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Vitiligo: Compilation of clinico-epidemiological features in patients attending tertiary care government hospital, Thane

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RESEARCH

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Abstract

Background
Vitiligo, an acquired discoloration of the skin and/or mucous membranes, is a dermatological disorder with profound cosmetic as well as psychosocial implications for the patient. This study aimed to determine the clinico-epidemiological characteristics concerned with vitiligo in patients attending the dermatology department of a tertiary care government hospital in Thane.

Method
A single-observer, descriptive study conducted over a period of two-months recorded the clinico-epidemiological profile of 60 conveniently sampled vitiligo cases through history, clinical examination and study of previous medical records. The resulting data was presented in descriptive form.

Results
Males constituted 41.67% (n=25) and females 58.33% (n=35) of the sample. Mean sample age was 34.35 years, with 73.33% (n=44) married and 26.67% (n=16) unmarried patients. Positive family history was noted in 15% (n=9) patients. Hypertension was the leading concomitant disease affecting 6.67% (n=4) individuals. The proportion of new cases and those on treatment accounted for 28.33% (n=17) and 71.67 %(n=43) respectively. 28.33 %(n=17) patients had lesions on exposed areas, 5 %(n=3) on unexposed areas and the rest 66.67 %(n=40) on both areas. Feet were the most commonly affected site. The proportion of patients with bilateral and unilateral involvement was 81.67% (n=49) and 13.33% (n=8) respectively. Vitiligo vulgaris was the predominant form with a proportion of 68.33% (n=41). Leukotrichia and Koebner's phenomenon were seen in 13.33% (n=8) and 3.33% (n=2) patients respectively.

Conclusion
The data suggest that local epidemiological behaviour of vitiligo need not be the same across different regions. Variations did exist with regards to certain clinico-epidemiological parameters in Thane viz., prevalence of concomitant diseases, extent of involvement, etc. Such studies conducted on a regional basis may help to adopt a holistic approach towards management of vitiligo patients.

Key Words
Vitiligo, epidemiology, clinical patterns, Thane, India

Background

Vitiligo, an ancient dermatological disorder, continues to be prevalent across all regions around the world. It is defined as a common, acquired, discoloration of the skin, characterized by well circumscribed, ivory or chalky white macules which are flush to the skin surface.[1] The first prime minister of India, Pt. Jawaharlal Nehru ranked vitiligo as one of three major medical problems of India, the other two being leprosy and malaria.[2]

At the cellular level, it is an acquired, usually progressive melanocytopenia of obscure etiology.[3] The exact cause still remains elusive but various theories have been elucidated, each with evidence in their own favour. These theories have an immune, genetic, autocytotoxic, neural and biochemical basis.[4] Irrespective of what the cause may be, histologically there is degeneration and disappearance of melanocytes in the skin.

As a disease *per se*, vitiligo not only causes cosmetic disfigurement but also stigmatizes the patient's social image. This is especially true in developing countries like India. Although various studies[5-10] have come up with the epidemiology on a regional basis in different parts of India, no data is available at present about its epidemiology in the city of Thane in Maharashtra state. The local epidemiology often plays a vital role in adopting a multipronged approach in management of diseases. This is especially true in case of

diseases like vitiligo which have a 'highly unpredictable natural course' [1]. It has been demonstrated in certain studies[11-18] across the globe that clinico-epidemiological parameters can have a significant bearing on the Quality of Life (QoL) of a vitiligo patient. It is but natural that variation in QoL will be a consequence of variation of these parameters on a regional basis. Thus, a sound knowledge of the locally prevalent epidemiology of vitiligo is essential. With this objective, a descriptive study extending over two months was carried out.

Method

A single-observer, descriptive study was conducted in the dermatology Out-Patient Department (OPD) over a period of two months at Chhatrapati Shivaji Maharaj Hospital, Thane. Approval from the Institutional Clinical Ethics Committee (ICEC) was sought prior to its conduct. Sixty conveniently sampled vitiligo cases (new as well as those on treatment) formed the study sample.

