

to determine efficacy in preventing sensitization and progression to clinical disease.

URL: www.pediatrics.org/cgi/doi/10.1542/peds.2017-2475T

Lisa Martorano, DO
David R. Stukus, MD
Columbus, OH

Serum 25-Hydroxyvitamin D in Early Childhood Is Nonlinearly Associated With Allergy

Savilahti EM, Mäkitie O, Kukkonen AK, et al. *Int Arch Allergy Immunol*. 2016;170(3):141-148

PURPOSE OF THE STUDY. To assess for an association between serum 25-hydroxyvitamin D (25-OHD) levels at birth and at 2 years of age and the development of allergic sensitization and disorders in early childhood.

STUDY POPULATION. Subjects were part of a randomized, double-blinded, placebo-controlled trial designed to evaluate the effect of probiotics on allergy development. Infants with family history of atopy (1 or both parents had doctor-diagnosed allergic disease) were managed from birth until 5 years of age ($n = 819$).

METHODS. Subjects were examined at 3 months, 6 months, 2 years, and 5 years of age. The primary outcome was the cumulative incidence of any allergic disease and any immunoglobulin E (IgE)-mediated allergic disease until the age of 2 or 5 years. Skin prick tests and serum-specific IgE to a panel of foods and environmental aeroallergens were completed at 2 and 5 years. Sensitization was defined as at least 1 or more positive skin prick test (≥ 3 mm larger than negative control) results or positive serum-specific IgE (>0.7 kU/L) results. IgE-mediated allergy was defined as sensitization that matched the allergic disorder. 25-OHD levels were measured from cord blood at birth (divided into tertiles) and serum at 2 years of age (divided into quartiles). The following variables were included in the multivariate logistic regression if they met the criteria for confounding: sex, dual parental allergy, mode of delivery, season of birth, season when 2-year serum sample was drawn, months of exclusive breastfeeding, household smoking (at age 0-2 years), and having a cat or dog in the household (at age 0-2 years). Probiotic treatment group was included in all regression models.

RESULTS. Cord blood 25-OHD levels in the second tertile (21.5-29.5 nmol/L) were significantly associated with increased allergic sensitization by 2 years of age (odds ratio [OR] 1.59; 95% confidence interval [CI]: 1.06-2.39) and allergic disorders by 5 years (OR 1.85; 95% CI: 1.25-2.73). 25-OHD levels measured at 2 years of age in the third quartile (51.7-62.6 nmol/L) were significantly associated with increased allergic sensitization by 5 years (OR 2.23; 95% CI: 1.21-4.12), increased

diagnosis of IgE-associated allergic disorder by 5 years (OR 2.35; 95% CI: 1.22-4.52), and increased IgE-associated eczema by 5 years (OR 2.06; 95% CI: 1.02-4.17). A change in 25-OHD levels between birth and 2 years was not associated with allergic outcomes.

CONCLUSIONS. Significantly increased odds of allergic sensitization and/or physician-diagnosed, IgE-mediated allergic disorder or eczema in early childhood were found at the following 25-OHD levels: 21.5 to 29.5 nmol/L from cord blood at birth and 51.7 to 62.6 nmol/L at 2 years of age. 25-OHD levels measured at birth and 2 years of age were nonlinearly associated with allergic sensitization and disease.

REVIEWER COMMENTS. The authors of few studies have evaluated the effect of 25-OHD in early childhood through a prospective study by using measurements of vitamin D at 2 time points. Conflicting results have been published in the literature on the effect of 25-OHD on allergic outcomes. The authors of this study highlight that the relationship between vitamin D and allergy could be nonlinear and warrants further study.

URL: www.pediatrics.org/cgi/doi/10.1542/peds.2017-2475U

Angela Tsuang, MD, MSc
Julie Wang, MD
New York, NY

Vitamin D Supplementation During Pregnancy and Infancy Reduces Aeroallergen Sensitization: A Randomized Controlled Trial

Grant ML, Crane J, Mitchell EA, et al. *Allergy*. 2016;71(9):1325-1334

PURPOSE OF THE STUDY. To determine whether vitamin D supplementation during pregnancy and infancy prevents aeroallergen sensitization and respiratory illness identified by primary care providers.

STUDY POPULATION. Two hundred and sixty women were recruited from an urban primary care maternity clinic in New Zealand from April 2010 to July 2011. The women were managed from 27 weeks' gestation to delivery, and their infants were managed from birth to 18 months of age. Participants were not taking vitamin D supplementation before enrollment.

METHODS. This was a randomized, double-blind, placebo-controlled, parallel-group trial. The mother and infant pairs were randomly assigned to daily placebo and placebo, lower-dose vitamin D (1000 IU/day for mother; 400 IU/day for infant), or higher-dose vitamin D (2000 IU/day; 800 IU/day). When the children were 18 months of age, skin prick testing and specific immunoglobulin E (IgE) antibodies were measured to common aeroallergens including house dust mites (such as *Dermatophagoidea farinae* and *Dermatophagoidea*

Serum 25-Hydroxyvitamin D in Early Childhood Is Nonlinearly Associated With Allergy

Angela Tsuang and Julie Wang
Pediatrics 2017;140;S183
DOI: 10.1542/peds.2017-2475U

Updated Information & Services	including high resolution figures, can be found at: http://pediatrics.aappublications.org/content/140/Supplement_3/S183.1
Permissions & Licensing	Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: http://www.aappublications.org/site/misc/Permissions.xhtml
Reprints	Information about ordering reprints can be found online: http://www.aappublications.org/site/misc/reprints.xhtml

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™



PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Serum 25-Hydroxyvitamin D in Early Childhood Is Nonlinearly Associated With Allergy

Angela Tsuang and Julie Wang

Pediatrics 2017;140;S183

DOI: 10.1542/peds.2017-2475U

The online version of this article, along with updated information and services, is located on the World Wide Web at:

http://pediatrics.aappublications.org/content/140/Supplement_3/S183.1

Pediatrics is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. Pediatrics is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2017 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 1073-0397.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

