

GENDER DIFFERENCES IN CLINICAL AND EPIDEMIOLOGICAL PROFILE OF ADULT PATIENTS WITH VITILIGO

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ABSTRACT

INTRODUCTION

Vitiligo is an acquired disorder of skin characterized by white macules. Though there are many studies describing clinical and epidemiological features of vitiligo; there are few studies which have attempted to see the differences between male and female. Understanding the gender differences in clinico-epidemiological features will help to find the direction for further research in understanding pathogenesis. The objective was to find the gender wise differences in clinico-epidemiological pattern of vitiligo.

MATERIAL AND METHODS

This was cross sectional study done at Dermatology and Venereology out-patient clinic of Universal College of Medical Sciences Teaching hospital, Bhairhawa, Nepal from January 1, 2015 to December 31, 2016. Consecutive sampling technique was used and the cases of 18 years and above were taken. Chi-square test, multi-variate logistic regression, two sample t-tests were used to analyze the data.

RESULTS

The total number of case was 190. Female to male ratio was 1.38:1. Vitiligo vulgaris was seen more in female and mucosal vitiligo more in male and the difference was statistically significant. However, there was no statistically significant difference among gender in family history, duration of disease, mucosal and hair involvement, history of recurrence and various age groups.

CONCLUSION

Vitiligo vulgaris is seen more in female and mucosal vitiligo is seen more in male. This study has strengthened the evidence regarding the difference noted in clinic-epidemiological aspect of vitiligo. There should be more studies, so that more patterns in gender differences could be understood, and this will help in understanding the pathogenesis of vitiligo.

KEYWORDS

Adult, Epidemiological, Gender, Vitiligo.

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INTRODUCTION

Vitiligo is common, acquired, discoloration of the skin, characterized by well circumscribed, ivory or chalky white macules which are flush to the skin surface.¹ They occur on the skin in different parts of the body and sometimes also on the mucous membrane. The exact pathogenesis of vitiligo is still to be elucidated. Multiple mechanisms, including metabolic abnormalities, oxidative stress, generation of inflammatory mediators, cell detachment and autoimmune responses, might contribute to pathogenesis. The prevalence of vitiligo is 1.8%.² The prevalence in male is 1.1% and that in female is 1.3%.²

Various studies have been done in various parts of the world to know the clinical and epidemiological features of vitiligo.³⁻⁷ There are only few studies, which have attempted to differentiate those findings in male and female, and interestingly some statistically significant differences were noted.^{8,9} There is also evidence that certain gene polymorphism is associated with vitiligo in female.¹⁰

This study was done to find the gender differences in clinical and epidemiological features in vitiligo as understanding these difference will help us to open up the avenue for the new research in pathogenesis based on these findings.

MATERIAL AND METHODS

This study was done at Dermatology and Venereology out-patient clinic of Universal College of Medical Sciences-Teaching Hospital (UCMS-TH), Bhairahawa, Nepal from January 1, 2015 to December 31, 2016. The ethical approval was obtained from Institutional Review Board of UCMS. Consecutive sampling technique was used. All patients with vitiligo in the OPD were recruited after taking proper written consent. The diagnosis was made clinically. Wood's lamp was used as an aid to diagnosis in some cases. Any patient who refused to give consent and less than 18 years of age were excluded from study. Data was obtained after clinical interview and all details were recorded in pre-designed proforma. The variables included were age, sex, level of education, types of vitiligo, symptoms, duration of disease, history of recurrence, involvement of hair and mucosa, family history, site of vitiligo and history of treatment. The data was recorded in MS excel and analyzed with SPSS version twenty. The descriptive statistical measures were carried out. Chi-square test, multi-variate logistic regression, two sample t-test were used to analyze the data. In all test, *p*-values (two tailed) <0.05 was regarded as significant.

RESULTS

There were total of 190 patients with female: male ratio being 1.38:1. The average age of male and female were 34.76 ±14.86 and 36.56 ±14.87 respectively. With *p*-value of 0.41, there was no statistically significant difference in age. The total number of male and female were 80 (42.1%) and 110 (57.9%) respectively. The duration of disease in male and female was

14.03 ±4.80 and 11.79 ±4.71 respectively, there was no statistically significant differences (*p*-value=0.44).

There was no statistically significant difference among gender in family history, involvement of hair and mucosa, history of recurrence and symptoms (Table 1).

