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CLINICAL EPIDEMIOLOGICAL PROFILE OF VITILIGO
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ABSTRACT

***Background*:Vitiligo is an acquired de-pigmenting disorder of unknown aetiology affecting 1-2% of the world's population. It is a chronic skin disease, characterised by the appearance of white depigmented macules and patches due to loss of melanocytes. This disorder is common in all races, regardless of age and sex. The onset of the disease may vary from early infancy to old age.**

***Objective*: To determine the clinical and epidemiological characteristics of patients with vitiligo.**

***Design*: This was a cross sectional descriptive study.**

***Setting*: Regional Dermatology Training Centre in Moshi, Tanzania.**

***Subjects*: One hundred and twenty two patients.**

***Results*: The male to female ratio was 1:1.8 and a median age of 24 years (range 3 to 87). The mean age at disease onset was 26.2 years (SD 19.5). The types of vitiligo observed were as follows: vitiligo vulgaris (50.8%) focal non segmental (23%) and Acrofacial (12.3%). Positive family history was noted in about 10% of the population studied. The commonest sites of initial onset were head and neck (41.8) and lower limbs (18.0%). The median body surface area affected was 6% (range 1 to 90%). Autoimmune diseases were noted in 17.2% of the patients. Atopic dermatitis (9.8%) was the most common associated disease.**

***Conclusion*: Vitiligo affects all ages with more females affected. Vitiligo vulgaris is the commonest type and few patients have first degree relatives with vitiligo.**

INTRODUCTION

Vitiligo is a chronic acquired discolouration of the skin with an estimated prevalence of 1-2% of the world's population (1). The aetiology remains unknown; however, genetic, autoimmunity, autotoxicity and neural dysfunction theories have been proposed (2). The age of onset is usually in childhood or early adulthood with peak incidence in the second and third decade of life (3). Vitiligo is classified into focal, segmental, acrofacial, generalised and universal according to distribution of the lesions (2). This condition is largely asymptomatic but may rarely be accompanied by itching or burning sensation mainly prior to onset of the lesions (1). The sharp contrast between depigmented lesions and pigmented skin makes vitiligo more cosmetically disfiguring and therefore unacceptable to many African societies (4). Patients with vitiligo experience a profound effect on psychosocial development and poor quality of life (5-7). The aim of this study was to investigate the epidemiological and clinical features of vitiligo and identify associated diseases.

MATERIALS AND METHODS

This cross-sectional descriptive study was conducted at the Regional Dermatology Training Centre (RDTC) in Moshi Tanzania. A total of 122 vitiligo patients who attended the clinic during the study period were recruited. The diagnosis of vitiligo (mainly clinical) was made by a dermatologist who excluded all other pigmentary disorders. This study was approved by the Kilimanjaro Christian Medical Centre (KCMC) Research and Ethics Committee. A written informed consent was obtained from all participants and from parents/guardians of children below 16 years old. Statistical analysis was performed using the Statistical Software Package Version 15 (SPSS Inc, Chicago, IL). Univariate analysis was done to assess the characteristics of the sample.

RESULTS

The study sample comprised of 78 (63.9%) females and 44 (36.1%) males giving a male to female ratio of 1:1.8 with a median age of 32 years (range 3 to

87 years). The majority (64.8%) of the patients were below the age of 40 years with a peak incidence in the second decade (24.6%). Children below the age of 16 years comprised 27.8% of the participants, with 11 males and 23 females.

Disease related characteristics: The age at disease onset ranged from 1 to 83 years (mean = 26.2 years, SD + 19.5). The median age of onset was lower in females (22years) compared with the males (31 years) though not statistically significant (p = .818). The duration of the disease ranged from 1 month to 40 years with a median of 36 months. The disease was reported active within the last three months in 63 (51.6%) patients. Koebnerisation, Erythema, and first degree relatives with vitiligo were present in 35 (28.7%), 21 (17.2%) and 12 (9.8%) patients respectively. Aggravating factors were identified in 30 (24.6%) patient. These factors were physical injury (23) and sunburn (7).

Head and neck was the most common (41.8%) site of disease onset followed by the extremities (34.4%), trunk (12.3%) and mucosal (11.5%). According to the pattern of distribution, vitiligo vulgaris was the most prevalent pattern seen in 62 (50.8%) patients. Focal, acrofacial, and mucosal was diagnosed in 28(22.9%), 15(12.3%) and 10(8.2%) patients respectively. Only one patiient had universal vitiligo. Morphologically, 15 (12.3%) patients had trichrome vitiligo. Fifty three (43.5%) had lesions on exposed areas, 18 (14.8%) on non-exposed and 51(41.8%) was mixed. Vitiligo occurred concurrently with other autoimmune diseases in 17.2% of patients. Atopic dermatitis was the most common associated co-morbidity (Table 1).

