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A STUDY ON THE ASSOCIATION OF VITILIGO WITH OTHER CO-MORBIDITIES

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ABSTRACT

Introduction: Vitiligo is an acquired pigmentary disorder resulting from progressive loss of melanocytes, affects approximately 0.5-2 % population worldwide. Widespread prejudice, ignorance, taboos, lack of scientific appraisal, and confusion of vitiligo with leprosy makes it a social embarrassment. **Aim:** To know the demographic profile of vitiligo patient with associated co-morbidities. **Materials and Methods:** The study was carried out in the department of Dermatology, Regional Institute of Medical Sciences (RIMS), Imphal, Manipur, for a period of 18 months, with effect from November 2014 to April 2016. A total of 120 cases of vitiligo, both sexes from 5-80 years of age group were included after taking informed consent. Detailed history regarding socio-demographic profile and clinical history was taken. **Results:** Out of 120 patients 50.80% were females and 49.20 % were males. Most cases developed vitiligo by 2nd decade of life. Progressive course was found in 66.7 % of patients. Vitiligo vulgaris (45%) was most common morphological type. Face was the most common site of onset (27.5%). Family history was present in 20%. **Conclusions:** Vitiligo constitutes important dermatological disease especially in India. The data suggest that local epidemiological behaviour of vitiligo need not be the same across different regions. Vitiligo differs substantially in various clinical aspects.

KEYWORDS: Vitiligo, clinico-epidemiology, clinical types, co-morbidities.

INTRODUCTION

Vitiligo is an acquired pigmentary disorder characterized by depigmented macules and patches that result from a progressive loss of functional melanocytes, affects approximately 0.5-2% of the general population worldwide.[1] Vitiligo can develop at any age but the peak incidence is in the second or third decade.[2] There are many theories about its etiology, including autoimmune, genetic, autotoxic, neural and biochemical explanations.[3] Most cases of vitiligo occur sporadically, although about 15%–20% of patients have one or more affected first-degree relatives.[4] Frequency and type of autoimmune diseases associated with vitiligo is variable as evident in different studies conducted across the world.[5] Widespread prejudices, ignorance, taboos, lack of scientific appraisal, and confusion of vitiligo with leprosy all make it a social embarrassment for the patients.[6] Therefore, this study is taken up to evaluate the different clinical pattern, demographic profile and to study the association of vitiligo with other co-morbidities, as this depigmentary disease has become one of the common skin disorders attending Dermatology OPD in this region.

MATERIALS AND METHODS

The study was carried out in the department of Dermatology, Regional Institute of Medical Sciences (RIMS), Imphal, Manipur, for a period of 18 months, with effect from November 2014 to April 2016. A total of 120 cases of vitiligo, both sexes from 5-80 years of age group were included after taking informed consent. Detailed history regarding socio-demographic profile and clinical history was taken. Cutaneous and systemic examination was done. Investigations include: complete blood count, liver and renal function tests, blood sugar, thyroid profile: T3, T4, TSH, thyroid autoantibodies, ANA, anti-ds DNA and skin biopsy whenever indicated.

Data collected were analysed using IBM SPSS version 21. Descriptive statistics like mean, standard deviation and percentages were utilized. Chi-square test was used to determine association between cutaneous manifestations with age and gender. 'P' value of <0.05 was taken to be statistically significant. Graphs and charts were prepared using Microsoft word and Excel 2010. The ethical approval was obtained from the Research Ethics Board, RIMS, Imphal before the study.

RESULTS

A total of 120 patients were included in the study, out of which 61 (50.80%) were female and 59 (49.20%) male. Majority of the patients and disease onset were in the 2nd decade (27.5%) **[table.1 & 2]**. Mean age was 32.04±19.32 years, whereas male and female mean age

