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Original Research Article

Profile of alopecia areata in patients attending dermatology out patient department in a tertiary care hospital in Gangtok, Sikkim

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ABSTRACT

Background: Alopecia areata is a condition that is characterized by a well-defined round or oval patches of non-scaring hair loss in scalp or any hairy area of the body. Alopecia areata has become a major health problem faced by people all over theworld. This research was done to ascertain the prevalence of alopecia areata in different age group and to study its association with autoimmune diseases and systemic illnesses.
Methods: The present hospital based descriptive study includes 52 alopecia areata patients attending dermatology out-patient department.
Results: It wasseen that the disease can occur at any age group mostly affecting those between 21-40 years. The age of presentation varied from 14 to 48 years with male preponderance. It was found that arthritis was associated in 30.7%, ANA was positive in 7.7% and 12% had hypothyroidism. Eosinophilia was found in 34.6% and 7.7% had asthma among then.
Conclusions: Our study shows that it could be associated with autoimmunity, thyroid abnormality, atopy and inflammation.

Keywords: Alopecia areata, Sikkim, Gangtok, Autoimmunity, Systemic diseases

INTRODUCTION

Alopecia areata is a condition that is characterized by a well-defined round or oval patches of non-scaring hair loss in scalp or any hairy area of the body. It is an inflammatory hair loss disease. It occurs as a patchy, confluent or diffuse hair loss. It is characterized by a hair loss without any clinical inflammatory signs.[1,2] It was first described by Cornelius Celsus. The term "Alopecia areata" was coined by Sauvages in his "Nosologica medica" published in 1970.[3,4] It is a common disease occurring worldwide. It is one of the most common forms of hair loss encountered by dermatologists and accounts for 25% of all the alopecia cases.[2] It accounts for 2-3% of new dermatology cases in UK and US, 3-8% in China and 0.7% in India. In general population, the prevalence was estimated at 0.1-0.2% with a life time risk of 1.7%.5 It can occur at any age and there is no known race preponderance.[5,6] The youngest was 4 months old and oldest was in late 70s.[7] There are various causative factors like genetic, autoimmune disease, infection, psychological and environmental, etc. but origin of disease process is not fully established. It has been considered as an organ specific autoimmune disease due to an aberrant T-cell response against hair follicle self-antigens.[8-11]

Aims and objectives

Aim and objectives of the study were to ascertain the

prevalence of alopecia areata in patients attending to dermatology out patient's department at CRH and to study the association of alopecia areata with autoimmune diseases, thyroid function abnormalities and systemic illnesses.

METHODS

Study design

The study was of cross-sectional design.

Study type

The current study was of hospital based descriptive study.

Study site

The study carried out at dermatology out patient's department at a tertiary care hospital in Gangtok.

Duration of study

The study was carried out for 2 months.

Study population

Patients attending the dermatology OPD during the OPD hours of a tertiary care hospital in Gangtok.

Number of subjects

The total 52 patients were included in the study.

Inclusion criteria

Patients of any age attending the dermatology out patient department with the clinical findings of alopecia areata and those who gave consent for the study were included in the study.

Exclusion criteria

Patients who had cancer, AIDS and immune-compromised and not willing to give consent were excluded from the study.

All the patients, irrespective of their age, attending the dermatology out patient's department with the clinical findings of alopecia areata were informed about the objectives and implication of the research in detail. Willing participants fitting the criterion for the research project were screened after obtaining a written consent from them. All those who had consented were given a pre-validated questionnaire and all the technical terms were explained to them. Then they were asked to fill up the questionnaire. The general clinical examination of the patient and then the local examination were done. Then they were subjected to the following tests-Complete blood tests (CBC), thyroid function test (TFT) as well as antinuclear antibody test (ANA).

The 10 ml of fasting blood sample was collected from each patient and were sent to the central laboratory, CRH, Sikkim.

TFT: Thyroid function test was done in Biomerieux (Vidas) machine which follows the principle of enzyme linked fluorescent assay.

