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Original Research Article

A study of thyroid profile abnormalities in vitiligo patients in tertiary care center of South India, in Telangana

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ABSTRACT

Background: Several autoimmune conditions are associated with vitiligo. But thyroid is most common cause. We under took the study for the incidence of association of thyroid abnormalities involving in patients of vitiligo. The present study is conducted to know the incidence of thyroid profile abnormalities in various morphological forms of vitiligo.
Methods: The present study was conducted on 53 patients of clinically diagnosed cases of vitiligo in the outpatients department of DVL of Mamata General Hospital for a period of 1 year 2018 January to 2019 January. 53 patients of age sex matched patients with other dermatosis excluding vitiligo are randomly designed as controls. Investigations were carried out in all patients of vitiligo like routine, specific like thyroid profile (T3, T4, TSH profile).
Results: The presence study showing female to male ratio is 1:3:1 thyroid function abnormalities found in 33.96% of patients compared to 7.54% controls.
Conclusions: In present study has shown that autoimmune thyroid diseases both in the form of hypothyroid, hyper thyroidism are frequently associated with vitiligo patients.

Keywords: Thyroid, Thyroid profile, Vitiligo, Auto immune

INTRODUCTION

Beauty presupposes a blemish free skin. With the rapidly rising standards of living, decrease in the morbidity due to infectious diseases and changes in socio-cultural values, skin diseases previously thought of as cosmetic disfigurement are now assuming greater importance than ever before. Vitiligo is one such condition. Vitiligo, the commonest of all pigmentory disorders, is an idiopathic acquired, cutaneous achromia characterized by circumscribed chalky white macules. It may also involve the pigmentory epithelium of the eyes, ears and leptomeninges.[1] It is sometimes familial and affects subjects of all ages, both sexes and all races. Though differences in race, religion, socioeconomic status and dietary habits do not lead to significant variation in the susceptibility, vitiligo is a striking condition on colored skin, especially in Indians.

Though it is a cosmetic deformity without any serious adverse implications over general health of the subject, historical references dating back to 600BC, bear witness to the importance given to the treatment of vitiligo.[1] These reflect immense social stigma associated with the condition. The resultant effect on the psyche of the patient is dramatic, often with a distorted body image, fear and anxiety.[2] Although vitiligo can begin at any age, it develops before the age of 20 years in 50% of patients and before the age of 10 years in 25% of patients.[3] Actually vitiligo cannot be considered as a single disease

entity but, as the result of an inter-play of numerous factors.[4.5] Studies indicate a higher incidence of auto immune and /or endocrine diseases in their families, thus adding to the gravity of psycho-social and economic implications of the disease in this subset population.[6] The present study is conducted to know the incidence of thyroid profile abnormalities in various morphological forms of vitiligo.

METHODS

A case control study conducted in the department of DVL OPD in the Mamata General Hospital Khammam for a period of 1year from January 2018 to January 2019. A detailed history including the age sex, occupation, socio economic 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 thyroid gland is done to evaluate any enlargement of thyroid. Examination of the other systems is also done part from general physical examination and the positive findings are noted.

All the patients of vitiligo attending the outpatient department of dermatology are included in this study. Fifty three age and sex matched patients with other dermatitis excluding vitiligo are randomly assigned as controls. All patients with vitiligo and controls were screened with routine investigations like urine examination, blood examination. Thyroid functions tests including Thyroxine (T_4), Triilodothyeronine (T_3), Thyroid stimulating Hormone (TSH), Thyroxin essay done by the immunocorp coated tube radio-immuno essay for the quantitative measurement of serum. Triiodothyronine essay done by using coat-a count tot T_3 kit in a solid phase radio immno essay. The immunocorp coated tube method for the quantitative measurement of TSH is a two-site, Immuno radiometric essay, commonly reffered to as sand-witch assay. Fine needle aspiration Cytology for histopathological examination is done for patients presenting the enlargement of thyroid gland. In the present study statistical analysis was done by using SPSS software version 2.1.

RESULTS

In the present study, the peak incidence of vitiligo was observed in the age group of 21-30 years (Figure 1). Whereas, the incidence of vitiligo being slightly higher in females than in males. Male to female ratio is 1:1:30 (Table 1).

In the present study, out of 53 patients generalized vitiligo observed in 23 patients (43.39) segmental vitiligo is observed in 10 patients (18.86), acro-facial 8 (15.09), focal 6 (11.32), universal 3 (5.66), lip tip 2 (3.77) and mucosal in one patient(1.88) (Figure 2).

