European Journal of Molecular &Clinical Medicine

ISSN2515-8260 Volume 09, Issue 03, 2022

Evaluation of serum levels of Vitamin D and contrast effects and controls in vitiligo patients

Dr.Niti Gaur[1], Dr.Parmil Kumar[2]

[1,2]Associate Professor, Department of Dermatology World College of Medical Sciences & Research, Jhajjar, Haryana, India

Corresponding Author : Dr.Parmil Kumar, Email – parmilnishal@gmail.com

ABSTRACT

Aim: Evaluation of serum levels of Vitamin D and contrast effects and controls in vitiligo patients.

Methods: After receiving ethical approval from management, this case control research was conducted in the department of dermatology. This study comprised 100 clinically diagnosed instances of dermatological vitiligo (group A) and 100 control (group B) participants. The control group (Group B) was made up of age and gender matched healthy volunteers. A history of thyroid dysfunction, atopy, and diabetes was also suggested. Participants in the research were all subjected to a complete general physical examination. A full systematic study for associated disorders was also performed, and the results were recorded. A full cutaneous investigation, including mucosa, was performed to diagnose the disease, determine the type of the vitiligo, and investigate specific features such as trichrome, quadrichrome, and leukotrichia.

Results: In our study, 200 patients who satisfied the inclusion criteria were enrolled, with 100 in Group A and 100 in Group B. The majority of patients (35.5 percent) were between the ages of 30 and 40, with 34.5 percent between the ages of 40 and 50. 16.5 percent of the patients were above the age of 30. Around 13.5 percent of those polled were above the age of 50. Males made up 54 percent of our research subjects, while females made up 46 percent. Vulgaris was the most common kind of vitiligo observed in 50 percent of the cases. Mucosal Vitiligo was seen in 13% of the patients. Both segmental and focal vitiligo were observed in 10% of the patients. AcrofacialVitiligo was seen in 11% of the patients, whereas Universalis was seen in 7% of the cases. The duration of Vitiligo was less than 6 years in 70% of the patients. In 21% of instances, the duration of vitiligo ranged from 6 to 12 years. In 7% of instances, the duration of vitiligo ranged from 12 to 18 years and from 18 to 24 years. In 5% of individuals, the vitiligo had been present for more than 24 years.

Conclusion: This analysis is closely linked to serum cholecalciferol and vitiligo. Cholecalciferol is also strongly linked to the clinical type, duration, and severity of vitiligo. Our research highlights the importance of low vitamin D levels in the aetiology of vitiligo, as well as the function of vitamin D supplementation in the therapy of vitiligo.

Keywords: Serum levels of Vitamin D, vitiligo

Introduction

Vitiligo is an autoimmune illness characterized by depigmented macules of various forms that are produced by the loss of melanocytes in the skin. [1] The condition can affect both men and women and all skin types. [2] and may also be associated with systemic autoimmune diseases such as lupus erythematosus, scleroderma, autoimmune thyroiditis and alopecia areata. [3] Many autoimmune illnesses, including systemic lupus erythematosus, diabetes mellitus, rheumatoid arthritis, multiple sclerosis, and alopecia areata, have low serum vitamin D levels.[1]

Vitamin D is a necessary hormone that is produced in the skin. [4] The active form of vitamin D, 1,25-dihydroxyvitamin D3, is a hormone that regulates calcium and bone metabolism, regulates cell proliferation and differentiation, and has immunoregulatory properties. [1] Vitamin D may affect both innate and adaptive immune responses through receptors in T and B lymphocytes, macrophages and dendritic cells. [5] In addition, vitamin D3 increases tyrosinase activity and melanogenesis via a nuclear hormone receptor – the vitamin D receptor (VDR) in melanocytes. [5] Vitamin D and its analogues are used to treat skin disorders, including psoriasis and vitiligo. Patients with vitiligo have been treated with topical calcipotriene.

Material and methods

After receiving ethical approval from management, this case control research was conducted in the department of dermatology. This study comprised 100 clinically diagnosed instances of dermatological vitiligo (group A) and 100 control (group B) participants. The control group (Group B) was made up of age and gender matched healthy volunteers. Both participants in this study provided informed consent. Each case was thoroughly examined and reviewed, with a detailed history recorded separately in a distinct proforma for cases and controls. Trauma, additives, stress, and correlations have all been expressly requested and acknowledged as precipitation variables. A history of thyroid dysfunction, atopy, and diabetes was also suggested. Participants in the research were all subjected to a complete general physical examination.

