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Original Article

Alopecia aeata: Clinical spectrum and its association with thyroid dysfunction in Bahawalpur

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Abstract

Objective To study the clinical spectrum of alopecia areata (AA) and the frequency of thyroid dysfunction in alopecia areata patients.

Methods A cross sectional study was carried out in department of Dermatology, Bahawal Victoria Hospital, Bahawalpur for the duration of 6 months. A total of 183 patients suffering from AA of any severity belonging to either sex and age between 20 to 50 were included. All patients were evaluated for severity of AA (mild, moderate, severe, totalis) and their blood samples were taken to analyse thyroid hormones level and antithyroid antibodies.

Results Out of 183 patients, 103(56.28%) were males and 80(43.72%) were females. Mean age of patients was 34.80±8.36 years. The mean duration of disease was 6.39±2.44 months. The clinical spectrum of AA was seen as mild in 44.26%, moderate in 39.51%, severe in 15.85% and alopecia totalis in 10.38% patients. The thyroid dysfunction was seen in 13 (7.10%) of AA patients.

Conclusion This study concluded that there is high frequency of mild AA and frequency of thyroid dysfunction in AA patients is quite high.

Key words
Alopecia areata, thyroid dysfunction, autoimmunity.

Introduction

Alopecia areata (AA) is a recurrent, non-cicatricial type of hair loss that can affect any hair-bearing area. Although benign in nature, it can cause significant emotional and psychosocial distress in affected patients and their families.[1] AA usually occurs before the age of 30. However, it can strike from birth to the late decades of life at any age. As many as 44% of people with AA are younger than 20 years of age. The onset in patients over 40 years of age is seen in less than 30 percent of AA patients. Clinically, AA can manifest many different patterns ranging from mild, moderate and severe disease to alopecia totalis and universalis.[2] The exact pathophysiology of AA is still unclear. However, the most commonly accepted hypothesis is that AA is a T-cell-mediated autoimmune condition that occurs in genetically predisposed individuals.[3]

The origin of AA is not fully understood; however, strong direct and indirect data supports the role of autoreactive T-cells directed against unknown hair follicle autoantigen. These T cells are oligoclonal and predominantly present in the inflammatory infiltrate surrounding the

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peribulbous region of hair follicle. AA is associated with many autoimmune disorders such as Lichen Planus, Vitiligo, Morphea, Atopic Dermatitis, Hashimoto's Thyroiditis, Endemic Goiter, Hypothyroidism, Diabetes Mellitus and others.[4,5] The disease has a well known association with endocrinological disorders especially thyroid dysfunction.[6] There is, however, a lack of consensus on the overall prevalence of thyroid function abnormalities in AA which varies from 8% to 28%.[7,8] As no such work has been done in our region i.e. Bahawalpur the rationale of current study was to determine the clinical spectrum of AA and frequency of thyroid dysfunction in AA patients in this particular region.

Methods

This cross-sectional study was conducted at outpatient and inpatient departments of Dermatology, Bahawal Victoria Hospital, Bahawalpur for the duration of six months from September 2016 to March 2017. The disease was diagnosed clinically and severity was assessed by using olsen/canfield scoring system **(Figure 1)**.[9] A total of 183 patients suffering from AA of >3 months duration, of any severity, belonging to either sex and with age between 20-50 years were enrolled after the informed consent. The patients suffering from chronic renal failure or those taking medication that can affect thyroid functions (dopamine antagonists, antiepileptics, oral contraceptives, lithium, glucocorticoids) were excluded from the study. Then blood samples were taken and sent to the laboratory for analysis of TSH, free T3, free T4 and anti-thyroid peroxidase (TPO) antibodies. All this data was recorded on a predesigned proforma.

Data were entered and analyzed using the computer program SPSS version 20.0.The relationship between dysfunction of thyroid gland and AA was assessed by $\chi 2$ (Chi square) test. P-value of less than 0.05 was statistically considered meaningful.

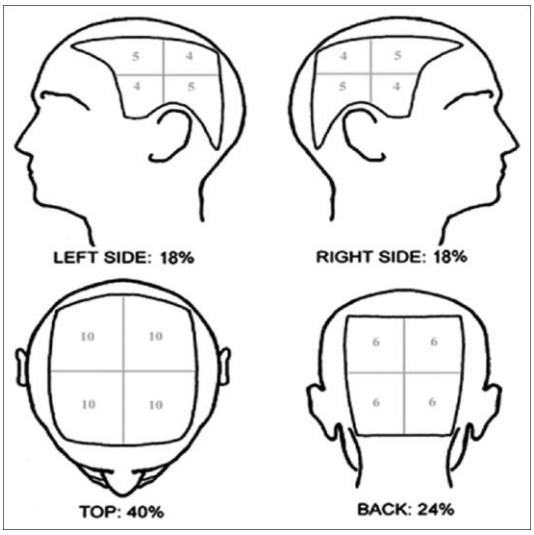

Figure 1 Olsen/ Canfield tool for determination of % scalp hair loss

- Mild: Patients with 25% area of scalp being involved will be labeled as mild.
- Moderate: Patients with 50% area of scalp being involved will be labeled as moderate.
- Severe: Patients with 75% area of scalp being involved will be labeled as severe.
- Alopecia totalis: Presence of alopecia on whole of the scalp will be taken as positive.