was 33.61±19.42 and 30.52±19.27 years respectively. Most (46.67%) of patients had the disease of 1-5 years duration **[table.3]**. Vitiligo vulgaris was the most common type (45%) followed by focal and mucosal (20.83%) each, acrofacial (10%) and least in segmental vitiligo (3.33%)**[fig.1].** Face was the most common site of onset with 33(27.5%) patients followed by trunk 27(22.5%), lower limb 20(16.67%), upper limb 19(15.83%), genitalia 15(12.5%) and least was scalp with six patients (5%)**[fig.2]**. Physical trauma as precipitating factor was seen in 11.7% of patients, 0.8% each with footwear, emotional stress and drugs or chemicals, and the remaining 85.5% patients can't recall any precipitating factors **[fig.3]**. Family history of vitiligo was seen in 12 patients (10%) in first degree relatives, out of which 11 patients were with generalized and one patient with localized vitiligo, and eight (6.7%) patients in second degree relatives **[fig.4]**. Disease activity was present in 80(66.7%) patients, out of which 46 cases (38.33%) were in generalized and 34 (28.33%) in localized vitiligo, while the remaining 40(33.3%) patients were stable **[fig.5]**. Twelve (10%) patients showed koebnerization out of which 9(7.5%) patients were in generalized and 3(2.5%) in localized vitiligo. Leukotrichia was seen in 15(12.5%) patients, out of which 10(8.3%) patients in generalized and 5(4.2%) in localized vitiligo **[fig.6]**. Mucosal involvement was seen most commonly over the lips with 32(26.7%) patients followed by genitalia 21(17.5%). Thyroid abnormality (20%) was the most common associated disorders followed by halo nevus (7.5%) and diabetes mellitus (7.5%). **[table.4 & 5]**

Table 1: Age group affected.

Age Group (years)	Frequency (%)
0-10	13(10.8)
11-20	33(27.5)
21-30	19(15.8)
31-40	20(16.7)
41-50	8(6.7)
51-60	15(12.5)
61-70	11(9.2)
>70	1(0.8)
Total	120(100)

Table 2: Age at onset.

Age group (years)	Frequency (%)
0-10	20(16.7)
11-20	33(27.5)
21-30	19(15.8)
31-40	21(17.5)
41-50	7(5.8)
51-60	13(10.8)
61-70	7(5.8)
Total	120(100)

Table 3: Duration of diseases

Duration (years)	Male (%)	Female (%)	Total (%)
<1	24 (40.7)	20 (32.8)	44 (36.67)
1-5	23 (39)	33 (54.1)	56 (46.67)
6-10	7 (11.9)	5 (8.2)	12 (10)
11-15	3 (5.1)	1 (1.6)	4 (3.33)
>15	2 (3.4)	2 (3.3)	4 (3.33)

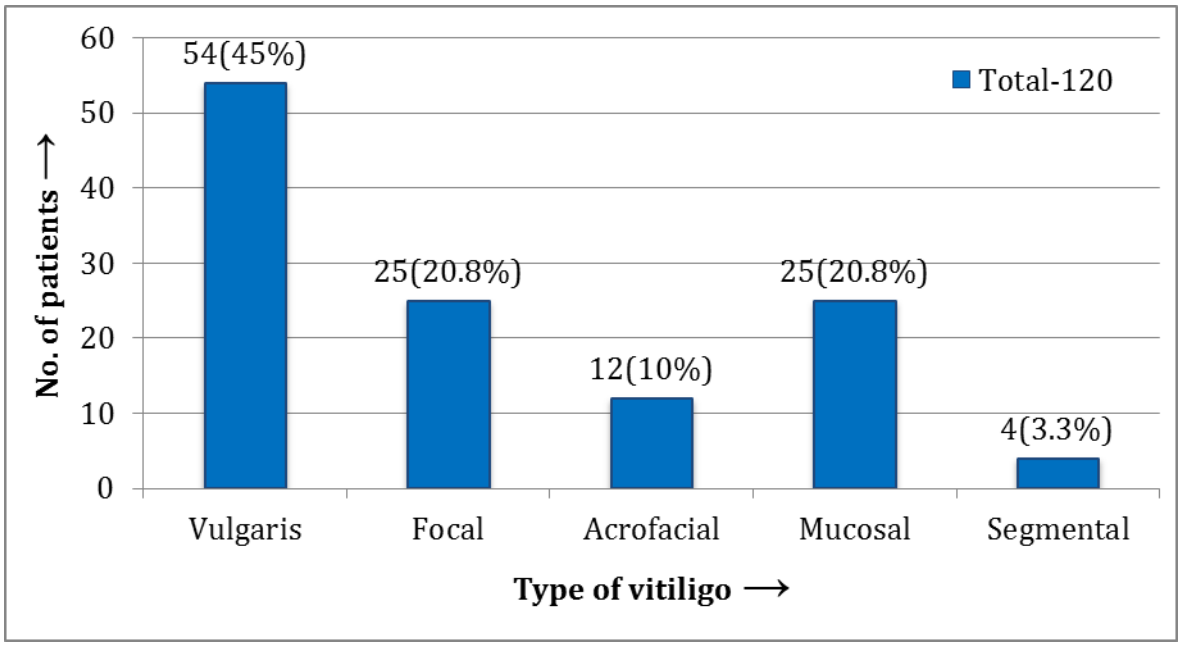

Fig. 1: Type of vitiligo.

