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ORIGINAL ARTICLE

A CLINICAL STUDY OF ALOPECIA AREATA IN CHILDREN

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ABSTRACT: BACKGROUND: Alopecia areata (AA) is an immunologically mediated disorder characterized by focal to diffuse hair loss. It accounts for roughly 2% of new dermatological outpatients. The incidence is higher in children with slightly higher incidence among female children. Onset peaks between 6 and 10 years of age. It has serious implication on a growing child's psychological well-being at a critical time of development. **AIMS:** To study the epidemiology of AA, its clinical presentation, association with history of atopy, family history, and rate of recurrence among children below the age of sixteen years. **MATERIAL AND METHODS:** Fifty consecutively clinically diagnosed cases of AA in children less than sixteen years were enrolled in the study. A detailed clinical examination and history pertained to the aim of the study was recorded. Later the data was entered to MS Excel Spread-sheet and analyzed using SSPS software. **RESULTS:** Female to male sex ratio was 1.17:1, while the overall incidence in pediatric population was little over 1%. The most common presenting age group was 7-10 years. It was also noted that large majority of patients reported acute loss of hair over the patches. AA appeared earlier among the atopics than in non atopics but the patches were smaller among atopics compared to non-atopics. Almost 1 in 10 patients had significant family history. Nail changes and recurrence were positive in more than 10% of patients**. CONCLUSION:** Though AA is not a life threatening illness, the cosmetic disfigurement can be bear enormous amount of psychological impact on children of school going age. Most of the therapies only hasten what ultimately would be a spontaneous remission. Treatment may not be successful in many cases; here children will have to be tactfully managed with counseling.

KEYWORDS: Alopecia areata, children, incidence, sex ratio, atopy, family history, recurrence, nail changes.

INTRODUCTION: Hair is the crown of the human body; society has placed a great deal of social, religious and cultural importance on hair and hairstyles. Hair performs no vital functions whatsoever in man but the psychological functions of hair seems almost immeasurable. Hair has not only been a symbolic indicator of gender, but of social, religious and professional status as well.

Alopecia may be interpreted as a loss, miniaturization, involution, or increased fragility of the hair at all hair bearing sites, such as scalp, face, eyebrows, eyelashes, and body. Historically alopecia has been classified as non-scarring and scarring. In the non-scarring alopecia there is lack of reparative fibrosis and follicles are frequently present indicating a possibility of regeneration of follicle.

Cornelius Celsus who flourished in Rome AD 14-37 had described Alopecia Areata which even now is sometimes referred to as 'area celsi'. Sauvages (1706-67) first used the term Alopecia Areata (AA). [1] Alopecia areata is an immunologically mediated disorder characterized by focal to diffuse hair loss. Patients are frequently quite young, sixty percent present with the first patch under the age of 20 years.

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Although hair loss is usually asymptomatic in most cases, some patients describe paresthesias with mild to moderate pruritus, tenderness, burning sensation, or pain before the appearance of the patches. Clinical presentations of alopecia areata are subcategorized according to the pattern or extend of hair loss. The hairs when examined under the microscope are telogen hairs, fractured hairs can also been seen at the active margins of Alopecia commonly described as 'exclamation-mark' hairs because the distal segment is broader than the proximal end.

According to the pattern the following forms are seen: patchy AA, round or oval patches of hair loss (most common); reticular AA, reticulated pattern of hair loss; ophiasic band like AA, hair loss in parieto- temporo-occipital scalp; ophiasis inversus, a rare band like pattern of hair loss in fronto-parieto-temporal scalp; and diffuse Alopecia Areata, a diffuse decrease in hair density.

If categorized according to the extent of involvement following forms may be seen: Alopecia Areata, partial loss of scalp hair; Alopecia totalis, 100% loss of scalp hair; and Alopecia universalis, 100% loss of all body hair. In the earliest classification of AA, Ikeda (1965) divided AA into 4 categories: the 'common' type with generally a good prognosis, the 'atopic' type often an onset in childhood, the 'pre-hypertensive' type showing a high rate of progression to Alopecia totalis and the 'endocrine-autonomic' type or the 'auto immune' type.

AA is hypothesized to be an organ specific autoimmune disease mediated by T lymphocytes directed to the hair follicles. Although genetic predispositions and environmental factors may trigger the initiation of the disease, the exact cause is still unknown. There are very few exclusive studies conducted in India on A.A. in children. Therefore the present study was done to review clinical and epidemiological aspects of AA in children among local population.

METHODS: The present study was conducted on patients less than sixteen years of age who were clinically diagnosed as AA at Dermatology outpatient department of C.G. Hospital and Bapuji Hospital attached to J.J.M. Medical College, Davangere from November 2008 to October 2010. Fifty cases of clinically diagnosed of A.A. under the age of sixteen years were included in the study with parental consent. A detailed history and socioeconomic status information was obtained from patient if possible and from the parents. A complete examination of skin lesions, morphology, distribution and site was done.

