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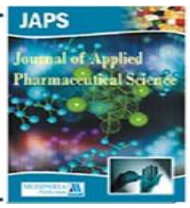

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Epidemiological profile of vitiligo in Northern India

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ABSTRACT

Vitiligo is an acquired, progressive, common pigmentary disorder of the skin and hair characterized by well circumscribed milky white macules, devoid of identifiable melanocytes. From the Indian subcontinent the highest incidence has been reported in India. The aim of the study is to find the precipitating factor and clinical features of vitiligo patients in North India. Total of 275 subjects were enrolled for the study. The study was observational and was conducted over a two year period.118 were females while rest 82 were males. The most common type of vitiligo is vulgaris (45.5%). 78.5% cases had age of onset around the age of 40 years .40% cases were in 1-5 years duration of disease. Vitiligo does not show any significant association with any addiction. 22% patients are associated with the positive family history. 44% patients showed lower limb as a site of onset of vitiligo. There was no significant correlation with dietary habits in vitiligo. 59.5% cases belong to active vitiligo & rest of 40.5% is of stable category. 17.5% cases reported physical trauma as the precipitating factor. 12% patients were associated with thyroid disease. Majority of cases 68.5% were from urban areas. Clino-epidemiologic study in North India shows that vulgaris is the commonest subtype with female preponderance. Research on the presence of autoimmune disease; particularly thyroid disorder is of great interest.

Keywords: Vitiligo, epidemiology, thyroid, dietary habits.

INTRODUCTION

Vitiligo is an acquired, progressive, common pigmentary disorder of the skin and hair characterized by well circumscribed milky white macules, devoid of identifiable melanocytes. The worldwide incidence is 1% (Wolff et al, 2007). From the Indian subcontinent the highest incidence has been reported in India (as high as 8.8% in Delhi (Bahl & Bhatia, 1971)) followed by Mexicans & Japanese (Sehgal & Srivastava, 2007). However on the basis of few dermatological outpatient records, the incidence of vitiligo in India is found to be 0.25%-2.5% (Shajil et al, 2006). Vitiligo is multifactorial and polygenic (Alkahateeb et al, 2003; Daneshpazhooh et al,2006). The precise pathology remains elusive but seems to be dependent on the interaction of genetic, immunological and neurological factors (Whitton et al, 2008). Although the life expectancy of patients remains unaffected, the patients feel distressed and stigmatized by their condition (Mattoo et al, 2002) resulting in low self esteem, poor body image and difficulties in sexual relationships (Ongenae et al, 2005). The first prime minister of India, Pt. Jawahar lal Nehru ranked vitiligo as one of the major medical problems of India because it is a psychologically devastating and frequently recalcitrant skin disorder (Parsad et al, 2003; Chaturvedi et al, 2005). The aim of the study is to find the precipitating factor and clinical features of vitiligo patients in North India and till date epidemiological studies on vitiligo have been rarely reported from this region.

MATERIAL & METHODS

Total of 275 subjects were enrolled for the study comprising of 200 patients with vitiligo and 75 healthy controls (HC) from the outpatient department of Dermatology and Venereology of Sir Sunderlal hospital, B.H.U., Varanasi, India.

The study was observational i.e. non experimental and was conducted over a two year period from July 2009 to June 2011. Clinical diagnosis of the vitiligo patients was done by the dermatologist. All the patients were interrogated and recorded for complete history regarding age, sex, family history, age of onset, site of onset, duration of disease, past treatment, marital status, dietary habits, drug addiction, precipitating factors and associated disorders. The socio-demographic profile of the patients was also recorded.

One or more macules in one area but not in segmental pattern were grouped as focal vitiligo; one or more lesions localized in unilateral pattern as segmental vitiligo. Macules localized on face and distal extremities as acrofacial vitiligo; symmetrical distribution of lesions affecting many parts of body as vitiligo vulgaris; unique involvement of mucous memberane as mucosal and depigmentation involved in more than 80% of the body as universal vitiligo.

