A Study Of Alopecia Areata And Its Associated Diseases At A Tertiary Care Hospital

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Abstract: *Introduction: Alopecia areata is an autoimmune disorder characterized by patchy non scarring hair loss associated with many systemic diseases. There is paucity of clinical data among Asian population. Aim and Objective: To find out the demographic and clinical profile of alopecia areata and its association with various systemic and dermatological diseases. Material and Methods: The present descriptive study was conducted among selected 100 patients of alopecia areata who attended Skin and venereal disease OPD, S.V.B.P. hospital, L.L.R.M. Medical College, Meerut, from January 2016 to December 2016. A detail information regarding demographic profile, family history, history of any systemic disease was obtained on a pre tested and predesigned questionnaire. Detail examination and thyroid profile was done of all the study subjects. The collected data was compiled in MS Excel and analyzed on Epi info software version 3.7.2. Results: Out of 100 patients, 92 patients completed the study out of which 61 % were male. Most of the study subjects were in the age group of 21-30 yrs. Patchy hair loss was found to be present in 87% and its association with duration of illness was found statistically significant. Higher association was found in nail changes (13%) followed by vitiligo (9%) and thyroid disorder (7%). Conclusion: the present study concludes association of alopecia areata with systemic and dermatological diseases. Early diagnosis and treatment of alopecia areata can reduce the burden of associated diseases.*

I.   Introduction
Alopecia areata is characterized by the loss of hair in circumscribed patches. The patches may be later being round or oval or irregular in shape, of varying size and accompanied by little or no evidence of inflammation.[1]

Alopecia areata is a multifactorial disease with autoimmune components, which although seen in genetically predisposed individuals, the real causes have yet to be determined and various factors should be considered. There are indications for a T-cell-mediated autoimmune process directed against an unknown autoantigen of the hair follicle. T lymphocytes that have been shown to be oligoclonal and autoreactive are predominantly present in the peribulbous inflammatory infiltrate.[2]

Alopecia areata frequently occurs in association with other autoimmune disorders such as vitiligo, lichen planus, morphea, lichen sclerosis, pemphigus foliaceus, atopic dermatitis, Hashimoto's thyroiditis, hypothyroidism, endemic goiter, Addison's disease, pernicious anemia, lupus erythematosus, diabetes mellitus, Down's syndrome and others.[2]

With this background, this study has been designed to find the association of alopecia aerata with other systemic and dermatological diseases, so that in future the burden can be reduced by early diagnosis and treatment.

II.   Aim and Objectives
1. To find out the demographic and clinical profile of alopecia areata
2. To find its association with various systemic and dermatological diseases.

III. Material and Methods
The present hospital based study was done in Department of skin and venereal diseases, SardarVallabhBhai Patel Hospital, LLRM Medical College, Meerut.

The study was done over a period of 1 year from January 2016 to December 2016 among 100 patients of alopecia areata using convenient sampling from the OPD by consecutive sampling method. (Purposive Sampling).

Detailed information regarding history of present illness was obtained from the patients on a pretested and semi structured questionnaire followed by detailed examination for any associated skin and systemic disease. The patient was asked to undergo investigation for thyroid functions. The information thus obtained was compiled on MS Excel 2013 followed by analysis using Epi Info 3.7.2.

The informed consent was taken from the patient and ethical clearance was taken from the institutional ethical committee of LLRM MedicalCollege, Meerut.

IV. Results

Out of 100 patients examined, 61% patients were males while rest were females (Fig.1). According to age majority of patients were in the age group of 21 to 40 years (41%) followed by in the age group 0 to 10 years (26%). (Table 1).

Fig 1. Sex wise distribution of patients
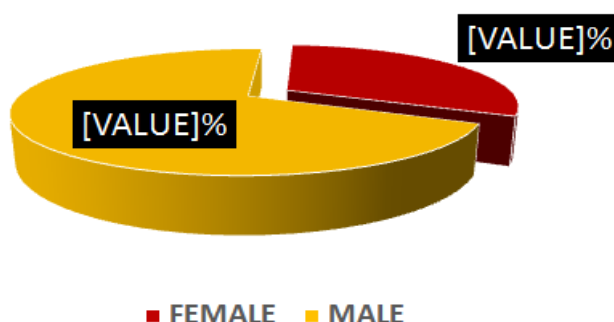

Fig.1 SEX WISE DISTRIBUTION OF PATIENTS

Table 01: Age and Sex wise Distribution of study subjects

Age		Frequency	Percentage
Age	0 to 10 years	16	16.0 %
	11 to 20 years	15	15.0 %
	21 to 30 years	41	41.0 %
	31 to 40 years	20	20.0 %
	41 to 50 years	03	03.0 %
	51 to 60 years	05	05.0 %
Sex	Male	61	61.0 %
	Female	39	39.0 %

On examination, vitiligo was the most common sign seen among 9 % patients followed by exclamation mark among 6 % patients. Itching and fever were found to be present among 4 % and 2 % of the children. (Table 2)

Table 02: Table depicting association of dermatological signs with cases

Dermatological Signs	Frequency	Percentage
Vitiligo	09	9.0 %
Exclamation Mark	06	6.0 %
Itching	05	5.0 %
Fever	02	2.0 %

Among the various systemic diseases hypothyroidism was found to be present in 5 % of the patients. 3 % patients were found to be anaemic while 1 % patients were having a history of Bronchial Asthma, Lichen Planus and Leukonychia. (Table 3)

