

ORIGINAL ARTICLE

FREQUENCY OF VITAMIN D INSUFFICIENCY IN
GENERAL ADULT POPULATION IN PESHAWAR

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Background: Vitamin D insufficiency is now recognized as pandemic. The purpose of this study was to measure the frequency of vitamin D insufficiency among adult population in Peshawar, Pakistan. **Methods:** The study was conducted over a period of ten months in Peshawar Institute of Medical Sciences, Hayatabad, Peshawar, from Apr 2013 to Jan 2014. A total of 300 patients from both genders were included in study. Number of male and female cases was same and age group of both sexes was comparable. Age range was 15–70 years. Serum vitamin D and calcium levels were estimated using standard laboratory techniques. **Results:** Overall the number of vitamin D deficient cases was 65%. Among female patients, the vitamin D deficient cases were 76%. Low serum calcium was observed in 23% cases. **Conclusion:** Hypovitaminosis D was maximum in *Pardah* observing ladies, those belonging to low socioeconomic groups, and in postmenopausal ladies.

Keywords: Hypovitaminosis D, adult population, Peshawar

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INTRODUCTION

Vitamin D is produced by the skin exposed to direct sunlight and is also provided by the nutrients. Each of these two sources can provide a sufficient supply but if anyone of them is reduced, the chances of vitamin D insufficiency are increased. Vitamin D insufficiency is now recognized as pandemic. More than one billion people worldwide have vitamin D deficiency.¹

Vitamin D is a group of fat soluble steroids consisting of 25-hydroxy cholecalciferol and 1,25-dihydroxy cholecalciferol. Vitamin D has a role in calcium metabolism, bones and teeth growth and Parathyroid Hormone regulation. Non skeletal role of vitamin D includes disturbance of Renin Angiotensin System, Immune system and coronary atherosclerosis.²⁻⁴

Hypovitaminosis D is also associated with hypertension, IHD and type II diabetes Mellitus.⁵⁻⁸ No one is immune from vitamin D deficiency. This includes both children and adults living in USA, Europe, Middle East, Australia and Asia. More than 50% of children and adults are at risk of vitamin D deficiency.⁹⁻¹²

This study aimed to see the frequency of vitamin D deficiency in adult population of Peshawar.

MATERIAL AND METHODS

The study was conducted in the outdoor of General Medicine, Peshawar Institute of Medical Sciences. Patients visiting OPD for various medical problems were included in the study. Duration of study was 10 months, from Apr 2013 to Jan 2014. Total 300 cases were studied, having equal number of both sexes. Only those males and females subjects were included in the study who were in age range 15 to 70 years (150 male and 150 female). A brief history was taken especially about sun exposure, diet consumed and socioeconomic status, and in ladies about observation of veil (*Pardah*).

Five ml of venous blood was taken in the morning. Samples were stored at -20 °C and vitamin D level was detected in the hospital pathology laboratory. Serum calcium levels were also detected.

RESULTS

A total of 300 cases were included in the study. Number of male and female cases as equal, 150 each. Overall the number of vitamin D deficient cases was 65%. Among female patient this ratio was 76%. Low serum calcium was observed in 8% cases of hypovitaminosis D. Distribution of low vitamin D cases was equal in patients with rural and urban background. Ladies from low socio-economic group with poor diet and observation of veil (*Pardah*) were the most vulnerable group. The problem is also common in postmenopausal ladies.

Table-1: Vitamin D levels in both genders (n=300)

| Gender | Normal Vitamin D | Low Vitamin D | Total |
|---------|------------------|---------------|-------|
| Males | 69 | 81 | 150 |
| Females | 36 | 114 | 150 |
| Total | 105 | 195 | 300 |

Table-2: Ratio of hypovitaminosis D in various Age groups (n=195)

| Age | Males | Females | Total |
|-------------|-------|---------|-------|
| 15–45 years | 30 | 46 | 76 |
| 45–60 years | 26 | 29 | 55 |
| 60–70 years | 25 | 39 | 64 |
| Total | 81 | 114 | 195 |

DISCUSSION

Hypovitaminosis D is a common problem worldwide. It is found in all age groups of both sexes belonging to rural and urban areas. Diet deficient in vitamin D and reduced exposure to sunlight are the main cause. Foods which are rich in vitamin D includes oily fish and cod liver oil.¹³ Seasonal variations is found in serum vitamin

D levels with higher level in summer due to greater exposure to sunlight.¹⁴ Africans living near equator where vitamin D synthesis is more efficient because of higher sun exposure, have sufficient vitamin D levels.¹⁵

Obesity is associated with vitamin D deficiency due to its fat solubility.¹⁶ The problem is also common with anti-epileptic drugs, glucocorticoids and fat malabsorption.¹⁷

Daily recommended dose of vitamin D is 1,000 IU.^{18,19} In the absence of vitamin D only 15% calcium and 60% Phosphorus is absorbed in blood.²⁰⁻²² Prevalence of low vitamin D is very common (up to 60%) in postmenopausal ladies.²³ Poor exposure to sunlight is the cause of hypovitaminosis D in people whose diet is not vitamin D deficient.^{24,25}

CONCLUSION

Hypovitaminosis D was maximum in ladies observing veil (*Pardah*) and those belonging to low socioeconomic groups. Low levels of vitamin D were also observed in ladies who were in postmenopausal stage.

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