Table 1. Gender wise differences in various clinical features of vitiligo

Variable	Gender n (%)		Total n (%)	<i>p</i> -value
	Male	Female		
Family history				
Yes	3 (3.8)	4 (3.6)	7 (3.7)	1.0
No	77 (96.2)	106 (96.4)	183 (96.3)	
Hair involvement				
Yes	8 (10)	13 (11.8)	21 (11.1)	0.81
No	72 (90)	97 (88.2)	169 (88.9)	
Mucosal involvement				
Yes	25 (31.2)	37 (33.6)	62 (32.6)	0.75
No	55 (68.8)	73 (66.4)	128 (67.4)	
Recurrence				
Yes	4 (5)	6 (5.5)	10 (5.3)	1.0
No	76 (95)	104 (94.5)	180 (94.7)	
Symptoms				
Yes	3 (3.8)	12 (10.9)	15 (7.9)	0.10
No	77 (96.2)	98 (89.1)	175 (92.1)	

The largest number of vitiligo was seen in vitiligo vulgaris (Vitiligo V.) and the lowest number was seen in universal vitiligo. Vitiligo vulgaris was more likely to be seen in female and mucosal vitiligo was more likely to be seen in male. The difference was statistically significant (Table 2).

There was no significant difference among gender in various age groups (Table 2). The largest number of patients were from age group 20 to 30 years and almost half of the patients were from 18 to 30 years of age.

Table 2. Association between gender and certain features of vitiligo*

Features	Gender n (%)		Total n (%)	<i>p</i> -value	Odds ratio	Confidence interval
	Male	Female				
Types						
Vitiligo V.	37 (46.2)	61 (55.5)	98 (51.6)	0.04	0.40	0.165-0.993
Acrofacial	17 (21.2)	18 (16.4)	35 (18.4)	0.38	0.63	0.223-1.780
Universal	1 (1.2)	4 (3.6)	5 (2.6)	0.13	0.16	0.016-1.718
Segmental	10 (12.5)	17 (15.5)	27 (14.2)	0.10	0.39	0.128-1.200
Mucosal	15 (18.8)	10 (9.1)	25 (13.2)	0.04	2.47	1.007-6.073
Age (years)						
=20	13 (16.2)	6 (14.5)	29 (15.3)	0.70	1.62	0.132-19.980
>20-30	28 (35.0)	32 (29.1)	60 (31.6)	0.65	1.75	0.150-20.350
>30-40	14 (17.5)	25 (22.7)	39 (20.5)	0.92	1.12	0.093-13.482
>40-50	15 (18.8)	20 (18.2)	35 (18.4)	0.75	1.5	0.124-18.129
>50-60	5 (6.2)	7 (6.4)	12 (6.3)	0.79	1.42	0.100-20.437
>60-70	4 (5.0)	8 (7.3)	12 (6.3)	1.00	1.00	0.068-14.640
>70	1 (1.2)	2 (1.8)	3 (1.6)	0.70	0.61	0.050-7.569

*The reference for each model is sex: female

It was seen that 83 (43.7%) patients presented to the OPD without prior history of treatment. Among those who were treated phototherapy was found to be less preferred method of treatment. There was no significant difference in treatment modality among the gender (Table 3). The comparison of gender with various sites of involvement showed no statistically significant differences (Table 3). The other site indicates those site except hand, foot and head i.e. covered site only. Exposed site indicates all three sites i.e. hand, foot and head. Multiple site mean presence of disease at both exposed and unexposed site.

Table 3. Association between gender with treatment patterns and site of involvement*

Variable	Gender n(%)		Total n (%)	p-value	Odds ratio	Confidence interval
	Male	Female				
Treatment						
Topical	12 (15.0)	11 (10.0)	23 (12.1)	0.20	1.83	0.721- 0.644
Systemic	33 (41.2)	43 (39.1)	76 (40.0)	0.43	1.28	0.682- 2.430
Phototherapy	4 (5.0)	4 (3.6)	8 (4.2)	0.48	1.67	0.391- 7.191
None	31 (38.8)	52 (47.3)	83 (43.7)			
Site						
Head	7 (21.2)	24 (21.8)	41 (21.6)	0.48	1.41	0.531- 3.778
Hand & foot	16 (20.0)	14 (12.7)	30 (15.8)	0.12	2.28	0.804- 6.495
Other site	29 (36.2)	38 (34.5)	67 (35.3)	0.35	1.52	0.621- 3.754
Exposed site	8 (10.0)	14 (12.7)	2 (11.6)	0.82	1.14	0.361- 3.622
Multiple sites	10 (12.5)	20 (18.2)	30 (15.8)	0.48	0.70	0.265- 1.883

