

≥75 nmol/L. There was an inverse linear association between vitamin D level and cumulative wheezing by 5 years of age but no association with asthma incidence. Every 10 nmol/L increase in cord-blood 25(OH)D level lowered the cumulative risk of wheezing by the age of 5 years (adjusted OR: 0.95).

CONCLUSIONS. This birth-cohort study revealed an inverse association between 25(OH)D cord-blood levels and the risk of respiratory and other viral infections by the age of 3 months and cumulative risk of wheezing by the age of 5 years. The 25(OH)D cord-blood levels were not associated with the risk of incident asthma.

REVIEWER COMMENTS. The measurement of vitamin D in cord blood, but not at follow-up visits, is a major limitation of this study. Recall bias that resulted from the use of parent questionnaires to detect the outcomes of interest is another limitation. It remains unclear whether low vitamin D levels in utero cause increased respiratory infections and wheezing or if this low level is a marker for likely low vitamin D levels in the future. Further studies are needed to clarify this issue. This study adds to the body of evidence that suggests that low vitamin D levels might play a role in wheezing and respiratory infections in infants and children.

URL: www.pediatrics.org/cgi/doi/10.1542/peds.2011-2107QQ

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Dairy Food, Calcium and Vitamin D Intake in Pregnancy, and Wheeze and Eczema in Infants

Miyake Y, Sasaki S, Tanaka K, Hirota Y. *Eur Respir J*. 2010;35(6):1228-1234

PURPOSE OF THE STUDY. Previous studies have provided mixed results regarding a relationship of intake of dairy products with allergic disorders. This study examined the association between maternal consumption of dairy products, calcium, and vitamin D during pregnancy and risk of wheeze and eczema in Japanese children at 16 to 24 months of age.

STUDY POPULATION. A total of 763 mother-child pairs in the Osaka Maternal and Child Health Study (OMCHS) were included.

METHODS. The OMCHS is a prospective cohort study. Participants mailed each of 3 questionnaires to the data center. The first survey was performed on pregnant women between the 5th and 39th weeks of gestation, and the second and third surveys were collected from 2 to 9 and 16 to 24 months after delivery, respectively.

Symptoms of wheeze and eczema were based on the criteria of the International Study of Asthma and Allergies in Childhood.

RESULTS. Higher maternal intake of total dairy products, milk, cheese, and calcium during pregnancy was significantly related to a decreased risk of infantile wheeze but not eczema (adjusted odds ratios [ORs] between extreme quartiles were 0.45 [95% confidence interval (CI): 0.25-0.79], 0.5 [95% CI: 0.28-0.87], 0.51 [95% CI: 0.31-0.85], and 0.57 [95% CI: 0.32-0.99], respectively). Children whose mother had consumed ≥4.3 μg/day of vitamin D, using a cutoff point at the 25th percentile, had a significantly reduced risk of wheeze and eczema (adjusted ORs were 0.64 [95% CI: 0.43-0.97] and 0.63 [95% CI: 0.41-0.98], respectively). However, the inverse associations between maternal intake of calcium in the highest quartile and ≥4.3 μg/day of vitamin D and infantile wheeze were not statistically significant after further control for maternal intake of docosahexaenoic acid or vitamin E.

CONCLUSIONS. Higher consumption of total dairy product, milk, cheese, calcium, and vitamin D during pregnancy might reduce the risk of infantile wheeze. Also, higher maternal vitamin D intake during pregnancy might be protective against eczema.

REVIEWER COMMENTS. The role of vitamin D in atopy and other immune disorders is a hot area of research. The results of this study help to place the importance of diet in pregnancy for atopy in a non-Westernized society. However, the need for long-term follow-up and questionnaire-based definitions for wheeze and eczema were a limitation of this cohort study. Confounders include undisclosed sources of vitamin D and calcium. The relationship between actual vitamin D levels and supplement use during pregnancy is still not conclusive. Additional studies to clarify the multifactorial causes of allergic disorders are desirable, and current randomized double-blind placebo-controlled trials that evaluate vitamin D supplements during pregnancy and wheeze/asthma outcomes are ongoing.

URL: www.pediatrics.org/cgi/doi/10.1542/peds.2011-2107RR

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Vitamin D Serum Levels and Markers of Asthma Control in Italian Children

Chinellato I, Piazza M, Sandri M, Peroni D, Piacentini G, Boner AL. *J Pediatr*. 2011;158(3):437-441

PURPOSE OF THE STUDY. Recent data indicate that increased serum concentrations of 25-hydroxyvitamin D are asso-

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Pediatrics 2011;128;S118

DOI: 10.1542/peds.2011-2107RR

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