intake would be unlikely to succeed as a prevention strategy for these conditions.

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Antenatal Vitamin D Exposure and Childhood Eczema, Food Allergy, Asthma and Allergic Rhinitis at 2 and 5 Years of Age in the Atopic Disease-Specific Cork BASELINE Birth Cohort Study

Hennessy Á, Hourihane JO, Malvisi L, et al. *Allergy*. 2018;73(11):2182–2191

PURPOSE OF THE STUDY: Associations between intrauterine vitamin D status and atopic outcomes were examined in an extensively characterized maternal-infant cohort.

STUDY POPULATION: Of 1537 recruited to the BASELINE prospective birth cohort, 1412 white mothers were included in the analysis of 25-hydroxyvitamin D (25[OH]D) status and atopic disease, and cord 25(OH)D data were available from 1035 infants.

METHODS: Circulating 25(OH)D was measured in maternal sera at 15 weeks' gestation and in umbilical cord blood by using a Centers for Disease Control and Prevention–accredited liquid chromatography with tandem mass spectrometry platform. Interview-led questionnaires regarding medical history, environment, and diet and clinical assessments were conducted on day 2 and at 2, 6, 12, 24, and 60 months. Associations with clinically validated atopic disease outcomes (eczema, food allergy, asthma, allergic rhinitis) at 2 and 5 years were examined by using multivariable logistic regression.

RESULTS: Persistent eczema, food allergy, and aeroallergen sensitization at age 2 years were present in 5%, 4%, and 8%, respectively. Asthma and allergic rhinitis at age 5 years were present in 15% and 5%, respectively. Between children with and without atopic conditions, there were no significant differences in distributions of maternal 25(OH)D concentrations (mean: 58.4 [SD: 26.2] and mean: 58.5 [SD: 26.1] nmol/L) at 15 weeks' gestation and cord concentrations (mean: 35.2 [SD: 17.8] and mean: 35.4 [SD: 18.3] nmol/L). Neither maternal nor cord 25(OH)D nor both considered in a single model were significant predictors of atopic disease in fully adjusted or stratified models.

CONCLUSIONS: No association was demonstrated between antenatal vitamin D exposure and validated, prospectively collected measures of childhood atopic conditions.

REVIEWER COMMENTS: As described by the authors, randomized controlled trial data have reported a 26% reduction in risk of childhood asthma and recurrent wheeze at age 3 years associated with vitamin D supplementation during pregnancy, suggesting a crucial window of opportunity for vitamin D's impact on lung maturation. Contributions to the different results in the current study may have included use of an accredited 25(OH)D assay with more reliable results and lower prevalence of asthma and wheezing at 5 years. Differences in associations between randomized controlled trial and cohort data highlight the need for the exploration of genetic variants associated with immunoglobulin E synthesis or vitamin D receptor polymorphisms to distinguish circumstances in which vitamin D status may influence risk of childhood wheezing and atopic conditions.

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Direct Infant UV Light Exposure Is Associated With Eczema and Immune Development

Rueter K, Jones AP, Siafarikas A, et al. *J Allergy Clin Immunol*. 2019;143(3):1012–1020.e2

PURPOSE OF THE STUDY: To determine the effects of early postnatal vitamin D supplementation on infant eczema and immune development.

STUDY POPULATION: This study included 197 healthy, term, singleton infants with family history of atopy. Ninety-seven participants were randomly assigned to the intervention vitamin D group, and 98 were randomly assigned to the placebo group. Ninety-two percent of infants attended their appointment at 3 months of age, and 89% of infants attended their appointment at 6 months of age.

METHODS: This study was a double-blind randomized controlled trial of infants born in Australia between October 2012 and January 2017. Newborn infants were randomly assigned to receive vitamin D supplementation (400 IU/day) or a placebo until 6 months of age. Some infants also wore personal UV dosimeters to measure direct UV light exposure. Infant vitamin D levels were measured at 3 and 6 months of age. Eczema, wheeze, and immune function outcomes were assessed at 6 months of age. Eczema was defined by clinical features and graded on the basis of the Scoring Atopic Dermatitis score.

RESULTS: At both 3 and 6 months of age, vitamin D levels were greater for the vitamin D group compared with the placebo group; however, there was no difference in eczema incidence between groups. The secondary outcome investigating direct UV light exposure found infants with eczema to have had less UV light exposure compared with those without eczema. Additionally, UV light exposure was also inversely correlated with interleukin-2, granulocyte-macrophage colony-stimulating factor, and eotaxin production to Toll-like receptor ligands.