LIPIDS AND INFANT DEVELOPMENT

Differential effects of prenatal DHA supplementation by maternal socio-demographic characteristics

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Docosahexaenoic acid (DHA) has been postulated to extend the period of gestation, increase birth weight, enhance neurodevelopment and reduce the risk of allergic disease. Because of its large sample size and relatively broad inclusion criteria, the DOMInO (DHA to Optimise Mother Infant Outcome) trial offers the opportunity to explore the effect of prenatal DHA supplementation of multiple outcomes as well as exploring whether different population subgroups respond differently to DHA supplementation.

Overall, the DOMInO trial showed that prenatal DHA supplementation increases the length of gestation, increases birth weight, has little or no effect on early neurodevelopment but reduces the risk of atopic eczema and sensitisation in the first year of life. As some of these outcomes may be perceived to be both positive and negative for the general population, it is important to understand whether there are differential responses in population sub-groups. Women who were non-smokers at baseline were more likely than smokers to respond to parental DHA supplementation. DHA supplemented non-smokers experienced a lower risk of preterm birth before 34 weeks (RR 0.33, 95% CI 0.13 to 0.83, $p<0.05$) while the groups did not differ in women who smoked (RR 0.89, 95% CI 0.34 to 2.38). As expected the birth weight of infants from women who smoked was lower than that of women who did not, but prenatal DHA supplementation in non-smoking women further increased birth weight, reduced the risk of birth weight >2500g, increased the risk of birth weight >4000g and large for gestational age, while there was no effect of DHA supplementation in women who smoked.These data suggest that the increase in birth weight in non-smokers is associated both increased duration of gestation and increased fetal growth. The presentation will also explore the responsiveness of prenatal DHA supplementation according to maternal education.