OCCURRENCE OF SEGMENTAL AND NON-SEGMENTAL VITILIGO AT TERTIARY CARE HOSPITAL

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ABSTRACT

Background: Vitiligo is an acquired disorder of depigmentation which occurs as white macules on skin andmay result in substantial stigmatization and psychological stress. Although treatment options exist, acure for this disease has yet to be discovered.

Objective: To determine the frequency of segmental and non-segmental features with vitiligo at ISDSK.

Method: This prospective study was conducted at Institute of skin diseases. The duration was from Jan-2018 to June-2018. Informed consent was taken from each participant. A prepared questionnaire was used for obtaining baseline characteristics which includes age, race, maritalstatus, duration of vitiligo, occupation, Segmental non segmental features, family history of disease and associated diseases. The analysis of data was performed using SPSS v. 28.

Results: Total of 416 subjects with the mean age of 25.75±15.59 years are included in the study. Sindhi were 40 (9%), Punjabi 39 (6.4%), Pashto 82 (19.7%), Baloch 10 (2.4%), Urdu 169 (40.65%), and others76 (18.26%). Most of the subjects were unmarried 254 (61%). The duration of Vitiligo was 4.61±6.84 years. Features with vitiligo were Non-segmental in 101 (24.2%) patients and segmental 315 (75.8%) subjects. Positive family history of disease was observed in 76 (18.2%) and associated diseases in39 (9.4%) subjects.

Conclusion: Non segmental vitiligo is more common in population, therefore high chance of psychological disturbances can be seen.This suggest that more work is required on psychosocial counselling and research on treatmentoptions.

Keywords: Vitiligo, Segmental, Non-segmental

INTRODUCTION:

Vitiligo is one of the common skin disorders in which smooth white patches or areas (known as macules) appear on the skin. It usually begins to appear on the hands, feet, forearms, and face. This disorder is defacing, with main emotional influence on patient and their guardians and/or parents. [1,2]Vitiligo typically starts with a limited tiny white areas or patches that can progressively dispersed throughout the body over the sequence of various months. Vitiligo characteristically starts to appear on hands, feet, forearms, and face but may grow on any area of the body, i.e., mucous membranes of various body tissues including nose, moist lining of the mouth, rectal and parts), inner ears and eyes. [3]Despite lack of demonstrative physical symptoms vitiligo may cause psychological disturbance and damages patient and guardian and/or parental quality of life in juvenile age group. **This disorder is frequentlymisinterpreted as an aesthetic and cosmetic issue, although its outcomes can beemotionally distressing, habitually with a significant load on routine life period. [4] An international consensus in 2011, categorized segmental vitiligo distinctly from other types of vitiligo, and the term vitiligo was defined to designate all formsof non-segmental vitiligo [5,6].** Globally, prevalence of 0.5% to 2.0% or so of the population has vitiligo.[5]Vitiligo influences all racial groups and genders similarly; though, it is more evident in individuals with dark-colored skin. Even though vitiligo may progress at any age in anyone, it most frequently seems to occur in individuals between 10-30 years of age. Vitiligo infrequently occurs in the very infantile age group or very old age group.

There are two subsets presents in patients with vitiligo: Those having initial and early onset(age of 12 years even more younger) extra halo nevi, family history, Koebner phenomenon, atrophy, and, segmental disease; and with delayed onsethaving additional acrofacial lesions and disease of thyroid (after 12 years of age)[7].

The clinical presentations and features of vitiligo are well recognized, but fewreports have recommended that vitiligo of adult or childhood-onset may vary in some characteristics. [4,8] Hence, current studyaims to evaluate whether the clinical characteristics and forms ofassociated autoimmune disorders differ in relation to the onset of disease.

Few studies have proposed that the nervous system may be involved in the pathogenesis of vitiligo, known as “neural hypothesis.” Such hypothesis is based on the one-sided spreading design of SV. Though, the pattern of distribution of SV is not completely analogous to other diseases of the skin, and it is infrequently dermatomal in nature. Moreover, there is not sufficient proof in support of such theory. Likewise, melanocyte-specific T-cell infiltrations matching to NSV were revealed in SV; more proposing that it is also autoimmune – mediated. [9]
Complications of vitiligo include societal stigmatization and psychological stress, involvement of eye e.g., iritis, depigmented skin, skin carcinoma, and loss of heating due to loss of melanocyte in cochlear area. Additional complications are associated with medications such as atrophy of skin due to extended utilization of topical steroids.

MATERIAL AND METHODS:

The study was retrospective and include **416 patients of vitiligo who had been evaluated at the** Institute of Skin Diseases, Sindh Karachi-Pakistan. The period of study was from January 2018 to December 2018. **The protocol of study was permitted by the Ethical Committee. Each participant gave** informed consent before study. A predesigned questionnaire was used for obtaining baseline characteristics. **Data obtained consisted of patient details like name, gender, age, race, marital status, period of disease, occupation, associated disease, associated autoimmune disorder if exists, family history in vitiligo in first-degree relations, status of smoking, activity of disease, and status of re-pigmentation.**

The sample size calculation was done with the use of projected variation from past studies, having power of 80 along with confidence interval of 95%. The sample size of 416 was achieved.

Statistical evaluation was done by using SPSS Version 28.0. This research based on categorical variables, so frequencies and percentages were analyzed except age.

