

Vitamin D Deficiency in Patients presented in a Private Clinic OPD with Complaints of Aches and Pain in Body

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ABSTRACT

Aim: To determine the incidence of vitamin-D deficiency in patients presented to us with complains of aches and pain in body.

Methods: This prospective study was carried out in Dr. Wasima Talat Clinic, Mall Road, Multan from January 2014 to May 2014. A total of 120 patients were included in the study.

Results: Out of 120 patients, 80 (66.7%) were female and 40 (33.3%) male. 56 (70%) out of 80 female patients had vitamin-D deficiency (<20 ng/mL) and 14 (17.5%) out of 80 patients had vitamin-D insufficiency (21-29 ng/mL). 25 (62.5%) out of 40 male patients had vitamin-D deficiency (<20 ng/mL) and 8 (20%) out of 40 male patients had vitamin-D insufficiency (21-29 ng/mL). So, out of 120 patients 81 (67.5%) had vitamin-D deficiency (<20 ng/mL) and 22 (18.3%) patients had vitamin-D insufficiency (21-29 ng/mL). Total 103 (85.8%) out of 120 patients were suffering from vitamin-D deficiency/insufficiency (<30 ng/mL). 17 (14.13%) out of 120 patients had sufficient levels of vitamin D (>30 ng/mL).

Conclusion: Prevalence of Vitamin D deficiency is alarmingly high in patients presenting with fatigue, even more than that seen in other parts of the world.

Keywords: Body aches and pains, Vitamin D deficiency, OPD patients

INTRODUCTION

Complaint of easy fatigability is more common these days than ever before. One can talk to any patient or seemingly healthy person and will find complaints of lethargy and poor stamina. This phenomenon is on the rise. Important diseases that can cause fatigue include endocrine illnesses like thyroid dysfunction, diabetes mellitus, and chronic diseases such as chronic obstructive airway disease, chronic infections (e.g. chronic hepatitis, infective endocarditis), congestive cardiac failure, anemia autoimmune disorders and neoplasia. Alcoholism and certain drugs like sedatives and Beta-blockers can also cause similar clinical picture. Lastly, psychological conditions such as fibromyalgia, depression and sleep disorders etc. can also cause lethargy and body aches¹⁻³. Fatigue of unknown cause or related to psychological illness exceeds that secondary to physical ailment and drugs⁴.

In recent times, hazards of vitamin D deficiency are in the limelight in clinical research. Vitamin D deficiency is not only associated with metabolic bone disease such as Osteomalacia and rickets but it can present with easy fatigability without evidence of osteopenia. It works at mitochondrial level in

myositis, impairing cellular respiration thereby causing fatigue^{5,6}. Many cases labeled as fibromyalgia were actually found to have vitamin D deficiency, so it remains a diagnosis of exclusion^{7,8}. Vitamin D, also called "Sun vitamin", is a hormone produced in our skin following exposure to sunlight in its primitive form called as Provitamin D (7 deoxy cholesterol) which under goes hydroxylation first in the liver and then in the kidneys to produce active form of vitamin D (1, 25 dihydroxy cholecalciferol). This is the most important source of vitamin D for humans.⁹ Other sources of vitamin D include mushrooms and oily fish. Excessive cooking spoils vitamin D content in these sources^{10,11}. More than 85% of the people in our region are reported to be suffering from vitamin-D deficiency/insufficiency (<30ng/mL)^{12,13}.

PATIENTS AND METHODS

This prospective was conducted in Medical OPD of DHQ Teaching Hospital DG Khan from July 2013 to June 2014. A total of 120 patients were included in the study complaining of body aches and pains and diagnosed as Fibromyalgia according to American College of Rheumatology (ACR) criteria. Patients were not suffering from systemic illness on examination.

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RESULTS

Out of 120 patients, 80(66.7%) were female and 40(33.3%) male patients. 56(70%) out of 80 female patients had vitamin-D deficiency (<20ng/mL) and 14(17.5%) out of 80 patients had vitamin D insufficiency (21-29ng/mL). 25(62.5%) out of 40 male patients had vitamin-D deficiency (<20ng/mL) and 8(20%) out of 40 male patients had vitamin-D insufficiency (21-29ng/mL). So, out of total 120 patients 81(67.5%) had vitamin-D deficiency (<20ng/mL) and 22(18.3%) patients had vitamin-D insufficiency (21-29ng/mL). Total 103(85.8%) out of 120 patients were suffering from vitamin-D deficiency/insufficiency (<30ng/mL). 17(14.3%) out of 120 patients had sufficient levels of vitamin-D (\geq 30ng/dL).

DISCUSSION

The study revealed that majority of patients with fatigue had low vitamin D levels. This favors international and national literature on the subject^{14,15,16}. A study showed frequency of vitamin D deficiency to be 45% in patients at a primary care clinic.¹⁷ Another study in multi ethnic general practice reported vitamin D deficiency in 58% of patients. In these, 1/3rd of ethnic Norwegians and 83% of patients from Middle East, Africa and South Asia had low vitamin D levels^{18,19}. Baig et al¹⁶, in patients visiting Abbasi Shaheed Hospital Karachi, showed frequency of vitamin D deficiency to be 92%. This is the same figure as present study revealed. A similar percentage (92.85%) was recorded by Aslam et al¹⁷ in their study from Faisalabad conducted in an antenatal clinic. Another study on adult patients from visiting medical outpatient department showed low vitamin D levels in 89.3% patients with vitamin D deficiency in 73.2% and insufficiency in 16.1%.²⁰ Data from neighbouring countries of Pakistan in South Asia showed similar figures regarding vitamin D deficiency. Habit of chewing betel nut has been incriminated for this by modulating the activity of enzymes which regulate circulating levels of 1,25 OH D.²¹ Asians with pigmented skin despite having immense sun exposure, have much less vitamin D levels as compared to European and American population.¹⁹ This can be explained by the fact that high degree of pollution prevents ultra violet rays from penetrating the human skin¹³.

