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Dermatology

A CLINICO-EPIDEMIOLOGICAL STUDY ON ALOPECIA AREATA

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ABSTRACT
BACKGROUND: Alopecia areata [AA] is a non-scarring alopecia that is postulated to be a hair specific autoimmune disease .[1] Although most obvious on the scalp, any hair-bearing skin can be affected, and is frequently found to involve the beard area .[2] Various patterns of AA are patchy, ophiasis, sisaphio, reticulate, diffuse , subtotal , alopecia totalis and alopecia universalis .[3] Alopecia totalis is complete loss of terminal hair on the scalp .[2] Alopecia universalis is total loss of all terminal hair on the scalp and body .[2] Ophiasis is a band-like pattern of hair loss at the periphery of the scalp .[2] Sisaphio means inverse ophiasis . AA is a chronic , organ specific autoimmune disease, probably mediated by autoreactive T cells , which affects hair follicles and sometimes the nails .[2]

AIMS: Our present study was aimed to elucidate the epidemiology , aetiological factors and it's clinical patterns in the causation of alopecia areata in patients attended to King George Hospital (KGH) affiliated to Andhra medical college , Visakhapatnam , Andhra pradesh ,South India .

MATERIALS AND METHODS: A total of sixty patients with alopecia areata attended to the out-patient department of KGH were enrolled for the study . The demographic data was recorded and clinical evaluation was done . All alopecia areata cases encountered were included and alopecia due to other causes were excluded .

RESULTS : In this study ,it was observed that patients belonging to the 10-30 years age group were affected more(74.99%) commonly **(Table 1)** . Females (56.67%) were affected more when compared to males (43.33%) **(Table2)**. The occupational incidence of alopecia areata was observed more in students(49.99%) followed by house wives(29.99%) **(Table3)** and association with other conditions were noted in limited number of patients (**Table 4**). Among the various clinical patterns of alopecia areata , patchy pattern was observed in high(84.99%) number of patients **(Table-5) .**

CONCLUSION: In this part (Visakhapatnam) of the country alopecia areata is very common in females and mostly observed in students and house wives .

BACKGROUND:

Alopecia areata (AA) was first described by Cornelius Celsus. Celsus described two forms (complete baldness , and ophiasis) of hair loss using the greek word alopekia , meaning fox mange . However, the actual term "alopecia areata" was first used by Sauvages in his "Nosologica Medica". It is now widely believed that alopecia areata is an autoimmune disease. . The idea was first proposed by Rothman .[5]

Approximately 0.2% of the population has alopecia areata and approximately 1.7% of the population experiences an episode of AA during their life time .[2] Incidence of AA_ is more between 5 and 35 years .[3] The sex incidence is probably equal .[4]

Positive family history is seen in 10-20% cases of AA and the life time risk of AA in the children of a proband is approximately 6% . AA is not inherited in a simple Mendelian fashion and the genetic basis appears to be multifactorial .[4] The frequency of AA is increased in Down's syndrome .[4] In atopic subjects tends to have an earlier age of onset .[4] It is now widely believed that alopecia areata is an autoimmune disease . AA has statistically significant association with hashimoto's thyroiditis , addison's disease , and pernicious anemia.

Regarding humoral immunity Tobin et al observed high titres of hair follicle antibodies in AA .[3] Regarding cell mediated immunity Nagai et al have demonstrated the induction of CD8+T cell mediated immunity against follicular melanocytes causes AA in a mouse model

Histopathologically Lymphocytic infiltration around the follicles in the affected skin supports the autoimmune theory .The external factor most frequently implicated in triggering AA is psychological stress .[4]

In view of pathogenesis Van Scott showed that the growth of the follicles in AA was arrested in early anagen (anagen IV) , following which they return prematurely to telogen . Studies of concentric zones of patches in AA have indicated that the injury is severest in the center , leading to sudden precipitation of a group of follicles into telogen . Impaired keratinization and shaft breakage occur toward the periphery

in anagen follicles , followed by precipitation into telogen . This results in a broken shaft that apparently continues to grow out because of the upward movement of the follicle in telogen .Such a hair is termed an " exclamation mark hair" because of the gradual thinning of the broken stub toward the base , which consists of an unpigmented telogen club . Dundee experimental bald rat (DEBR) and the CH3/HeJ mouse , have been used as experimental models of the disease .[3]

