Prevalence of Vitamin D Deficiency in Jammu Region

Kaplia Raina, H.N Verma*, A. S Bhatia

Abstract
Vitamin D deficiency is a worldwide health problem. This cross sectional one year study was carried among healthy subjects of both sexes without known, thyroid, renal or hepatic disease or malignancy. The 25(OH)D concentrations were measured by competitive radioimmunoassay. The subjects were classified as vitamin D-deficient, or -sufficient on the basis of 25(OH)D concentrations of <30 ng/mL, 30-100 ng/mL respectively, according to recent consensus. Total 702 subjects participated in the study female predominated the study. Vitamin D deficiency was prevalent among 76.39% of the total population. Thus the current study suggest high prevalence of vitamin D deficiency exist in Jammu region among healthy population.

Key Words
Vitamin D deficiency, Diabetes, Chronic diseases, 25(OH)D

Introduction
Vitamin D is an endogenous, naturally occurring, photochemically-produced steroidal molecule with essential functions in systemic homeostasis and physiology, including modulation of calcium metabolism, cell proliferation, cardiovascular dynamics, immune/inflammatory balance, neurologic function, and genetic expression. Vitamin D deficiency is a worldwide health problem that affects not only musculoskeletal health but can affect many chronic diseases such as osteoporosis, cardiovascular disease, hypertension, cancer, depression, epilepsy, type 1 diabetes, insulin resistance, autoimmune disease, migraine, polycystic ovary syndrome, and musculoskeletal pain (1).

There is widespread prevalence of varying degrees (50-90%) of Vit D deficiency with low dietary calcium intake in Indian population according to various studies published earlier (2). Most of the researchers report a uniformly high prevalence of vitamin D deficiency, in various groups of the population like school children, adolescent, rural girls, pregnant women and postmenopausal women (3-6).

Epidemiologic studies have shown association of vitamin D deficiency and increased risk of chronic diseases, such as cancer, cardiovascular disease, type 2 diabetes, and autoimmune diseases, such as multiple sclerosis and type 1 diabetes mellitus (7). The studies do
exist from India indicating high prevalence of Vit D deficiency in, however the data is still scanty. Moreover, no epidemiological study exist from this part of the country. Hence, the first study evaluating the prevalence of Vitamin D deficiency in the Jammu region was undertaken. Such regional data will be of immense use for the health care providers to plan health policy for the general population.

Material and Methods

This cross sectional one year study was carried among healthy subjects of both sexes without known, thyroid, renal or hepatic disease or malignancy. Patients with history of surgery, hospitalization, or major medical illness within the past one year were excluded from the study. Patients on hormone replacement therapy, glucocorticoids, biophosphonates, teriparatide and other drugs affecting bone metabolism were excluded as well.

Intake of conventional calcium/vitamin D supplements was not considered an exclusion criterion. All subjects were enrolled after taking a written informed voluntary consent.

The 25(OH)D concentrations were measured by competitive radioimmunoassay after acetonitril extraction (DiaSorin, Stillwater, MN; catalog no. 68100E). The minimal detectable limit of the 25(OH)D assay is 1.5 ng/mL. N-tact PTH was measured by immunoradiometric assay (DiaSorin; catalog no. 26100). The minimal detectable limit of the N-tact PTH assay is 0.7 pg/mL. The subjects were classified as vitamin D-deficient, or -sufficient on the basis of 25(OH)D concentrations of <30 ng/mL, 30-100 ng/mL respectively, according to recent consensus (7,8).

Statistical Analysis

The data was categorised in n (%)

Results

The results of the current study are depicted in table-1. Total 702 subjects participated in the study female predominated the study. Vitamin D deficiency was prevalent among 76.39% of the total population. Female and advancing age subjects predominated the current study.

Table-1 Showing Demographic Profile of Study Population

| N=702                                                                 |
| Mean Age of Study Population - 49.96                                     |
| M:F-184(26.21%):518(73.79%)                                               |
| Vit D Status of the study Population                                       |
| Deficiency <30ng/ml- 534 (76.06%)                                          |
| Adequacy 30-100ng/ml 147(20.94%)                                          |
| >100 ng/ml 21(2.99%)                                                      |

Discussion

Vitamin D deficiency prevails in epidemic proportions all over the Indian subcontinent, with a prevalence of 70%-100% in the general population. Vitamin D deficiency is highly prevalent in both urban and rural settings, and across all socioeconomic and geographic strata.(9)

Similarly to our study, a very high (88.6%) prevalence of vitamin D deficiency among pregnant women and adolescent girls from a rural Indian community.(10)

Prevalence of vitamin D deficiency among health care professionals in different regions of India was also recorded very high. Seventy-nine percent of subjects were deficient, 15 % were insufficient, and just 6 % were sufficient in vitamin D status.(11)

Similar to our study most of the researchers report a uniformly high prevalence of vitamin D deficiency, in healthy school children in northern India and adolescent population (12,13).

The results of current study are similar to the studies of Bruyère et al (14) and Harinarayan CV et al (6). As their studies also reported like our study high prevalence of Vitamin D inadequacy and deficiency among advancing age women.

Epidemiological studies have shown an association of vitamin D deficiency and increased risk of chronic diseases like cancer, cardiovascular disease, type 1& 2 diabetes suggesting that that Vitamin D deficiency not only affects musculoskeletal health but also affects a wide range of acute and chronic diseases. (16) Thus, results of such studies may prove very usefull for the healthcare providers to make country wide assesment of this health problem. Routine screening for calcium and vitamin
deficiency and their supplementation starting at all ages is highly recommended in view of this highly prevalent health problem. Prevention by sensible sunlight exposure, food fortification and routine supplementation are the currently recommended options for tackling this nutritional deficiency.

Conclusion
High prevalence of vitamin D deficiency exist in Jammu region among healthy population.

References