A full systematic study for associated disorders was also performed, and the results were recorded. A full cutaneous investigation, including mucosa, was performed to diagnose the disease, determine the type of the vitiligo, and investigate specific features such as trichrome, quadrichrome, and leukotrichia. This research covered participants with vitiligo who were beyond the age of 20. Other depigmented disorders, such as chemical leukoderma, albinism, and achromicnaevus, were omitted from the research.

Statistical Analysis

For statistical analysis, SPSS software version 25.0 was utilised. Data was given in the form of statistics tables and charts.

Results

In our study, 200 patients who satisfied the inclusion criteria were enrolled, with 100 in Group A and 100 in Group B.

The majority of patients (35.5 percent) were between the ages of 30 and 40, with 34.5 percent between the ages of 40 and 50. 16.5 percent of the patients were above the age of 30. Around 13.5 percent of those polled were above the age of 50. Males made up 54 percent of our research subjects, while females made up 46 percent.

Table 1. Gender and age distribution of patients in case and control group

Gender	Group A		Group B	
	Number	%	Number	%
Male	56	56	52	52
Female	44	44	48	48
Age				
Below 30	16	16	17	17
30-40	35	35	36	36
40-50	35	35	34	34
Above 50	14	14	13	13

ISSN2515-8260 Volume 09, Issue 03, 2022

Table 2: Type of Vitiligo in group A

Vitiligo	Number	Percentage
Acrofacial	11	11
Segmental	10	10
Vulgaris	50	50
Universalis	7	7
Focal	10	10
Mucosal	12	12

Vulgaris was the most common kind of vitiligo observed in 50 percent of the cases. Mucosal Vitiligo was seen in 13% of the patients. Both segmental and focal vitiligo were observed in 10% of the patients. AcrofacialVitiligo was seen in 11% of the patients, whereas Universalis was seen in 7% of the cases. The duration of Vitiligo was less than 6 years in 70% of the patients. In 21% of instances, the duration of vitiligo ranged from 6 to 12 years. In 7% of instances, the duration of vitiligo ranged from 12 to 18 years and from 18 to 24 years. In 5% of individuals, the vitiligo had been present for more than 24 years.

Table 3: Duration of Vitiligo in group A

	Number	Percentage
Below 6	70	70
6 – 12	21	21
12 – 18	7	7
18– 24	7	7
Above 24	5	5

Table 4: Correlation between Vitamin D and Vitiligo

Serum VIT D3(ng/ml)	Group A	%	Group B	%	P-value
Normal (>30)	20	20	40	40	<0.001
Deficiency (10-30)	55	55	53	53	
Severe Deficiency (<10)	25	25	7	7	

Serum Vitamin D insufficiency was found in 55% of the patients in the Case group and 53% of the patients in the Control group. Severe Vitamin D insufficiency was found in 25% of the Case group and 7% of the Control group.

Discussion

Vitamin D, which is a fat-soluble vitamin obtained by humans through diet, is of particular interest to dermatologists because it is synthesized in the skin by ultraviolet light. It has been used to treat psoriasis, vitiligo and other skin diseases for many years. Vitamin D is a produced vital hormone in the skin, and a lack of it has been related to a variety of immunological, metabolic, and pigmentary diseases. Vitamin D has been demonstrated to boost melanogenesis and tyrosinase activity in cultured melanocytes.

The majority of patients (35.5 percent) were between the ages of 30 and 40, with 34.5 percent between the ages of 40 and 50. 16.5 percent of the patients were above the age of 30.

Around 13.5 percent of those polled were above the age of 50. Males made up 54 percent of our research subjects, while females made up 46 percent. Prakash D et al.[6] conducted an Indian case-control study in which 45 cases and 45 age and gender-matched controls were examined. Another Iranian research compared 30 patients to 30 year old, gender-matched controls. [7]Karagunet al.[8] conducted a Turkish research in which 50 individuals with vitiligo and 47 controls were compared. Takci Z.[9] conducted another Turkish research in which 44 Vitiligo Vulgaris patients were compared to 43 controls. As a result, this study included more cases and controls than previous studies.