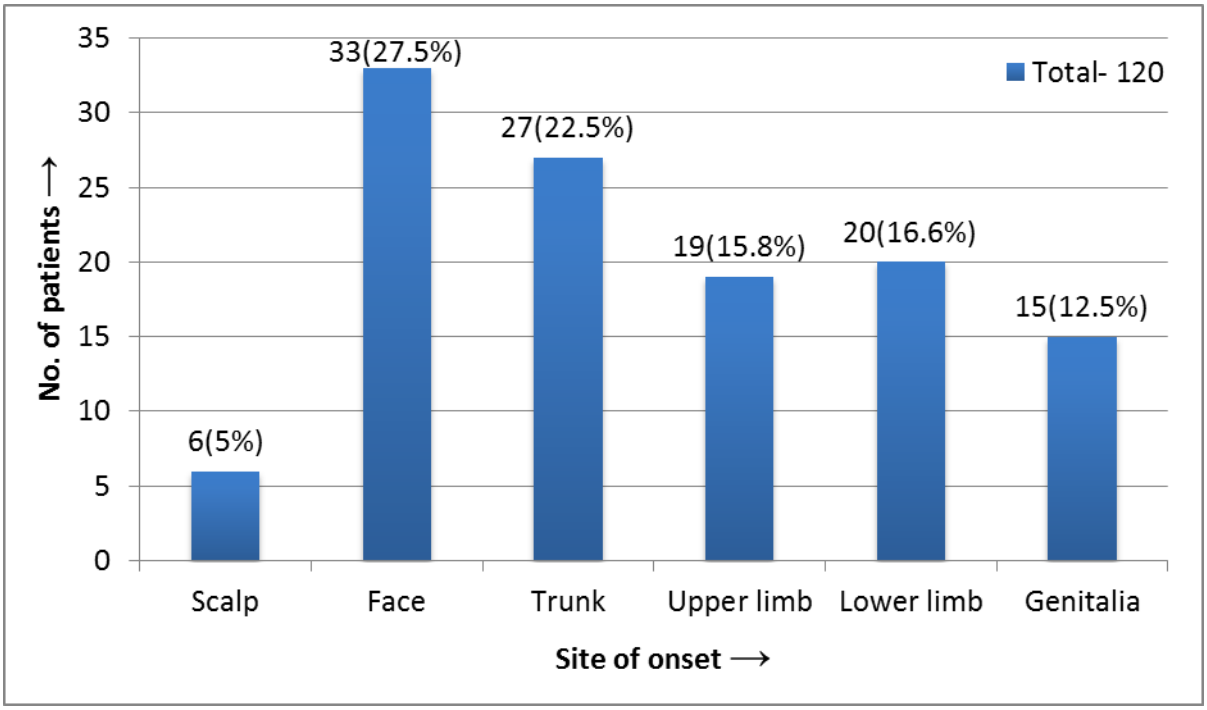

Fig. 2: Site of onset.