In histopathology A peribulbar lymphocytic infiltrate in a " **swarm of bees" pattern** is characteristic of the acute stage of the disease . In long standing cases only a few lymphocytes or eosinophils are present in fibrous tracts and in a peribulbar location.[3] Alopecia can be broadly classified either based on Ikeda's types or based on pattern of hair loss **.** Clinically The first patch of hairloss is usually asymptomatic and it is smooth ,well-defined , round or oval , totally bald patch slightly depressed below the surface . Any hairy area may be affected but **scalp** is the commonest site .

At the margins of a new or expanding patch , the characteristic exclamation mark hair can be found .[3] A hand lens shows that their free ends are splayed giving a " frayed rope**"** appearance .[3] Confluence of adjacent patches may lead to near total or total alopecia (alopecia totalis) . Alopecia totalis develops in 1-5 % of AA patients . In 10% of cases , sites other than scalp are affected . All the body hair may be lost that's called as Alopecia universalis**. Ophiasis (** ophidian means serpent)- begins at the occiput and slowly progresses anteriorly along the scalp margins in a band like fashion . **Sisaphio (inverse ophiasis)-** spares the occipital fringe and affects the rest of the scalp White hairs are relatively spared in AA .

ASSOCIATIONS : **Nail** involvement is seen in 10-20% cases of AA . The commonest change is superficial , uniform , minute pits arranged regularly along and across the nail giving a **"scotch plaid" effect** [3].

Poor prognostic indicators in AA early age of onset , extensive scalp involvement (> 50% scalp) .[3] Diagnosis is based mainly on the clinical presentation.[3] Differential diagnosis : Telogen or Anagen effluvium,

Androgenic alopecia (AGA), Traumatic alopecia, and Tinea capitis.

MATERIALS & METHODS:

This was a prospective study , and aimed to know clinic-epidemiological presentation of alopecia areata . Sixty cases of alopecia areata of various age groups and of either sex attended to the outpatient department of Dermatology in King George Hospital(KGH) affiliated to Andhra Medical College(AMC) , Visakhapatnam Were included . Hair loss due to other causes were excluded .

The demographic data regarding age , sex , occupation of alopecia areata, , family history were noted. The data regarding associated factors such as stress and other autoimmune diseases were observed. Clinical evaluation was done and depending upon the pattern of lesions , they were classified under patchy , reticulate, totalis and universalis , ophiasis and sisaphio patterns . A complete general & dermatological examination was done.

Statistical analysis was done by using ratios and percentages.

RESULTS :

The study comprised of sixty patients of clinically diagnosed alopecia areata. It was observed that patients in the age group 10-30 years were affected more(74.99%) commonly when compared with other age groups with 25% of patients in the above 30 yrs age group **(Table 1)** . Females were involved slightly higher in accounting to 56.67% of the total with 43.33% involvement of males **(Table2).** Regarding occupation, the number of AA cases observed in students were 30 [50%] . The next common group was house wives i.e. 18 [29.99%] followed by agricultural laborers i.e. 5 [8.33%] and business people i.e. 4[6.66%] **(Table 3)** .

Regarding associations, Nail changes were observed in 1.66% cases .H/O atopy was observed in 1.66% cases .Family h/o vitiligo was observed in 2(3.33%) cases .Family h/o AA was observed in 2(3.33%) cases **(Table4)** .

In view of clinical patterns, 51 [84.99%] out of 60 patients were having patchy pattern of AA , where as the patients with ophiasis were 5 [8.33%] , alopecia totalis i.e. 3 [4.99%] and that of sisaphio were 1 [1.66%] **(Table5)**.

