Original Article

A Study On Estimation Of Vitamin D Level And Its Relation To Glycemic Control Intype2 Diabetes Mellitus

Dr.KOLLI AMULYA RAO MBBS , Dr.J.JAYANNAN - MD, Assistant professor Dr.G.ANBAZHAGAN MD , Professor

Department(s) and institution(s) :
* Department ofGeneral Medicine , Meenakshi medical college and research institute, Kanchipuram, Tamilnadu.
Corresponding Author:
Dr. G. ANBAZHAGAN MD
DOI: 10.47750/pnr.2022.13.S01.266

Abstract

Background:
Diabetes mellitus refers to a group ofmetabolic disorders in man characterized by high blood sugar levels andloss of glucose in the urine. It results from defects in insulin secretion, insulin action or a combination of both .Vitamin D the so called 'Sunshine Vitamin'. There is plenty of evidence stating that vitamin D deficiency could wellbecontributedtothepathogenesis ofbothtypesofdiabetes(type1&2).Most of the studies are from outside India , our study tries find the association between vitamin D and diabetes mellitus.

Aims:
The aim of my present study is to estimate vitamin D levels inpatientswithtype2Diabetesandtofindoutitsrelationtoglycemiccontrol assessed by HbA1cpercentage.

Materials and Methods:.
This is a cross sectional study , Total 100 patients who are diabetic attending OPD of general medicine department wereselected, vitamin D and HbA1c were assessed in all the patients . SPSS 24was used for statistical analysis of results.

Results:

Majority of the study participants suffering from diabetes mellitus had vitamin D deficiency .

Conclusion.
So screening for Vitamin D is important in pre diabetics and diabetics, sunlight exposure, vitamin D supplements , lifestylemodificationshouldbestronglyrecommended

Introduction:

Diabetes mellitus refers to a group ofmetabolic disorders in man characterized by high blood sugar levels andloss of glucose in the urine. It results from defects in insulin secretion,insulin action or a combination of both . Changesin lifestyle and urbanisation combine together to increase a individual'srisk for diabetes substantially. In developing countries in particular youngpeoplearehitbythisepidemiccausingsignificantmorbidityandmortality early in their lives.. Vitamin D the so called 'Sunshine Vitamin' is creating interest inthe last decade because it has been researched to be associated with amultiple number of diseases like hypertension, heart disease, diabetes ,cancer and so on

[1]. There is plenty of evidence stating that vitamin D deficiency couldwellbecontributedtothepathogenesisofbothtypesofdiabetes(type1&2).Thebetacellsinthepancreasthatisresponsibleforinsulinsecretion contains alpha 1 hydroxylase enzyme and vitamin D receptors(VDR's)[1,2].Ithasbeenshownthroughvariousinterventionalstudiesthat vitamin D supplementation improves insulin resistance and glucosetolerance [3,4].Vitamin D deficiency directly leads to reduced insulinsecretion leading to DM . Even in many studies it was observed that glycemic control get worsened in the winter months is due to the simultaneous fall of active vitamin D in these seasons [5].our study tries to correlate between the relationship of vitamin D and diabetes mellitus in Indian population .

Need for the study:

In view of scarcity of studies on comparison of inmicro albuminuria betweenpre hypertensiveandnormotensiveindividuals in sub urban population.

Aims & Objectives of the study:

The aim of my present study is to estimate vitamin D levels inpatientswithtype2Diabetesandtofindoutitsrelationtoglycemiccontrol assessed by HbA1cpercentage.

Materials and Methods:

This was a cross sectional study done in department of General medicine in MeenakshiMedical College Hospital and Research Institute, a tertiary care teaching hospital located inEnathur,Kanchipuram., after getting necessary permission and ethical committee clearance,Totally 100 patients who are diabetic attending OPD of general medicine department wereselected, vitamin D and HbA1c were assessed in all the patients .Correlation between Glycemic control as assessed by HbA1c valueand vit-D levels was analyzed Statistical analysis was done using SPSS24.

Tools used:

vitamin D and HbA1c

Table II VITAMIN D STATUS

VITAMINDSTATUS	NUMBER	PERCENTAGE
DEFICIENT	37	36.5%
INSUFFICIENT	23	22.1%
NORMAL	40	41.3%
Total	100	

IN Our study 37patients (36.5%) had vitamin D deficiency , 23 (22.1%) had insufficiency and 40 (41.3%)were having normal values

Table III. HBA1CLEVELSOFPATIENTS

HbA1C		No	%
6- 7	**Targetrange**	6	5.8%
7- 8	**High**	25	27.9%
8- 9	**TooHigh**	15	14.4%
>9	**VeryHigh**	54	51.9%
Total		100	

\TheHbA1Clevelofpatientswereratedastargetrange(6-7%)high(7-8%)toohigh(8-9%)andveryhigh(>9%).

Discussion:

In our study out of the 100 diabetic patients studied around 37patients (36.5%) had vitamin D deficiency , 23 (22.1%) had insufficiency. This showed a strong correlation between vitamin D deficiency and diabetes mellitus. Similar findings were seen study done by National Health and Nutrition Examination Survey in United States, which reported an inverse association between 25OHD concentration and prevalence of diabetes in non-Hispanic white and Mexican-American individuals. [6]

Limitations:

Small sample size

Conclusion:

So screening for Vitamin D is important in pre diabetics and diabetics, sunlight exposure, vitamin D supplements , lifestylemodificationshouldbestronglyrecommended

Acknowledgement: Dr.Punitha, Department of Soial and Preventive Medicine,
Meenakshi medical college, Kanchipuram.

Sources of Support: Nil

Conflicts of interest: Nil

References:

1. S. Chen, S.A. Villalta, D.K. Agrawal FOXO1 mediates vitamin d deficiency-induced insulin resistance in skeletal muscle J. Bone Miner. Res., 31 (2016), pp. 585-595

2.Angellotti E, D'Alessio D, Dawson-Hughes B, et al. Vitamin D supplementation in patients with type 2 diabetes: the vitamin D for established type 2 diabetes (DDM2) study. J Endocrine Soc 2018;2:310–21.

3.Jorde R, Figenschau Y. Supplementation with cholecalciferol does not improve glycaemic control in diabetic subjects with normal serum 25-hydroxyvitamin D levels. Eur J Nutr 2009;48:349–54.

4.Parekh D, Sarathi V, Shivane VK, et al. Pilot study to evaluate the effect of short-term improvement in vitamin D status on glucose tolerance in patients with type 2 diabetes mellitus. EndocrPract 2010;16:600–8.

5.ScraggR,SowersM,BellC.Serum25-hydroxyvitaminD,diabetes,andethnicityintheThirdNationalHealthandNutritionExaminationSurvey.DiabetesCare2004;27:2813–8.