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Clinicoepidemiological Characteristics of Vitiligo: A Descriptive Cross-Sectional Study

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ABSTRACT

Vitiligo is a common dermatological disorder characterized by white patches of the skin. The main reason for this disease is the loss of functioning melanin and melanocytes. The objective of the study was to investigate the clinicoepidemiological characteristics of vitiligo in Sri Lanka. Demographic information, occupational risk factors, family history, vitiligo lesion related factors, other chronic disorders, treatment regimes, animal bites, contact with poisons, cosmetic usage, and food patterns were collected using a pre-validated interviewer administered questionnaire from 80 patients attending the vitiligo clinic, Ayurveda Teaching Hospital, Nawinna, Sri Lanka, from 1st of June to 31st July 2015. The majority of patients (23%) were 41 to 50 years of age. The disease was more common in women (57%) than in men (43%), from suburban areas (57%). Thirty percent (30%) had worked in chemical related fields or had frequent contact with chemicals at least two years before the onset of vitiligo. Twenty three percent (23%) had a family history of the disease. The disease duration ranged from 0 – 55 years and 60% had developed vitiligo during the last five years. The face was the initial place of appearance of lesions (41%). Non-spreading lesions reported by 37%. Incidences of fast and slow progressing lesions were 31% and 32%, respectively. An itch, white rash was common. Seventy eight percent (78%) had coloured lesions. About 15% had a history of animal bites. Thirty percent (30%) of patients had chronic diseases. The triggering factors of vitiligo were uncertain.

Key Words: *Ayurveda, dermatological disorder, Melanocytes, Sri Lanka, Vitiligo*

INTRODUCTION

Vitiligo, a common dermatological disorder, is characterized by milky-white depigmented macules devoid of identifiable melanocytes. Its incidence varies from 1 to 2% worldwide and has been shown to be as high as 3-4% in some Asian countries (Whitton, Pinart *et al.* 2015). The main reason for this disease is due to loss of functioning melanin and melanocytes from the epidermis of the skin. The main clinical symptoms are discoloured or light coloured patches of skin, and sometimes hair as well as eye depigmentation. It has been reported that this is more common in 10 – 30 years age group. But it can initialize at any age (Matin 2008). The etiology of vitiligo is still unknown and the precise pathology of vitiligo remains elusive, but seems to be dependent on the interaction of genetic,

environmental, immunological, biochemical, and neurological factors (Koshofer and Boissy 2014). Vitiligo can be categorized into two types namely segmental vitiligo (SV) and non-segmental vitiligo (NSV). Non-segmental vitiligo (NSV) is the commonest form of vitiligo, and 90% of patients have this type (Whitton, Pinart et al. 2015). Scars of non-segmental vitiligo appear on both the front and the back of the body. These scars can be localized or generalized and widely spread. Segmental vitiligo shows unilateral distribution and rapid stabilization without treatment, and may continue throughout life (van Geel and Speeckaert 2017).

Vitiligo affects people of all skin colours, but it may be more prominent in people with dark skin. Although the life expectancy of patients remains unaffected, the patients feel distressed and stigmatized by their condition resulting in low self-esteem, poor body image, and difficulties in sexual relationships. Even suicide attempts due to this disease have been reported.¹ Moreover, negative attitudes and misconceptions regarding the disease are common among the patients with vitiligo (AlGhamdi 2010).

In Sri Lanka very few studies (Aghaei, Amiriet al., 2018; Perera, Athukorale et al., 2000) have been carried out to assess the epidemiology of vitiligo. Therefore the aim of this study was to investigate the clinico-epidemiological characteristics of vitiligo patients who attended to the Vitiligo Clinic, Ayurvedic Teaching Hospital, Nawinna, Sri Lanka. The objectives of this study were to determine the socio-demographic profile of the vitiligo patients, to investigate the clinical profile of the patients, and to identify the related environment factors such as animal bites, contact with poisons, cosmetic usage, and food patterns.

