



Clinical Report on Vitamin D3 Supplementation in Deficient Patients

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Abstract

Objective: The purpose of this study was to assess the efficacy of vitamin D3 supplementation in the treatment of patients who are vitamin D3 deficient.

Methods: In this case control study, 80 individuals were enrolled from which 40 were selected for test group and other 40 for placebo group. Vitamin D (2000 I.U/day) was given throughout trial. After 4 weeks of trial, effectiveness of tablet has evaluated. Evaluation was done through clinical trial proforma collected from the patients. The vitamin D deficiency was evaluated by blood sampling in laboratory. The results were analyzed by applying independent sample t test using IBM SPSS version 20.00.

Results: Data recorded by participants presents significant difference. The efficacy of the medication was significant in test group. After statistical analysis done by applying independent sample t-test, there is significant difference noted in both groups. There was no adverse effect associated with the use of vitamin D3 and showed a good suitability by all treated patients.

Conclusion: Vitamin D3 is effectual and safe for the treatment of deficiency of 25(OH)D. Its effectiveness is shown in all vitamin D deficiency related symptoms. The significant results have been observed after 30 days of treatment. All of the patients did not claim any of the side effects and shows compliance.

Introduction

Vitamin D is a fat-soluble vitamin (ergocalciferol-D2, cholecalciferol-D3, alfacalcidol), involve in sustaining skeletal integrity and function, immune system regulation among other health benefits and electrolyte re-absorption [1].

Vitamin D has other two primary forms, vitamin D2 and D3. 1,25-dihydroxyvitamin D3 (cholecalciferol) is hormonally active form of vitamin D which plays a major role in clinical medicine primarily because of its strong effects on bone metabolism and calcium homeostasis [2].

Vitamin D is referred as the "sunlight vitamin" because sunlight is known as primary source of it and ultraviolet rays from sunlight synthesize cholecalciferol in the skin [3].

It can also get through supplements to make sure sufficient vitamin D levels in blood. It is nowadays a very common problem observed in people around the world [4]. Almost 1 billion people worldwide are affecting from vitamin D deficiency and insufficiency. It has number of essential functions and most important are facilitation of normal immune system and regulating the absorption of phosphorus and calcium. [5].

Vitamin D sufficient levels are necessary for bones and teeth development and normal growth, over and above it improve resistance against certain diseases [6].

Vitamin D also regulates blood pressure, supports cardiovascular health, aids cell growth, supports muscle health, reduces inflammation which can lead to rheumatoid arthritis and if body has insufficient vitamin D levels then risk of development of bone abnormalities may increase such as osteomalacia or osteoporosis [7].

Methodology

A total of 80 individuals (n=40 Test group; n=40 placebo group) were included into the study. Symptoms commonly associated with vitamin D3 deficiency were evaluated which included headache, pain in joints and bones, depression, less muscles strength, heaviness in legs and sleep

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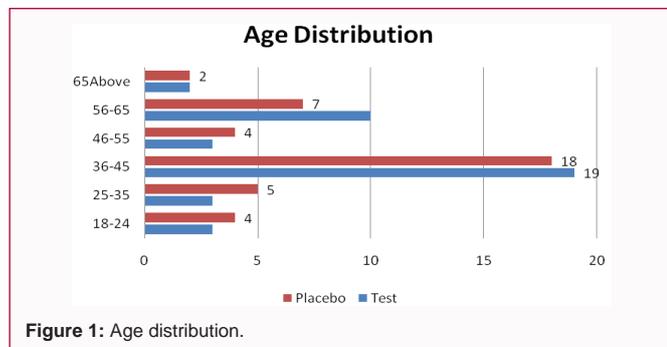
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Table 1: Vitamin D levels at baseline and after treatment.

	Patient's group	N	Std. deviation	Mean	p-value
Vitamin D initial levels	Test group	40	4.81406	12.1592	0.895
	Placebo group	40	5.10322	12.3065	
Vitamin D final levels	Test group	40	5.04591	16.2623	0.001
	Placebo group	40	5.10322	12.3065	

**Figure 1:** Age distribution.

disturbances. A questionnaire is used for the assessment of symptoms of vitamin D inadequacy and on its basis the progress of treatment was determined. Therefore, therapeutic assessment is made on the basis of improvement of symptoms and by serum testing of vitamin D after the 4 weeks of drug treatment. None of patient stated any adverse or side effect of the study drug. The results of the laboratory assay of vitamin D blood levels after 30 days (Figure 1).

Inclusion/exclusion criteria

For the selection of participants the following criteria were used:

Exclusion criteria: Women were excluded from the study if they had any pre-existing condition affecting metabolism of vitamin D or calcium including skin diseases. All other patients with liver or kidney disease, eating disorders, pregnancy and breast feeding status were also excluded from the study.

Inclusion criteria: All observational studies were conducted on healthy individuals. Inclusion criteria were any working and non-working women aged between 21 to 65 years or above who have low levels of vitamin D (Table 1 and 2).

Result and Discussion

Independent sample T test was used to analyze the statistical difference between initial and final levels of vitamin D in placebo and test group. Deficient patients with vitamin D showed remarkable improvement in their levels assessed through lab investigation after 30 days of treatment. Chi square test was used to evaluate the difference in symptoms associated with vitamin D. There was no inconvenient manifestation reported with the use of vitamin D3. Thus, it is clearly indicated that vitamin D3 possesses a therapeutic value intended for the treatment of vitamin D low serum levels.

Conclusion

The finding from this study clearly revealed that vitamin D3 formulation is very effectual and safe for the treatment of vitamin D deficiency.

Table 2: Symptoms of vitamin D deficiency at baseline and after treatment.

		Placebo	Test	p-value
Headache	before	23	18	0.186
		17	22	
Pain in joints	before	29	34	0.137
		11	6	
Depression	before	24	36	0.004
		16	4	
Less muscles strength	before	33	40	0.012
		7	0	
Heaviness in legs	before	18	24	0.131
		22	16	
Sleep disturbance	before	11	7	0.276
		14	11	
Headache		15	22	
	After	23	0	0
Pain in joints		17	40	
	After	29	0	0
Depression		11	40	
	After	24	2	0
Less muscles strength		16	38	
	After	33	0	0
Heaviness in legs		7	40	
	After	18	1	0
Sleep disturbance		22	39	
	After	11	0	0
Headache		14	39	
	After	15	1	

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