The inclusion criteria were as follows:

1. Patients of both sexes aged 16 years and above.
2. Patients clinically diagnosed as having vitiligo.
3. Patients willing to give written informed consent.

The exclusion criteria were as follows:

1. Patients of either sex below the age of 16 years.
2. Patients not willing to give written informed consent.
3. Patients with a previously documented history of psychiatric illness.

Before obtaining consent, each patient was thoroughly explained the purpose and procedure of the study. A Case Record Form (CRF) was designed to record relevant data. Complete history was elicited from each participant followed by clinical examination. Past medical records were examined and relevant details noted.

The contents of CRF were as follows:

1. Personal particulars
2. Disease profile
   Data was documented with regards to duration of disease, distribution of lesions, affected sites*, laterality (whether unilateral or bilateral), morphological type – Table 1 and associated morphology, if any. Details about family history, treatment status and concomitant diseases (detected on basis of clinical examination and previous medical records) were also recorded.
   *Certain anatomical sites required definition as follows-
   Thigh – from hip joint to knee joint
   Legs – from knee joint to ankle joint
   Feet – from ankle joint to toes
   Bony prominences – Elbow and knee
3. Miscellaneous
   Any other relevant data excluded from above headings

The data gathered from the above parameters was presented in descriptive form in the results.

Results

Males constituted 41.67% (n=25) whereas females constituted 58.33% (n=35) of the study sample. Thus the female:male ratio was 1.4:1. Mean and median age of the sample was 34.35 and 34 years respectively; that for males being 37.08 and 35 years respectively and that for females being 32.4 and 32 years respectively. The age-wise prevalence of vitiligo cases is represented in Table 2. The sample consisted of 73.33% (n=44) married patients and 26.67% (n=16) unmarried patients. The duration of disease onset and progression ranged from a minimum of one month to a maximum of over eight years.

Regarding the distribution of lesions over the body, 28.33% (n=17) patients had lesions only on exposed areas, 5% (n=3) patients had lesions only on unexposed areas while in the rest 66.67% (n=40) both areas were involved. The frequency of sites involved in vitiligo cases is depicted graphically in Figure 1. It was observed that feet with a proportion of 68.33% (n=41) were the most commonly affected site, followed by hands (n=38), legs (n=32), face and trunk (n=28 for each). Patients with bilateral involvement amounted to 81.67% (n=49), while 13.33% (n=8) had unilateral involvement. (The rest 3 cases had mucosal vitiligo involving the lip, hence laterality was not applicable.)

The sample consisted of 85% (n=51) cases of generalized vitiligo and 15% (n=9) cases of localized vitiligo. Details of various morphological variants observed in the sample are illustrated in Table 3. As illustrated, vitiligo vulgaris was the predominant variant with a proportion of 68.33% (n=41). Leukotrichia was observed in 13.33% (n=8) patients and the site most commonly involved was the scalp (n=6). Koebner's phenomenon was observed in 3.33% (n=2) patients. The abdomen and thigh were the involved sites in these 2 cases. A positive family history was found in 15% (n=9) of the patients. These patients had either one or more relatives in their family with a history of vitiligo. The details are described in Table 4. The proportion of new cases was 28.33% (n=17); whereas those who were already on phototherapy (a treatment modality for vitiligo) constituted 71.67% (n=43). Details of patients on phototherapy are represented graphically in Table 5.

An attempt was made to find out concomitant diseases on the basis of history, clinical examination and previous medical records. Concomitant diseases were present in 33.33% (n=20) cases. Hypertension was the leading disease found in 6.67% (n=4) patients. Among skin diseases, acne with a proportion of 5% (n=3) was the leading disease. A detailed account of these conditions is illustrated in Table 6. In two cases of mucosal vitiligo of the lip, there was a history of onset after starting consumption of *gutkha* (a locally available mixture of tobacco, lime and sweeteners) and tobacco. One patient complained of onset of depigmentation after approximately six months of contact with cement.

