

Correspondence

Reduced vitamin D levels in adult subjects with chronic urticaria

To the Editor:

Hata et al¹ published a provocative study implicating vitamin D as potential immunomodulator of allergic disease because of its role in regulating cathelicidin expression in the skin of subjects with atopic dermatitis. Chronic urticaria (CU) is another allergic skin dermatosis, and despite extensive evaluation for underlying causes or triggers, the etiology remains unclear.² Given the interesting findings of an association of vitamin D and atopic dermatitis in the study by Hata et al¹ and other studies suggesting a role for vitamin D in asthma,³ we sought to determine whether a relationship between vitamin D and CU exists.

We evaluated 50 adult subjects at the University of Nebraska Medical Center, Omaha, within a 4-week period (September 2009) to minimize potential seasonal variations in vitamin D. Twenty-five subjects with CU (cases defined as having recurrent wheals occurring at least 3 times per week for more than 6 weeks within the past year) and 25 subjects with allergic rhinitis on allergy immunotherapy (control allergy group because deficiencies in vitamin D have not been associated with allergic rhinitis⁴) were enrolled. It was defined before enrollment that if a subject was on vitamin D supplementation (≥ 1000 IU/d), the baseline (previtamin D supplementation) serum 25-hydroxyvitamin D (25OHD) level would be recorded ($n = 3$ subjects with CU; $n = 0$ case subjects). The Wilcoxon test, the Fisher exact test, and the Pearson correlation coefficient by PASW Statistics 18, Version 18.0.0 (SPSS, Inc, Chicago, Ill) were used. The study was approved by the institutional review board and registered on www.clinicaltrials.gov (#NCT00876369).

Vitamin D levels were significantly reduced in subjects with CU compared with controls (Fig 1). Mean ($\pm$ SD) vitamin D was 29.4 ng/mL (± 13.4) for subjects with CU versus 39.6 ng/mL (± 14.7) for controls ($P = .016$). The proportion of all subjects with vitamin D deficiency (defined as 25OHD < 30 ng/mL) was not significantly different between the 2 groups: CU, 48% (12/25) versus controls, 28% (7/25; $P = .24$). However, the CU group was predominately women, and in examining women only, there was a trend toward more women with CU with vitamin D deficiency compared with controls (CU, 48% [11/23]; controls, 17% [3/18]; $P = .051$). There was no difference in age (mean years $\pm$ SD, CU, 42.4 ± 12.8 , vs controls, 42.1 ± 12.2) or body mass index (CU, 29.55 ± 7.02 , vs controls, 29.58 ± 5.53) between groups to explain these findings. The population was predominately non-Hispanic white, consistent with the region: CU, 76% non-Hispanic white, and controls, 84%. Vitamin D did not correlate with duration or severity of disease, autoimmunity as measured by autologous serum skin testing, or thyroid autoantibody testing.

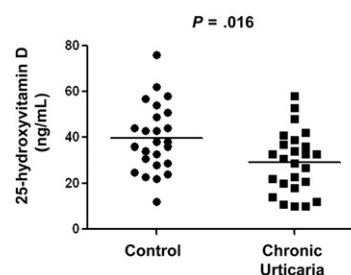


FIG 1. Vitamin D levels in adult subjects with CU (squares) compared with subjects with allergic rhinitis (controls, circles).

Four of the 6 subjects with CU on systemic corticosteroids were vitamin D-deficient.

Vitamin D deficiencies are associated with osteoporosis, autoimmune diseases, cancer, cardiovascular disease, hypertension, and increased mortality.⁵ Our findings that adult subjects with CU have reduced vitamin D levels underscores the importance of the findings of Hata et al¹ that vitamin D may be an important immunomodulator in allergic skin diseases. Whereas future studies are warranted to determine whether vitamin D supplementation could improve health outcomes, screening subjects with CU for vitamin D may be warranted.

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