



“CORRELATION OF VITILIGO AND THYROID PROFILE IN PATIENTS ATTENDING TERTIARY CARE CENTRE”

Dermatology

Dr. Jisna Joy*

Postgraduate In Dermatology Department Dermatology, Venereology And Leprosy J.J.M. Medical College, Davangere – 577 004. Karnataka. *Corresponding Author

Dr. Lingaraj M M

M.D. Associate Professor, Department Dermatology, Venereology And Leprosy J.J.M. Medical College, Davangere – 577 004.karnataka.

ABSTRACT

Introduction: Vitiligo is an acquired, and occasionally inherited, disorder characterized by the loss of skin and hair pigmentation due to the targeted destruction of melanocytes. Vitiligo commonly occurs alongside autoimmune conditions affecting other organs, including pernicious anemia, thyroid diseases, insulin-dependent diabetes mellitus (IDDM), and Addison's disease, indicating its association with systemic autoimmune disorders. Research also indicates that vitiligo patients experience immune system abnormalities, where the loss of melanocytes may result from an autoimmune response involving autoantibodies. **Objectives:** To evaluate correlation of vitiligo and thyroid profile. **Methodology:** Patients presenting with vitiligo, who fulfill all inclusion criteria and exclusion criteria and are willing to participate in this study was selected for a period of 6 months from September 2023 to March 2024. A detailed history including the age, sex, occupation, socioeconomic status, duration of the disease, present and past illness family and personal history are recorded as per the Proforma. Sixty age and sex matched patients with other dermatitis excluding vitiligo are randomly assigned as controls. All patients with vitiligo were screened with Thyroid functions tests including Thyroxine (T4), Triiodothyronine (T3), Thyroid stimulating Hormone (TSH). **Results:** The present study of 60 patients with vitiligo incidence is higher in females than in males, with female to male ratio of 1.73:1, most of them belonging to the age group of 26-35 years. Most common type of vitiligo observed is generalised vitiligo. Thyroid function abnormalities found in 38.33% of patients compared to 13.33% controls. **Conclusions:** The study highlights a notable prevalence of thyroid-related diseases, both hypothyroidism and hyperthyroidism among patients suffering from vitiligo. The results emphasize the importance of routinely evaluating vitiligo patients, especially those with generalized vitiligo for thyroid disorders at least once every year.

KEYWORDS

Vitiligo, Thyroid, Autoimmune

INTRODUCTION:

Vitiligo is an acquired, and occasionally inherited disorder characterized by the loss of skin and hair pigmentation due to the targeted destruction of melanocytes. It is a key non-tumorous condition involving immune-mediated damage to pigment cells, leading to the development of depigmented or white patches on the skin.^[1] The typical lesion appears as a completely depigmented, non-scaly, chalky-white macule with well-defined borders. Recent research has greatly enhanced our knowledge of vitiligo development. It is established as an autoimmune condition involving a combination of genetic predisposition, environmental triggers, metabolic disturbances, oxidative damage, and defects in the adhesion of skin cells. Vitiligo affects approximately 0.5% to 2% of people worldwide.^[2]

Vitiligo commonly occurs alongside autoimmune conditions affecting other organs, including pernicious anemia, thyroid diseases, insulin-dependent diabetes mellitus (IDDM), and Addison's disease, indicating its association with systemic autoimmune disorders.^[3]

Research also indicates that vitiligo patients experience immune system abnormalities, where the loss of melanocytes may result from an autoimmune response involving autoantibodies. Additionally, there is a higher occurrence of autoimmune and/or endocrine diseases among their family members, which increases the psychosocial and economic impact of the disease in this group.^[4]

MATERIALS AND METHODS:

A Hospital based descriptive study conducted in the department of DVL OPD in the JJMMC medical college and Research centre for a period of 6 months from September 2023 to March 2024 after obtaining ethical committee approval. Prior to examination, a written and informed consent obtained from patient. A detailed history including the age sex, occupation, socioeconomic status, duration of the disease, present and past illness family and personal history are recorded as per the Proforma.

