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Trends of Demographic and Clinical Features of Alopecia Areata in Benghazi-Libya

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Original Research Article

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ABSTRACT

Alopecica areata (AA) is thought to be a T-cell mediated autoimmune disease directed against an unknown hair follicle autoantigen. The aim of this study was to determine demographic and clinical features of alopecia areata in Benghazi-Libya.

Patients and Methods: In a cross-sectional observational study of one hundred seventy-one patients with clinically diagnosed alopecia areata who attended the hair clinic and dermatology outpatient department at Jomhoria hospital, Benghazi-Libya over a period of 2 years, all patients were subjected to a detailed disease history and a complete dermatological examination by dermatologists. To confirm the clinical diagnosis, determine the sites and clinical type, and ascertain the severity of the disease. Statistical analysis was performed using SPSS (version 18.0), and descriptive statistics were calculated using a chi-square test.

Results: In a study of 171 patients of AA, 63.2% were females, with a male to female ratio of 1:1.7. The patients' mean age was 25.5 years, and the mean age at onset was 22.6 years. The majority of patients were aged ≤30 years (66.4%) and showed limited AA.

A positive family history of AA was elicited in 20.5%. The duration of the disease < 1 year was recorded in 52.6% of patients.

The commonest clinical type was patchy AA with a single patch (52%). Limited (mild) AA (less than 50% involvement) was seen more in males (39.4%) and the severe type was seen more in females (73%). Precipitating factors were reported in 50.3% of patients, and stress constituted 49.1% A personal history of atopy was recorded in 24.6% and vitiligo was seen in 4.1% of patients. Out of

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total patients, 42.1% had nail changes, 38% of 137 mild AA had nail changes, and 58.8% of severe AA had nail involvement, indicating a significant correlation between nail changes and severity (P=0.027).
Conclusion: Alopecia areata is considered an important health problem in our community. Stress is a common precipitating factor, and family history and nail changes are significantly reported.

Keywords: Demographic; alopecia areata; autoimmune; nail changes.

ABBREVIATIONS

AA : Alopecia Areata
AT : Alopecia Totalis
AU : Alopecia Universalis

1. INTRODUCTION

"Alopecia areata (AA) is a common, clinically heterogenous, immune-mediated, non-scarring hair loss disorder" [1,2,3]. "The disease may be limited to one or more discrete, well-circumscribed round or oval patches of hair loss on the scalp or body, or it may affect the entire scalp (alopecia totalis) or the entire body (alopecia universalis)" [1,2,4].

"In AA, CD4+ and CD8+ T-cells violate the immune privilege of the anagen hair follicle, leading to loss of the growing hair shaft" [5,6]. "CD8+ T-cells are present in significantly greater quantities than CD4+ cells, and a subset of them known as CD8+ NKG2D+ T-cells has been found both necessary and sufficient to induce AA in C3H/HeJ mice" [7,8,9]. "A predominant Th1 cytokine profile has been discovered at the site of AA lesions" [4,9] "Recently, a genome-wide association study demonstrated a genetic predisposition to AA" [7]. "Environmental insults, such as viral infections, trauma, or psychosocial stress, drugs, or pregnancy, have also been suspected to possibly contribute to the development of the disease" [4,3].

"The disease was found to be associated with atopic dermatitis, vitiligo, thyroid disease, connective tissue diseases, Down's syndrome, pernicious anemia, myasthenia gravis, ulcerative colitis, and lichen planus" [1,7,9].

"Pitting is the commonest characteristic nail changes may accompany hair loss, in about 50% of cases, hair will regrow within one year without any treatment" [4,10].

The aim of this study was to assess the demographic and clinical features of alopecia areata in Benghazi-Libya and to assess the association of disease severity with the disease onset, family history, nail changes, or the existence of other autoimmune diseases.

2. PATIENTS AND METHODS

2.1 Patients

This was a cross-sectional observational study of one hundred seventy-one patients with clinically diagnosed alopecia areata of both sexes and all age groups, attending the hair clinic and dermatology outpatient department in Jomhoria hospital in Benghazi-Libya over a period of two years.

