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Original Research Paper

Prevalence of Vitamin D Deficiency Amongst Young Patients with Back and Neck Pain

Medical Science

KEYWORDS : Low Backache, Neck Pain, Vitamin D deficiency

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ABSTRACT

Objective: *To determine the prevalence of Vitamin D deficiency amongst patients with age less then 30 years with back and neck pain.*

Method: *97 consecutive patients with age less than and equal to 30 years attending the orthopaedic OPD for chronic low backache and neck pain were chosen and 25 - hydroxy Vitamin D levels were done in all patients. All samples were collected after over night fasting and Serum Vitamin D was calculated using chemiluminescence assay from a reliable laboratory. Vitamin D deficiency was defined as serum level < 20 ng/ml, insufficiency as 20 – 30 ng/ml and 30 – 100 ng/ml as normal.*

Result*: The overall average Vitamin D level in the study was 15.82 ng/ ml. 80 patients (82.47 %) out of the 97 were deficient in Vitamin D, 10 patients (10.31 %) had insufficient Vitamin D and only 7 patients (7.21 %) had normal Vitamin D.*

Conclusion: *Vitamin D deficiency is highly prevalent in young patients with low backache and neck pain. Prophylactic treatment with Vitamin D supplements should be considered as a part of treatment of such patients. Considering the high prevalence of Vitamin D deficiency, we suggest to do a serum Vitamin D level as a part of the diagnostic workup of young patients with low backache and neck pain.*

Introduction:

Degenerative disorders are most common in the cervical and lumbar spine (1). By far pain is the most common symptom. On an average neck pain and low back pain constitute almost 40 – 50 % of the patients in an orthopaedic OPD. Pain varies from dull aching occasional pain to severe pain disabling the patient from doing day to day activities. Low back pain is most prevalent between the ages of 35 and 55 years. A herniated nucleus pulposus is more likely to occur between the ages 30 and 40 years as at this time the disc loses its water content and the process of degeneration starts (2,3). Low backache and neck pain is no longer a problem of the elderly. Young patients often less than 30 years old are increasingly being bothered by backache.

Vitamin D deficiency is highly prevalent. The prevalence is higher in patients with backache. Even though the prevalence is high, the cause – effect relation between Vitamin D deficiency and backache is still controversial. Estimation of Vitamin D in serum remains the gold standard for diagnosis of Vitamin D deficiency.

Materials and Methods:

1.) Patient Selection Criteria:

Patients with age ≤ 30 years with non traumatic low back ache and neck pain who attended the orthopedic out patient department or took indoor treatment for the same were included. Patients with pain secondary to trauma, inflammatory, infectious, metabolic disorders were excluded. Detailed history was taken and examination done. Patients diagnosed elsewhere as having degenerative disease of cervical and lumbar spine, who were referred to our center for opinion and management were also included in the study. The study has been approved by the Ethics Committee and Institutional Review Board of our Institution.

2.) Hematological Investigation

After overnight fasting, single blood sample was withdrawn between 10:00 and 11:00 am in every patient. This was done to rule out any diurnal variations. Serum levels of 25-OH Cholecalciferol were done by chemiluminescence assay from a reliable laboratory.

3.) Analysis

SPSS Statistics (Version 20.0) was used for statistical analysis. Descriptive statistics were calculated for all variables with distributions assessed for normality. The Vitamin D levels were correlated to clinical parameters. For the purpose of statistical analysis, Vitamin D deficiency was classified as deficient (< 20 ng/ml), insufficient (20 – 30 ng/ml) and normal (> 30 ng/ml).

Results:

The study included 97 patients with a mean age of 24.74 ± 4.31 years (range 17 – 30 years). The demographic characteristics of the patient have been shown in Table 1.

Parameter	Division	No. Of Pts
Age	15 – 20	12
	21 – 25	29
	26-30	56
Sex	Male	44
	Female	53
Religion	Hindu	59
	Muslim	38
Tobacco Usage	Yes	18
	No	79
Alcohol	Yes	22
	No	75

The overall average Vitamin D level in the study was 15.82 ng/ ml. 80 patients (82.47 %) out of the 97 were deficient in Vitamin D, 10 patients (10.31 %) had insufficient Vitamin D and only 7 patients (7.21 %) had normal Vitamin D.