Discussion

In view of small sample size and the method of convenient sampling employed in selecting the participants, it is pertinent to note that results have been discussed keeping in mind the limitations of 'larger standard error and wider 95% confidence interval' [19] as well as with the knowledge that they are representative of the patients in a hospital setting and not the general population. Comparison with other studies may accordingly be interpreted.

The gender-wise proportion of patients reported in hospital-based studies conducted elsewhere in India is illustrated in Table 7. The results in our study vitiligo had a female preponderance, which is in unison with findings of Shajil et al.[5], Tawade et al.[6], Martis et al.[7] and Shah et al.[8]. However, Kar[9] and Handa et al.[10] reported a male preponderance. This variation may be attributed to relative differences in reporting of the disease by patients who wish to seek treatment. Usually women tend to report and seek treatment for vitiligo more than men, as they have to bear the social stigma to a relatively higher extent than men.

The mean age of the sample as well as that of individual sexes was almost a decade higher than most available studies. This can be attributed to the fact that our study included only those patients who were aged 16 years or more, while other studies had no such age restriction.

The proportion of married individuals of 73.33% is higher than those reported by Shah et al. [8] And Kar [9]. This follows the fact that the mean age in our study was higher; and at this age most of the individuals in Indian society are married.

In our study 28.33% patients had lesions only on exposed areas, 5% only on unexposed areas and in rest 66.67% both areas were involved. Kar[9] reported involvement of unexposed areas in 30%, exposed areas in 66.6% and generalized involvement in 0.03% patients. This suggests that the prevalent pattern of distribution of lesions varies on a regional basis.

Regarding sites involved, feet were found to be the most commonly involved site in the present study. Shajil et al.[5] reported 'lower limbs' (45.52%) and Martis et al.[7] reported 'lower extremities' (54%) as the most commonly involved site. Kar[9] defined 'legs' and 'feet' separately and found that legs were most commonly involved (50%); whereas feet were involved in 18.3% cases. However Handa et al.[10] found face to be most commonly involved in their study. These findings reflect the fact that the distribution of vitiligo lesions over anatomical areas need not necessarily be the same amongst different regions. However, standard definitions of anatomical areas need to be formulated and adhered to by various studies to bring out a clearer picture regarding site involvement.

Bilateral involvement was observed in 81.67% patients in this study while Kar [9] reported bilateral involvement in only 6.6%. This illustrates the fact that majority of patients in the present study did not have localized involvement.

Vitiligo vulgaris dominated the morphological picture in this study with 68.33% proportion. This supports the findings of Shajil et al. [5], Tawade et al. [6], Martis et al. [7], Shah et al. [8], Kar [9] and Handa et al. [10].

Data regarding family history is presented in Table 8. The observation in our study falls in the range between a minimum of 6.6%[9] to a maximum of 27.3%[6] as reported by other studies. Autosomal dominant mode of transmission with variable penetrance may be responsible for the variable findings. [9]

There is disparity regarding the data for concomitant diseases in findings reported by other studies. However among the systemic diseases, diabetes mellitus was most commonly observed in 1.6% cases by Tawade et al [6], in 9% cases by Martis et al.[7], in 1.18% cases by Shajil et al.[8] and in 2.6% cases by Kar[9]. Hypertension was reported to be commonest among systemic diseases with 1.37% occurrence by Shah et al.[8], which is in unison with present study where hypertension was observed in 6.67% cases.

LIMITATIONS OF THE STUDY AND AVENUES FOR FURTHER RESEARCH

Although the study comprehensively brought out the epidemiology of vitiligo, it did so at a local level. The results obtained from this study will primarily be of use to clinicians in and around Thane. However, it may serve as a model for studies that need to be taken up on a national/international level in the future to bring out a broader and clearer picture about the epidemiology of vitiligo.