RESULTS

The mean age of vitiligo patients and controls was 33.23±16.67 and 31.45±11.02 respectively (table 1). Out of 200 case 118 (59.0%) were females while rest 82 (41.0%) were males (table 2). On subgroup analysis both Vulgaris & Segmental vitiligo were found to be significantly higher for females as compared to males (table 3). The most common type of vitiligo is vulgaris (45.5%) followed by acrofacial (21.5%), focal (18.5%), segmental (11%), mucosal (2%) and universal (1.5%) (Table 4). 78.5% cases had age of onset around the age of 40 years while 21.5% had age of onset after the 40 years of age (table 5). 40% cases were in 1-5 years duration of disease (table 6). Vitiligo as a whole does not show any significant association with any addiction eg tobacco chewing, alcoholism and smoking (table 7). 22% patients are associated with the positive family history of vitiligo while 78% had no family history of vitiligo (table 8). Statistically no significant correlation was found between vitiligo and positive family history. 44% patients showed lower limb as a site of onset of vitiligo followed by trunk/face (18.5%) and upper limb (45%) while frequency of genital and scalp as site of onset is 2 & 2.5% respectively (table 9). There was no significant correlation between vegetarian & non-vegetarian group in vitiligo as compared to control. In subtypes only focal vitiligo shows significant association with dietary habits (table 10).59.5% cases belong to active vitiligo (new lesions formed within 4months) category & rest of 40.5% are of stable vitiligo (no new lesions formed within 4 months) category (table 11). 17.5% cases reported physical trauma/injury as the precipitating factor (table 12). 12% patients were associated with thyroid disease followed by leukotrichosis 9.5% (table 13). Majority of cases 68.5% were from urban areas (Table 14).

Table-1 Showing means age of patient and control.

Group	Mean age± (years)	P value
Vitiligo	33.23±16.67	0.392
Control	31.45±11.02	

Table-2 Showing gender of patient and control.

Group	male	female	P value
	No (%)	No (%)	
Vitiligo(200)	82(41.0)	118 (59.0)	0.01*
Control(75)	31 (41.3)	44 (58.7)	

*-statistically significant ($p<0.05$).

Table-3 Gender wise distribution of patients with type of vitiligo.

Types of vitiligo	Total No (%)	Male No (%)	Female No (%)	P value
Vulgaris	91 (54.8)	31 (34.1)	60 (65.9)	0.002*
Segmental	29 (14.5)	10 (34.5)	19 (65.5)	0.031*
Acrofacial	43 (21.5)	23 (57.5)	17 (42.5)	1.000
Focal	37 (18.5)	16 (44.4)	20 (55.6)	0.222
Control	75 (100)	44 (58.7)	31 (41.3)	

Table-4 Distribution of morphological types of vitiligo.

Types	Vitiligo	
	No	%
Acrofacial	43	21.5
Focal	37	18.5
Mucosal	4	2
Segmental	22	11
Universal	3	1.5
Vulgaris	91	45.5
Total	200	100

Table-5 Frequency distribution according to age of onset of vitiligo.

Age of onset	No	%
<10	7	3.5
10-20	80	40.0
21-40	70	35
41-60	39	19.5
> 60	4	2.0
Total	200	100

Table-6 Correlation of disease duration with subtypes of vitiligo.

Disease Duration (years)	Total cases (200)	Acrofacial (43)	Focal (37)	Mucosal (4)	Segmental (22)	Universal (3)	Vulgaris (91)
	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)
<1	36 (18)	6 (14)	15 (40.5)	1 (25)	7 (31.8)	0 (0)	7 (7.7)
1.1-5	80 (40)	21 (48.8)	15 (40.5)	1 (25)	8 (36.4)	1 (33.3)	34 (37.4)
5.1-10	49 (24.5)	12 (27.9)	6 (16.2)	2 (50)	5 (22.7)	1 (33.3)	23 (25.3)
10.1-15	19 (9.5)	2 (4.7)	0 (0)	0(0)	2 (9.1)	1 (33.3)	14 (15.4)
15.1-20	7 (3.5)	0 (0)	1 (2.7)	0 (0)	0 (0)	0 (0)	6 (6.6)
>20	9 (4.5)	2 (4.7)	0 (0)	0 (0)	0 (0)	0 (0)	7 (7.7)

Table-7 Association of patients' habit with vitiligo.

Habit		Control (75)	Vitiligo (200)
		No (%)	No (%)
Tobacco	Chewer	10 (13.5)	34 (16)
	Non-chewer	65 (86.5)	166 (83)
	P value	0.460	
Alcoholism	Alcoholic	7 (9.3)	16 (8)
	Non-alcoholic	68 (90.7)	184 (92)
	P value	0.722	
Smoking	Smoker	2 (2.6)	19 (9.5)
	Non-smoker	73 (97.4)	181 (90.5)
	P value	0.057	

Table-8 Findings of family history of vitiligo patients.

Family history	Vitiligo	
	No	%
Negative family history	156	78
First degree relative	26	13
Second degree relative	11	5.5
Third degree relative	7	3.5
Total	200	100

Table-9 Distribution of patients according to site of onset of vitiligo.

Site of onset	vitiligo	
	No	%
Face	37	18.5
Forelimb	29	14.5
Genital	4	2
Hind limb	88	44
Scalp	5	2.5
Trunk	37	18.5
Total	200	100

Table-10 Dietary habits in patients with vitiligo.