Patients were distributed into different age groups as existing literature shows higher incidence in age group 7-10 years. Sex ratio was calculated to compare with existing data from other studies which have yielded variable results. Parents of the patients were arbitrarily divided into three income groups; poor with less than Rs. 5,000 income per month, middle with income between Rs. 5,000 – Rs. 10,000 and high with income of more than Rs.10,000 per month.

In due course of the study psychological stress was eliminated as a parameter due to difficulty in assessing the stress in very young children. All patients were asked detailed history of atopy and screened clinically for atopy, after which they were assessed as atopic or not. A detailed patient and family history yielded information on previous episodes of similar condition and presence of similar history among siblings and parents.

Each lesion was measured along the longest axis in centimeters. Nail changes that were considered significant were pitting, dystrophy and ridging. As per remarks on synopsis routine investigative were not performed and IgE levels were not done due to unavailability of the facility at the hospital laboratory.

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Inclusion Criteria: All patients less than sixteen years of age with AA who gave consent for the study. Exclusion criteria: Patients and parents refusing consent to be included in the study.

RESULTS: The data was entered to MS Excel Spread-sheet, analyzed using SSPS software and the following results were obtained.

Total No. of pediatric patients attending Dermatology OPD	Total no. of alopecia areata	Percentage
4908	50	1.01%

TABLE 1: OPD INCIDENCE

In the present study the incidence among children presenting at outpatient department was 1.01%.

Age in years	No. of cases	Percentage
<2	4	8
2-6	19	38
7-10	22	44
>10	5	10
Total	**50**	**100**

TABLE 2: AGE DISTRIBUTION

Commonest presenting age group was 7-10 years followed by 2-6 years age group.

Sex	No. of cases	Percentage
Male	23	46
Female	27	54

TABLE 3: SEX INCIDENCE

Marginally higher incidence of female patients (54%) was recorded in the study. Female to male ratio was 1.17:1.

Socio-economic status	No. of cases	Percentage
Poor (Rs. <5000 per month)	32	64
Middle (Rs. 5, 000 – 10, 000 per month)	15	30
High (Rs. > 10, 000 per month)	3	6

TABLE 4: SOCIO-ECONOMIC STATUS

Poor patients accounted for 64% of the study group.

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Site of lesion	No. of cases	Percentage
Frontal	5	10
Vertex	16	32
Temporal	10	20
Occipital	26	52
Eye brows	1	2

TABLE 5: SITE OF LESION

Occipital lesion was most commonly presenting site for 52% of cases.

Duration	No. of cases	Percentage
Acute (<3 weeks)	43	86
Gradual (> 3weeks)	7	14

TABLE 6: ONSET

Overall majority (86%) of cases reported acute loss of hair.

Size of the lesion (cm)	No. of cases	Percentage*
<2	6	12
2-5	47	94
> 5	6	12

TABLE 7: SIZE OF THE LESION

In the study 94% of the cases recorded lesions recorded in the study were between measuring 2-5 cms. (Some patients had more than one lesion).

Number of lesions	No. of cases	Percentage
Single	42	84
Multiple	8	16

TABLE 8: NUMBER OF LESIONS

Only 16% of the cases had more than one lesion, while vast majority had a single lesion (84%).

Associated nail changes	No. of cases	Percentage
Present	6	12
Absent	44	84

TABLE 9: ASSOCIATED NAIL CHANGES

Nail changes were noted in 12% of children among the study group.

Family history	No. of cases	Percentage
Present	6	12
Absent	44	84

TABLE 10: ASSOCIATED FAMILY HISTORY

A positive family history was recorded in 12% of cases.

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H/o Atopy	No. of cases	Percentage
Present	5	10
Absent	45	90

TABLE 11: ASSOCIATED HISTORY OF ATOPY

History of atopy was positive in 10% of cases.

	Average age in years
Average age of onset in non atopics	6.75
Average age of onset in atopics	5.2

TABLE 12: HISTORY OF ATOPY AND AGE OF ONSET

Atopics had earlier age of onset (5.2years) of AA compared to non-atopics (6.75 years).

	Size (cm)
Average size (cm) of onset in non-atopic	3.6
Average size (cm) of onset in atopic	2.9

TABLE 13: HISTORY OF ATOPY AND SIZE OF LESION

Atopics presented with smaller lesions (2.9 cms) compared to non-atopics (3.6 cms)

Age	Site	No. of cases	No. of cases	Percentage
<2	O	4	2	50
2-6	O	12	19	63
7-10	T, O	8	22	36
>10	V	2	5	40

TABLE 14: MOST COMMON SITE

Occipital area was the most common area involved in less than 7 year old children, while temporal and occipital areas were most common in 7 to 10 year age group.