As stated, the sample size of sixty and convenience sampling method make it difficult to extrapolate the findings of this study to the general population. However, such individual studies conducted in hospital-based settings can be coalesced with similar studies conducted elsewhere to generate results that may prove helpful towards comprehensive management of those patients who approach healthcare professionals to seek treatment.

The cross-sectional design of this study does not permit to infer causal relationships from the results. For example, hypertension was found to be the leading concomitant disease. However, whether it is directly associated with vitiligo or simply a coincidental finding could not be ascertained, mainly in view of a smaller sample size. Prospective studies with a larger sample drawn from the general population need to be taken up in this regard.

Conclusion

The findings brought out by this study revealed the local clinico-epidemiological patterns of vitiligo in a tertiary care government hospital of Thane, Maharashtra. Gender-wise preponderance, pattern and sites of distribution of the

lesions, prevalence of concomitant diseases in this study varied as compared to other Indian studies; whereas rest of the parameters had more or less similar influence on the epidemiological characteristics. This study thus brought out somewhat varied epidemiological behaviour of vitiligo in a hospital-based setting in Thane, an observation that was missing in previously conducted studies. Future studies need to be undertaken to determine whether the same variance is observed in general population. Studies conducted on a regional basis will aid the clinicians practicing in concerned areas to be aware of its clinico-epidemiological behaviour. Such studies will positively help in the optimal management of vitiligo patients.

In the international context, the insight into the epidemiological behaviour provided by this study might stimulate similar efforts to be taken up in respective regions. Such efforts might reveal previously unknown / hidden facts not reported in other studies conducted elsewhere around the globe. This is important because regional epidemiology plays a key role in identifying exogenous agents if any, which are responsible for causing vitiligo. The findings might also prove useful to formulate a line of treatment to be followed in that particular region.

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PEER REVIEW

Not commissioned. Externally peer reviewed.

CONFLICTS OF INTEREST

Nil

FUNDING

Nil

Figures and Tables

Tables:

1. Morphological classification of vitiligo

Generalized	Localized	Mixed
Acrofacial vitiligo Vitiligo vulgaris Vitiligo universalis Lip-tip vitiligo	Focal vitiligo Segmental vitiligo Mucosal vitiligo	An overlap of features of both generalized and localized variety

2. Age-wise prevalence of vitiligo cases

Age category	Frequency (%)
16-25	22 (36.67)
26-35	13(21.67)
36-45	14(23.33)
46-55	6(10)
56-65	3(5)
66-75	2(33.33)

3. Prevalence of morphological variants of vitiligo among the study sample

Variant	Frequency (%)
Acrofacial vitiligo	8 (13.33)
Vitiligo vulgaris	41 (68.33)
Vitiligo universalis	1 (1.67)
Lip-tip vitiligo	1 (1.67)
Focal vitiligo	5 (8.33)
Segmental vitiligo	1 (1.67)
Mucosal vitiligo	3 (5)
Mixed	0 (0)

4. Positive family history details

Relation of family member with the patient	No. of cases (%)
Paternal cousin brother	1 (1.67)
Paternal cousin sister	1 (1.67)
Mother	2 (3.33)
Maternal uncle	1 (1.67)
Paternal aunt	3 (5)
Maternal aunt	2 (3.33)
Maternal grandfather	1 (1.67)
Maternal grandmother	1 (1.67)

5. Patient profiles with respect to treatment status

Treatment duration categories (in months)	Frequency (%)
New cases	17 (28.33)
1 - 10	22 (36.67)
11 – 20	14 (23.33)
21 – 30	4 (6.67)
31 – 40	3 (5)