ANA: Antinuclear antibody test was done by the principle of enzyme immunoassay.

CBC: Complete blood count was performed on a Sysmex XS 1000i fully automated 5-part differential counter.

Statistical tools

The reports were collected from the lab and the data obtained was tabulated in Microsoft excel for Windows software. Statistical analysis was done by Microsoft excel software.

Follow up of the study population

Not applicable.

Confidentiality

The personal details of the patient will be kept confident throughout and after the study.

RESULTS

A total of 52 patients with alopecia areata were entered in our study. Out of which 28 (53.8%) were males and 24 (46.2%) were females. The mean age of the patients was 29.2 years. The youngest was 14 years old and the eldest was of 48 years old. Most of them were in age group of 21-25 years (50%). Male:Female ratio-1.17:1 (Table 1 and 2).

Majority of patients had duration of illness ranging from 1-6 months (65.4%) shown in Table 2. Single patch was seen in most of the cases (77%) followed by more than 2 patches, depicted in Table 3. Hypothyroidism was noted in 11.5% and ANA was positive in 8% patients (Table 3, 4 and Figure 1).

Some form of arthritis was associated with 30.7% of the patients followed by anaemia in 11.57%. Total of 15% patients gave past history of similar problem and 4% gave history of similar problem in their family (Table 5, Figure 2 and 3).

Decreased total RBC count in 4 patients and decreased haemoglobin was seen in 6 patients, increased neutrophils were seen in 12 patients and increased eosinophil count was seen in 18 patient (Table 6).

Table 1: Distribution of subjects as per their age.

Age (Years)	Male (%)	Female (%)	Total (%)
11-15	2 (3.84)	-	2 (3.84)
16-20	-	4 (7.7)	4 (7.7)
21-25	6 (11.54)	8 (15.4)	14 (27)
26-30	8 (15.4)	4 (7.7)	12 (23)
31-35	4 (7.7)	2 (3.84)	6 (11.54)
36-40	4 (7.7)	4 (7.7)	8 (15.4)
41-45	4 (7.7)	-	4 (7.7)
46-50	-	2 (3.84)	2 (3.84)

Table 2: Distribution of subjects according to duration of diseases.

Duration (Months)	Male (%)	Female (%)	Total (%)
<1	4 (7.7)	6 (11.54)	10 (19.2)
1-6	20 (34.6)	14 (30.8)	34 (65.4)
>6	4 (7.7)	4 (7.7)	8 (15.4)
Grand total	28 (54)	24 (46)	52 (100)

Table 3: Distribution of patients according to the number of patches of hair loss.

No. of patches of hair loss	No. of patients	Percentage (%)
1	40	77
2	4	7.7
>2	8	15.3
Total	52	100

Table 4: Distribution of patients according to their thyroid function test.

Tests	Normal ranges (ng/ml)	Within normal ranges	Abnormal ranges
T3	0.61-1.63	52	0
T4	4.68-9.36	52	0
TSH	0.25-5.00	46	6

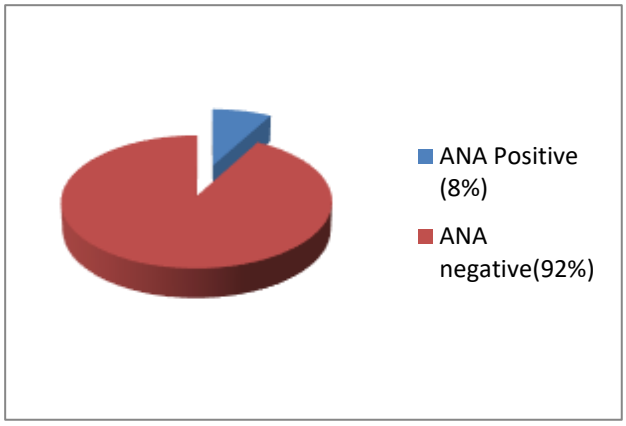

Figure 1: Distribution of patients as per ANA test.

Table 5: Associated illnesses with alopecia areata.