2.2 Methods

The patients included in this study were exposed to a detailed disease history and a thorough cutaneous clinical examination by dermatologists. Each patient was exposed to a detailed history including disease history, personal and family history of the same disease, history of triggering or precipitating factors like trauma, infection, drugs, acute mental/emotional stress, and history of any associated diseases. A complete clinical dermatological examination was carried out on all patients in order to confirm the diagnosis based on clinical grounds and to determine the sites involved. The clinical type was used to asses the severity of the disease and to examine other sites for any associated autoimmune disease or atopic dermatitis. We adopted the alopecia areata investigational assessment guide lines collated by Oleson et al. [11].
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The extent of hair loss was classified as:

1) Mild: S1(<25% hair loss) or S2 (26-50% hair loss).
2) Severe: S3(51-75% hair loss), S4(76-99%hair loss), or S5(total scalp hair loss, alopecia totalis "AT"), or S5B2 (total scalp and body hair loss, alopecia universalis 3"AU").

2.3 Statistical Analysis

Statistical analysis was performed using SPSS (version 18.0).

Descriptive statistics will be used as mean, median, mod, and standard deviation. The significance of observed associations and/or differences between variables was tested using the chi-square test. A difference was considered to be statistically significant at P<0.05.

3. RESULTS

Among 171 patients of AA of all ages enrolled in this cross-sectional study, 63 patients (36.8%) were males and 108 (63.2%) were females, with a male to female ratio of 1:1.7.

The patients' ages ranged from ≤ 10 - 60 years (mean: 25.5 years). The earliest age at onset was 2 years and the maximum was 60 years (mean: 22.6 years).

Based on the age of onset, the majority of patients were aged ≤30 years (66.4%) showed limited AA. The commonest age group was 1-10 (24.1%), followed by 31–40 and 21–30 years (22% and 21.2%, respectively) (Table 1). This difference was statistically highly significant (P=0.015), indicating that the earlier the age of onset, the greater severity of AA. A positive family history of AA was reported in 20.5%. There was no significant association (P=0.621) between disease severity and positive family history (Table 2).

The disease duration ranged from < 1 year to 32 years. The duration of the disease < 1 year was recorded in 52.6%, followed by 1–10 years in 38.6% of patients (Table 3).

Table 1. Distribution of patients according to age of onset and severity

Age of onset/years	Severity				Total	
	Mild		Severe			
	No.	%	No.	%	No.	%
<1	**4**	2.9	**0**	0	4	2.3
1-10	33	24.1	2	5.9	35	20.5
11-20	25	18.2	15	44.1	40	23.4
21-30	29	21.2	16	47.1	45	26.3
31-40	30	22	0	**0**	30	17.5
41-50	11	8	1	2.9	12	7
51-60	5	3.6	0	**0**	5	3
Total	137	100	34	**100**	**171**	**100**

Table 2. Distribution of patients according to family history of same disease and severity

Family history of same disease	Severity				Total	
	Mild		Severe			
	No.	%	No.	%	No.	%
Yes	**27**	19.7	**8**	23.5	**35**	20.5
No	110	80.3	26	76.5	**136**	79.5
Total	137	100	34	**100**	**171**	**100**

Table 3. Distribution of patients according to duration of the disease and sex

Duration /year	Sex				Total	
	Male		Female			
	No.	%	No.	%	No.	%
<1	**36**	57.1	**54**	50	**90**	52.6
1-10	**21**	33.3	**45**	41.7	**66**	38.6
11-20	5	8	7	6.5	**12**	**7**
21-30	1	1.6	1	0.9	**2**	1.2
31-40	0	0	1	0.9	**1**	0.6
Total	63	100	108	**100**	**171**	**100**