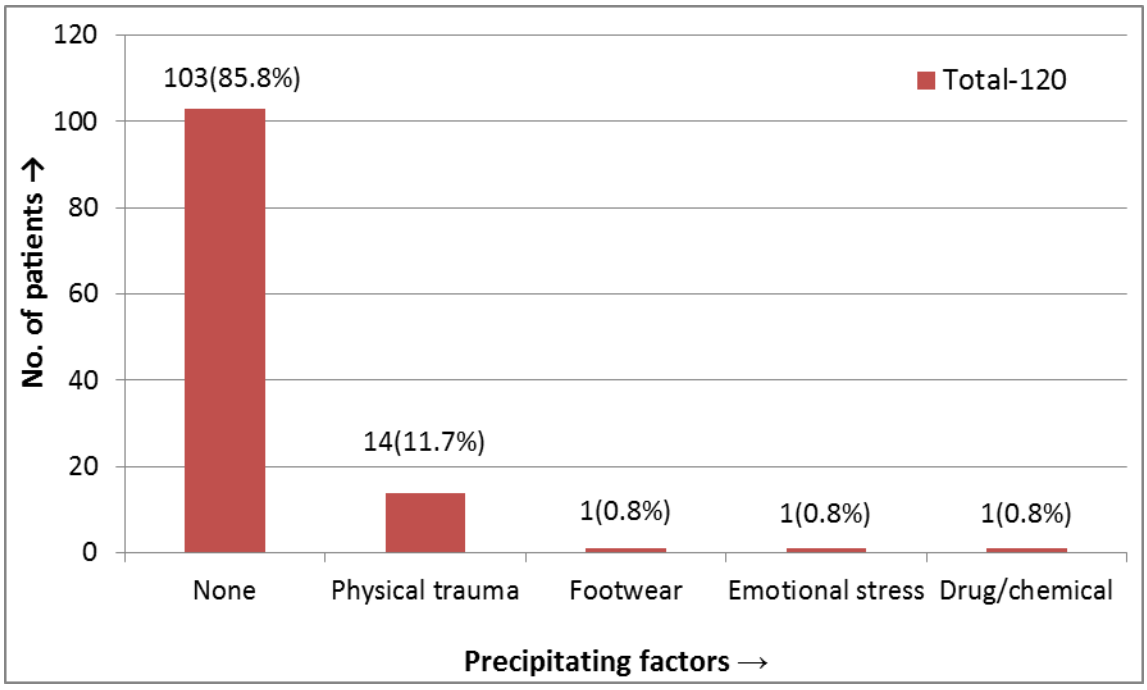

Fig. 3: Precipitating factors.

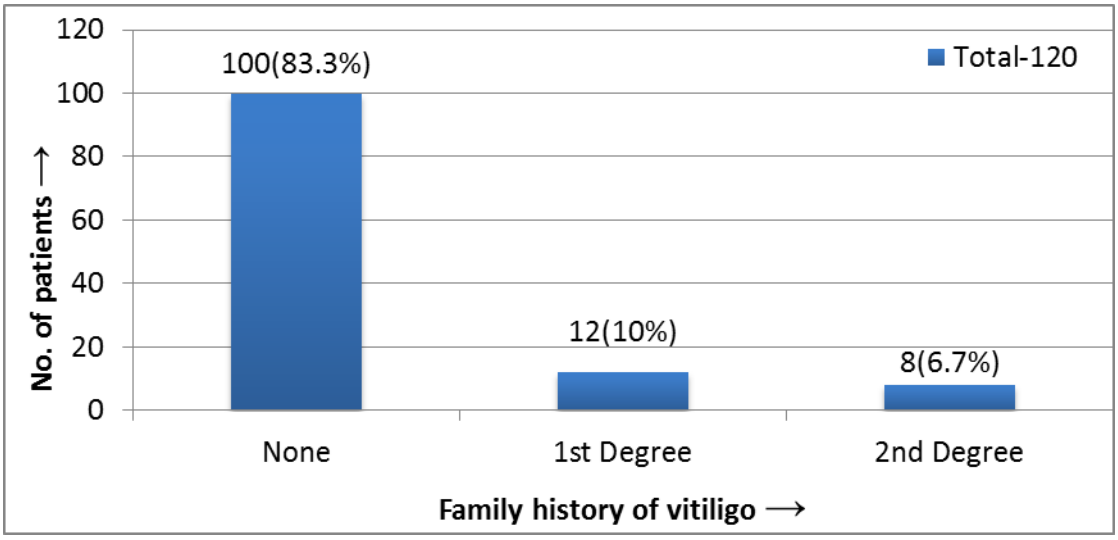

Fig.4: Family history.

