Abstract


Association between maternal vitamin D status in pregnancy and neurodevelopmental outcomes in childhood: results from the Avon Longitudinal Study of Parents and Children (ALSPAC).

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OBJECTIVE: Seafood intake in pregnancy has been positively associated with childhood cognitive outcomes which could potentially relate to the high vitamin D content of oily fish. However, whether higher maternal vitamin D status (serum 25-hydroxyvitamin D (25(OH)D)) in pregnancy is associated with a reduced risk of offspring suboptimal neurodevelopmental outcomes is unclear.

METHODS: A total of 7065 mother-child pairs were studied from the Avon Longitudinal Study of Parents and Children cohort who had data for both serum total 25(OH)D concentration in pregnancy and at least one measure of offspring neurodevelopment (pre-school development at 6-42 months; 'Strengths and Difficulties Questionnaire' scores at 7 years; intelligence quotient (IQ) at 8 years; reading ability at 9 years).

RESULTS: After adjustment for confounders, children of vitamin D-deficient mothers (<50·0 nmol/l) were more likely to have scores in the lowest quartile for gross-motor development at 30 months (OR 1·20; 95% CI 1·03, 1·40), fine-motor development at 30 months (OR 1·23; 95% CI 1·05, 1·44) and social development at 42 months (OR 1·20; 95% CI 1·01, 1·41) than vitamin D-sufficient mothers (≥50·0 nmol/l). No associations were found with neurodevelopmental outcomes, including IQ, measured at older ages.

CONCLUSION: However, our results suggest that deficient maternal vitamin D status in pregnancy may have adverse effects on some measures of motor and social development in children under 4 years. Prevention of vitamin D deficiency may be important for preventing suboptimal development in the first 4 years of life.

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