Table 4. Distribution of patients according to sex and severity

Sex	Severity				Total	
	Mild		Severe			
	No.	%	No.	%	No.	%
Male	**54**	39.4	**9**	26.5	63	36.8
Female	83	60.6	25	73.5	108	63.2
Total	137	100	34	**100**	**171**	**100**

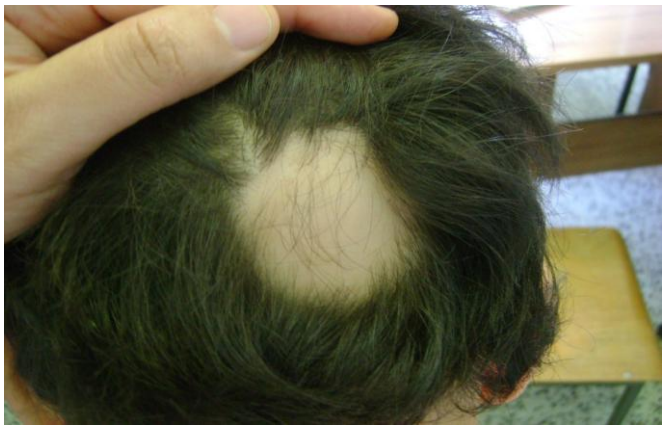

Fig. 1. Patchy alopecia areata (single)

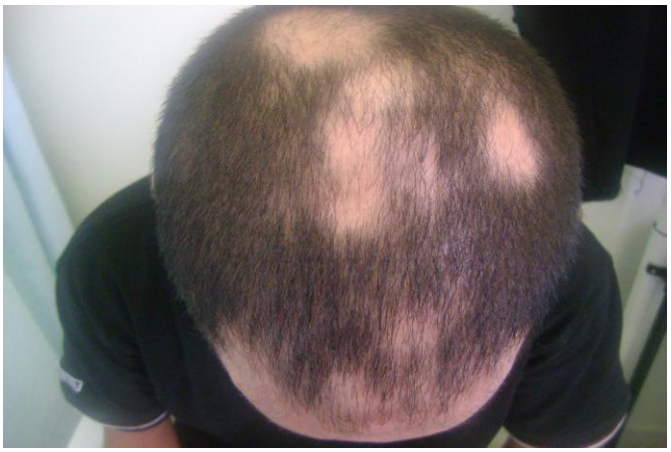

Fig. 2. Patchy alopecia areata (multiple)

The commonest clinical variety in our study was patchy AA of single patch (52%) followed by multiple patchy type (Figs. 1, 2) and AU (15.2% and 13.4% respectively) (Fig. 3) (Figs. 4, 5). The proportions of patients presenting with limited (mild) AA (less than 50% involvement) and with extensive (severe) AA in males were 39.4% and 26.5%, respectively, while in females they were 60.6% and 73.5%, respectively (Table 4). It was not statistically significant (P=0.161).

Precipitating factors were reported in 50.3% of patients (Fig. 6). Various systemic associations with AA were observed in our patients. 24.6% had a positive personal history of atopy which includes a history of atopic dermatitis and/or hay fever and/or asthma. Vitiligo and Dawn syndrome were seen in 4.1% and 3.5% of patients, respectively. Out of the total patients, 42.1% had nail changes 38% of 137 patients with mild AA had nail changes, and 58.8% of severe AA had nail involvement, indicating a significant correlation between nail changes and severity (P=0.027).