The diagnosis is based mainly on clinical examination. Examination of the other systems is also done part from general physical examination and the positive findings are noted. All the patients of vitiligo more than 18 years and less than 65 yrs age, attending the outpatient department of dermatology are included in this study. Pregnant and lactating females and patient with history of any thyroid surgery and on thyroid medications were excluded in the study. Sixty, age and sex

matched patients with other dermatitis excluding vitiligo are randomly assigned as controls. All patients with vitiligo were screened with Thyroid functions tests including Thyroxine (T4), Triiodothyronine (T3), Thyroid stimulating Hormone (TSH).

Statistical Analysis:

The data collected analyzed with IBM SPSS Version 28 for windows. Variables were expressed as percentages. Chi-square and Fisher's exact tests were used to compare categorical variables. A p-value < 0.05 was considered statistically significant.

RESULTS:

In the present study out of 60 patients 38 (63.33%) patients are females and 22(36.66%) are males. Incidence of vitiligo is higher in females than in males, with female to male ratio of 1.73:1(Figure 1). In the present study majority 23 (38.33%) were in age group of 26-35 years followed by 36-45 years (20%) (Table 1, Figure 2).

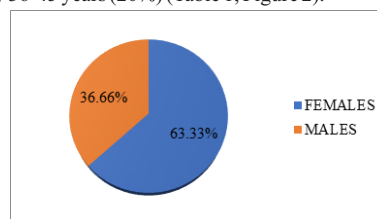


Figure 1 : Distribution of cases according to sex.

Table 1: Distribution Of Cases According To Age.

AGE GROUP	NUMBER OF PATIENTS	PERCENTAGE
15-25	8	13.33%
26-35	23	38.33%
36-45	12	20%
46-55	10	16.66%
56-65	7	11.66%

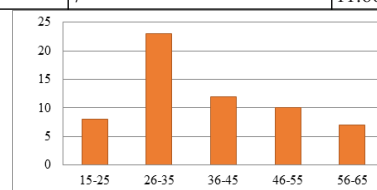


Figure 2 : Distribution of cases according to age.

In this study out of 60 patients, generalized vitiligo observed in 25 patients (41.67%), followed by segmental vitiligo, seen in 11 patients (18.33%), acro-facial vitiligo 9 (15%), focal vitiligo 7 (11.67%), lip tip vitiligo 4 (6.7%) and universal and mucosal vitiligo in 2 (3.33%) patients each. (Figure 3).

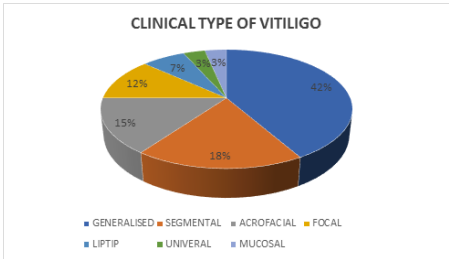


Figure 3: Distribution of cases according to clinical types of Vitiligo.

Table 3 shows percentage of abnormal thyroid test in different types of vitiligo. 23 (38.33%) patients out of 60 patients shows thyroid test abnormalities. Among that, most common clinical type is generalised vitiligo.

Table 3: Percentage Of Abnormal Thyroid Test In Different Types Of Vitiligo.

TYPE OF VITILIGO	ABNORMAL THYROID TEST	PERCENTAGE
Generalized vitiligo	12	20%
Segmental vitiligo	5	8.33%
Acro-facial vitiligo	3	5%
Focal vitiligo	--	--
Lip tip vitiligo	--	--
Universal vitiligo	2	3.33%
Mucosal vitiligo	1	1.66%
TOTAL	23	38.33%

Abnormal thyroid tests are seen in 23 patients, out of 60 patients in this study. Increase in level of TSH is seen in 11 patients (18.33%) and in 3 controls (5%) and reduced TSH levels are seen in 8 patients (13.33%) and in 4 control (6.66%). Decrease in T3 levels are seen in 7 patients (11.67%) and in one control (1.66%) and decrease in T4 seen in 6 patients (10%) and not seen in control. Increase in T3 levels are seen in 5 patients (8.33%) and in 1 controls (1.66%) and increase in T4 is seen in 5 patients (8.33%) and 2 control (3.33%) (Table 4).

