

Vitamin D Levels In Pain and Headache Patients

Ongoing studies implicate low levels with many disease states, including pain and headache, and so it is prudent to normalize a patient's Vitamin D serum level.

By John Claude Krusz, PhD, MD (/author/2474/krusz), Jane Cagle, LVN and Jonette Albright, NP

Page 1 of 2

Involvement of vitamin D levels and its relationship to chronic pain states is currently undergoing intense study. In the recent past, reports have been published describing low vitamin D levels in different chronic pain conditions, although not all studies agree to the extent of 25-OH vitamin D deficiency. In addition, various brief reports have also shown low vitamin D levels in patients with migraines and headaches.

In this brief review, we review the existing literature on this potentially interesting subject and its relationship to painful states. We also present a fraction of some preliminary initial data from our clinical patient population observations in both pain and migraine/headache patients.

Background

Vitamin D deficiency has been associated recently with many medical disorders, including myopathy, pain disorders and even headaches and migraines. Classically, vitamin D plays a strong role in bony metabolism in our bodies. In the last several years, however, a tremendous amount of emergent data suggests implication of vitamin D in many chronic pain and headache states, osteoarthritis,¹ as well as associations with heart disease, Type 1 diabetes, cancers, dementia, multiple sclerosis, and Parkinson's disease.^{2,3} Populations other than Caucasians and immigrants to the United States have also been described as having altered (low) vitamin D levels—particularly in chronic arthritic pain states.^{4,5} This topic has been well reviewed in an excellent and comprehensive publication by Leavitt and others.^{2,3}

Focusing on particular clinical disease entities, recent data showed low (6 A group of healthy, middle-aged individuals was studied recently and the mean vitamin D was low (21.5 +/- 12.1ng/ml standard deviation). Yet, with respect to balance characteristics and performance on computerized dynamic posturography, these younger subjects did not demonstrate balance difficulties that are typically associated with low vitamin D.⁷

Vitamin D receptors are located in the central nervous system, particularly in the cortex and hippocampus. A large group of patients with probable Alzheimer's disease were shown to have impaired (higher) MMSE (Mini Mental Status Examination) scores that were associated with low 25-hydroxyvitamin D(3) levels, thus supporting a link between low vitamin D and cognitive dysfunction.⁸ A recent systematic review of all published data over 30 years from multiple databases was performed and revealed that the relationship of low vitamin D levels and impaired cognition is not clearly established and inconclusive.⁹ Yet, another recent study showed low vitamin D levels (10 In Parkinson's disease patients, two studies have addressed the low vitamin D hypo-thesis as a contributing feature to the disease and are consistent with the low vitamin D levels contributing to this clinical disorder.¹¹⁻¹²

Vitamin D has been suggested to act as a regulatory mechanism for brain and muscle and to play a strong role in development and CNS function.^{13,14} A role for vitamin D in regulating or modulating immune functions has been postulated and deficiency of Vitamin D may pose multiple risk factors for neurodegenerative and autoimmune diseases.¹⁵ A known neurotoxin that destroys dopaminergic cells in the CNS had its destructive ability blunted by pre-treatment with vitamin D. Thus, there was less destruction of brain tissue in the substantia nigra in the presence of a higher vitamin D level.¹⁶

Vitamin D and Headaches

With respect to studies that specifically focused on vitamin D and any relationship to headaches or migraines, there is an extreme paucity of data on this topic. An older study from 1994, described two postmenopausal women with exacerbated migraines that were helped with treatment of vitamin D and calcium.¹⁷ A poster abstract in 2008 showed low vitamin D levels in migraineurs, but a high percentage of these patients also had chronic pain disorders.¹⁸ Eight patients with chronic tension-type headaches were described as having low vitamin D levels (4-10ng/ml) and osteomalacia. The headaches re-ponded to

vitamin D and calcium replenishment and headaches were seen to improve earlier than the bony deficiency.¹⁹ Thus, there may be many unknown physiologic and pharmacologic features for this unusual vitamin substance, although specific relationships have to be confirmed in many diseases and disorders.

Diagnosis and Treatment

Vitamin D deficiency can affect a person at any age. There are several common features and presentations of vitamin D deficiency:

proximal muscle weakness

muscle aching

low back pain—often symmetric

throbbing bony pain elicited with pressure over the sternum, tibia or hips and elbows

A 25-hydroxyvitamin D level is the laboratory test that is obtained if a suspected vitamin D deficiency may be occurring in a patient. Deficiency is defined as a serum 25-hydroxyvitamin D level of less than 20 ng per ml (50 nmol per L), and insufficiency is defined as a serum 25-hydroxyvitamin D level of 20 to 30 ng per ml (50 to 75 nmol per L).

Treatment is begun to normalize vitamin D levels to relieve symptoms and decrease the risk of fractures, falls, and other negative health occurrence. The American Academy of Pediatrics recommends that infants and children receive at least 400 IU per day from diet and supplements. Evidence shows that vitamin D supplementation (at least 700 to 800 IU per day) is associated with reduced fractures and fall rates in adults. In persons with frank vitamin D deficiency, treatment should consist of oral ergocalciferol (vitamin D₂) at 50,000 IU per week for eight weeks or longer. After vitamin D levels normalize, it is recommended that maintenance dosages of cholecalciferol (vitamin D₃) be given at 800 to 1,000 IU per day. However, we use the same dose (50,000 units) weekly or every other week as a convenient dosing schedule, based on repeat laboratory testing of the Vitamin D level.

[View Sources \(/pain/headache/vitamin-d-levels-pain-headache-patients#fieldset\)](#)

First published on: June 1, 2010

0 33 Like 21

Related Articles

[Cluster Headache \(/pain/headache/cluster-headache/cluster-headache\)](#)

[Chaos \(Nonlinear Dynamics\) and Migraine \(/pain/headache/migraine/chaos-nonlinear-dynamics-migraine\)](#)

[Headache in Children and Adolescents \(/pain/headache/headache-children-adolescents\)](#)

[Personality Disorders in Migraineurs \(/pain/headache/migraine/personality-disorders-migraineurs\)](#)

[Preventive Medications for Chronic Daily Headache \(/pain/headache/preventive-medications-chronic-daily-headache\)](#)

[Tension Headaches \(/pain/headache/tension-headache/tension-headaches\)](#)



Welcome William Scrogins