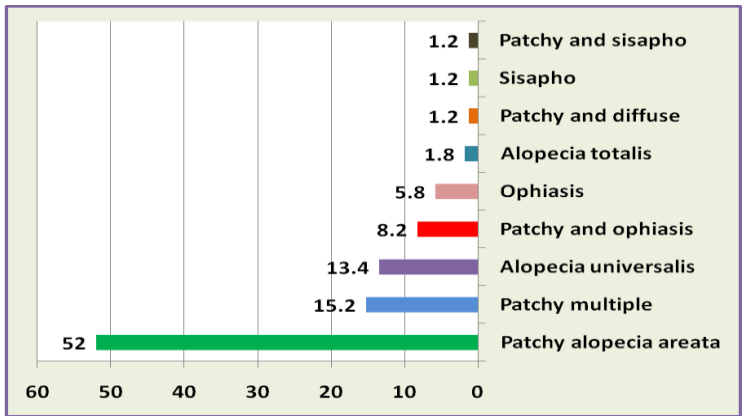

Fig. 3. Distribution of patients according to clinical type

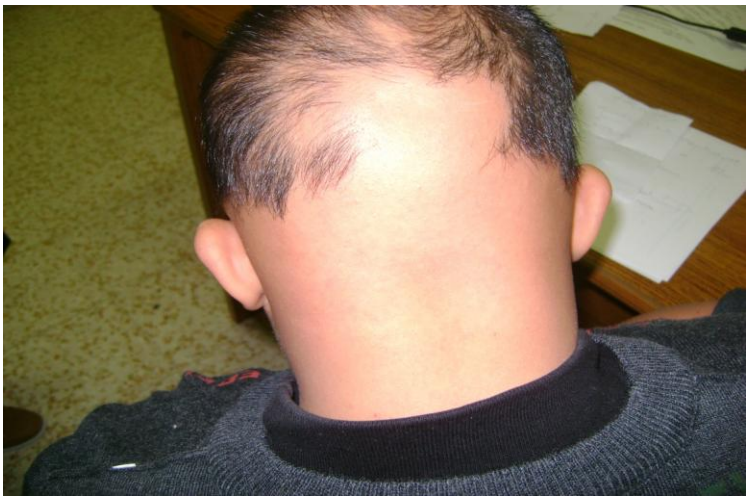

Fig. 4. Patchy alopecia areata and ophiasis in Dawn's syndrome patient

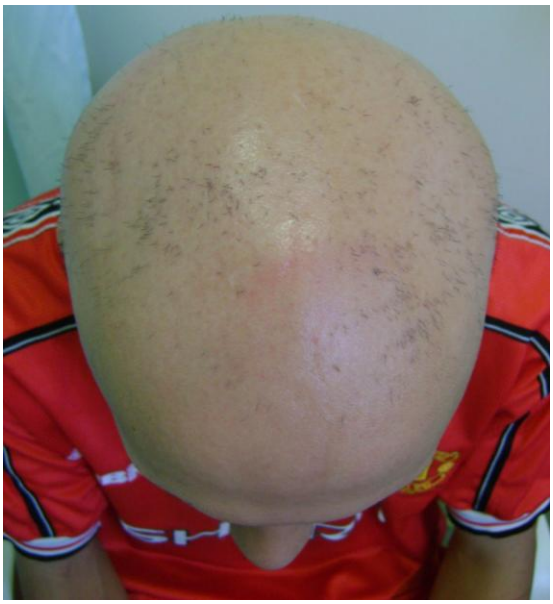

Fig. 5. Alopecia totalis

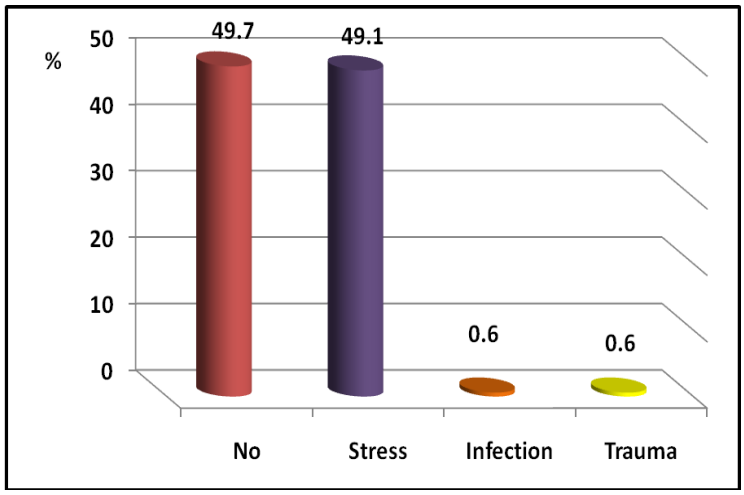

Fig. 6. Distribution of patients according to triggering factors

4. DISCUSSION

AA is a common, non-scarring type of hair loss, affecting approximately 1.7% of the population [1,12,13,14]. In a study of 200 patients from Kashmir, sex incidence was reported for males to females as 3 to 1 respectively [15]. In Singapore, the male to female ratio was reported as 1: 1.3 [16], while in India it was 2:1 [17]. In Benghazi, a study of 82 cases of AA (1995), the frequency of consultation due to AA was 1.65% which is higher than reported from Benghazi (1982), which was 0.78 [18,19].

In this study, we also found a higher prevalence of AA in females (male: female ratio 1:1.7).

The onset of AA may occur at any age; the majority (60%) will present with their first patch before 20 years of age [20], and one study in Asian patients suggests an onset before 40 years of age [16]. In (1995), in Benghazi, the range of age was 2–43 years (mean=18.8 years) [18].

The mean age of onset in this study was 22.6 years, and 66.4% of patients developed AA under the age of 30 years. This is in agreement with previous studies which found that the most affected patients in their 3rd decade of life [16,20,21].

The reported frequency of positive family history varies widely between the series, from around 4.6% to 42% [1,21,22]. In this study, a positive family history of AA was recorded in 20.5%, which is relatively similar to the results in Benghazi (1995), which reported 19.5% [18].

Nail changes were observed in 72 (42.1%) patients in this study. Nail involvement in alopecia areata has been variably reported from 7% to 66% [23,24]. Sharma et al. from India have reported that nail changes are 30% in their patients [17]. They also found a significant association of nail changes with disease severity, in agreement with this study where a significant correlation was found (p=0.027).

In our patients, patchy alopecia areata was the most common pattern, seen in 115 (67%), and 52% of them had a single patchy AA and only 15% had multiple patchy AA type, followed by AU (13.4%), patchy and ophiasis (8.2%).

