Formula with Long-Chain Polyunsaturated Fatty Acids Reduces Early Allergic Disorders in Infancy and Childhood

Reference:

Formula with Long Chain Polyunsaturated Fatty Acids Reduces Incidence of Allergy in Early Childhood


Univ. of Kansas Medical Ctr., Kansas City, Kansas, USA

Summary:

There are some mixed reports on the relationship between dietary intakes of long-chain polyunsaturated fatty acids (LCPUFA) and status in infancy and subsequent childhood allergy in childhood. The present study was conducted on 91 infants (born between 37-42 weeks gestation) with birth weights ranging from 2490-4200 grams. During the first year of life, infants were randomly assigned to receive formulae containing DHA (docosahexaenoic acid omega-3) at either 0.00 (control group), 0.32, 0.64, or 0.96 % of total fatty acids with all containing ARA (arachidonic acid omega-6) at 0.64 % of total fatty acids. The incidence of any allergic illness and skin allergic illnesses during the first four years of life were assessed.

Comparing the outcomes of the combined LCPUFA groups (DHA plus ARA) with the control group (lacking LCPUFA) indicated that the LCPUFA subjects had significantly less allergy and less skin allergy along with longer mean illness-free times for all allergies and skin allergy in the first year of life. If the mother reported no allergy, the LCPUFA groups exhibited a 64 % reduction in skin allergic illness in the first 4 years of life compared to the control group. If, on the other hand, the mother reported allergy, the LCPUFA group had a 74 % reduction in wheezing/asthma in the first 4 years. The authors concluded that LCPUFA supplementation during infancy reduced the risk of skin and respiratory allergic diseases in childhood with such effects being related to allergies in the mother.
Dr. Holub’s Comments:

It is noted that the lower level of supplemental DHA in the formulae (0.32 % of total fatty acids) and the ARA level (0.64 %) are close to average global breast milk levels – 0.32 to 0.37 % for DHA and 0.47 to 0.55 % for ARA (Brenna, J. T. et al., Am. J. Clin. Nutr., 85: 1457-1464 (2007); Fu, Y. et al., Public Health Nutr., in press (2016)). Since DHA and ARA were supplemented simultaneously in the present study, the impact of ARA independently or synergistically along with DHA cannot be readily differentiated. The various mechanisms by which both DHA and ARA can support the immune system in the early postnatal period have been reviewed (Richard, . et al., Appl. Physiol. Nutr. Metab., 41: 461-475 (2016). Considering that breast milk from most countries contains significantly more ARA than DHA, performing intervention trials with infant formula containing DHA or ARA alone raises serious ethical questions.