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Vitamin D in Americantitis Population

Priyanka Verma*

Abstract

Neurasthenia is also known as Americantitis or nervosism where there is the mechanical weakness of the nerves, characterized by symptoms like fatigue, anxiety, headache, heart palpitations, high blood pressure, and depressed mood. Vitamin D is increasingly recognized as a critical nutrient with significant roles in various physiological systems, including the nervous, immune, and muscular systems. Emerging research highlights its direct impact on brain health, underscoring the importance of adequate Vitamin D levels for maintaining cognitive and emotional well-being. A recent study aimed to investigate the possible link between vitamin D deficiency and neurasthenia, a condition marked by both physical and mental fatigue. To validate this connection, researchers employed a rigorous approach by estimating vitamin D levels in 41 individuals diagnosed with neurasthenia. Using the chemiluminescence immunoassay (CLIA) method, a precise and reliable technique for measuring vitamin concentrations, they observed that the mean vitamin D levels in these patients were significantly lower than those typically found in the general population. These findings suggest a strong correlation between insufficient vitamin D levels and the symptoms of neurasthenia, paving the way for further investigation into whether supplementation or dietary adjustments could alleviate the condition.

Keywords: Neurasthenia, vitamin D, fatigue, anxiety, headache

INTRODUCTION

It has been found that Americans are very much prone to neurasthenia, which also has a nickname Americantitis, Neurasthenia is also called Nervosism. The term neurasthenia was used first in the year 1829 for the mechanical weakness of nerves. It became a major concern in North America during the late nineteenth and early centuries. It is basically characterized by the presence of physical and mental exhaustion which are linked with the symptoms like headache and irritability which are associated with depression or emotional stress which is like chronic fatigue syndrome.

As a psychopathological term, the first to publish on neurasthenia was Michigan alienist E. H. Van Deusen of the Kalamazoo asylum in 1869 [1]. Also in 1868, New York neurologist George Beard used the term in an article published in the Boston Medical and Surgical Journal [2] to denote a condition with symptoms of fatigue, anxiety, headache, heart palpitations, high blood pressure, neuralgia, and depressed mood. Van Deusen associated the condition with farm wives made sick by isolation and a lack of engaging activity; Beard connected the condition to busy society women and overworked businessmen. Neurasthenia was diagnosed in the World Health Organization's ICD-10 but deprecated, and thus no more diagnosable, in ICD-11 [3, 4]. It also is no longer included as a diagnosis in the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders [5]. The condition is, however, described in the Chinese Society of Psychiatry's Chinese Classification of Mental Disorders.

***Author for Correspondence**
Priyanka Verma
E-mail: biochemistpriyanka@gmail.com

Research Officer, Department of Biochemistry, Regional Research Institute of Unani Medicine, Abul Fazal Enclave, Jamia Nagar, New Delhi, India

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Vitamin D helps in the building of bones and helps to keep them strong. It helps the body to absorb calcium, magnesium, and phosphate from the food we eat. It helps in maintaining the balance

between bones and blood. It has been found that in case of deficiency of vitamin D calcium levels drop. In that case, the body pulls calcium from the bones into your blood to maintain proper balance. It has been found that vitamin D also plays an important role in the working of the nervous, immune, and muscle systems. Vitamin D deficiency is common worldwide, and growing evidence emphasizes the importance of maintaining optimal vitamin D levels for brain health, both during development and in adulthood. Vitamin D plays a crucial role in cell growth, calcium signaling in the brain, as well as neurotrophic and neuroprotective functions. It may also influence neurotransmission and synaptic plasticity. Recent studies underscore the effects of vitamin D deficiency on brain function, both in health and disease. Animal research suggests that a lack of vitamin D in adulthood may worsen existing brain conditions and hinder recovery from brain stress. Increasing epidemiological studies show a link between vitamin D deficiency and various neuropsychiatric and neurodegenerative disorders. Since vitamin D supplementation is accessible and affordable, this review calls for further research in this area [6–8].

