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VITAMIN D DEFICIENCY IN OUTDOOR PATIENTS

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Abstract:

Background: *Vitamin D has an important role in immunity, skeletal and cardiovascular system. It is produced through skin chemical reaction as well as taken though supplementations.*

Objective: *To see the prevalence of vitamin D deficiency in patients presenting in the outdoor department.*

Material and Methods: *In this cross-sectional study 103 patients between 20 to 50 years of age were included. History about proper diet, income and sun exposure was taken. Vitamin D levels of the patients were checked. Data were analyzed using SPSS 23.*

Results: *Study included 45 (43.68%) males and 58 (56.31%) females. Mean age of the patients was 33.90±9.89 years. Mean Vitamin D levels were 35.28±12.99 nmol/L. Vitamin D levels were lower in patients who had low income i.e. poor diet and those who were not having proper light exposure.*

Conclusion: *It is concluded that a proper diet and proper sun exposure are necessary for normal vitamin D levels. Vitamin D supplementations can help in patients suffering the Vitamin D deficiency.*

Keywords: *Vitamin D levels, sunlight, diet, supplementations, pregnancy.*

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INTRODUCTION:

Vitamin D is considered to have an important role in skeletal, cardiovascular and immune health system. It is a lipid-soluble vitamin and has two major forms i.e. cholecalciferol (vitamin D3) and ergocalciferol (vitamin D2) [1, 2]. It plays an important role in mineral metabolism i.e. increase absorption of phosphate, calcium, and magnesium through the intestine [3]. Among the sources of vitamin D is its production in the skin through a chemical reaction. This chemical reaction is highly dependent on exposure to sunlight [4]. Vitamin D is also taken through dietary supplementations. The serum level of 25(OH) Cholecalciferol, vitamin D (D3) greater than 50 nmol/L is considered normal. Levels less than 30nmol/L are considered deficient and level between 30 nmol/L and 50 nmol/L are considered optimal [5].

Currently, around one billion population is suffering from its deficiency [6]. In developing countries like Pakistan, vitamin D deficiency is more common because of poverty, improper diet, and decreased intake of calcium and deprivation of sunlight because of confinement in dark places [7]. Vitamin D deficiency causes rickets in children and osteoporosis and osteomalacia among adults. It also predisposes to the certain type of carcinomas i.e. mammary carcinomas, prostatic carcinomas, ovarian as well as colon carcinomas, etc. [8]

This study was conducted to see the prevalence of vitamin D deficiency among the patients with presenting in the outdoor department and to identify the cause of this deficiency.

MATERIAL AND METHODS:

This cross-sectional study was conducted in the outdoor department of Lahore General Hospital Lahore for a period of three months. Total of 103 patients between 20 to 50 years of age were included. Patients presenting with chronic diseases i.e. joint pains, hypertension, diabetes mellitus, and tuberculosis were included. Pregnant and lactating females were also included. Patients less than 20 and more than 50 were excluded. Patients presenting with minor ailments i.e. flu, mild fever, and respiratory tract infection were not included. After informed consent, proper history of patients including demographic history i.e. age, gender, occupation, dietary routine, the structure of house, etc. was taken. Vitamin D was checked. Data were analyzed using SPSS version 23. Quantitative variables were presented as mean and standard deviation. Qualitative variables were calculated as numbers and percentages.

RESULTS:

There were 45 (43.68%) males and 58 (56.31%) females. Male to female ratio was 1:1.28. Mean age of the patients was 33.90±9.89 years, mean age of the males and females was 32.63 ±7.76 and 36.13±7.24 years respectively. Patients were distributed according to the disease presentation (Table-I).

Condition	Females	Males	Total	%age
Joint Pain	15	20	35	33.98
Hypertension	8	11	19	18.45
Diabetes	9	12	21	20.39
Tuberculosis	3	8	11	10.68
Pregnant	9	0	9	8.74
Lactating	8	0	8	7.77
Total	52	51	103	100

Table I: Distribution of patients according to the conditions.

Regarding the structure of the house, exposure to sunlight and proper ventilation was asked.

Source of Income	Proper sun exposure or ventilation		Total	%age
	Yes	No		
Low	9	33	42	40.78
Average	19	9	28	27.18
Good	2	1	3	2.91
No income	17	13	30	29.13
Total	47	56	103	100

Table II: Comparison of incomes with sun exposure.

In 103 patients Vitamin D levels were 35.28±12.99 nmol/L. In males it values were 33.45 ±13.12nmol/L and in females 31.92±13.12 nmol/L. Maximum levels noted were 59.12 nmol/L and minimum levels noted were 14.12nmol/L. Out of 9 pregnant females, 5 were having normal vitamin D level, 3 were having optimal levels and 1 was having lower vitamin D levels. Out of 8 lactating females, 3 were having normal vitamin D level, 3 were having optimal levels and 2 were having lower vitamin D levels.

DISCUSSION:

In this study it was seen the vitamin D levels were normal in patients with proper diet and having a greater exposure to sun light and optimal or deficient in patients with improper diet and not having proper exposure to the sunlight. In our study mean vitamin D levels were 35.28±12.99 nmol/L. In males it values were 33.45 ±13.12nmol/L and in females 31.92±13.12 nmol/L. These results are according a study conducted by Gordon et al, who conducted study on health individuals [9]. In pregnant and lactating females variable levels of vitamin D were noticed depending on proper diet and exposure to the sunlight. These results are in accordance with Hollis et al. [10].

In various studies it has been suggested that vitamin D supplementation can help improving the vitamin D levels in patients of different age [11]. However use of multivitamin were unable to cope the deficiency of vitamin D levels. According to the IOM (Institute of Medicine) 2011 report, daily requirement of vitamin intake is 600IU/day. However debate is going to increase the daily intake up to 800-1000IU/day for those individuals who are living in dark places [12-14.

LIMITATIONS:

Small number of patients and exclusion of pediatric patients and patients greater than 50 years of age are few limitations to this study.

CONCLUSION:

It is concluded that, proper diet and proper sun exposure are necessary for normal vitamin D levels. Those patients who have optimal or lower levels of vitamin D should be given vitamin D supplements and counselled for proper sunlight exposure.

Contribution of authors:

Fauzia Hayat: Data Collection, writing limitations and conclusion section

Muhammad Mehtab: Writing the results and discussion section

Umama: Writing the introduction and Methodology section

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