Dietary Habits	Control (75)	Total Vitiligo (200)	Vulgaris (91)	Segmental (22)	Mucosal (4)	Acrofacial (43)	Focal (37)	Universal (3)
	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No(%)	No (%)
Vegetarian	28(37.3)	89 (44.5)	39(42.9)	9(40.9)	1(25)	15(34.9)	23(62.2)	2(66.7)
Veg/non-vegetarian	47(62.7)	111 (55.5)	52(57.1)	13(59.1)	3(75)	28(65.1)	14(37.8)	1(33.7)
P value		0.284	0.526	1.000	1.000#	0.844	0.013*	0.585#

Table-11 Distribution of vitiligo patients according to course of vitiligo.

Course	Vitiligo	
	No	%
Active	119	59.5
Stable	91	40.5
Total	200	100

Table-12 Precipitating factors in vitiligo.

Precipitating factors	Vitiligo	
	No	%
Physical trauma/injury	35	17.5
Footwear	4	2
Emotional trauma	4	2
Drug/ chemical	6	3
Bindi	2	1
Burn	2	1
Pregnancy	2	1
None	145	72.5
Total	200	100

Table-13 Association of various disease with vitiligo.

Diseases	Vitiligo	
	No	%
Thyroid	24	12
Diabetes Mellitus	6	3
Alopecia areata	4	2
Hypertension	4	2
Leukotricha	19	9.5
Rheumatoid arthritis	2	1
Psoriasis	1	0.5
None	140	70
Total	200	100

Table-14 Distribution of patients according to region.

Groups	No	%
Urban	137	68.5
Rural	63	31.5
total	200	100

DISCUSSION

In our study, predominance of females was observed and this was in accordance with the study of Kovacs, 1998; Al-Mutairi & Sharma, 2006; Shajil et al, 2006; Martis et al., 2002 and Nunes& Esser, 2011. This may be attributed to the fact that parents are probably more concerned when confronted with a daughter instead of a son with vitiligo and therefore more likely to consult a doctor (Jaishankar, 1992).

In our study the more common age group for onset of disease is 10-20 years and this is consistent with other reports (Rajpal, 2008; Arycan, 2008). This shows that disease starts at a younger age in the Indian population. Contrary to this Howtiz et al (Howits, 1977) showed age of onset of vitiligo to be in between 40-60 years.

In our study the duration of disease varied from six months to 20 years but 58% cases were less than 5 years in duration and 59.5% were from active vitiligo category. Similar studies had been performed by Hann & Lee, 1996; Shah et al, 2008 & Dave et al., 2002. A positive family was reported in 22 % cases in our study. Hann et al, 1997 reported 13% family history; Handa & Kaur, 1999 reported 11.5% while Al Mutairi & Sharma, 2006 reported 18.9%. This is attributed to the role of genetic factors in the pathogenesis of vitiligo.

The most common site of onset is lower limb (44%) followed by face/trunk (18.5%).This can be substantiated by the study of Al-Mutairi & Sharma, 2006; Chanda et al. 1996; Martis et al., 2002 and Reghu et al., 2011. Contrary to this Handa and Dogra, 2003 reported face, trunk and legs in descending order of frequency. Vitligo vulgaris (45.5%) is the most prevalent subtype followed by acrofacial (21.5%), focal (18.5%) and segmental (11%) in our study. Similarly Kovacs, 1998; Handa & Kaur, 2003 & Hann et al, 1997 also reported vulgaris to be most common subtype.

Association of vitiligo with other diseases or abnormalities has also been a subject of great interest.In our study autoimmune diseases were seen in 18.5% cases. The association with thyroid disease was 12%, followed by leukotrichosis in 9.5% and diabetes mellitus in 3% patients. Gopal et al, 2007 & Arycan et al, 2008 reported 12% & 4.4% thyroid disease respectively, Huggins et al, 2006 reported 1-7% diabetes mellitus, Reghu et al, 2011 & Handa & Dogra, 2003 reported 6.3% & 11.5% leukotrichosis respectively. Clinically apparent deafness or any other ocular abnormality was not observed in any of the patients in our study. Majority of our patients were from urban areas thus environmental pollutant may acts as triggering factor in these cases. Slominski et al, 1989 reported several environmental factors such as stress; extreme exposure to sunlight or pesticides plays a role in the etiology of vitiligo.

CONCLUSION

Clino-epidemiologic study in North India shows that vulgaris is the commonest subtype with female preponderance. Research on the presence of autoimmune disease; particularly thyroid disorder is of great interest. We suggest that patients

having these antibodies should be followed up for the possible development of clinical thyroid dysfunction.

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