Vitamin D belongs to the superfamily of nuclear steroid transcription regulators, meaning it controls the expression of numerous genes. Other steroids, such as thyroid hormones, vitamin A, androgens, and glucocorticoids, are known as “neurosteroids” and their roles in brain development and function are well established. However, it is only in recent years that vitamin D has been recognized as functioning similarly to a neurosteroid. This review compiles a wide range of data showing the presence of vitamin D metabolites and receptors in the brain, as well as evidence suggesting that vitamin D plays an important role in brain development and may influence neurological and neuropsychiatric conditions. The idea that vitamin D acts as a neuroactive steroid influencing brain development has gained increasing support. Research indicates that vitamin D affects brain neurochemistry and adult brain function. Early deficiencies have been linked to neuropsychiatric disorders like schizophrenia, while adult deficiencies are associated with conditions, such as Parkinson’s disease, Alzheimer's, depression, and cognitive decline. This review summarizes current research on the role of vitamin D in the brain and the consequences of deficiencies, with a focus on its impact on neurotransmitters like dopamine. [9, 10].

Vitamin D, 25 Hydroxy is determined by the Chemiluminescence Immuno Assay, its reference Range is:

- Deficiency < 20 ng/ml.
- Insufficiency: 20–20 ng/ml.
- Sufficiency: 30–100 ng/ml.
- Toxicity >100 ng/ml.

Cholecalciferol (vitamin D3) is produced in the skin from 7-dehydrocholesterol when exposed to sunlight, with additional amounts obtained through diet and supplements. On the other hand, ergocalciferol (vitamin D2) primarily comes from dietary sources and supplements. Both cholecalciferol and egocalciferol are converted in the liver to 25 OH vitamin D which is considered the best indicator of vitamin D nutritional status. Vitamin D toxicity is recognized but is a rare occurrence.

To determine your vitamin D status, your doctor will measure the concentration of 25-hydroxyvitamin D in your blood

The minimum required level of vitamin D in the blood varies based on factors, such as age, race, and ethnicity. However, according to an expert committee from the Food and Nutrition Board (FNB) at the National Academies of Sciences, Engineering, and Medicine (NASEM),

1. 50 nanograms per milliliter or more is probably too high and may cause health problems.
2. 20 nanograms per milliliter or more is probably good enough for most healthy people to maintain overall health.
3. 12 nanograms per milliliters or less is considered deficient.

METHOD

This study aimed to assess the levels of vitamin D in individuals diagnosed with neurasthenia and to explore potential dietary influences on vitamin D status. A total of 41 participants with neurasthenia were recruited for the study. Blood samples were taken following standard laboratory procedures to minimize contamination and ensure precise measurements. The samples were then analyzed using the chemiluminescence immunoassay (CLIA) method, a widely recognized and sensitive technique for measuring 25-hydroxyvitamin D levels.

CLIA operates by detecting light emitted through the chemical reaction of a labeled antibody, providing precise quantification of vitamin D levels in the blood. The analysis was performed at a certified laboratory adhering to strict quality control measures to ensure the reliability of the results.

In addition to vitamin D levels, the dietary habits of the participants were recorded through structured interviews to examine potential correlations between diet type (e.g., vegetarian, vegan, or non-vegetarian) and vitamin D status. The study also accounted for possible confounding factors, such as sunlight exposure, supplementation, and underlying medical conditions. Data from the study were statistically analyzed to interpret the relationship between vitamin D levels and dietary patterns in the context of neurasthenia.

RESULT

In this study, 41 cases were registered, and it has been found that average vitamin D, 25- Hydroxy levels were found to be decreased in the study population. The average value of vitamin D within the study group came to around 18.336, which was not less than 10. Values below 10 can be hazardous to our health, which was not found may be because of the dietary intake of non-vegetarian food as most of the subjects are having non-vegetarian diets. There are many disadvantages linked with the vegan diet one of these is a deficiency of vitamin D which is found in plenty of dairy products as well as in non-vegetarian food, eggs. So, it can be said that consumption of non-vegetarian food in limit can be useful when compared with the vegan diet, which has many drawbacks including lack of vitamin D.

CONCLUSIONS

It has been found that vitamin D plays a crucial role in functions related to our nervous system. So indirectly vitamin D plays a crucial role in the functioning of our nervous system, or it can be said deficiency of vitamin D will lead to worse consequences, much talked about here is Americanitis or Nervosism. That is why it is always advised to have a balanced diet so that a person may not encounter any medical conditions It has been also found that vitamin D levels are also related to calcium, magnesium, and phosphate from the food we eat. In case of deficiency of vitamin D, calcium reserves will also deplete which will also lead to demineralisation of bones.

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