Eighty one (67.5%) out of 120 patients in our study had vitamin-D deficiency (<20ng/mL). A study showed that 69% patients were suffering from vitamin-D deficiency which is slightly higher¹⁶ but near to our study. This difference can be due to

various dietary factors involved in different regions and due to diet contents of vitamin-D.

In our study 56 (70%) out of 80 female patients had vitamin D deficiency (<20ng/mL) and 14 (17.5%) out of 80 female patients had vitamin-D insufficiency. These patients were presented with body aches and pains in medical OPD and were diagnosed as fibromyalgia. With the slight difference, these results can be compared, also slightly less than the study done in 40 female patients presented in medical OPD with fibromyalgia with the results of 80% and 20% of the patients suffering from vitamin-D deficiency and insufficiency respectively.¹⁷ This slight difference may be due to smaller size of the study. In our study the results of vitamin-D deficiency in female 56(70%) out of 80 patients were also comparable with the study done by Mufti et al¹⁸ in which vitamin-D deficiency was present in 53(74%) out of 75 women having tibial tenderness and generalized aches and pains in premenopausal age presented at tertiary care center in Lahore, Pakistan.

CONCLUSION

Prevalence of Vitamin D deficiency is alarmingly high in patients presenting with fatigue, even more than that seen in other parts of the world.

REFERENCES

1. Hakeem R, Fawwad A, Diabetes in Pakistan. *J Diabetol* 2010; 3: 4.
2. Coen G. Vitamin D. *J Nepnrol* 2008; 21: 313-23.
3. Papadakis MA, McPhee SJ. Current medical treatment and diagnosis. 52nd edition. McGraw Hill company.2013; 38-40.
4. Aasheim ET, Hofso D, Hjelmsaeth J, Birkeland KI, Bolmer T. Vitamin D status in morbidly obese patients. *Am J Clin Nutr* 2008; 87: 362-9.
5. Ecemis GC, Atmaca A. Quality of life is impaired not only in vitamin D deficient but also in vitamin insufficient premenopausal women. *J Endocrinol Invest* 2013; 36(8): 622-7.
6. Hollick MF. Sunlight and vitamin-D for bone health and prevention of autoimmune diseases, cancers and cardiovascular disease. *Am J Clin Nutr* 2004; 80(6): 1678S–88S.
7. Hollick MF. Vitamin-D status. *Ann Epidemiol* 2009; 19(2): 73-8.
8. Mithal A, Wahl DA, Bonjour JP, Burckhardt P, Dawson HB. Global vitamin-D status and determinants of hypovitaminosis D. *Osteoporos Int* 2009; 20: 1807–20.
9. Ali JMM. Vitamin-D deficiency in outpatient department: Eastern Province of KSA experience. *Rawal Med J* 2010; 35: 221–3.
10. Lips P. Worldwide status of vitamin D nutrition. *J Steroid Biochem Mol Biol* 2010; 121: 297–300.
11. Holick MF, Binkley NC, Bischoff-Ferrari HA, Gordon CM, Hanley DA. Evaluation, treatment, and prevention

- of vitamin d deficiency. *J Clin Endocrinol Metab* 2011; 96: 1911–30.
12. Arya V, Bhambri R, Godbole MM. Vitamin-D status and its relationship with bone mineral density in healthy Asian Indians. *Osteoporos Int* 2004; 15: 56–61.
 13. Harinarayan CV. Prevalence of vitamin-D insufficiency in postmenopausal south Indian women. *Osteoporos Int* 2005; 16: 397–402.
 14. Merlo C, Ross C, Trummler M, Zeller A. Prevalence and symptoms of vitamin D deficiency in general practice. *Praxis* 2012; 101(22): 1417-22.
 15. Knutsen KV, Brekke M, Gjelstad S, Lagerlov. Vitamin D status in patients with musculoskeletal pain, fatigue and headache. *Scand J Prim Healthcare*.2010; 28(3):166-71.
 16. Baig A, Parwez A, Khan MK, Islam N, Rahman A. Patterns of serum vitamin D in OPD patients. *Pak J Surg* 2007, 23(2): 145-9.
 17. Aslam M, Sattar A, Masood Z, Qudsia M. Vitamin D deficiency; prevalence in pregnant women. *Prof* 2012; 19(2): 208-13.
 18. Mufti MA, Malhi UR, Zubair A, Badar I, Mufti M. vitamin D level in adults in Northern Pakistan. *Rawal Med J* 2012; 37: 2-5.
 19. Ogunkolade WB, Boucher BJ, Bustin SA, Burrin JM, Noorian K, Mannan N et al. Vitamin D metabolism in peripheral blood mononuclear cells is influenced by chewing “betel nut” (*Areca catechu*) in vitamin D status. *J Clin Endocr Metab* 2006, 91(7): 2612-7.
 20. Hollick MF. *The vitamin D solution*. 1st edition. Newyork. Penguin Group 2010; 45.
 21. Mahmood K, Akhtar ST, Taib A, Haider I. Vitamin D status in a population of healthy adults in Pakistan. *Pak J Med Sci* 2009: 25(4) : 545-50.