

# Profile of vitamin D in a cohort of physicians and diabetologists in Kolkata

Arjun Baidya, Subhankar Chowdhury, Satinath Mukhopadhyay, Sujoy Ghosh

Department of Endocrinology and Metabolism, IPGMER and SSKM Hospital, 244 AJC Bose Road, Kolkata, India

### ABSTRACT

**Introduction:** Vitamin D deficiency has been documented across all age groups and both sexes from India. However, there is paucity of data on vitamin D deficiency in a particular cohort of population. **Objectives:** To assess the vitamin D status in a cohort of physicians and diabetologists in Kolkata. **Material and Methods:** An observational cross sectional study carried out in the month of December 2011 in a cohort of 40 physicians and diabetologists in Kolkata. **Results:** A total of 40 subjects were studied. Mean age of the cohort was  $52.22 \pm 10.91$ . Mean serum vitamin D level was  $13.02 \pm 4.77$  ng/ml. Nearly 92.5% and 5.0% of subjects had vitamin D deficiency and insufficiency, respectively. **Conclusions:** Vitamin D deficiency is highly prevalent in physicians and diabetologists in Kolkata.

**Key words:** Bone mineral density, highly prevalent, Kolkata, physicians and diabetologists, vitamin D deficiency or insufficiency

## INTRODUCTION

Although there is no consensus on optimal levels of 25-hydroxyvitamin D as measured in serum, vitamin D deficiency is defined by most experts as a 25-hydroxyvitamin D level of less than 20 ng/ml.<sup>[1]</sup> With the use of such definitions, it has been estimated that 1 billion people worldwide have vitamin D deficiency or insufficiency.<sup>[2]</sup> Vitamin D deficiency has been documented across all age groups and both sexes from India and different parts of the world.<sup>[3]</sup> However, there is paucity of data on vitamin D status in a particular cohort of population.

**Aim and objective:** To assess the vitamin D status in a cohort of physicians and diabetologists in Kolkata.

## MATERIAL AND METHODS

This observational cross sectional study was carried out in December 2011 in a cohort of 40 apparently healthy physicians and diabetologists aged 29 years and above in Kolkata. Following history taking, laboratory evaluation for serum vitamin D status was done. Subjects with history of hepatic, renal, dermatological disorders, alcoholism, and receiving medication likely to adversely affect vitamin D status were excluded from the study. Serum 25(OH)D was measured by electrochemiluminescence assay. Serum 25(OH)D level of 20.0 to <30.0 ng/ml was classified as vitamin D insufficiency<sup>[1]</sup> (VDI), and levels < 20 ng/ml were classified as vitamin D deficiency (VDD). VDD was further categorized based on Lips classification as mild (10.0 to <20.0 ng/ml), moderate (5.0 to <10.0 ng/ml), and severe (< 5.0 ng/ml).<sup>[3]</sup>

Statistical analysis was carried out using SPSS 16.0. Data were presented as mean  $\pm$  SD or number (%) unless specified. Pearson's correlation was calculated to assess correlation between 25(OH)D levels and other parameters. A *P* value of < 0.05 was considered statistically significant.

#### Access this article online

##### Quick Response Code:



Website:  
www.ijem.in

DOI:  
10.4103/2230-8210.104113

Corresponding Author: Dr. Arjun Baidya, Department of Endocrinology, IPGMER, Kolkata - 700 020, India. E-mail: arjun.baidya@gmail.com

## RESULTS

In this cohort, male:female ratio was 39:1. Mean age of the cohort was  $52.22 \pm 10.91$  (range 29–80 years). Mean height (cm), weight (kg), and body mass index (BMI) ( $\text{kg}/\text{m}^2$ ) of the subjects were  $164.44 \pm 3.65$ ,  $68.30 \pm 5.37$ , and  $25.27 \pm 1.45$ , respectively. Mean serum vitamin D level was  $13.02 \pm 4.77$  ng/ml (median 12.25 ng/ml, range 6.8–32.20 ng/ml). A total of 37 (92.5%) and 2 (5.0%) subjects had vitamin D deficiency and insufficiency, respectively [Table 1]. A total of 25 (62.5%) and 12 (30%) subjects had mild and moderate vitamin D deficiency, respectively [Table 2]. Only one subject had vitamin D sufficiency and none had severe vitamin D deficiency. There was statistically significant ( $P < 0.0001$ ) moderately negative correlation between serum 25(OH)D levels and weight ( $r = -0.78$ ) and serum 25(OH)D levels and BMI ( $r = 0.64$ ) [Table 3].