In a previous study from Pakistan, Ahmed et al. [25] have found around 25% of patients with severe disease, while in other study also in Pakistan (2009), patchy was the most common pattern seen (73.6%) patients, followed by ophiasis 12%.

Our results revealed that a higher association is between AA and atopy (24.6%), which includes a history of atopic dermatitis and/or hay fever and/or asthma. Out of these 42 patients, only 2 patients (1.2%) have atopic dermatitis.

Atopy was reported in 46% of patients in a study of 513 AA patients in the USA [26] which is a relatively high finding, the explanation for that could be related to the different races in the USA. Other studies report frequencies of atopy in AA patients ranging from 1% to 60.7% [16,27,28].

In our study, vitiligo was the commonest cutaneous abnormality associated (4.1%).

In Qatar, 32.2% had an association with other diseases, including atopic dermatitis and vitiligo [29].

Environmental factors may still play an important role [1,30]. The patients often attribute the onset of their disease to stress or a specific life event, crisis or illness [23,30,31]. The elucidation of precipitating factors was 50.3% of AA patients in this study and was quite significant. Emotional stress was the main precipitating factor found in 49.1% of patients. Previous report from Benghazi (1995) was 23.17%) had history of psychological stress prior to occurrence of AA [26].

5. CONCLUSION

The prevalence of AA in our study was higher in females than in males (1.7:1). The patchy type of AA constitutes 67% of patients. The triggering factors were detected in 50.3% of the studied cases, and emotional stress was the main factor.

Nail changes were seen in 42.1% of patients, and they are significantly correlated with disease severity.

Further multicenter studies are to be carried out to assess the autoimmunity relationship with this disease.

CONSENT

Informed consent was obtained from all individual participants included in the study.

ETHICAL APPROVAL

The authors have collected and saved written ethical approval in accordance with international or university standards.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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