

Abstract

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Higher dose of docosahexaenoic acid in the neonatal period improves visual acuity of preterm infants: results of a randomized controlled trial.

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BACKGROUND: Preterm infants have improved visual outcomes when fed a formula containing 0.2-0.4% docosahexaenoic acid (DHA) compared with infants fed no DHA, but the optimal DHA dose is unknown.

OBJECTIVE: We assessed visual responses of preterm infants fed human milk (HM) and formula with a DHA concentration estimated to match the intrauterine accretion rate (high-DHA group) compared with infants fed HM and formula containing DHA at current concentrations.

DESIGN: A double-blind randomized controlled trial studied preterm infants born at <33 wk gestation and fed HM or formula containing 1% DHA (high-DHA group) or approximately 0.3% DHA (current practice; control group) until reaching their estimated due date (EDD). Both groups received the same concentration of arachidonic acid. Sweep visual evoked potential (VEP) acuity and latency were assessed at 2 and 4 mo corrected age (CA). Weight, length, and head circumference were assessed at EDD and at 2 and 4 mo CA.

RESULTS: At 2 mo CA, acuity of the high-DHA group did not differ from the control group [high-DHA group (x +/- SD): 5.6 +/- 2.4 cycles per degree (cpd), n = 54; control group: 5.6 +/- 2.4 cpd, n = 61; P = 0.96]. By 4 mo CA, the high-DHA group exhibited an acuity that was 1.4 cpd higher than the control group (high-DHA: 9.6 +/- 3.7 cpd, n = 44; control: 8.2 +/- 1.8 cpd; n = 51; P = 0.025). VEP latencies and anthropometric measurements were not different between the high-DHA and control groups.

CONCLUSION: The DHA requirement of preterm infants may be higher than currently provided by preterm formula or HM of Australian women.

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