

PREVALENCE OF THYROID DISORDERS IN VITILIGO PATIENTS

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Abstract

Background: The pathogenesis of the skin condition vitiligo is uncertain. Autoimmune Thyroid disorders have been reported to be more common in these patients. This study's objective is to determine the frequency of thyroid dysfunction and hypoparathyroidism in vitiligo patients. **Materials and Methods:** 116 vitiligo patients presenting in dermatology opd were included in study, in which 36 were men and 80 were women. A physical examination of the thyroid was performed. Tests for thyroid function, antibodies, calcium, and phosphorus were measured. SPSS version 20 was used for the analysis of the gathered data. **Results:** Thirty-one percent of patients had thyromegaly. Out of 116 cases, 19 (16.5%) had hypothyroidism. Only two of them had clinical hypothyroidism, while subclinical hypothyroidism was found in 16. One patient had Graves' disease. The most frequent was antibody positivity, with anti-TPO and anti-tg positivity occurring in 38.5% and 33%, respectively. Hypoparathyroidism was not seen in any case. **Conclusion:** Our research indicates that people with vitiligo have a greater chance of thyroid malfunction, particularly hypothyroidism, and thyroid antibodies. Hence, we advise testing thyroid antibodies and thyroid function in patients with vitiligo.

INTRODUCTION

One of the most prevalent skin conditions, vitiligo has a prevalence of 1-2% in various ethnicities. The disorder results in regions of the skin losing their natural colour and appearing whiter when pigmented cells are destroyed.^[1,2] Although the exact cause of this condition is unknown, various ideas contend that autoimmune, genetic, toxic metabolites and oxidative stressors are the main contributors. Other factors included may be the neurological system or the lack of melanocyte growth factor.^[3]

The most frequent cause is an autoimmune disease; some patients also have antibodies to melanocytes or melanocytic proteins. There is evidence that cell-mediated immunity contributes to melanocyte loss.^[4,5,6] Hypothyroidism is one of the most prevalent disorders associated with vitiligo, which is accompanied by autoimmune thyroid illnesses with a prevalence of up to 30%.

In a study of 121 children with vitiligo, thyroid function test was conducted, out of which 16% showed abnormal thyroid function tests, the most frequent was antithyroid peroxidase antibody (Anti-tpo),^[1] In a different study, autoimmune illnesses, including thyroid disease, were more prevalent than in the general population.^[2]

In research, Dave and colleagues found that individuals with vitiligo had a frequency of thyroid

abnormalities (endocrine, immunologic, or both) of 57.1%, compared to 10% in individuals without vitiligo. In their study, 34% of the participants exhibited thyroid antibodies.

In research done by Manighalam and colleagues on 30 vitiligo patients, they discovered hyperthyroidism and hypothyroidism in 10 and 6.6% of cases, respectively.^[8]

Another recent investigation from Iran found that antithyroid antibodies were present in 18.1% of patients with vitiligo, 7.3% in the control group, and were more common in females.^[9] This study seeks to determine the prevalence of thyroid dysfunction and antithyroid antibodies in vitiligo patients.

MATERIALS AND METHODS

One hundred and sixteen patients were enrolled. The mean age was 34.41 ± 13

(CI: 8-65) years [80 females (68.96%) and 36 males (31.03%)]. Seventy-nine patients had a normal thyroid size and 37 patients (32%) had goiter.

Twenty-two patients (19%) had abnormal TSH levels and in four patients

(3.5%), the TSH level was less than normal, one patient had Grave's disease

and in another 3 patients, T3 and T4 were normal.

In 18 patients (15.7%), TSH levels were more than normal, and in 14 of them,

it was more than 5 mIU/l. In these 18 cases, there were 13 females and 5 males.

Two patients had clinical hypothyroidism. Anti-Tpo and anti-Tg antibody were positive in 45 (38.5%) and 38 (33%) cases, respectively. Thirty-four patients had goiter, from which 15 of them had abnormal TSH levels and this correlation was significant with Mann-Whitney U test ($P = 0.002$).