Associated illness	Frequency	Percentage (%)
Arthritis	16	30.7
Diabetes mellitus	4	7.7
Asthma	4	7.7
Anaemia	6	11.54
Other skin problems	4	7.7
No illness	18	34.6

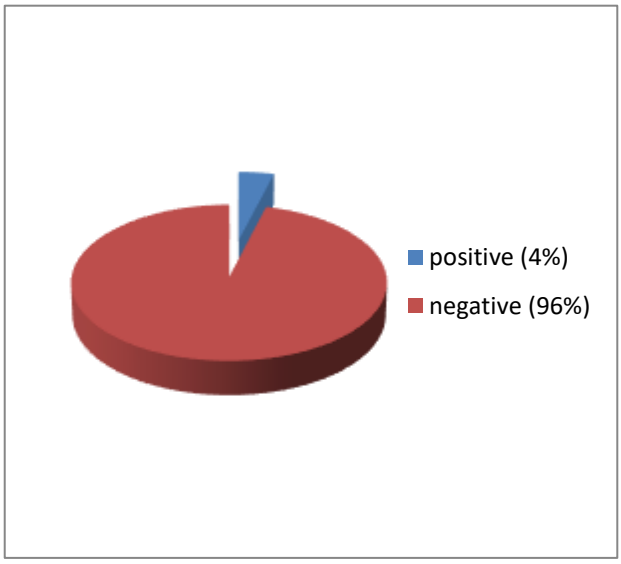

Figure 2: Family history of alopecia areata.

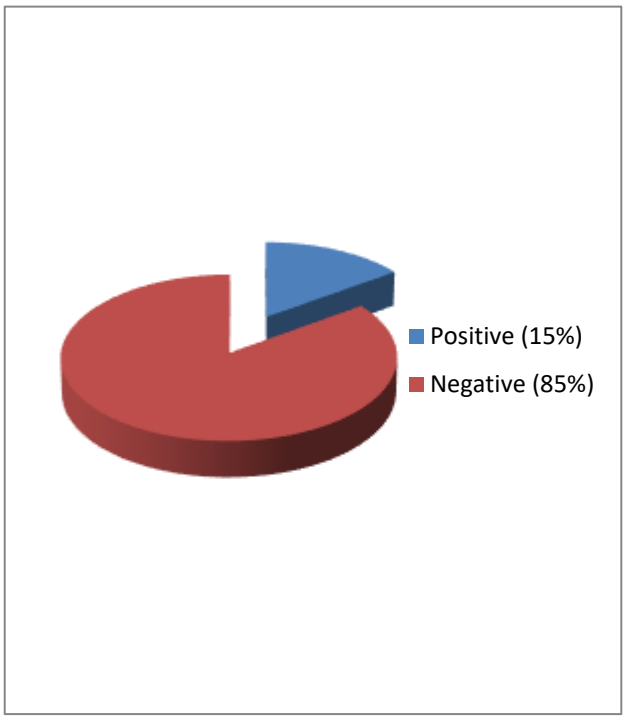

Figure 3: Past history of alopecia areata.

Table 6: Profile of CBC in patients of alopecia areata.

Tests	Normal range	Frequency of increased	Frequency of decreased	Frequency of normal	Total
RBC count (10^3/uL)	3.80-6.50	0	4	48	52
WBC count (10^6/uL)	4.00-11	0	0	0	52
Hemoglobin (g/dL)	12-18	0	6	46	52
HCT (%)	36-54	0	4	48	52
Platelet count (10^3/uL)	150-400	2	0	50	52
Neutrophils (%)	45-70	12	2	38	52
Lymphocytes (%)	20-40	4	6	42	52
Monocytes (%)	3-10	0	6	46	52
Eosinophils (%)	1-5	18	4	30	52
Basophils (%)	0-0.5	4	0	48	52

DISCUSSION

Alopecia Areata is a common disease occurring worldwide. In this study, mostof the patients were males, i.e., 54%. The male to female ratio of was 1.17:1. Different studies have reported different sex-specific prevalence, more in males and more in females.[2,4,8,16,17,20,21]

A majority (81%) of patients were between 21-40 years of age in our studywhich was similar to a study done by Anil et al showing 73% of patients between 21-40 years of age.[2] The median age of presentation of was 29.2 years. The majority (88.5%) of patients had their first episode of alopecia areata before the age of 40 years.This finding was uniform with a study done by Tan et al in Singapore.[22] The fact that Alopecia areata can occur at any age can be confirmed by variousstudies (Table 7).