Serum Vitamin D insufficiency was found in 55% of the patients in the Case group and 53% of the patients in the Control group. Severe Vitamin D insufficiency was found in 25% of the Case group and 7% of the Control group. There was no significant relationship between vitiligo kind and vitamin D serum. It has been demonstrated in all previous investigations that vitamin D does not have a role in determining the clinical type of vitiligo that a patient develops. Vitamin D levels in our sample of patients with autoimmune comorbidity were not significantly lower. Khurrum and colleagues[10]Salehet al.[11] and Beheshti et al.[12] discovered comparable results.

All previous research have found that vitamin D levels in individuals with autoimmune comorbidities are considerably lower. [13] Additional tests with a larger sample size are required to find a link in the Indian backdrop. The specific significance of vitamin D in Vitiligo is difficult to determine in an endemic country like India, where the incidence ranges from 70 to 100 percent. The sample's disadvantages include a smaller research population and a lack of representation from diverse socioeconomic classes. This may have been addressed by the makeup of the larger sample group drawn from various levels of the population.

Conclusion

This analysis is closely linked to serum cholecalciferol and vitiligo. Cholecalciferol is also strongly linked to the clinical type, duration, and severity of vitiligo. Our research highlights the importance of low vitamin D levels in the aetiology of vitiligo, as well as the function of vitamin D supplementation in the therapy of vitiligo. However, further study with larger samples is necessary due to our country's significant vitamin D insufficiency.

References

1. AlGhamdi K, Kumar A, Moussa N. The role of vitamin D in melanogenesis with an emphasis on vitiligo. Indian J DermatolVenereolLeprol. 2013;79:750–8.
2. Nordlund JJ. The epidemiology and genetics of vitiligo. ClinDermatol. 1997;15:875–78.
3. Lee H, Lee MH, Lee DY, et al. Prevalence of vitiligo and associated comorbidities in Korea. Yonsei Med J. 2015;56:719–25
4. Kamen DL, Aranow C. The link between vitamin D deficiency and systemic lupus erythematosus. CurrRheumatol Rep. 2008;10:273–80
5. AksuCerman A, SarikayaSolak S, KivancAltunay I. Vitamin D deficiency in alopecia areata. Br J Dermatol. 2014;170:1299–304.
6. Prakash D, *et al*. A case control study of vitamin D levels in patients with vitiligoInt J Res Dermatol 2017;3(1):103-106.
7. Lajevardi V, Nazemi MJ, Khodashenas Z, Ebadi MS, Vitamin D. serum level in vitiligo patients: a case-control study from Iran. Iran J Dermatol 2014;17:59-62
8. Karagün E, Ergin C, Baysak S, Erden G, Aktas H, Ekiz O, *et al*. The role of serum vitamin D levels in vitiligo. AdvDermatolAllergol 2016;33(4):300-2. 15.
9. Takci Z, Tekin O, Ertuğrul DT, Karadağ AS, Akin KO. A case-control study: evaluation of vitamin D metabolism in patients with vitiligo. Turk J Med Sci 2015;45:837-841.

10. Khurrum H, AlGhamdi KM. The Relationship Between the Serum Level of Vitamin D and Vitiligo: A Controlled Study on 300 Subjects. J Cutan Med Surg 2016;20(2):139-45. 19.
11. Saleh HM, Abdel Fattah NS, Hamze HT. Evaluation of serum 25 hydroxy vitamin D level in vitiligo patients with and without autoimmune diseases. Photo dermatology, Photo immunology and Photo medicine 2013;29(1):34-40.doi 10.1111/phpp.12016
12. Beheshti A, Ghadami H, Barikani A, Manouchehri FH. Assessment of Vitamin D Plasma Levels in Patients with Vitiligo Vulgaris. ActaMedicaIranica 2014;52(8):601-6. 20.
13. Li K, Shi Q, Yang L, Li X, Liu L, Wang L, *et al*. The association of vitamin D receptor gene polymorphisms and serum 25-hydroxyvitamin D levels with generalized vitiligo. Br J Dermatol 2012;167(4):815-21.