Medical and personal history of patients with vitiligo compared to controls was studied, there is statistically significant difference between vitiligo patients and controls is observed regarding family history of vitiligo signs and symptoms of thyroid disease, enlargement thyroid gland, diabetes mellitus, menstrual and emotional disturbances (Table 2).

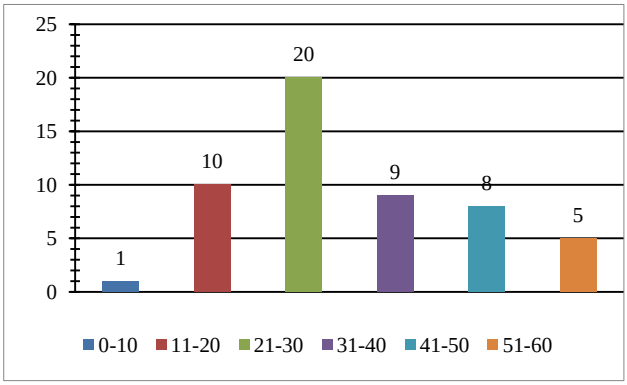

Figure 1: Distribution of cases according to age.

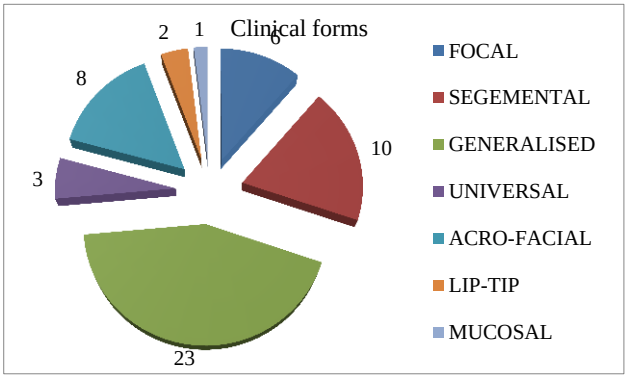

Figure 2: Distribution of cases according to clinical forms.

Table 1: Distribution of cases according to sex.

Sex	No. of cases	Percentage (%)
Males	23	43.39
Females	30	56.6

Abnormalities in one or more thyroid functions tests are found frequently in vitiligo patients. Increase in TSH levels is seen in 5 patients. (9.43) and in 2 controls (3.77) and decrease in TSH levels are seen in 6 patients (11.32) and in 1 control (1.88). Increase in T_3 levels are seen in 4 patients (7.54) and not seen in controls and decrease in $_{T3}$ levels are seen in 5 patients (9.43) and in one control (1.88). Increase in T_4 is seen in 2 patients (3.77) and in one control (1.88) and decrease in T_4 seen in 6 patients and (11.32) and in one control (1.88).

Enlargement of thyroid gland was seen in 4 patients (7.54) with vitiligo and it was not observed in any controls. Out of 4 thyroidal swellings, one case is diagnosed as Grave's disease based on clinical features and thyroid hormone levels. FNAC is done on remaining

3 patients with enlarged thyroid and they are diagnosed as Hashimotos thyroiditis.

Present study also showed the percentage of thyroid function abnormalities in relation to morphological types of vitiligo. The table 3 shows thyroid function abnormalities are revealed in one case of focal vitiligo, 2 cases of segmental vitiligo 1 case of universal vitiligo, 4 cases of acro - facial vitiligo and more prominently of 10 patients with generalized vitiligo. No cases from lip-tip and mucoasal vitiligo show any abnormalities in thyroid functions.

Table 2: Medical and personal history of patients with vitiligo compared to controls.

Characteristics	Vitiligo	Controls	P value
	N (%)	N (%)	
Diabetes mellitus	6 (11.32)	3 (5.66)	0.295
Alopecia areata	3 (5.66)	1 (1.88)	0.308
Signs and symptoms of thyroid disease	17 (32.07)	4 (7.54)	0.001
Enlargement of thyroid	4 (7.57)	----	0.126
Mensrtual distrubances	6 (11.32)	3 (5.66)	0.0005
Family history of vitiligo	20 (37.73)	5 (9.43)	0.0485
Emotional distrubances	4 (7.54)	1 (1.88)	0.359

Table 3: Percentage of thyroid function abnormalities in relation to morphological types of vitiligo.