DISCUSSION :

Alopeca areata [AA] is an autoimmune disease characterised by nonscarring hairloss . Nowadays alopecia areata is one of the most common causes of psychological, and cosmetic concern in young people and females .The pathogenesis is unknown , mostly autoimmune but genetic, hormonal and stress are important predisposing factors .In the present study sixty cases of alopecia areata were enrolled to evaluate the clinical features and epidemiological data. Alopecia areata is one of the common causes of hair loss that often motivates the search for dermatological care . In this study 75% of AA patients were detected in the age group of 10-30 years . This is consistent with the Shahin aghaei study [18] in Iranian population i.e. the age ranges from 10-35 years and in another study by Maryam Akhiani et al [6] , Tehran , Iran there is slight variation in age ranges from 5-43 years . This is also similar to the statement made in IADVL Text book of Dermatology .[3] i.e. the incidence of AA is more or less uniform between the ages of 5 and 35 years and also it is mentioned in the Fitzpatrick's Dermatology in General Medicine that the usual group affected is within the 1st three decades of life .[2]

In this study female to male ratio was 1.3 : 1 .This is consistent with the Shahin aghaei study[7] in Iranian population i.e. the female to male ratio is 1.3: 1 and also comparable with the one given in Rook's Textbook of Dermatology i.e. sexual incidence is probably equal .[4]

Even though no specific relation between AA and occupation is mentioned in the literature , in this study out of all occupations , the maximum number of AA cases were seen in the students category i.e. 50% . This may be due to in the present day education system students have more stress . The incidence was lowest in agricultural laborers [8.33%] probably due to the fact that agricultural laborers donot seek medical advice till the problem become serious compared to students as it is a cosmetic problem .

In the present study the commonest type of AA observed was patchy

pattern [84.99%] and the incidence of remaining other types i.e. ophiasis , sisaphio and alopecia totalis together was 13.33% . This is consistent with the statement made in IADVL textbook of Dermatology i.e. the commonest presentation is patchy pattern (81%) and incidence of other types ranges from 5-10% .[2,3]

SUMMARY AND CONCLUSIONS :

Among the patients attending to the OPD of department of DVL , AMC attached to King George Hospital , Visakhapatnam , Andhrapradesh, sixty patients of clinically diagnosed were included in this study and evaluated clinico-epidemiological profile.

1] Females were frequently affected than males in the ratio of 1.3:1 .
2] The common age group ranged between 10-30 years .
3] Students were more affected with AA when compared with other occupations .
4] The commonest clinical pattern observed was patchy type i.e. 84.99% .

This study gives us an understanding of the present state of alopecia areata in and around Visakhapatnam .

It is important to the patients to limit stress to the least possible extent to minimize the incidence of alopecia areata .

TABLE 1: AGE

AGE IN YEARS	NO OF CASES	%
10-20	23	38.33
21-30	22	36.67
31-40	10	16.67
41-50	05	8.33
TOTAL	60	100

TABLE2: SEX

SEX	NO OF CASES	%
MALES	26	43.33%
FEMALES	34	56.67%
TOTAL	60	100%

TABLE3: OCCUPATION

OCCUPATION	NO OF CASES	%
STUDENTS	30	49.99
HOUSE WIVES	18	29.99
AGRICULTURAL LABORERS	05	8.33%
BUSINESS	04	6.66%
OTHERS	03	4.99
TOTAL	60	100

TABLE4: ASSOCIATIONS

Associated disorder	No (%)
nail changes	1(1.66%)
atopy	1(1.66%)
Family h/o vitiligo	2(3.33%)
Family h/o AA	2(3.33%)

TABLE5: CLINICAL PATTERNS

CLINICAL PATTERN	NO OF CASES	%
PATCHY	51	84.99
OPHIASIS	05	8.33
ALOPECIA TOTALIS	03	4.99
SISAPHIO	01	1.66
TOTAL	60	100

CLINICLA PHOTOGRAPHS OF ALOPECIA AREATA:

Patchy, Ophiasis, Sisaphio, and Alopecia totalis progressing to alopecia universalis
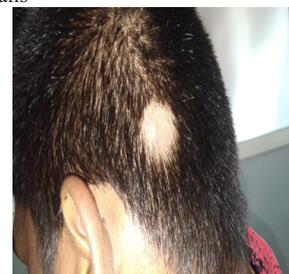
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