MATERIALS AND METHODS

Study Design

A questionnaire based descriptive cross sectional study was conducted over a period of two months by recording the clinical and epidemiological data of 80 patients who attended the Vitiligo Clinic, Ayurveda Teaching Hospital, Nawinna, Sri Lanka between 1st of June and 31st July 2015.

All selected patients were confirmed as having vitiligo by the consultants at the clinic, and skin disorders due to other reasons were excluded. The initial design of the study was approved by the Ethics Review Committee, Institute of Biology, Sri Lanka prior to conducting the study.

Data Collection

Socio-demographic information including age, gender, marital status, residential area, occupation, and occupational related risk factors were collected. In addition, the clinical data including family history, age of onset of lesion, site of the initial lesion, spreading pattern, pigmentation, treatment history, and history of other chronic diseases were collected. Occupations of patients were further subdivided as subject to chemical exposure or not and other clinical features were also categorized according to the clinical presentation.

The incidence of animal bites, contamination with poisons, usage of cosmetics, and food patterns prior to the onset of the disease were also collected by using an interviewer administered validated questionnaire. All data were recorded, validated, and analyzed (percentages) using Microsoft Excel.

RESULTS

The majority of the patients were in the age group of 41 to 50 years (23%). A very small number of patients were reported in the age group of 0 to 10 years (4%). The disease was more frequently seen in women (57%) than in men (43%). Increased prevalence was seen in suburban areas (56%), with 19% in rural areas. Thirty percent (30%) of patients worked in chemical related fields, while forty-eight percent (48%) worked in other fields not related to chemicals.

Table 1: Socio-demographic characteristics of patients (n = 80) with vitiligo.

Socio-demographic characteristics	Frequency (%)
<u>Age group</u>	
01– 18	09(12)
>18	68(88)
<u>Gender</u>	
Male	34(43)
Female	46(57)
<u>Residential area</u>	
Urban	19(25)
Suburban	43(56)
Rural	14(19)
<u>Job category</u>	
Chemical exposure	23(30)
Unemployed	17(22)
No job-related chemical exposure	36(48)

Table 2: History and clinical profile of patients (n = 80) with vitiligo.

Clinical characteristics	Frequency(%)
<u>Family history</u>	
Yes	22(23)
No	58(77)
<u>Duration of the disease (years)</u>	
0-5	48(60)
6-10	10(13)
11-15	06(08)
16-20	04(05)
21-55	12(15)
<u>Initial place of the lesion</u>	
face	33(41)
hands	20(25)
legs	20(25)
other	07(09)
<u>Colour of the lesion</u>	
Pink	17(22)
White	45(57)
Pink and White	15(19)
Red and White	01(01)
Pink , Red and White	01(01)

Progress of the disease

Rapid progress	62(78)
Slow progress	15(19)
None	02(03)

Chronic diseases

Diabetes	05(06)
Eczema	02(03)
Asthma	06(08)
Other	10(13)
None	56(70)

As illustrated in the Table 2, 23% of patients had relatives with vitiligo. Furthermore, the duration of the disease ranged from 0 – 55 years and 60% of patients had developed vitiligo during the last five years. In most cases recorded, the face was the initial place of appearance of the lesion for a plurality of patients (41%). In addition, arms (25%) and legs (26%) were also reported as the initial place of the lesion. A white colour rash was the common complaint of patients (57%). Seventy-nine percent (79%) of patients had lesions with one colour. Only 1% of patients had lesions with three colours with white, pink and red. Incidences of fast progressing and slow progressing lesions were 78% and 19% respectively. Altogether, 30% of patients were diagnosed with chronic diseases, out of which Diabetes (6%) and Asthma (8%) were the most common. It is noteworthy that there was more than one chronic disease observed in few (6%) patients as well.

DISCUSSION

The aim of this study was to assess the clinicoepidemiological characteristics of vitiligo in an Ayurvedic Teaching Hospital in Sri Lanka, because only a limited number of studies had been conducted. Different etiologies, risk factors, and associations were postulated by the scientists.