The median percentage body surface area (BSA) affected was 6% (range 1 to 95%). Majority (82.8%) of patients had less than 10% of the BSA affected. The mean BSA affected for male was 5.6 (SD±7.0), while for females was 9.1% (SD±13.3) but the difference was not significant.

Majority (81.1%) of patients had received at least one form of treatment by the time of the study. The most common form of treatment used was topical steroids (Table 2). Treatments had no effect in the appearance of vitiligo in 25 patients.

Table 1

Autoimmune skin disease diagnosed in 21patients with vitiligo

Disease	N = 21
Atopic dermatitis	12
Diabetes mellitus	2
Alopecia areata	3
Thyroid disease	2
Urticaria	1
Discoid lupus erythematosus	1

Table 2

Level of disease improvement as perceived by 122 patients with vitiligo with or without treatment

Medication(s)	Total	Level of improvement			
		No change	Mild	Moderate	Marked
		41(33.6%)	36(29.5%)	29(23.8%)	16(13.1%)
Topical steroids	56	12	19	16	9
Herbal medicine	10	7	2	1	0
Topical steroids and Dapsone	19	1	5	7	6
Topical steroids, and herbal medicine	8	1	4	3	0
Antibiotics	3	2	0	0	1
Antifungal	3	2	1	0	0
No medication	23	16	5	2	0

DISCUSSION

This study was conducted at a referral hospital with a possibility that the study population could be having more extensive disease; however the duration of the disease in this study was similar to other studies. In this study (though not statistically significant), there were more women than men affected by vitiligo. These findings are similar to those from many other studies done elsewhere in Africa (8,9). However, two studies done in China involving 542 and 3742 patients reported no gender difference (10,11). The female preponderance in this study could be because women are more prone to psychological effects of vitiligo and therefore seek healthcare more than men.

Vitiligo is noted to occur in all age groups with the highest prevalence in young adults. Akrem *et al* (19) reported that, 66% of their patients developed vitiligo in adulthood while Liu *et al* (11) reported a mean age of onset of 18.8 years. However, Akay *et al* (12) reported that vitiligo occurs early in life (mean age = 10 years).

Head and neck (41.8%) was a common site for initial development of the lesions. A study in India had 50 and 19.5% of patients having initial lesions on forehead and neck and lower limbs respectively (13). Head and neck were equally the most common areas of onset reported by Dogra *et al* (14) although with a lower percentage (24.2%). Lesions most affect the sun-exposed areas of the body (8,9,12,13). This is a paradox considering the role of Ultraviolet light on melanogenesis and thus further research is required.

The occurrence of vitiligo among relatives have been reported to range from 11 to 18% (8-11,14). The prevalence from this study of 8.8% was lower than these studies. Akay *et al* (12) reported a high prevalence of family history (27.5%) which they attributed to high incidence of consanguineous marriages in Turkey.
Vitiligo is a progressive disease that begins with a focal lesion. Liu *et al* (11) observed that, more than half (54.7%) of their patients had focal vitiligo that worsened and transformed in to other clinical types. Vitiligo vulgaris is characterised by generalised, multiple, bilateral and symmetrical lesions. Vitiligo vulgaris was the most common (59.8%) clinical type in this study followed by focal and acrofacial types of vitiligo. Similar trends have been observed in other studies with prevalence of vitiligo vulgaris varying between 10.5% to 78% (12,13) and 38.1% among children (10). Onunu *et al* (8) reported localised vitiligo as the most common type (77%). The mean body surface area affected was 7.86% (SD ± 11.5) which was lower than 11% reported by Kostopoulou *et al* (15) but Homan *et al* (4) found that 87.2% of their patients had BSA less than 10%. Early in the course of the disease majority of the patients will present with focal vitiligo which evolve to generalised disease with disease progression.

Koebnerisation is the occurrence of vitiligo lesions in areas of trauma. The prevalence of Koebnerisation (28.7%) was similar to that of Handa and Kaur (33%) (16). This prevalence is higher than 7.3% and 5% reported by Akay *et al* (12) and Handa and Dogra (13) respectively.

The frequent association of vitiligo with autoimmune disease provides support for the autoimmune theory of aetiopathogenesis. Thyroid disease is the most common disease associated with vitiligo. Akay *et al* (12) detected thyroid antibodies in 31% of their patients, unlike in this study in which atopic dermatitis was the most common disease occurring in 9.8% of patients. In a large study in China, Liu *et al* (11) reported 8.0% of patients had associated autoimmune diseases which was lower than 17.2% in this study. However, Liu *et al* (11) reported a similar prevalence of thyroid disease (1.4%). The prevalence of diabetes mellitus has been reported to range from 1.6 to 20% (8,9) while in the present study only one patient had diabetes mellitus.

In conclusion, this study demonstrated that the clinical epidemiological profile of patients in Northern Tanzania is similar to other studies within and outside Africa. Most of the patients developed vitiligo in young adulthood while vitiligo vulgaris was the most common type. This is a sensitive group to cosmetic disfigurement which should be considered in treatment.

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