Similar lesion in the past	No. of cases	Percentage
Present	7	14
Absent	43	86

TABLE 15: RECURRENCE

Past history of similar lesions was present in 14% of cases.

DISCUSSION: Alopecia Areata (AA) is a condition affecting hairy areas of the body, in which hair is lost from some or all areas of the body, usually from the scalp. It is a disease with multi factorial etiology and associations. Prompt recognition of the disease at the earliest and looking for associated conditions are important in treatment and counseling the children and parents.

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In the present study incidence of A.A in children attending the outpatient was 1.01%. Most studies have shown an incidence of 2% among outpatient attendees. [2] This lower incidence may be attributed to low socio-economic status, illiteracy, ignorance and or use of native medicine.

In this study most patients belonged to the age group of 7-10 years (44%) closely followed by 2-6 years age group which with 38% patients and less than 2 years were least with 8%. Many of the other observers have found a peak incidence among children in the age group of 7-10 years. [3]

The study showed a slight preponderance of females (54%) compared to males (46%). Observation may by previous studies showed either slightly higher incidence among females or equal incidence among both sexes. [3] This may be attributed to the cosmetic awareness among females that too in the school going age.

Most of the patients attending the outpatients at C.G. Hospital and Bapuji Hospital are of rural base from farming community and 64% belonged to income group of less than Rs.5, 000, per month putting them in the poor group. This factor should be considered for treatment choice, type of treatment, counseling and evaluating the incidence as lower socio-economic group are less likely to seek treatment of asymptomatic or less severe form of AA.

It was interesting to note that 52% of the lesions were present of occipital region. Vertex was a distant second with 32% in the study. The study results showed that AA is an acute onset disease.

Overwhelming 84% of the cases reported the size of lesion, progressed to presenting size within 3 weeks from the time it was first noticed. Most common sites were studied among different age group. Less than 2 years old children reported occipital area as most common site, so did the age group of 2-6 years. 7-10 years children presented an equal split of 36% each between temporal area and occipital area, while children more 10 years showed vertex as a primary site (40%). There are no available to compare this data.

Lesions were studied for the size, as patches less than 2 cms rarely required therapy.[4] Controversy exists to treat or not to treat lesion between 2 to 5cms. Some of authors have argued that lesions of this size spontaneously have hair regrowth. [4] The study population exhibited lesion between 2 to 5 cms in 94% of the cases. Of the fifty cases only 16% cases presented with multiple lesions. 84% of cases had single lesions. No available studies to compare this parameter.

In 12% of patients nail changes were observed in the form dystrophy, riding or pitting. The findings agree with previous studies which have shown nail changes in 10-14% of cases. [5], [6] In 12% of the patients reported that either one of the parent or sibling had similar history or were suffering from AA. This correlates with the published data that there is a HLA association in AA. [7], [8], [9], [10]

The study results show that 10% of patients had history of atopy [7] Which agrees with previous studies conducted. An interesting finding was that the average age of onset among atopics was 5.2 years compared to 6.75 years among non-atopics. On the other hand the average size of lesion was 2.9 cms among atopics compared to 3.6 cms among non-atopics.

In the present study 14% of the population had recurrence of patches of alopecia; no recent study data could be found to compare this parameter.

CONCLUSION: Overall incidence of AA among children attending outpatient department was around 1 in 100. Among children who were included in the study, most of the children belonged to the age group of 7-10 years. There was a slightly higher incidence among females which could be due to more cosmetic awareness among females. Almost 2/3rd of the patients belonged to low socio-economic

status, as the patients attending these hospitals belong to poor class and free treatment is offered in these hospitals.

More than half the patients presented with lesions on occipital area, which is important because prognosis varies in different areas. Study underscore that AA is an acute onset disorder. Almost all the patients had at least one lesion of 2-5 cms size. More than 4/5th of the patients presented with a single lesion. Slightly more than 1/10th of the patients gave similar history among immediate family members; this stresses the role of hereditary in AA.

History of atopy was positive in 1 in 10 cases stressing the need for atopic history among children presenting with AA. Alopecia areata manifested one and a half years earlier in atopics than in non-atopics, which reflects the role of atopy. Interestingly average lesion in atopics was smaller by a little over half a centimeter which remains controversial. More than 1 in 7 patients reported that AA is a recurrent disease and this is important in counseling patients/ parents before initiation of therapy.

Occipital area was the most common area involved in less than 7 year age group, while temporal and occipital areas were most common in 7 to 10 year age group which is important in assessing prognosis. Thus alopecia areata contributes to significant quantum of disease in children. Approach to children is different than those of adults as in addition to the patients; parents also need to be counseled. AA in children can have enormous psychological impact especially in school going children.

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