Vitiligo is a multi-factorial disorder. It is highly associated with autoimmune disorders such as thyroid disorders, particularly Grave's disease and Hashimoto thyroiditis, as well as Addison's disease, diabetes mellitus, pernicious anemia, myasthenia gravis, alopecia, rheumatoid arthritis, Pemphigus

vulgaris and systemic lupus erythematosus (Butt, Altaf et al. 2016). Even factors such as pregnancy, puberty, major infections, stress, skin trauma, and dietary imbalance may result in exhibition of the first symptoms of vitiligo (Czajkowski and Męcińska-Jundziłł 2014).

As revealed in the present study, the majority of patients were aged more than eighteen years. This finding is similar to the findings of Mahajan *et al.* (2019), where they had reported that the majority of patients (50.6%) were aged ≤ 20 years.

According to the literature, gender variations were prominent among vitiligo patients around the world. The present study showed females (57%) are more affected than males (43%) which conformed to the studies conducted by a few other research groups in the different parts of the world (Shah, Mehta *et al.*, 2008; Kumar, Neupane *et al.*, 2010; Vora, Patel *et al.*, 2014). However, there are a few studies that reported that males were the predominant group who were affected by vitiligo when compared to females within the same study group. Contradictory findings were also observed in some studies as male predominance among vitiligo patients (Kumar, Neupane *et al.* 2010; Mahajan, Vashist *et al.* 2019), while nearly equal prevalence was reported among male and female populations in the studies conducted by Reghu and James, and Lu and colleagues (Lu, Gao *et al.* 2007; Reghu and James, 2011).

Based on our findings, increased prevalence was seen in suburban areas (57%), while fewer patients were seen in rural areas (18%). A study conducted by Saleem and colleagues in 2011 found that the majority of patients (68.5%) were from urban areas (Saleem, et al., 2018).

In our study 23% of patients had first order relatives suffering from vitiligo. This result is almost identical to the study conducted by Saleem and colleagues in 2011 in Northern India (Saleem, et al., 2018). At the same time, it is worth mentioning here that there are studies where a smaller number of patients with first order relatives suffering from vitiligo had been reported (Wang, Du *et al.* 2013, Fahaad 2015). Moreover, 26% of female and 29% of male patients had relatives with vitiligo.

Furthermore, duration of the disease onset ranged from birth to 55 years and 60% of patients had developed vitiligo during the last five years. But the study conducted by Saleem and colleagues reported the disease ranged from 06 months to 20 years (Shah, Mehta *et al.* 2008; Saleem *et al.* 2018).

The face was the initial place of the lesion for a plurality of patients (41%) in our study. Other than this, arms (25%) and lower limbs (26%) were also reported as the initial place of the lesion. Contrary to this, Shah and colleagues reported the common site of initial lesion is the lower limb (44%), followed by the face/trunk (18.5%) (Shah, Mehta, *et al.* 2008). In a study from Nepal, Kumar and colleagues (2010) also reported that the most common site of onset was the lower limbs followed by upper limbs, trunk, head and neck, genitalia, and mucosae (Kumar, Neupane *et al.*, 2010). According to the patients with positive family history, the initial place of the lesion appearance was the face (40%) and arms (40%) equally. While considering the gender of the patients and the place of initial lesion, 44% of males and 37% females reported the face was the site of initial onset. At the same time, 22% of males and 26% of females reported that the hands were the place of initial lesion while legs were the site of onset for 19% of males and 28% of females respectively.

According to the present study, 30% of patients were diagnosed with chronic diseases, such as diabetes mellitus (6%), asthma (8%), and eczema (3%). A study done by Reghu and James reported thyroid disorders as the most common chronic infection among the vitiligo patients (Reghu & James, 2011), while diabetes mellitus and hypertension were reported in 14% and 5% of patients respectively.

CONCLUSION

The triggering factors of vitiligo were uncertain. But, 23% had family history, and, interestingly 15% of patients had animal bites before onset of the disease. Thirty percent had frequent contacts with chemicals for a period of at least two years before onset of vitiligo. White lesions are prominent among vitiligo patients. However, case control studies are suggested to identify the relative risk of each factor preliminarily identified in the current study.

Conflict of interest

There are no conflicts of interest.

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