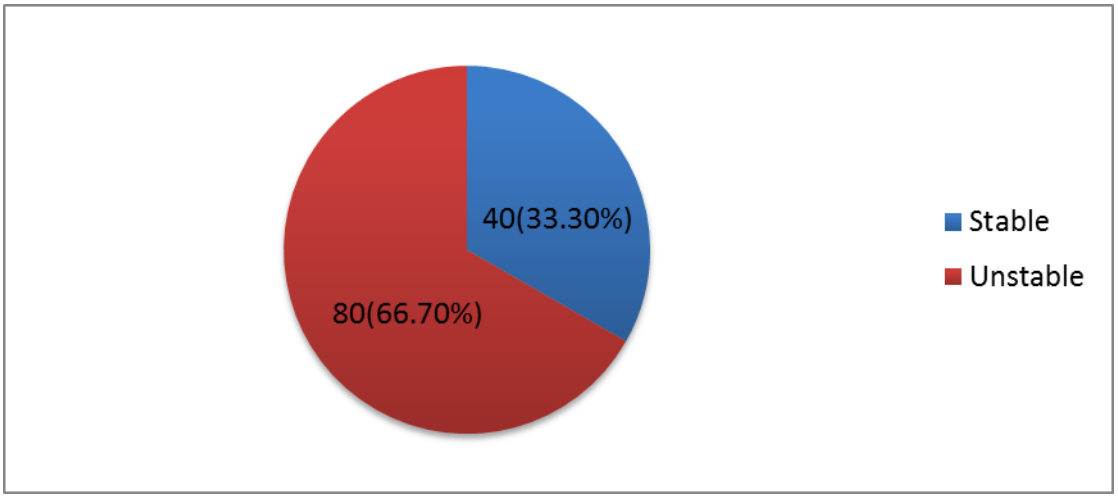

Fig.5: Stability of vitiligo.

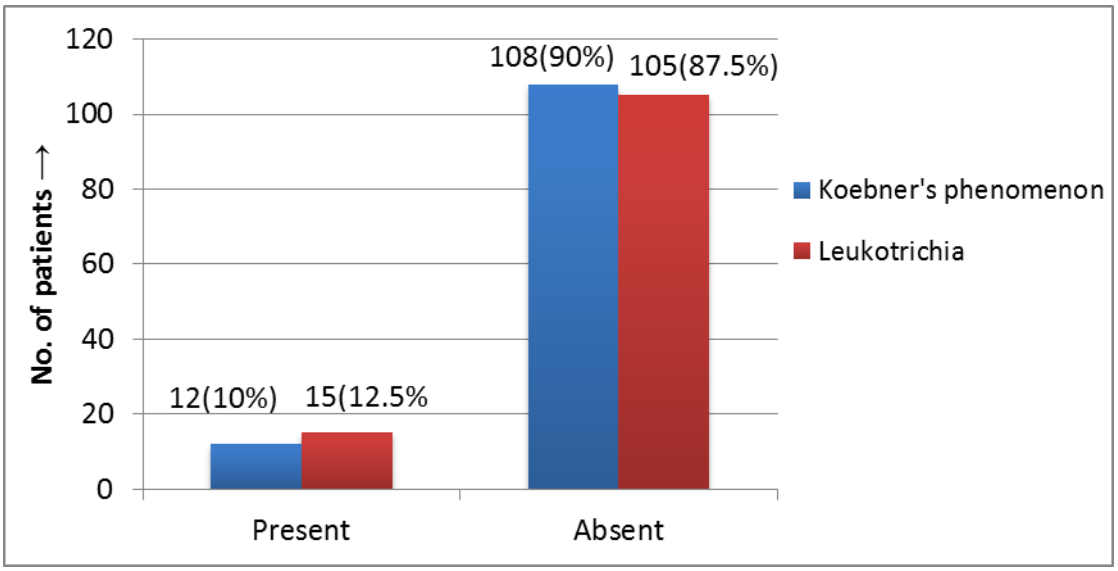

Fig.6: Koebner's phenomenon and leukotrichia.