Results

Out of 183 patients, 103 (56.28%) were males and 80 (43.72%) were females. Male to female ratio was 1.3:1 as shown in **Table 1**.

Age range in this study was from 20 to 50 years with mean age of 34.80 ± 8.36 years as shown in **Table 2**.

Table 1 Distribution of patients according to Gender (n=183).

Gender	*Frequency*	*%age*
Male	103	56.28
Female	80	43.72

Table 2 Distribution of patients according to Age (n=183).

Age (in years)	*No. of Patients*	*%age*
20-35	97	53.01
36-50	86	46.99
Total	183	100.0

Mean ± SD = 34.80 ± 8.36 years

Table 3 Clinical spectrum of alopecia areata

Clinical spectrum	*Frequency (%)*	
	Yes	*no*
Mild	81 (44.26%)	102 (55.74%)
Moderate	54 (29.51%)	129 (70.49%)
Severe	29 (15.85%)	154 (84.16%)
Alopecia totalis	19 (10.38%)	164 (89.62%)

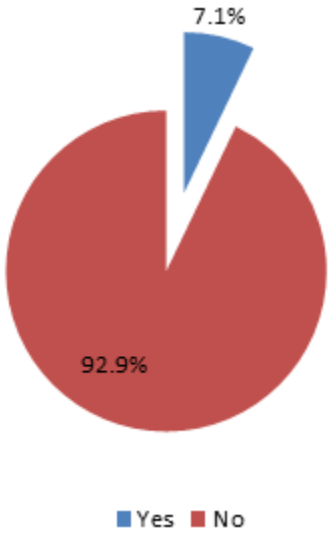

Figure 2 Distribution of patients according to thyroid dysfunction (n=183)

The clinical spectrum of AA was seen as mild in 44.26%, moderate in 39.51%, severe in 15.85% and alopecia totalis in 10.38% patients **(Table 3)**. The thyroid dysfunction was seen in 13(7.10%) of AA patients **(Figure 2)**.

Discussion

Alopecia areata (AA) is a common cause of non scarring hair loss. It usually occurs as a patchy hair loss commonly involving the scalp and beard area. However it can affect any hair bearing site and can be confluent or diffuse in pattern. It can occur as a single, self-limiting episode or can be recurrent in nature.[10]

In the present study we determined the clinical spectrum of AA and frequency of thyroid dysfunction in alopecia areata patients. Age range in this study was from 20 to 50 years with mean age of 34.80 ±8.36 years. Majority of the patients i.e. 97(53.01%) were between 20 to 35 years of age. Out of 183 patients, 103 (56.28%) were males and 80 (43.72%) were females with male to female ratio of 1.3:1. The clinical spectrum of AA was seen as mild in 44.26%, moderate in 39.51%, severe in 15.85% and alopecia totalis in 10.38% patients. The thyroid dysfunction was seen in 13 (7.10%) of AA patients.

In a study, 112 patients comprising 67(60%) females and 45 (40%) males were enrolled. Highest number of the patients i.e. 45 (40%) had mild disease (P<0.05), followed by moderate and severe alopecia areata to alopecia totalis, universalis and ophiasis in a descending frequency. 10(8.9%) patients revealed thyroid dysfunction.[11]

In another study Ahmed *et al*[12] also reported mild form of the disease as the most common presentation followed by moderate AA, other clinical presentations being less common.

Jameel *et al*[13] and Ejaz *et al*[14] also reported mild form of AA to be the most common presentation.

Lyakhovitsky *et al*[15] also reported a significant relationship between AA and thyroid dysfuntion. In this study 19 (24%) patients out of 78 revealed abnormal thyroid function tests.

In another study Gönül *et al*[16], reviewed 110 AA patients and showed abnormal thyroid function tests in 11(10%) patients and the presence of thyroid autoantibody in 16(14.7%) patients.

In a retrospective study conducted on 1408 Korean patients, Park *et al*[17] also showed increased incidence of thyroid dysfuntion (15.90%) and thyroid autoimmunity (18.46%) in AA patients particularly those with severe AA.

Conclusion

In the present study highest number of enrolled subjects was suffering from mild disease, followed by moderate and severe alopecia areata to alopecia totalis in a descending frequency. The finding in our study is at par with the studies conducted in past. The frequency of thyroid dysfunction in alopecia areata patients is also significantly high. So, it is recommended that there should be proper screening as well as management of the condition and thyroid dysfunction in these particular patients should be evaluated routinely in order to reduce their morbidity.

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