Table 7: Different studies of different age affection by alopecia areata.

Study	Sample size	Youngest patient'sage (years)	Oldest patient'sage (years)
Our study	52	14	48
Anil et al[2]	70	1.5	48
Tan et al[22]	219	2	80
Abi et al[8]	71	8	58s
Tae et al[16]	162	1.25	76
Mahmoud[17]	40	18	40

In our observation 65.4% of patients reported within 6 months which is similar to the study of Anil et al study with 71% of patients reporting within 6 months.[2] Our findings suggest that only 4% of the patients reports with family history of alopecia areata. The frequency of positive family history in other studies was as: 4.6%; 2%; 15.5% and 10% and 20%.[8,17,22,20]

In our study ANA were found in the sera of 7.7% of the patients with alopecia areata whereas in study conducted by Mahmoud et al ANA was present in 25% of the patients' serum which is much more than the findings of our study.[17] These results were inconsistent with our study probably because our sample size was small and the duration of study was very short.

There have been a few reports of association between alopecia areata and thyroid function abnormalities. The frequency of associated thyroid disorderswas in 11.5% of patients. This finding was uniform with a study conducted by Salaiman et al who reported 11.8% of patients with an associated thyroid function abnormality.[19] The frequencies of associated thyroid disorders asreported by other studies were: 2.3%, 1.3%, 18.3%, 8.9%.[4,8,20,22] Among our results of thyroid disorders, hypothyroidism was the only association with alopecia areata.

Alopecia areata frequently occurs in association with other systemic illnesses. The 7.7% of the cases in our study showed association with diabetes mellitus. It is similar to observation of study done by Abi et al where 7.1% of cases had association with diabetes mellitus.[8]

In our study, the frequency of arthritis is seen in 31% of cases of alopecia areata. This shows that there could be some association of alopecia areata with certain autoimmune diseases like rheumatoid arthritis, systemic lupus erythematosus (SLE), etc. anemia with low hemoglobin level was found in 11.54% of cases which is similar to study by Abiet al with 11.3% of anemic cases.[8] One significant finding in our study was that 34.6% showed increased level of serum eosinophils. A study was conducted by Young et al in South Korea,where total frequency of eosinophils increased was 18.5% similarly eosinophils were increased in 38 of 71 cases (53.5%) in a study conducted by Dirk et al.[1,16] The frequency of association with asthma is 7.7% in our study while it was 4.2% in study by Abi et al.[8] Significant number of patients having raised eosinophil and among those 7.7% having asthma could be correlated with atopy. Total 23% cases had neutrophilia, 7.7% had basophilia and 7.7% had lymphocytosis, 15.4% had lymphocytopenia. Such findings from CBC of the patients could be due to an ongoing inflammatoryprocess, infection or allergy.

CONCLUSION

We can conclude from the present study that alopecia areata can occur at any age and any gender. The positive frequency of thyroid disorders and ANA in patients' serum can support the idea of association between alopecia areata and thyroid function abnormalities or autoimmune diseases. Increased eosinophil concentration in 34.6% along with 7.7% asthma cases among them also suggests association between alopecia areata and atopy. Some other findings in the blood count indicate inflammation. Not much research on this topic is done in this part of the world. The prevalence of alopecia areata is especially high in Sikkim with 52 new cases within 2 months. So, there is a need of a research with increased sample size and at a large scale so as to have a better understanding and a holistic approach to the problem.