Table 5: Associated clinical co-morbidities

Diseases	Generalized vitiligo	Localized vitiligo	Total (%)
None	28	23	51(42.5)
Thyroid disorders	14	10	24(20)
Halo nevus	4	5	9(7.5)
Diabetes mellitus	6	3	9(7.5)
Fungal infection	-	5	5(4.2)
Viral infection	1	3	4(3.3)
Hypertension	4	-	4(3.3)
Pityriasis alba	-	4	4(3.3)
Psoriasis	3	-	3(2.5)
Depression	2	1	3(2.5)
Atopic dermatitis	1	2	3(2.5)
Tuberculosis (TB)	2	-	2(1.7)
Polymorphic light eruption (PMLE)	-	2	2(1.7)
Rheumatoid arthritis	1	-	1(0.8)
Systemic sclerosis	-	1	1(0.8)
Xanthelesma	-	1	1(0.8)
Inflammatory bowel disease (IBD)	1	-	1(0.8)
Granuloma annulare	-	1	1(0.8)
Melasma	1	-	1(0.8)
Discoid lupus erythematosus (DLE)	1	-	1(0.8)
Osteoarthritis	-	1	1(0.8)
Nevus sebaceous	-	1	1(0.8)
Idiopathic guttate hypomelanosis (IGH)	-	1	1(0.8)
Asthma	-	1	1(0.8)
Angular cheilitis	-	1	1(0.8)
Freckles	1	-	1(0.8)
Androgenetic alopecia	-	1	1(0.8)
Pityriasis lichenoides et varioliformis acuta (PLEVA)	1	-	1(0.8)
Lipoma	1	-	1(0.8)
Total	66	54	120(100)

Table 6: Thyroid abnormalities.

Clinical diagnosis	T3	T4	TSH	No. of patients (%)
Subclinical hypothyroidism	Normal	Normal	↑	6 (5%)
Hypothyroidism	↓	↓	↑	10(8.3%)
Subclinical hyperthyroidism	Normal	Normal	↓	1 (0.8%)
Hyperthyroidism	↑	↑	↓	7 (5.8%)
Total	10(8.4%)	18(15%)	24(20%)	24 (20%)

DISCUSSION

Vitiligo is the most common depigmentary disorder of the skin that results from the selective destruction of melanocytes. Out of 120 patients included in our study, male and female were affected equally similar to some of the studies which showed equal sex distribution.[2,7] Whereas some studies which showed slight female preponderance.[8,6,9,10,11] Females predominate presumably maybe because of more awareness and concern for cosmetic disfigurement and related to social and marital problems. There were also some studies which showed male preponderance.[7,12,13,14] Most of the patients 33(27.5%) were in the 2nd decade which was similar to findings of Shah H et al[9] and Rajpal S et al.[15] However, some studies shows majority of patients in older age group.[11,16,17] The age of onset of the disease varied from 2 to 70 years where most cases (27.5%) developed vitiligo in the 2nd decade of life which was similar to the study by Vora RV et al.[6] Majority (46.67%) of the patients had the disease duration between 1 to 5 years which was in consistent with the studies done by Singh S et al[18] and Rao DE et al.[17] The long duration of the disease could probably be attributed to its slow progression and asymptomatic nature. Vitiligo vulgaris (45%) was the most common followed by focal and mucosal with 20.8% each, acrofacial 10% and segmental with 3.3%. These findings were consistent with most of the studies.[3,7,19,9,10,20,17,21] This indicates that the process of depigmentation, either immune-mediated or toxic may occur simultaneously or

subsequently at various unrelated distant sites. Face was the most common initial site of onset followed by trunk, lower extremities, upper extremities, genitalia and scalp which was similar to study by Fatani MI et al;[22] Habib A[23] also found head and neck to be the initial site of onset. However, this was at variance with other studies who found lower limb as most common initial site of onset.[8,2,6,18,24] The exact significance of this observation is difficult to appreciate. Nevertheless, we believe that exposed sites where individual may notices vitiligo lesions more easily and concern for cosmetic problem.

Precipitating factor such as physical trauma, foot wears, emotional stress and drug or chemical was seen in 14.5% of patients which was similar to other studies.[18,9,22,25,26] Any injury or trauma can induce the vitiligo lesions which maybe caused by stimulating the autoimmune process. Emotional stress has been mentioned as a triggering factor in one studies,[27] but these data is still limited and there is no established evidence in the literature. Family history of vitiligo was seen in 20% of our patients. Familial occurrence has been reported to vary from 6.25 to 56.8% in different studies.[8,6,7,28,27] However, when there was positive family history of vitiligo, the age of onset was early and possibility of developing generalized vitiligo was more. It is considered to be a poor prognostic factor for vitiligo.[8] Activity of the disease was seen in 66.7% of patients comparable to other studies.[6,18,19,9] Activity was more among generalized type of vitiligo. Koebner's phenomenon was found in 10% of the cases similar to the study done by Shajil EM et al[8], which is a common feature in active vitiligo. It was seen mostly in generalized vitiligo. The low frequency may have occurred due to lack of questioning about the phenomenon. Leukotrichia was found in 12.5% of patients in our study which is similar to the study by Naik AU.[21] Leukotrichia is considered to be a poor prognostic factor.