Table 03: Table Depicting association of cases with systemic disorders

Systemic Diseases	Frequency	Percentage
Hypothyroidism	05	5.0 %
Diabetes	02	2.0 %
Anaemia	03	3.0 %
Bronchial Asthma	01	1.0 %
Leukonychia	01	1.0 %
Lichen Planus	01	1.0 %

Most common site of alopecia was seen on scalp and face. Parietal and Frontal area of the scalp is the most common area involved in the scalp with 21.74 % cases, followed by 19.57 % and 8.70 % cases belonged to occipital and temporal areas. Most common area on the face involved was beard (11.96%) followed by eye brows (8.70 %), moustache (4.35 %) and eye lashes (3.76%). (Table 4)

Table 04: Table depicting distribution of Alopecia Aerata according to site

SITE		NUMBER	PERCENTAGE (%)
SCALP	PARIETAL	20	21.74 %
	FRONTAL	20	21.74 %
	OCCIPITAL	18	19.57 %
	TEMPORAL	08	08.70 %
FACE	BEARD	11	11.96 %
	EYE BROWS	08	08.70 %
	EYE LASHES	03	03.26 %
	MOUSTACHE	04	04.35 %

Face involvement was found to be significantly more in males as compared to females, with 37.8 % males had face involvement while among females it was 23.1%. (Table 5)

Table 05: Association between site of Alopecia and Gender

GENDER	FACE	SCALP	TOTAL
MALE	23 (76.9 %)	38 (54.6 %)	61 (60.9%)
FEMALE	08 (23.1 %)	31 (45.4 %)	39 (39.1%)
TOTAL	31 (31 %)	69 (69.0 %)	100 (100%)
$X^2 = 3.92$, DF = 1, P < 0.05			

The number of alopecia patches increases with increase in duration of illness and this association was found to be statistically significant. (P < 0.05) (Table 6)

Table 06: Association between duration of illness and number of patches

Duration of illness	Number of patches				Total
	None	1 – 2 patch	3 - 4 patch	5 – 6 patch	
< 1year	10 (12.9%)	53 (68.8%)	9 (11.7%)	5 (6.5%)	77 (83.7%)
≥ 1 year	2 (13.3%)	4 (26.7%)	6 (40.0%)	3 (20.0%)	15 (16.3%)
Total	12 (13.0%)	57 (74.0%)	15 (16.3%)	8 (8.7%)	92 (100.0%)
$X2 = 12.4$, df = 3, p < 0.01					

V. Discussion

Alopecia areata is a common, unpredictable, non-scarring form of hair loss. Although alopecia areata can occur at any ages from infancy to old age, the first attack is most commonly seen between the age of 5 and 40 years and accounts for 70 to 80% of cases. The onset of alopecia areata may be at any age, peaking between second and fourth decades. In our study, the commonest age group of occurrence was 21-40 years accounting to 41.0 % which is similar to the study by ***Gopal et al***[1] where they reported maximum patients in age group of 21 – 30 (37.5 %) followed by 23.3 % in age group of 31-40 years.

Sex incidence is reported to be equal in UK and USA, but figures from France, Italy and Spain show a considerably higher incidence in males about 2:1 of male : female ratio. Our study shows 61.0 % of patients were males and 39.0% were females. The results were similar to findings by ***Gopal et al***[1] where 66.7 % patients were males while 33.3 % were females.

In the present scalp was the most common area of the body to get involved which is similar to the findings by ***Bolduc et al*** [5] which states 66.5 % to 95 % of cases had involvement of scalp. On the face in the present study most area involved was beard (11%) which is similar to findings by ***Bolduc et al*** [5] which states 28 % involvement of beard on the face.

Vitiligo was found to be most common skin condition found to be associated with alopecia aerata accounting to 9 % cases, while the study by ***Gopal et al***[1] and ***Muller et al***[3] reported 1.6 % and 4 % cases associated with vitiligo. The other dermatological disorders associated was Lichen planus. Exclamation mark which is path gnomic for alopecia areata was found among 6 % of the cases.

Bronchial asthma was seen in 1.0 % cases which is lower to the prevalence reported by ***Gopal et al***[1] (4.2%). Diabetes mellitus was seen in 1.0 % cases. Hypothyroidism was seen in 5% cases, while ***Gopal et al***[1] reported 2.5 % cases with hypothyroidism. ***Lewinski and Broniarczyk-Dyla* et al.**[4] also confirmed the frequent coexistence of alopecia areata and thyroid abnormalities. Hypothyroidism, bronchial asthma and diabetes mellitus have a proposed autoimmune etiology. ***Muller and Winkelman***[3] studies showed association of alopecia areata with atopy in 18% of children and 9% of adults. These associations trends are available that

could indicate that alopecia areata could be an autoimmune disorder. But further studies are needed in this regard.

In the present a significant association was found between number of patches and duration of illness which could be incidental finding as no such association exist indicating number of patches to be associated with severity of alopecia aerata.

VI. Conclusion and Recommendations

The present study concludes alopecia aerata is more prevalent in males with scalp and face are the most common areas involved. Parietal and Frontal areas are the most common area on the scalp involved in alopecia aerata.

Alopecia aerata is commonly associated with various skin and systemic diseases with vitiligo being the most common associated skin disease and hypothyroidism among the systemic diseases.

The association with these systemic disorders increases significantly with increase in duration of the illness.

Thus this study recommends that there is a need for early diagnosis and treatment of alopecia areata which can reduce the burden of various dermatological and systemic diseases.

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