



Research Article

Prevalence of Vitamin D Deficiency among the urban Elderly population in Jammu

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Abstract

Vitamin D has been traditionally known as anti-ricket factor or Sun Shine vitamin and acts like a steroid hormone thereby influencing the expression of genes. It is unique nutrient because it can be synthesized endogenously in skin by exposure to sun, but contrary to this vitamin D deficiency is widely prevalent in India, a finding which is unexpected in a tropical country with abundant sunshine and remains the most under diagnosed and under treated nutritional deficiency of the world. Vitamin D is essential not only for skeletal growth but is important for improving immune status in elderly and deficiency has been linked with high prevalence of osteoporosis, cardiovascular diseases, diabetes, autoimmune disorders, cancer and infections like tuberculosis. The present study was undertaken with the aim to evaluate the prevalence of vitamin D in elderly urban population of this hilly state of India with abundant sunshine and with people having good economic condition. In this study, a total of 150 elderly people, including 70 male and 80 elderly women above the age of sixty years were screened for their vitamin D (25OH – D) status from the month of January 2019 to December 2019. Out this 101 (67.3 %) were having Vitamin D levels below 20 ngm/ml, 28(18.6%) were having vitamin D level between 20-30 ngm/ml. Only 21 (14%) of the elders had levels above 30 ngm/ml. This study has shown a very high prevalence of vitamin D deficiency in urban elderly population of Jammu and needs intervention by creating public awareness along with food fortification and adequate exposure to sun light and increased mobility of elder people.

Introduction

Vitamin D Deficiency is very prevalent in urban India. In our previous studies a very high prevalence of vitamin D deficiency along with other micronutrients was observed in urban population of Jammu, comprising of pregnant women, preschool and school going children.^{1,2} The deficiency of Vitamin D, also known as

sunshine vitamin, is very common in elderly population.^{3,4} Elderly People are more prone to develop vitamin D deficiency because of various risk factors like decreased outdoor activities and less exposure to sunlight, Decreased dietary intake, decreased intestinal absorption along with impaired hepatic and renal functions.^{5,6} As such vitamin D deficiency has assumed a pandemic

proportions and is a major public health problem and is very likely to play an important role in the high prevalence of rickets, osteoporosis, diabetes, cancer and other chronic infections like tuberculosis in India, yet it remains the most under diagnosed and under treated nutritional deficiency in the world.^{7,8,9,10} There is lack of searchable data on the prevalence of 25(OH)D deficiency in elderly population in this part of the country, hence this study was undertaken to assess the prevalence of Vitamin D deficiency among the urban elderly population in Jammu.

Material and Methods

A total of 150 elderly people, including 70 male and 80 elderly women above the age of sixty years were screened for their (25OH) D) status from the month of January 2019 to December 2019. Blood sample were obtained from antecubital vein under aseptic conditions with their consent, duly following the guidelines and norms of the hospital and serum obtained from this was taken for vitamin D level by using Abbott architect chemiluminescent microparticle immunoassay¹¹. The cut off value of vitamin D (25 OH –D) level below 20 ngm/ml was considered as severe vitamin D deficiency, 20-30 ngm/ml as insufficiency levels and levels more than 30

ngm/ml as vitamin D sufficiency. In this analysis people with history of diabetes mellitus, thyroid disorder, Hypertension and cardiovascular disorder, metabolic bone disorder and hyperparathyroidism were excluded from this study. The results were analyzed by applying standard statistical procedures.

Results

In this study a total of 150 elderly people comprising of 70 male and 80 elderly women above the age of sixty years were screened for vitamin D (25OH- D) levels in the serum , Out this 101 (67.3%) were having vitamin D levels below 20 ngm/ml , the mean level was 11.4 ngm/ml, 28(18.6%) were having vitamin D level between 20-30 ngm/ml with a mean value of 23. 4 ngm/dl and 21 (14%) of the elders were having levels above 30 ngm/ml with the mean value 40.8 ngm /ml of vitamin D in their blood. Out of 80 elderly women 55 (68.7%) had severe deficiency with levels below 20 ngm/ml as compared to 42 (60%) out of a total of 70 elderly male. Also 16 women out of 80 (20s%) had insufficient levels of 25(OH) D in comparison to 12 out of 70 (17.1%) male whereas only 9 (11. 2%) women had sufficient 25(OH)D levels as compared to 14(20%) men (**Table – 1**).

Table 1 Prevalence of Vitamin – D Deficiency among urban elderly population of Jammu

Study Subjects	25 (OH) D Status		
	Deficient < 20 ngm/ml	Insufficient 20-30 ngm/ml	Sufficient > 30 ngm /ml
Total Subjects <i>n</i> = 150 Mean Value 25 (OH) D ngm/ml	101 (67. 3%) 11. 4	28 (18. 6%) 23. 4	21 (14%) 40. 8
Elderly Male <i>n</i> =70	44(62.8%)	12(17.1%)	14 (20%)
Elderly Women <i>n</i> = 80	55 (68.7%)	16(20%)	09(11.2%)

Discussion

Vitamin D deficiency has emerged as pandemic health problem involving both the developed as well as developing countries of the world. In India majority of the population resides in areas receiving ample sunshine throughout the year, still

vitamin D deficiency is a problem of major health interest¹² Vitamin D Deficiency has been well established in elderly population in other parts of the country.^{13, 14, 15} but there is scarcity of available scientific data on vitamin D levels of the

otherwise elderly population of this urban city of Jammu.

In this study, a total of 150 elderly people above the age of sixty years were screened for vitamin D levels in their blood and surprisingly 129 (86%) of these had low levels of 25(OH)D in their blood with 101 out of 150 (67.3%) showing severe deficiency (levels less than 20 ngm/ml) and 28 (18.6%) with insufficient vitamin D levels (20-30 ngm/ml). Similar findings have been reported by Marwah et al¹⁶ who carried out a study amongst elderly people with the mean age of 58.0 ± 9 years and showed a high prevalence of Vitamin D deficiency in them with 91.2% having 25(OH)D deficiency with levels less than 20 ngm /ml and 6.8% having vitamin D insufficiency with levels between 20 – 30 ngm/ml.

A significant finding of our study was alarming prevalence of vitamin D deficiency in elderly women of this area with 71 out of a total of 80 (88.7%) showing low levels in their blood. Only 9 out of 80 (11.2%) elderly women and 14 out of 70 (20%) elderly males had sufficient levels of vitamin D in their blood with a mean value of 40.8 and most of these had history of receiving vitamin D supplementation in the near past. In a similar study conducted by Harinarayan et al¹⁷ in post menopausal women showed 18% of them had normal levels, 52% subjects had 25(OH)D insufficient levels and 30% subjects had 25(OH)D deficiency. A number of studies have shown that persons who are immobile or mobile with support were 100% vitamin D deficient. So decreased mobility along with other conditions may be one of the major contributory factors for high prevalence of vitamin D deficiency in the elderly population.¹⁸ Many other studies also have shown a prevalence of vitamin D deficiency ranging from 70% to 100% in general population, in accordance with our findings, which is a very dismissal picture and time, has come to recognize vitamin D deficiency as a major public health problem by the health policy makers.

Conclusion

This analysis has revealed a high prevalence of vitamin D deficiency in elderly population of this hilly state of India. This is inspite of the fact that there is abundant sun shine and people are economically better placed. There is need to create public awareness regarding essentiality of vitamin D in our health and at the same time dietary supplementation and food fortification along with adequate sun exposure and increased mobility of elder people may be considered.

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