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REFERENCES

1. Elston DM, McCollough ML, Bergfeld WF, Liranzo Mo, MAJ Mark Heibel. Eosinophils in fibrous tracts and near hair bulbs: A helpful diagnostic feature of alopecia areata. J Am Acad Dermatol. 1997;37:101-6.
2. Anil M, Sharma AL, Mishra M. A study of clinical profile of alopecia areata in a tertiary care hospital in Western Odisha. Int Arch Integrated Med. 2017;4(5):26-30.
3. Sharma VK, Dawn G, Kumar B. Profile of alopecia areata in Northern India. Int J Dermatol. 1996;35(1):22-7.
4. Gagandeep Kaur, CM Kuldeep, Puneet Bhargava, Deepak Kumar Mathur, Sonam Sharda, Pulkit Chaturvedi. Insignificant correlation between thyroid hormone and antithyroid peroxidase antibodies in alopecia areata patients in Northern Rajasthan. Int J Trichol. 2017;9(4):149-53.
5. Seetharam KA. Alopecia areata: an update. Indian J Dermatol Venereol Leprol. 2013;79(5):563-75.
6. Safavi K. Prevalence of alopecia areata in the First National Health and Nutrition Examination Survey. Arch Dermatol. 1992;128(5):702.
7. Muller SA, Winkelmann RK, Alopecia Areata-An evaluation of 736 patients. Arch Dermatol. 1963;88:290-7.
8. Abi ET, Kadyan RS. Alopecia areata and autoimmunity: A clinical study. Indian J Dermatol. 2008;53:70-74.
9. Bolognia JJ, Jorizzo JL, Rapini R. Drmatology. 2nd edition, Alopecias. 2008;1:92.
10. Champion RH, Burton JL, Burns T, Breathnach S. Rook, Wilkinsen, Ebling Textbook of Dermatology, 6th edition, Disorders of hair. 1968;2919.
11. Seyrafi H, Akhiani M, Abbasi H. Evaluation of the profile of alopecia areata and the prevalence of thyroid function test abnormalities and serum autoantibodies in Iranian patients. BMC Dermatol. 2005;5:11.
12. Wang H, Gan H, Mei L, Yang G, Fang F. The association between alopecia areata and thyroid autoimmunity in Chinese adult patients: a controlled study. Biomed res. 2017;28:8.
13. Bakry OA, Basha MA, El-Shafiee MK, Shehata WA. Thyroid disorders associated with alopecia areata in Egyptian Patients. Indian J Dermatol. 2014;59:49-55.
14. Choi WJ, Kim JE, Kang H. Frequency of antinuclear antibody positivity in pattern hair loss. Ann Dermatol. 2015;27(2):210-2.
15. Oztekin A, Metin A, Kirbas SC, Oztekin C. Frequency of AA in patients with autoimmune thyroid diseases. Apollo Med. 2017;14(3):165-70.
16. Tae YY, Yoon Lee D, Kim YJ. Diagnostic usefulness of a peribulbar eosinophilic infiltrate in alopecia areata. JAMA Dermatol. 2014;150(9):952-6.
17. Mahmoud K, Mansour M, Roshdy W. Study of autoantibodies in alopecia areata. Egy J Med Microbiol. 2006;15:2.
18. Zhang B. Early-stage alopecia areata is associated with inflammation in the upper dermis and damage to the hair follicle infundibulum. Aus J Dermatol. 2013;54:184-91.
19. Alsaiari S, Fatani M. Demographic and clinical profile of alopecia areata in Makkah, Saudi Arabia and its impact on quality of life. Int med health res. 2018;4(3):61-7.
20. Al-Mutairi N, Eldin ON. Clinical profile and impact on quality of life: seven years' experience with patients of alopecia areata. Indian J Dermatol Venereol. 2011;77:489-93.
21. Thomas EA, Kadyan RS. alopecia areata and autoimmunity: A clinical study. Indian J Dermatol. 2008;53:70-4.
22. Tan E, Tay YK, Goh CL, Giam YC. The pattern and profile of alopecia areata in Singapore-a study of 219 Asians. Int J Dermatol. 2002;41:748-53.

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