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ASSESSMENT OF SERUM VITAMIND LEVELS IN PATIENTS WITH VITILIGO

Dermatology

Dr Shruthi Shree MBBS, MD Assistant Professor Yadgir Institute Of Medical Sciences Yadgir

Dr Gouramma Huggi MBBS, MD Assistant Professor Chikkballapur Institute Of Medical Sciences Chikkballapur

Dr Ramya M* MBBS, MS Ophthalmology Assistant Professor Chikkballapur Institute Of Medical Sciences Chikkballapur *Corresponding Author

ABSTRACT

Aim: To compare the serum vitamin D levels in patients with vitiligo and controls. **Material & Methods**: case control study that included 30 vitiligo patients as cases and 30 normal controls.Detailed history, general physical examination, dermatological examination and woods lamp examination was performed and Biochemical parameters Thyroid function test and serum vitamin D levels were estimated and compared between twogroups. **Results:** of the study subjects, cases belonged to age group 5 to 60 years and mean+SD=33.46+13.15 & controls belonged to age group 8 to 70 years and mean+SD=34.23+16.51, Male to female ratio being 1:1.14.Of the 60 study participants, vitamin d levels in cases was mean+SD=21.64=21.64+7.73 and in controls was mean+SD=21.01+5.34. P value=0.71 and the study was not statistically significant. **Conclusions:** In the present study, serum vitamin D levels in cases were lower than the normal levels , however this was comparable to the control group. With no statistically significant difference in serum vitamin D levels between two groups.

KEYWORDS

autoimmune diseases; etiopathogenesis; vitamin D; vitiligo.

INTRODUCTION

Vitamin D is an essential hormone that is synthesized in the skin.Vitamin D increases tyrosinase activity and melanogenesis via a nuclear hormone receptor – the vitamin D receptor (VDR) in melanocytes

Vitiligo is considered the most common depigmentation disorder affecting approximately 0.5% to 1% of the population worldwide [1].caused by destruction of functional melanocytes in epidermis and infundibulum of hair, characterized by well demarcated depigmented patches or macules. Although the pathogenesis is not fully understood, it is consider to be autoimmune disease.Association with other autoimmune conditions such as pernicious anaemia, alopecia areata, systemic lupus erythematosus, and thyroid disease has been established.Vitamin D is an essential hormone that is synthesized in the skin.This hormone regulates calcium and bone metabolism, controls cell proliferation and differentiation and also exhibits certain immunoregulatory functions. In addition, vitamin D increases tyrosinase activity and melanogenesis via a nuclear hormone receptor – the vitamin D receptor (VDR) in melanocytes [2] Vitamin D exerts immunomodulatory effect by inhibiting the expression of cytokines IL6, IL8, IL10, IL12, IF , TNF which are pro inflammatory and proapoptotic in vitiligo. [3]This study aimsto compare the serum vitamin D levels in patients with vitiligo and normal controls.

MATERIAL & METHODS:

Ethical clearance for the study was obtained from our institutional ethics committee Informed consent was obtained from every subject after explaining the procedure before the enrollment into the study. This study was conducted in out patient department of Dermatology NMCHRC Raichur.

Study Design- case control study that included 30 vitiligo patients as cases and 30 normal controls.

Inclusion criteria-
1. All Vitiligo patients, diagnosed clinically.
2. Controls with normal thyroid function test.

Exclusion criteria
1. Cases and controls were excluded if they have other autoimmune diseases and abnormal thyroid function test. Participants with liver or kidney disorders, hyperparathyroidism, hypoparathyroidism, any metabolic bone disorders (e.g., osteoporosis or osteopenia)
2. Cases and controls who are on vitamin D supplements in last one year.

Methodology: Detailed history,general physical examination, dermatological examination and woods lamp examination was performed.Biochemical parameters, Thyroid function test and serum vitamin D levels were estimated and compared between two groups.In accordance with the vitamin D level, the status of vitamin D was classified into the following categories: Normal (>30ng/ml),Insufficiency(21-30ng/ml)&Deficiency (< 20ng/ml) using the reference values at the lab where samples were analysed. Microsoft Excel sheet was used for data entry and analysis was done usingIndependent sample t-test&Chi-square test, p<0.05 was considered as statistically significant.

RESULTS

30 vitiligo patients as cases and 30 normal controls were studied.