6. Prevalence of concomitant diseases among the study sample

Systemic Diseases			Skin Diseases		
Name	**No. of cases**	**%**	**Name**	**No. of cases**	**%**
Hypertension	4	6.67	Acne	3	5
Diabetes mellitus	3	5	Melasma	1	1.67
Hyperthyroidism	1	1.67	Scabies	1	1.67
Osteoarthritis	1	1.67	Basal cell carcinoma	1	1.67
Ischaemic Heart Disease	1	6.67	Lichen planus	1	1.67
			Prurigo nodularis	1	1.67
			Pityriasis versicolor	1	1.67
Ocular Diseases					
Name	**No. of cases**	**%**			
Chronic dacryocystitis	1	1.67			

7. Gender-wise proportion of vitiligo cases in various Indian studies

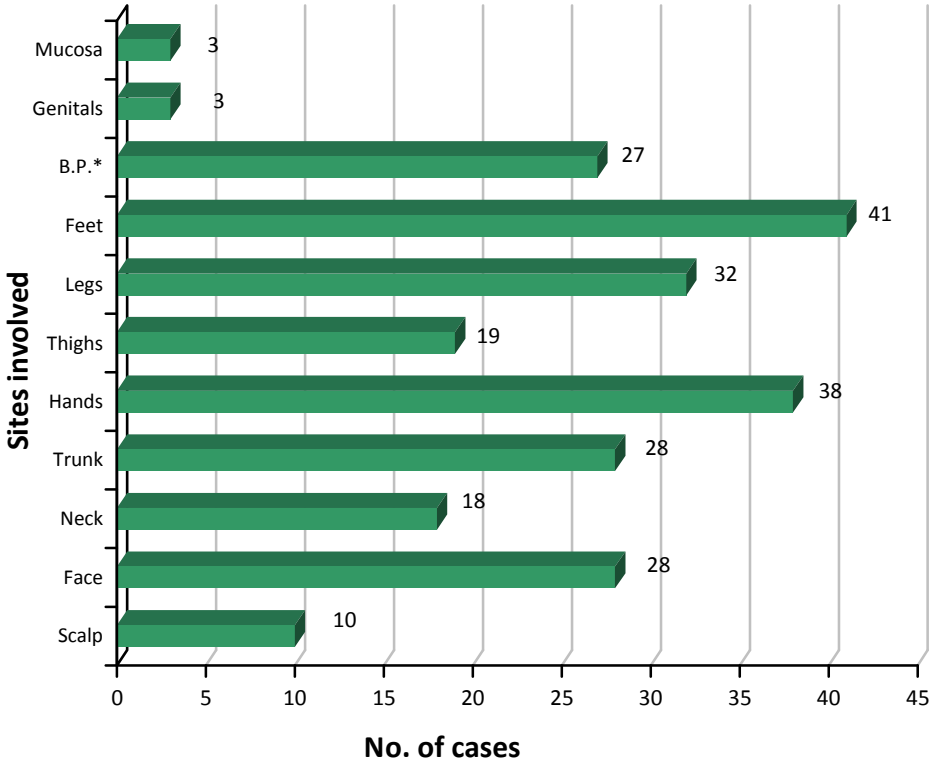
Study	Location	Male proportion (in %)	Female proportion (in %)
Shajil et al. [5]	Vadodara	38.44	61.56
Tawade et al. [6]	Pune	43	57
Martis et al. [7]	Mangalore	45	55
Shah et al. [8]	Bhavnagar	31.6	68.4
Kar [9]	APO, India	51.67	48.33
Handa et al. [10]	Chandigarh	54.5	45.5
Present study	Thane	41.67	58.33

8. Prevalence of family history reported in Indian studies

Study	Prevalence (in %)
Shajil et al.[5]	21.93
Tawade et al.[6]	27.3
Martis et al.[7]	8
Shah et al.[8]	13.7
Kar[9]	6.6
Handa et al.[10]	11.5
Present study	15

Figures:

1. Frequency of site involvement in vitiligo cases



B.P. - Bony Prominences*