



Latitude Variation in Incidence of Chronic Digestive Diseases

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Introduction

New research points to a potential role for UV light exposure and vitamin D levels in chronic digestive conditions; Crohn's disease, a serious inflammatory condition in the small intestine; and ulcerative colitis (UC), which similarly affects the colon.

In two separate studies presented at the American College of Gastroenterology's 76th Annual Scientific Meeting, a group of investigators from Massachusetts General Hospital probed the connection between geography [1], UV exposure and incidence of inflammatory bowel disease while another group from Weill Cornell Medical Center looked at different levels of supplementation with Vitamin D to determine impact on severity of Crohn's disease.

About the Study

Geographic Variations and Risk of Crohn's Disease and Ulcerative Colitis

Results from two large prospective studies among large cohorts of nurses enrolled in the U.S. Nurses Health Study I and II revealed a significant north-south gradient in the association between latitude and incidence of Crohn's disease and ulcerative colitis in the United States [2]. Such geographic variation has been reported in Europe, however comparable data in the United States are lacking, so this study advances understanding of the epidemiology of chronic inflammatory bowel disease, which affects as many as 1.4 million patients in the United States.

This differential risk may be explained by differences in UV light exposure, vitamin D status, or pollution analyzed data that included a 4,209,454 person-year follow up in which they confirmed 284 cases of Crohn's disease and 332 cases of ulcerative colitis.

While the mean age of diagnosis among the women was 51 for Crohn's and 48 for UC, the investigators found that the women's geographic location at age 30 was strongly associated with incidence of disease. Based on geographic location at age 30, compared to women in northern latitudes [3], women in southern latitudes had an adjusted hazard ratio of 0.51 for Crohn's and 0.65 for UC suggesting that the risk of disease is 50% and 35% lower in the southern latitudes compared to northern latitudes for CD and UC, respectively. Further studies are warranted on underlying lifestyle and environmental factors that mediate this association, as well as their interaction with known genetic risk factors for CD and UC.

High-dose Vitamin D3 Improves Clinical Activity in Crohn's Disease

Results of an interim analysis of the first 15 patients in a study conducted at Weill-Cornell Medical and presented at the ACG Annual Scientific Meeting, sought to determine if high doses of Vitamin D3 supplementation in Vitamin D deficient patients with Crohn's disease leads to improved clinical outcomes [4].

Two groups of patients with Crohn's disease, who had baseline levels of Vitamin D that were low, were randomized to either low-dose (1,000 IU/day) or high-dose (10,000 IU/day) Vitamin D treatment

and assessed at day 1, and after 8 weeks and 26 weeks of treatment [5]. The investigators measured the patients's symptom severity using the Harvey-Bradshaw Index (HBI) an index of disease activity in Crohn's.

Conclusion

Results from the first 15 patients suggest that after 26 weeks of therapy, there were persistently significant differences in Vitamin D levels between the high-dose and low-dose groups, but importantly the low-dose group had no significant change in disease activity as measured by HBI at 26 weeks compared to baseline, whereas the high dose group did.

Our interim analysis suggests that supplementation with 10,000 IU of Vitamin D3 may be an effective adjunctive therapy for ameliorating symptoms in Crohn's disease patients.

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