Table 4 : Distribution Of Cases According To Thyroid Function Test.

THYROID FUNCTION TEST	NUMBER	PERCENTAGE
INCREASE TSH	11	18.33%
DECREASE TSH	8	13.33%
DECREASE T3	7	11.67%
DECREASE T4	6	10%
INCREASE T3	5	8.33%
INCREASE T4	5	8.33%

Table 5 : Frequency Of Thyroid Abnormalities In The Study Group.

	Thyroid abnormality	No thyroid abnormality	Total
Vitiligo	23	37	60
CONTROL	8	52	60

$\chi^2 = 9.78$, $P < 0.01$

DISCUSSION:

Vitiligo has been reported in association with many endocrine disorders. Patients with vitiligo showed a greater frequency of autoimmune thyroid disorders than individuals in the general population.^[5,6]

The current study found that 38.33% of individuals with vitiligo had thyroid function abnormalities, which was significantly greater than the 13.33% seen in the control group, with a statistically significant p-value of 0.01. Similar findings were also seen in a study conducted by Sumalatha, in which prevalence of thyroid function abnormalities in vitiligo patients was 33.96%.^[7]

In this present study incidence of vitiligo is higher in females than in males, with female to male ratio of 1.73:1. Similar findings have been reported by earlier studies by Hegedüs L et al and Cunliffe WJ et al.^[8,9] In this study most common age group involved are 26 - 35 (38.33%) years followed by 36 - 40 years (20%). Similar findings were seen in a study conducted by Yazdanpanah M.J.^[10]

In this study out of 60 patients, generalized vitiligo observed in 25 patients, followed by segmental vitiligo, seen in 11 patients, acro-facial vitiligo 9, focal vitiligo 7, lip tip vitiligo 4 and universal and mucosal vitiligo in 2 patients each. These findings are more or less in accordance with studies conducted by Kurtev A.^[11] In this study of 60 vitiligo patients, 23 patients showed abnormal thyroid abnormalities. Among that 23 patients, 12 are generalised vitiligo patients followed by 5 Segmental vitiligo, 3 Acro-facial vitiligo, 2 Universal vitiligo and 1 Mucosal vitiligo. Our results are consistent with a study conducted by Sumalatha.^[7]

In our study we investigated thyroid hormones, i.e thyroxine, triiodothyronine, thyroid stimulating hormones by chemiluminescence immuno assay. Increase in level of TSH is seen in 11 patients and reduced TSH levels are seen in 8 patients. Decrease in T3 and T4 levels in 7 and 6 patients respectively. Increase in T3 and T4 levels are seen in 5 patients each, which were in accordance with studies by Kurtev A and Arora NV.^[11,12]

Findings from the present study indicate that individuals with vitiligo often exhibit coexisting thyroid dysfunctions and is more commonly seen in female patients of age group 26 - 30 years and with generalised vitiligo.

CONCLUSION:

The study highlights a notable prevalence of thyroid-related diseases, both hypothyroidism and hyperthyroidism among patients suffering from vitiligo. The results emphasize the importance of routinely evaluating vitiligo patients, especially those with generalized vitiligo for thyroid disorders at least once every year.

Declarations:

- **Funding:** The authors have no relevant financial or non-financial interests to disclose.
- **Conflict of Interest:** The Authors declare that there is no conflict of interest.
- **Data Availability:** The data used in this study was not used or published in any other publications.
- **Code Availability:** The data was compiled and analyzed using IBM SPSS STATISTICS version 28 for Windows.

Ethics Approval: The study was conducted after obtaining approval from the Institutional Ethics Committee of JJM Medical College, Davangere, Karnataka, India, in accordance with the ethical standards of the institutional and/or national research committee.

Consent To Participate: Written informed consent was taken from all the patient.

Consent For Publication: All authors have reviewed and approved the manuscript for publication.

Authors Contribution: All authors contributed to the study conception and design. Dr.JISNA JOY performed material preparation, data collection and analysis and wrote the first draft of the manuscript. All authors reviewed and approved subsequent versions.

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