There was a significant association between TSH and anti-Tpo antibody, $P = 0.002$.

One case had serum calcium levels less than normal and two had increased serum phosphate levels, which was normal after tests were repeated and PTH was normal in all cases. Therefore, no patient had hypoparathyroidism.

RESULTS

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DISCUSSION

Skin depigmentation in vitiligo which is a common skin condition caused by the death of melanocytes and a reduction in melanin. Autoimmune melanocytic destruction has been promoted, despite the fact that the precise pathogenic pathways

responsible for the destruction of melanocytes in vitiligo are yet unknown.^[3] The existence of autoantibodies is used to support the hypothesis that this ailment is invariably accompanied by other autoimmune diseases.^[10]

We conducted this research to ascertain whether vitiligo and parathyroid disorders are related to autoimmune thyroid illnesses. One patient had Grave's disease, and 22 (19%) of the patients had overt thyroid abnormalities, with hypothyroidism being the most frequent presentation. These findings can be contrasted with those from other research.

Nine patients had hypothyroidism and one had hyperthyroidism in research that involved 121 children with vitiligo (the group that has fewer thyroid issues).^[1] Thyroidal abnormalities were more prevalent in another study carried out in India; of 35 vitiligo patients, 40% exhibited thyroidal dysfunction, and 34.1% tested positive for anti-TPO antibodies.^[7] In a study done on 30 vitiligo patients in Iran, hyperthyroidism and hypothyroidism were found in 10 and 6.6% of cases, respectively.^[8] There was no thyroid dysfunction in a recent report from Iran, however, the anti-TPO antibody positivity was higher than it was in the control group.

Our study's key findings were a rise in the positivity of anti-tpo and anti-tg antibodies. Anti-tpo and anti-tg antibodies were increased in 45 and 35 individuals (38.5% and 33% of cases), respectively).

Positive anti-tpo and anti-tg antibodies were the most prevalent diseases in other research. In one study, 10% of the children had anti-tpo antibodies that were positive; however, this could be because the study's lower age group included children, who normally possess lower antibody levels than adults.

Approximately 18% of the patients in a research by Daneshpazhooh and colleagues had elevated anti-tpo antibody levels.^[9] Despite the fact that the frequency of anti-tpo antibody positive in their study was lower than our findings, this might be explained by the age range of their study population and the fact that females made up a larger proportion of the sample in our study.

Similar to our investigation, an Indian study found that the anti-Tpo antibody was positive in 31.4% of patients.^[7] Of the 40 patients in a UK study, 34% had positive antithyroid antibodies,^[11] while of the 106 patients in an Australian report, 21% had positive antithyroid antibodies. Anti-tpo antibodies were present in 54 cases of vitiligo in adults and children in Greece, with a prevalence of 24.1%.

37 patients in our study (32%) had some degree of goitre, and the majority of them were female. Furthermore, goitre was 20% common in another Iranian study that was conducted in that country.^[9]

This may be because there were a lot of women in our study, who typically have larger thyroids than men. There aren't many studies looking into the connection between hypoparathyroidism and vitiligo.

In research by Betterle and colleagues, 1% of patients with vitiligo had autoimmune parathyroid illness.^[14] We did not identify any patients with

hypoparathyroidism since we did not discover any abnormalities in serum calcium, phosphorus, or PTH levels.

CONCLUSION

In conclusion, our study demonstrated that individuals with vitiligo had a higher prevalence of autoimmune thyroid disorders than the general population, most frequently hypothyroidism and autoimmune thyroiditis, which are verified by the presence of antithyroid antibodies.^[15]

All vitiligo patients should have their TSH levels and anti-Tpo antibodies measured, and anyone with a high level of anti-Tpo antibodies should have their TSH levels checked yearly. Because thyroid dysfunction can increase general signs and symptoms like sadness or a degree of low quality of life in individuals along with chronic skin problems, it should be checked periodically in all patients.

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