Systemic as well as cutaneous disorders are associated with vitiligo. Thyroid abnormality (20%) was found to be the most common associated disorder found in in our study. Subclinical hypothyroidism was found in 6(5%) which was in contrast to the studies by Afsar FS et al[29] and Sedighe M et al[30] which showed higher incidence. Hypothyroidism was found in 10(8.33%), out of which seven were in localized and three in generalized vitiligo patients. Incidence of hypothyroidism varies as reported in different studies.[7,31-9,32,30,29] In our study hyperthyroidism was found in 7(5.83%) case, out which six in generalized vitiligo and only one patient in localized vitiligo, and one case of subclinical hyperthyroidism in one (0.8%). Out of five (4.16%) cases with thyroid antibodies positive, one (0.8%) was diagnosed as subclinical hypothyroidism with autoimmune thyroiditis and 4 (3.3%) diagnosed as euthyroidism with autoimmune thyroiditis. It is noteworthy that in this study the lower frequency may have occurred since majority of the cases had not done thyroid antibodies test.

In our study halo nevi was observed in 9 (7.5%) patients similar to study with Jain M et al.[33] Diabetes mellitus was found in 9(7.5%) whereas other studies varies from 0.55% to 69.23% cases.[9,34,17] Psoriasis was found in 3(2.5%) cases of generalized vitiligo which was similar with studies by Garg S et al[35] and Sheth VM et al[36], whereas, some studies showed lower incidence.(2,6,18,22) Atopic dermatitis was observed in 3(2.5%) cases of vitiligo, which is similar to the studies by Jain M et al[33] and Martis J et al[25], in contrast, some studies showed higher incidence.[2,22] Others were one case each of rheumatoid arthritis, systemic sclerosis, inflammatory bowel disease, DLE and PLEVA. Even though not significant, this association may support the autoimmune theory for the pathogenesis of vitiligo. Other conditions with proposed autoimmune mechanism such as alopecia areata, pernicious anaemia, Addison's disease and morphea were however not found in our study.

Depression was found in 3(2.5%) cases of vitiligo. Psychiatric morbidity was found to be higher and self-esteem was found to be lower in vitiligo patients.[37] Generally, visibility of lesions by others and anxiety due to superstitions in patients with dermatological diseases may cause problems in social acceptance of individual. Hypertension was seen in 4(3.3%) cases which vary from 0.71 to 6.67% in other studies.[8,18,9,25,21] Tuberculosis was found in 2(1.7%) cases whereas Shajil EM et al[8] also found in 0.94%. This may just be a co-incidental finding.

Other associated disorders were fungal infection (4.2%), viral infection and P.alba (3.3%) each, polymorphic light eruption (1.7%), and xanthelesma, granuloma annulare, melasma, osteoarthritis, nevus sebaceous, bronchial asthma, Idiopathic guttate hypomelanosis, angular cheilitis, freckles, androgenetic alopecia and lipoma with one case each.

In our study, ANA was positive in 10(8.3%) cases, whereas studies by Shahidi-Dadras et al[38] (11.11%), Sheth VM et al[36](41%) and Singh S et al[13] (68%) had higher number of ANA positive cases. Anti-ds DNA antibody was positive in 7(5.8%) cases, whereas study by Singh S et al[13] had much higher number (44%) of anti-ds DNA positive cases. Even though not very significant these association may support the autoimmune theory for the pathogenesis of vitiligo.

CONCLUSION

This clinico-epidemiological study of vitiligo in this region has shown that vitiligo vulgaris is the most common clinical type observed. The onset of vitiligo is most common in second decade of life and face is the most common sites of onset. We also observed an association of vitiligo with cutaneous diseases such as halo nevus, atopic dermatitis and psoriasis and with systemic disorders such as thyroid disorder and diabetes

mellitus. Studies conducted on regional basis will aid the clinicians practicing in concerned areas to be aware of its clinic-epidemiological behaviour.

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