Discussion:

In a recent study, the prevalence of Vitamin D deficiency in normal individuals was found to be 58.5 % (4). However, the prevalence of Vitamin D deficiency even in normal individuals in India has been found to be reaching 90 % (5). In our study, the overall prevalence of Vitamin D deficiency was 92.78 %.

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The prevalence of Vitamin D deficiency in males (83.67 %) and females (89.56 %) showed no statistically significant difference. However the average value in females (14.89 ng/ml) was less as compared to males (19.82 ng/ ml). This could be explained by the fact that most of the females were housewives and had to stay indoors. Sunlight is essential for the first step in Vitamin D metabolism that is conversion of 7-dehydrocholesterol to calcitriol. Thus, decreased exposure to sunlight may lead to deficiency of Vitamin D.

Prevalence of Vitamin D deficiency in Muslims was found to be 100 % as compared to 84% in Hindus. This might be due to the Muslim custom of wearing "burkha" preventing direct exposure to sunlight. This correlates with a recent study, which showed that women wearing concealed clothing were at higher risk of Vitamin D deficiency as compared to women wearing western outfits (6).

There were a total of 44 males in our entire study. Out of these, 18 gave history of using tobacco in the form of smoking cigarette/ bidi or in the form of chewable items like guthka/ khaini etc. It was noted that all of these 18 males had Vitamin D levels less than 30 ng/dl. Also the average Vitamin D level amongst smoking males was 12.51 ng/dl as compared to 27.55 ng/dl in non smoking males. Thus smoking males had significantly low Vitamin D levels and higher prevalence of Vitamin D deficiency as compared to non smoking males. The above finding suggests that smoking might play a role in metabolism and deficiency of Vitamin

D. Recent studies done in Germany and USA (7,8) have studied the factors affecting Vitamin D levels, smoking being one of them.

Conclusion:

Vitamin D deficiency is highly prevalent in young patients with low backache and neck pain. Prophylactic treatment with Vitamin D supplements should be considered as a part of treatment of such patients. Considering the high prevalence of Vitamin D deficiency, we suggest to do a serum Vitamin D level as a part of the diagnostic workup of young patients with low backache and neck pain.

References:

1. David A Wong, Ensor Transfeldt. Macnab's Backache. 4th Edition. Lippincott Williams & Wilkins
2. Kelsey JL. An epidemiological study of acute herniated lumbar intervertebral discs. Rheumatol Rehabil. 1975 Aug;14(3):144-59
3. Miller JA, Schultz AB. Lumbar disc degeneration: correlation with age, sex and level in 600 autopsy specimens. Spine J. 1987;13:173-78
4. Daga RA, Laway BA, Shah ZA, Mir SA, Kotwal SK, Zargar AH. High prevalence of vitamin D deficiency among newly diagnosed youth-onset diabetes mellitus in north India. Arq Bras Endocrinol Metabol. 2012 Oct;56(7):423-8
5. Goswami R, Gupta N, Goswami D, Marwaha RK, Tandon N, Kochupillai N. Prevalence and significance of low 25 hydroxyvitamin D concentrations in healthy subjects in Delhi. Am J Clin Nutr 2000; 72 : 472-5.
6. Ojah RC, Welch JM. Vitamin D and musculoskeletal status in Nova Scotian women who wear concealing clothing. Nutrients. 2012 May
7. Kühn T, Kaaks R, Teucher B, Hirche F, Dierkes J, Weikert C, Katzke V, Boeing H, Stangl GI, Buijsse B. Dietary, lifestyle, and genetic determinants of vitamin D status: a cross-sectional study. Eur J Nutr. 2013 Sep 5.
8. Zhao G, Ford ES, Tsai J, Li C, Croft JB. Factors Associated with Vitamin D Deficiency and Inadequacy among Women of Childbearing Age in the United States. ISRN Obstet Gynecol.
9. Kim TH, Lee BH, Lee HM, Lee SH, Park JO, Kim HS, Kim SW, Moon SH. Prevalence of vitamin D deficiency in patients with lumbar spinal stenosis and its relationship with pain. Pain Physician. 2013 Mar-Apr;16(2):165-76.