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PREVALENCE OF VITAMIN D DEFICIENCY IN MIDDLE AGED WOMEN OF CHANDIGARH, MOHALI PUNJAB

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ABSTRACT

Objectives: Vitamin D deficiency is a recognized pandemic. Though vitamin D not only has a bearing on bone health, but also plays a crucial role in the overall health of an individual, right from its effect on glycemic control, immunity, cardiovascular diseases, neuromuscular function, pregnancy, and other aspects of health, not much attention has been given to this aspect, especially in this part of the country. Thus, in the present study an attempt has been made to investigate the prevalence of vitamin D deficiency in middle aged women of Chandigarh, Mohali. Punjab. **Methodology:** To fulfill the purpose, randomly selected 100 middle aged women (aged 25-60 years) were considered to estimate their vitamin D status in the Fortis\ Hospital, Mohali, Punjab with the help of UV spectrometer. **Results:** Results indicated considerably high percentage of middle aged women with vitamin D deficiency (68%; 43% low and 25% insufficient). A significantly strong association (X^2**,** df. 4, = 9.563; $p<0.05$) was found between the vitamin D deficiency and the middle aged women. **Conclusion:** The study concluded that as many as 68% of the middle aged women were with vitamin D deficiency which should be immediately taken care. The study also showed a strong association between the vitamin D deficiency and the health status of the middle aged women.

KEYWORDS: Vitamin D deficiency, Middle aged women, UV spectrometry, Chandigarh.

INTRODUCTION

Vitamin D is essential to the human body in several ways. It is necessary for the maintenance of bone health (in the bones and the teeth), and is also essential to the regulation of calcium levels in the blood. It is a fat-soluble vitamin and owing to its role in calcium homeostasis, it is also known as the 'sunshine vitamin' or 'anti-rachitic factor.' (Longo et al., 2012). Usually, the human body gets adequate amounts of vitamin D either from diet or exposure to sunlight. Humans consumes normal diet which often contains less amounts of vitamin D. The major sources dietary vitamin D are egg yolk, fatty fish, beef liver, and fortified dairy products (Heldenberg et al. 1992) The extra skeletal effects of vitamin D are related to glycemic control, immunity, and prevention of cardiovascular diseases and cancer (Holick et al., 2007; Li et al., 2002).

Vitamin D deficiency is a widespread pandemic. Though India is a tropical country with plenty of sunlight, still vitamin D deficiency is widely prevalent. Vitamin D deficiency has been reported ranging from 70–100%. across different age groups (Ritu and Gupta, 2014) Adult women, particularly those above 40 years of age, are mostly affected because vitamin D determines the pattern of post-menopausal bone loss and age-related osteoporosis. This nutritional deficiency is the most under-diagnosed and undertreated worldwide (Van-Schoor and Lips, 2011; Mithalet al., 2009; Van der Meer et al., 2011).

In India, vitamin D deficiency is not a National Health Priority (NHP) though it has increasingly become an important public health issue, Of the NHPs, the most important is the supplementation of pregnant women with calcium and vitamin D tablets. However, literature

related to the vitamin D deficiency in middle aged women is scanty, especially from this part of the country. Thus the present study was planned.

MATERIALS AND METHODS

Materials

A total number of 100 samples of various age groups (ranging from 25 years to 60 years) were collected randomly from the Fortis Hospital, Mohali, Punjab during January to June, 2024. The subjects were divided into three age groups, i.e. age group 25-35 years (n=20), age group 36-46 years (n=31) and age group 47-60 years (n=49). A written consent was also taken from each subject prior to the commencement of the study.

Methods

The purified components of Vitamin D was determined by UV spectrometry.

UV spectrometry

The UV spectrometer was turned on and the lamps were allowed to warm up for an appropriate period of time for 20 minutes. A cuvette was filled with the solvent for the sample and it was made sure that the outside was clean. The cuvettle was placed in the spectrometer. A reading was taken for the blank.

Statistical analysis

Data was analyzed using SPSS (Statistical Package for Social Science) version 20.0. Percentage was calculated and the chi-square test was also applied. A 5% level of probability was used to indicate statistical significance.

RESULTS

Table 1 showed the distribution of vitamin D in middle aged women of Mohali. In age group 25-35 years, the maximum frequency (60.0%) of women was reported as low vitamin D status, followed by sufficient (25.0%) and the women with the insufficient vitamin D was the least (15.0%). In age group 36-46 years, once again, the maximum frequency (41.93%)) of women was reported as low vitamin D status, followed by sufficient (32.26%) and the women with the insufficient vitamin D was the least (25.81%). In age group 47-60 years, once again, the maximum frequency (36.73%)) of women was reported as low vitamin D status, followed by sufficient (34.69%) and the women with the insufficient vitamin D was the least (28.57%). The chi-square value (9.563) showed statistically significant ($p<0.05$) association between the vitamin D deficiency and the middle aged women of Mohall.

Table 1: Distribution of Vitamin D in middle aged women of Mohali.

Vitamin D status	Age Group 25-35 years		Age Group 36-46 years		Age Group 47-60 years	
	Abs. No.	%age	Abs. No.	%age	Abs. No.	%age
Low (<20 ng/ml)	12	60.0	13.0	41.93	18	36.73
Insufficient (20-30 ng/ml)	03	15.0	08	25.81	14	28/57
Sufficient (30-100 ng/ml)	05	25.0	10	32.26	17	34.69

X^2 (df. 4)= 9.563; $p<0.05$

DISCUSSION

The present study found that 68% (43% low vitamin D status and 25% insufficient) of the middle aged women were with vitamin D deficiency (VDD). This was lower than 99.7% of VDD as reported by Misra et al. (2017) in Faridabad, Uttar Predesh, The finding of this study was also lower than 88.9% as reported by Bawaskar et al. (2017) in rural Maharashtra. However, the findings were in line with that of a study conducted in Raipur among post-menopausal women (Mitra et al., 2016).

The findings of the study showed a strong association between the vitamin D deficiency and the middle aged women, especially in the age group 47-60 years where the maximum frequency of the participants were registered (49%). The findings were supported by the earlier findings of. Mitra et al. (2016).

Urgent attention is required as vitamin D deficiency impacts various public health. It is well evident that vitamin D not only has a bearing on bone health, but also plays a crucial role in the overall health of an individual, right from its effect on glycemic control, immunity, cardiovascular diseases, neuromuscular function, pregnancy, and other aspects of health (Park et al., 2018; Degerud et al., 2018).

One limitation of the study was the small sample size which would be overcome in the future studies. Future studies are required to validate the present findings.

CONCLUSION

The study concluded that as many as 68% of the middle aged women were of vitamin D deficiency which should be immediately taken care. The study also showed a strong association between the vitamin D deficiency and the health status of the middle aged women.

Declaration by authors

The authors hereby declared that it was their original peace of research and had not been sent to any other journal for publication.

Ethical approval

Approved.

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Conflict of interest
The authors declared no conflict of interest.

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