Clinical variety	No of cases showing abnormal thyroid function tests	Percentage (%)
Focal	1	1.88
Segemental	2	3.77
Generalised	10	18.86
Universal	1	1.88
Lip-tip	-	-
Acrofacial	4	7.54
Mucosal	-	-
Total	18	33.96

DISCUSSION

Vitiligo can occur in association with a variety of systemic disorders, mainly of autoimmune in nature. Recent studies have confirmed a significant association between vitiligo and thyroid diseases like hyperthyroidism, hypothyroidism and Hashimotos thyroiditis. In the present study the prevalence of thyroid function abnormalities in vitiligo patients is 33.96% which is significantly higher than in control group (7.54) with p value 0.001. Conversely Barsky and coworkers evaluated 50 patients of vitiligo for thyroid disease, and no patient showed any abnormalities in thyroid function tests and none of them found to have any evidence of endocrine diseases.[7] These discrepancies may be due to overall prevalence of thyroid diseases in the general population or other unknown epidemiological factors.

The overall age incidence shows that the majority of cases of vitiligo in the present study are in the age group of 20-30 years and its mean age 33.616. The cases of vitiligo include 30 females and 23 males, with mean ages of 29.66 and 37.56 respectively. Similar findings have been reported by earlier studies.[8,9] In the present study, 17 patients showed signs and symptoms of thyroid disease (32.07) as compared to 4 (7.54) control patients. Thyroid enlargement is observed in 4 patients (7.54) of vitiligo but no one from control group which is comparable to study done by Hegdus group.[8]

Out of 4 patients with thyroid enlargement one patient showed signs and symptoms of Grave's disease and laboratory reports confirmed the hyperthyroid status of the patient. FNAC is done on remaining 3 patients and they are diagnosed to have Hashimoto's thyroiditis, whereas all the 6 patients in the study of Laszlo Heddgus demonstrated to have Grave's disease.[8] In the study of Cunliffe and coworkers six out of 56 patients demonstrated Hashimoto's thyroiditis.[9] Emine Dervis group demonstrated patient with vitiligo morphia and Hashimoto's thyroiditis In the study conducted by Yukio Ochi six instances of vitiligo chiefly involving the hands and feet occurred among 90 patients with Grave's disease.[10,11]

In the present study levels of thyroid hormones, i.e thyroxin, triiodothyronine, thyroid stimulating hormones are estimated nu radio immune assay, in which 18 out 53 patients (33.96) revealed abnormal thyroid function tests, which is comparable to 30% and 23% reported by earlier studies.[8,9] Out of 18 patients with thyroid dysfunction in the present study 11 patients demonstrated to have hypothyroidism and 7 patients hyperthyroidism, based on

the levels of T_3,T_4 and TSH, which is in accordance with earlier studies.[12-14]

Since thyroid diseases are more common in females it is necessary to consider this association separately for both the sexes. In the present study 11 females out of 30 (36.66) showed abnormalities in thyroid function and 7 out of 23 males showed abnormal thyroid function. It is comparable to the study of Cunliffe and co-workers in which 16 out of 42 females (38%), and 10 out of 14 males (7.14) showed abnormalities in thyroid function.[9] 3 out of 53 patients showed alopecia areata in the present study and one control patient which is comparable earlier study.[9] Diabetes mellitus occurred in 6 patients of vitiligo and 3 control patients in the present study, where as in the study of Cunliffe group four patients of vitiligo and none of the control patients revealed diabetes mellitus. It is concluded from the above study that it is worthwhile to look out for the presence of thyroid disease, in particular auto immune thyroid disease, alopecia areata, and diabetes mellitus in patients with vitiligo.[9] In the present study out of 53 cases of vitiligo, 23 cases are generalized variety, 10 cases are segmental, 8 cases are acro-facial, focal type are 6 universal 3, lip-tip 2 and mucosal 1. These findings are more or less in accordance with earlier studies.[12,14] The present study reveal higher incidence of thyroid profile abnormalities in generalized vitiligo compared to other clinical types of vitiligo and the incidence is more in females.

CONCLUSION

In conclusion the present study has shown that autoimmune thyroid diseases both in the form of hypo and hyperthyroidism are frequently associated with vitiligo patients. Further studies are required to elucidate the mechanism of association. Finally our results strongly recommended that all patients of vitiligo, especially generalized forms should be systematically screened for the presence of thyroid disease at least once a year.

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