RESULTS:

Table number one shows the demographic results of vitiligo patients. The total number of male subjects were 231 and female were 185. It is clearly shown in the table that most of the patients were unmarried 254 (62.1%), while 152 (37.2%) were married and 3(0.7%) were widow. Out of 416 almost 169 (40.6%) participants were Urdu speaking, whereas as race of other communities were Sindhi 40 (9.6%), Punjabi 39 (9.4%), Pashto 82 (19.7%), Baloch 10 (2.4%), and others 76 (18.3%) respectively. Furthermore, it is also observed that features with vitiligo were Non-segmental in 101 (24.2%) patients and segmental 315 (75.8%) subjects. It is clearly described in the above table that positive family history of disease was detected 76 (18.2%) and remaining 340 (81.8%) were not detected. Additionally, 39 (9.4%) reported that they have association with disease, while other 377 (90.6%) haven't association. Lip and tip variety (acrofacial) was seen in 57 (13.7%) subjects out of 416. (Table 1-2)

Table: 01 Demographic Descriptive Statistics

	Category	**Frequency**	**Percentage**
Gender	Male	231	55.5%
	Female	185	44.5%
Marital Status	Single	254	61%
	Married	152	33%
	Widow	10	6%

Race	Sindhi	40	9.6%
	Punjabi	39	9.4%
	Pashto	82	19.7%
	Baloch	10	2.4%
	Urdu	169	40.6%
	Others	76	18.3%
Family History	Positive	76	18.2%
	Negative	340	81.8%
Associated Disease	Positive	39	9.4%
	Negative	377	90.6%
Type of Vitiligo	Non-segmental	315	75.8%
	Segmental	101	24.2%
Site of Involvement	Face	97	23.31%
	Hand	108	25.96%
	Feet	67	16.1%
	Others	144	34.61%

Table number two describe the quantitative results of age and duration of diseases in vitiligo patients. Out of 416 subjects 115 (27.6%) were 12 years old or less and 301 (72.3%) were older than 12 years' age. Yearly mean age of the patients was 25.7523, with standard deviation of 15.6, range value of the age 57.5, maximum age was 60 years old and minim age were 2.5 years old. The average duration of vitiligo was 4.6123 with standard deviation of 6.84. The range of vitiligo duration were 39.9 years, while minimum duration were 2 months and maximum duration were 40 years.

Table: 02 Descriptive Statistics of Age and Duration of Disease

Age %	12 years old or less than 12 years			115 (27.6%)		
	Above 12 Years old			301 (72.3%)		
	N	**Range**	**Min.**	**Max.**	**Mean**	**Std.**
Age	416	57.50	2.50	60.00	25.7523	15.58479

Duration	416	39.90	.10	40.00	4.6123	6.84928

DISCUSSION:

Vitiligo is a one of the common multifactorial diseases defined by the functional loss of melanocytes. Numerous mechanisms have been projected for destruction of melanocyte in vitiligo including oxidative stress, genetic characteristics, autoimmune responses, production of mediators involved in inflammation and mechanisms of melanocyte detachment. [(4)] Both adaptive and innate parts of the immune system seem to participate. None of these anticipated hypotheses are in themselves enough to clarify the various phenotypes of vitiligo, and the total involvement of each of such mechanisms is still under clearance, though there is now agreement on the autoimmune process of vitiligo. Different processes may participate in the continuous melanocyte loss, and they contain either of attach by immune system or detachment and degeneration of cell. [(8)] The 'integrated theory' or 'convergence theory' proposes that various processes may effort mutually in vitiligo for the contribution of melanocyte destruction, eventually causing similar clinical outcome.

SV and NSV were supposed to contain different original pathophysiological mechanisms because of their diverse clinical characteristics, with the somatic mosaicism or neuronal hypothesis preferred for the segmental type. [(10)] In present study, non-segmental is more common (75.8%) as compared to segmental vitiligo. Though, more current proof themes for an overlying inflammatory pathophysiological mechanism for both NSV and SV. Both appear to contain a multistep mechanism, involving preliminary neuropeptides and proinflammatory cytokines release caused by internal or external damage, with succeeding dilatation of vessels and response to immunity. Although in present study, ratio of associated diseases is very low i.e., 9.4%, but the involvement of autoimmune process in development of multiple processes cannot be neglected.

Park et al.[(11)] revealed that 63.2% patients with segmental type vitiligo had constant disease at clinical presentation. New and/or development of current macules were observed in the remaining patients: In 14.9% between 2-4 years after and in 21.8% patients more than 4 years after disease onset. [(12,13)] Therefore, even individuals with segmental type vitiligo can show recurrence of the disorder after several years.[(10,14)]

Involvement of different races and communities play important role in development of genetic and other diseases[(15)]. This study was conducted in single center at Karachi, where local population has majority of Urdu speakers; therefore, the expected increased ratio of this community (40.6%) cannot justify the of vitiligo in other communities. Data from other communities from other cities is also required to clear the actual picture of frequency.

CONCLUSION

This study found that generalized vitiligo is more common as compared to localized. Though small, but several patients were having positive family history of vitiligo along with co-morbid diseases. Males and females both can be presented with various clinical features. Due to its autoimmune nature, vitiligo may also involve other important systems as well. Therefore, multidisciplinary approach is needed in these patients for appropriate management.

It is of prime importance to identify the type of vitiligo, as segmental and non-segmental has different clinical course, management plan and outcome. Patient will be provided psychological support and counseling according to the type. Simply we cannot proceed in right direction without knowing the type. As segmental is resistant to treatment but soon get stabilized and they become good candidate for surgical treatment.

LIMITATION

This study only presents the frequency of patients who were presented to skin disease center. Asymptomatic patients who did not attend the center were not included in this study. Their inclusion can give even more better picture of frequency.

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