

43rd Annual Meeting of the ESPGHAN Istanbul, 10-12th June 2010

Poster abstract

Effects of n-3 long-chain polyunsaturated fatty acid supplementation during pregnancy and/or lactation on neurodevelopment and visual acuity in full term-children. Systematic review of randomised controlled trials.

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Objectives and Study: It is hypothesized that maternal supplementation with long-chain polyunsaturated fatty acids (PUFAs) during pregnancy and/or lactation is valuable for later infant neurodevelopment and better visual function. The objective of this study was to systematically evaluate the effect of PUFA supplementation of pregnant and/or breastfeeding women on the neurodevelopment and visual function of their term offspring.

Methods: Systematic review. We searched MEDLINE, EMBASE, the Cochrane Library, and the references in reviewed articles through May 2009 for randomized controlled trials (RCTs) comparing PUFA supplementation with placebo or no supplementation. No language restrictions were applied.

Results: Of 13 RCTs included for systematic review, 6 assessed outcome measures of PUFA supplementation during pregnancy, 4, exclusively during lactation and 3, during the period of pregnancy and lactation. Heterogeneity of the studies did not allow us to perform a meta-analysis. Supplementation during pregnancy significantly influenced eye and hand coordination in 30-month-old children assessed with the Griffiths Mental Development Scales (n=29, MD: 6.0, 95% CI: 1.03, 10.9), with no influence either on the other outcomes of these scales or on the other tests performed in the same group of children. The other 2 studies did not reveal any effect of PUFA supplementation during pregnancy on child development. Supplementation during lactation significantly increased the Bailey Psychomotor Development Index in 30-month-old children (n=133, MD: 8.4, 95% CI: 2.6, 14.2), with no influence on results of different tests performed either in the same group of children or in others. Supplementation with high doses of DHA during pregnancy and lactation did not affect child neurodevelopment assessed up to 7 y. Only supplementation during pregnancy significantly improved visual acuity in children assessed at 16 weeks with the Teller Acuity Card (MD: 0.30, 95% CI: 0.09, 0.51), with a statistically significant worsening of visual acuity at 32 weeks (MD: -1.2, 95% CI: -1.38, -1.02).

Conclusion: Evidence from RCTs does not demonstrate a clear and consistent benefit of maternal PUFA supplementation during pregnancy and/or lactation on child neurodevelopment and visual acuity.