allergies. For example, a child diagnosed with eczema at two years of age may be free from allergic symptoms later in childhood. Hence, it would have been of great interest to evaluate the association between maternal omega-3 LCPUFA supplementation and allergy in these children when they were older than two years of age.

Furthermore, the authors conclude that the proportions of the omega-3 LCPUFAs eicosapentaenoic acid and docosahexaenoic acid in breast milk were related to a protective effect of the development of IgE-associated allergic diseases in infancy. Based on their results, they suggest that supplementation must occur both during pregnancy and lactation (3). We have previously proposed that the perinatal period of life is of high importance for later allergy development (4). In the study by Warstedt et al. (3), the effect of supplementation of omega-3 LCPUFA on allergy was not evaluated separately during pregnancy and lactation. Hence, it is difficult to draw conclusions about the role of the omega-3 LCPUFA content in breast milk *per se*. The effect of supplementation may be set already during pregnancy, and there is no clear evidence from this study of a direct effect of supplementation during lactation, as children who received high breast milk proportions of omega-3 LCPUFA

also received high levels of omega-3 LCPUFA during pregnancy.

FINANCIAL DISCLOSURE

The author has no financial relationships relevant to this article to disclose.

CONFLICT OF INTEREST

The author has no conflict of interest to disclose.

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