## DISCUSSION

Wide spread VDD has been recognized in Indians of all age groups and both sexes.<sup>[4]</sup> The present study extended the assessment of vitamin D status in a particular group where

there was limited data and showed that 92.5% subjects had VDD and an additional 5.0% subjects had VDI. Varying prevalence of VDD in the elderly has been reported globally. Our study confirms the high prevalence of VDD in apparently healthy physicians and diabetologists. The mean 25(OH)D level observed by us in this population of older subjects was  $13.02 \pm 4.77$  ng/ml (range 6.8–32.20). Other investigators have earlier reported similarly low levels in different age of healthy individuals in north India, mean 25(OH)D level ranging from 4.5 to 20.85 ng/ml.<sup>[4]</sup> In contrast, higher serum 25(OH)D levels,  $25.3 \pm 7.4$  ng/ml in females in summer and  $18.4 \pm 5.3$  ng/ml in males in winter have been observed in paramilitary personnel who as a consequence of their professional duties have greater sunlight exposure.<sup>[5]</sup>

## CONCLUSIONS

Undiagnosed vitamin D deficiency is highly prevalent in apparently healthy physicians and diabetologists in Kolkata. Larger studies are required to assess its effect on biochemical markers like serum calcium, phosphorus, alkaline phosphatase, and parathyroid hormone level. Prospective longitudinal studies are required to assess the effect on bone mineral density, a surrogate marker of fracture risk and fracture rates.

## ACKNOWLEDGMENTS

This study was funded by Abbot Healthcare Ltd. The authors would like to acknowledge the assistance provided by Abbot Healthcare Ltd.

## REFERENCES

- Holick MF High prevalence of vitamin D inadequacy and implications for health. *Mayo Clin Proc* 2006;81:353-73.
- Chapuy MC, Preziosi P, Maamer M, Arnaud S, Galan P, Hercberg S, et al. Prevalence of vitamin D insufficiency in an adult normal population. *Osteoporos Int* 1997;7:439-43.
- Lips P. Vitamin D deficiency and secondary hyperparathyroidism in the elderly: Consequences for bone loss and fractures and therapeutic implications. *Endocr Rev* 2001;22:477-501.
- Harinarayan CV, Joshi SR. Vitamin D Status in India – Its implications and remedial measures. *J Assoc Phys India* 2009;57:40-8.
- Tandon N, Marwaha RK, Kalra S, Gupta N, Dudha A, Kochupillai N. Bone mineral parameters in healthy young Indian adults with optimal vitamin D availability. *Natl Med J India* 2003;16:298-302.

**Table 1: Anthropometric parameters and vitamin D status**

| Variable                         | Value (mean $\pm$ SD)/(%) |
|----------------------------------|---------------------------|
| <b>Anthropometric parameters</b> |                           |
| Height (cm)                      | $164.44 \pm 3.65$         |
| Weight (kg)                      | $68.30 \pm 5.37$          |
| BMI ( $\text{kg}/\text{m}^2$ )   | $25.27 \pm 1.45$          |
| <b>Vitamin D status (ng/ml)</b>  |                           |
| Mean $\pm$ SD                    | $13.02 \pm 4.77$          |
| Median (range)                   | 12.25 (6.8–32.20)         |
| Vitamin D deficiency             | 37 (92.5%)                |
| Vitamin D insufficiency          | 2 (5.0%)                  |

**Table 2: Serum 25(OH)D categories**

| Severity                     | All (40)         |
|------------------------------|------------------|
| 25(OH)D Levels (ng/dl)       | $13.02 \pm 4.77$ |
| Severe ( $< 5$ ng/ml)        | None             |
| Moderate (5 to $< 10$ ng/ml) | 12 (30.0%)       |
| Mild (10 to $< 20$ ng/ml)    | 5 (62.5%)        |
| VDI (20 to $< 30$ ng/ml)     | 2 (5.0%)         |

**Table 3: Correlation of vitamin D level with anthropometric data**

| Variables coefficient (r value) | P value    |
|---------------------------------|------------|
| Weight -0.780                   | $< 0.0001$ |
| BMI -0.639                      | $< 0.0001$ |

**Cite this article as:** Baidya A, Chowdhury S, Mukhopadhyay S, Ghosh S. Profile of vitamin D in a cohort of physicians and diabetologists in Kolkata. *Indian J Endocr Metab* 2012;16:S416-7.

**Source of Support:** Nil, **Conflict of Interest:** None