Age distribution:

Of the 60 study participants, cases belonged to age group 5 to 60 years and mean+SD = 33.46+13.15 &controls belonged to age group 8 to 70 years and mean+SD=34.23+16.51

Table 1 Age Distribution

AGE(YEARS)	CASES	CONTROLS
TOTAL	30	30
MEAN±SD	33.46±13.15	37.23±16.51
MIN,MAX	5,60	8,70
P value	0.33-NOT SIGNIFICANT	

Gender distribution: In the study, out of 60 study participants, 32(57.3%) were females and 28(46.7%) were females. Male to female ratio being 1:1.14.

Table 2: Gender Distribution

SEX	CASES	CONTROLS
FEMALE	16(53.33%)	16(53.33%)
MALE	14(46.6%)	14(46.6%)
TOTAL	30	30
P value	1-NOT SIGNIFICANT	

Serum Vitamin D Levels In Cases Vs Controls

Of the 60 study participants,in cases mean+SD=21.64=21.64+7.73 and in controls mean+SD=21.01+5.34. p value=0.71 and the study was not statistically significant.

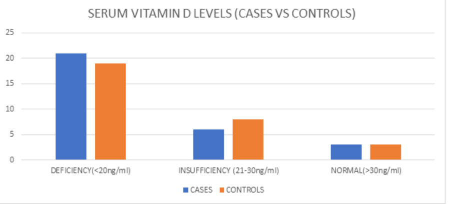
Table 3: Serum Vitamin D Levels In Cases Vs Controls

SERUM VIT D3(ng/ml)	Cases	Controls
TOTAL	30	30
MEAN±SD	21.64±7.73	21.01±5.34
P value	0.71-NOT SIGNIFICANT	

Vitamin D Level Implication In Cases And Controls

Table 4:vitamin D Level Implication In Cases And Controls

VIT D LEVEL	CASES	CONTROLS
DEFICIENCY(<20ng/ml)	21(70%)	19(63.3%)
INSUFFICIENCY (21-30ng/ml)	6(20%)	8(26.6%)
NORMAL(>30ng/ml)	3(10%)	3(10%)
	30	30
p VALUE	0.82-NOT SIGNIFICANT	



DISCUSSION

Vitamin D is an essential hormone synthesized in the skinand its deficiency has been associated with several conditionsincluding immune, metabolic, and pigmentary disorders. It was shown that vitamin D increases melanogenesis and thetyrosinase content of cultured human melanocytes.

In an Iranian study conducted by Lajevardi ,160 30 cases were compared with 30 age and sex matched controls [4]But, in the study done by Prakash D et al,159 there were no difference in serum cholecalciferol levels between cases and controls[5]

In a study byBeheshti et Al, serum vitamin D levels were shown to be low in vitiligo patients; however, no control group was included in the study.[6]A meta-analysis that included 17 studies showed that vitamin D deficiency was positively associated with the incidence of vitiligo.

In the study by Takci Z et AL, 72.73% of the cases and 30.2% controls had deficiency[6].

Ustun et al. investigated 25 vitiligo patients and 41 controls: insufficient (< 30 ng/ml) or very low (< 15 ng/ml) levels of vitamin D were observed in the majority of patients, but the difference was not significant compared to controls[7]

In the study by Karagun E et AL, the patient's serum vitamin D levels ranged from 6 to 42 ng/ml (mean: 12.04 ±8.84 ng/ml); in the control group they ranged from 8 to 39 ng/ml (mean: 12.91 ±6.08 ng/ml). The patients had lower circulating vitamin D levels than controls, but this difference was not significant ($p = 0.570$). Thus, our study is in accordance with the study done by karagun e et al.[8]

In our study there were 21 cases and 19 controls with deficiency, 6 cases and 8 controls with insufficiency,3 cases and 3 controls with normal serum vitamin d levels

In the present study ,serum vitamin D levels in cases were lower than the normal levels , however this was comparable to the control group. With no statistically significant difference in serum vitamin D levels between two groups.

CONCLUSION –

Vitamin D levels were low in both vitiligo patients and controls of the study population. There was no significant difference in the levels of vitamin D in both groups.This high prevalence of vitamin D deficiency in study population may make detection of difference in vitiligo patients and controls more difficult, and a very large number of patients and controls may be needed to show such differences should they exist. More studies are needed to differentiate between the effects of low vitamin D levels on pathogenesis of vitiligo vulgaris and lower vitamin D levels because of the disease. and whether vitamin d supplements are useful for prevention and treatmement of the disease

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