*The reference for each model is sex: female

DISCUSSION

This study showed a slightly greater female prevalence. The vitiligo vulgaris was seen more in female and mucosal vitiligo was found more in male. However, no statistically significant difference was seen in other clinical and epidemiological aspect of vitiligo. Most studies done in past has shown more female to male ratio (Table 4).

Table 4. Female to male ratio of studies done at various parts of world

Study	Female: male ratio
Anaba ⁸	1:1.375
Rajpal et al ¹¹	0.88:1
De Barros et al ¹²	1.64:1
Liu et al ¹³	0.95:1
Mahajan et al ¹⁴	1.1:1
Agrawal et al ¹⁵	1:1.05
Kumar et al ³	1.2:1
Cesar Silva de Castro et al ¹⁶	1.02:1
Lee et al ¹⁷	1.30:1
Lu et al ¹⁸	1:1.35
Wang et al ¹⁹	1:1.6
Reddy ²⁰	1.46:1
Vora et al ⁷	1.5:1

Most of the studies were hospital based. On the contrary, population based studies has shown mixed result, as study done in India had shown more female and that in China has shown more male.^{19,20} However the meta-analysis conducted on prevalence of vitiligo has shown female dominance.² Our study also showed female dominance. So the selection bias due to female being more concerned about the disease may not be the cause of more number of female seen in previous studies, in most part of the world.

There was no statistically significant difference in family history and history of recurrence. Study by Patil et al has shown male reporting more family history than female.⁹ However our research finding was different, and the hypothesis that x-linked gene involvement in susceptibility of this condition may not be true.²¹ Further research is required to throw more light in this regard.

There was no difference between duration of disease among gender. One study has shown longer duration in female.¹³ Other studies has shown the duration of disease is longer in male.^{8,9} The authors has opined that early consultation by female might be the reason.

Leukotrichia has been linked with treatment resistance and leucotrichia was found to be associated with male,⁹ but our study did not find any differences between male and female in context of involvement of hair. Maximum number of patient in our study was seen from 20 to 30 years. There was no difference among gender. The population based survey has shown, the number of cases increase in old age group.^{19,20} Like present study, other studies have shown declining number of cases as age advances.^{15,22} Since there was no differences in gender in treatment, it can be said that both gender loose interest from treatment and withdraws from treatment at same rate.

This study has shown that the female was more likely to have vitiligo vulgaris and male had tendency toward mucosal vitiligo. Past studies have shown mixed result. Study showed male predominance in lip tip vitiligo similar to our study.⁹ In a study by Anaba, acrofacial type was common in female and vitiligo vulgaris common in male.⁸ Our finding is also supported by genetic study, which showed ESTR1 (Estrogen Receptor 1) gene poly morphism is associated with vitiligo vulgaris or vitiligo in female.²³ More researches are needed, both clinico-epidemiological and genetic to get precise answer. This may also help in finding new theories in pathogenesis and may form the basis for new treatment. Mucosal vitiligo showing tendency toward male also supports the finding that male have lesion with poor therapeutic prognosis as compared to female.⁹

In Germany most common form of management was cosmetic concealment by use of self-tanner and female had more tendencies to use it.²⁴ In our study this form of treatment was almost non heard of. There was no difference in treatment pattern among male and female and combination of topical

preparation and systemic oral treatment was mostly used treatment in our study. The total absence of cosmetic concealment as part of management may be due to non-availability or restricted use because of its high price.

There was no difference between the distribution pattern among male and female in our study. Previous studies grouped the distribution of lesion in different ways. There were no significant differences in distribution of lesion among the gender in past.^{8,9}

This study has its own limitation. It was hospital based study so some findings may not be entirely representative of population.

CONCLUSION

This study has shown vitiligo vulgaris is seen more in female and mucosal vitiligo more in male. Gender differences in other clinical and epidemiological features were not observed in vitiligo. Further research in gender wise differences in clinical and epidemiological features is essential, so that it can pave the way for new research to find more precise pathogenesis for this disease.

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