needed to determine the clinical implication of low-level s-IgE sensitization as a diagnostic and predictive measure for atopic disease in childhood. The interpretation and clinical implication of early testing of s-IgE concentrations is challenging because the presence of s-IgE sensitizations often do not correlate with clinical symptoms. Due to this complexity, suspicion of atopic disease in children should lead to further evaluation by an allergy specialist.


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**Vitamin D Deficiency as a Strong Predictor of Asthma in Children**


**PURPOSE OF THE STUDY.** Epidemiologic studies suggest a link between vitamin D deficiency in early life and the development of asthma later in life. The purpose of this study was to measure serum vitamin D levels in children with asthma and compare these children with healthy, nonasthmatic controls.

**STUDY POPULATION.** Asthmatic (n = 483) and healthy control (n = 483) children were recruited from the Pediatric Allergy-Immunology Clinics of Hamad General Hospital and the Primary Health Care Clinics in Qatar from October 2009 to July 2010. All children were aged <16 years, and asthma was diagnosed by a physician.

**METHODS.** Parents of all children completed extensive questionnaires documenting demographic characteristics, child’s feeding practice, and vitamin D intake. Serum 25-hydroxyvitamin D, calcium, phosphorus, alkaline phosphatase, magnesium, creatinine, and parathyroid hormone assays were performed. Overall, subjects with vitamin D levels <20 ng/mL were deemed deficient, levels of 10 to 19 ng/mL moderately deficient, and levels <10 ng/mL were considered severely deficient.

**RESULTS.** Overall, 68.1% of the children with asthma and 36.1% of the control children were vitamin D deficient. Asthmatic children had significantly higher degrees of moderate (41.8% vs 25.1%) and severe (26.3% vs 11.0%) vitamin D deficiency compared with healthy controls (P < .001). Positive familial history of vitamin D deficiency (35.6%; P = .005) and asthma (36.4%; P = .009) were significantly higher in children who had asthma. Along with vitamin D deficiency, asthmatic children also had reduced phosphorus (P < .001) and magnesium (P = .001) levels but elevated serum alkaline phosphatase (P < .001) and immunoglobulin E (P < 0.001) levels. The majority of children who had asthma had less exposure to sunlight (66.7%; P = .006) and less physical activity (71.3%; P < .001). Vitamin D deficiency was the strongest predictor of asthma in this population (odds ratio: 4.82 [95% confidence interval: 2.41–8.63]; P < .001).

**CONCLUSIONS.** The current study revealed that the majority of children who had asthma had a vitamin D deficiency compared with control children. Vitamin D deficiency was the major predictor of asthma in Qatari children.

**REVIEWER COMMENTS.** Vitamin D deficiency has been linked to an increased incidence of asthma and increased severity of asthma in children. This study provides additional epidemiological support for the association between vitamin D deficiency and asthma. Further studies examining the potential mechanisms of vitamin D in asthma pathophysiology and intervention studies aimed at improving vitamin D status in children who have asthma are needed to elucidate the nature of this association.


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**The Introduction of Allergenic Foods and the Development of Reported Wheezing and Eczema in Childhood: The Generation R Study**


**PURPOSE OF THE STUDY.** To examine whether the timing of introduction of allergenic foods is associated with eczema and wheezing in children ≤4 years of age.

**STUDY POPULATION.** The study included 6905 preschool-aged children participating in the Generation R study, a population-based prospective cohort study in Rotterdam, Netherlands.

**METHODS.** Consent for postnatal follow-up was provided by a total of 7893 mothers with a delivery date between April 2002 and January 2006. Timing of introduction of cow’s milk, hen’s egg, peanuts, tree nuts, soy, and gluten was collected by using questionnaires at 6 and 12 months of age. When children were aged 2, 3, and 4 years, information on wheezing and eczema outcomes was obtained via the age-adapted version of the International Study of Asthma and Allergies in Childhood core questionnaire and parental report of physician-diagnosed eczema. Questionnaire response rates were 69%, 64%, and 63% at the ages of 2, 3, and 4 years, respectively.

**RESULTS.** Of 6905 children, wheezing was reported in 31% at age 2 years and in 14% at ages 3 and 4 years. Eczema was reported in 38%, 20%, and 18% of children at the
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