Original article:

A clinical study on association of alopecia areata with atopy in Telangana state of India

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ABSTRACT

In the present study, association of Alopecia areata with Atopy was investigated and the results are discussed. Seventy percent (71.43%) of atopics had nail changes in contrast to 18.18% of nail involvement in non-atopics. Pitting was the commonest manifestation in both groups. This indicates that atopic individuals with AA had an increased tendency to manifest nail changes. In our study, 14.29% of atopics had moderate to severe AA whereas 31.25% of the same in non-atopics. Seventy one (71.43%) percent of AA patients with atopy had multiple lesions in comparison with 54.55% without atopy indicating increased severity in atopic individuals.

Key Words: Alopecia areata, Atopy, exclamatory mark hair, nail changes

INTRODUCTION:

Alopecia areata (AA) is an organ-specific, T cell-mediated autoimmune disease that targets anagen hair follicles [1].It is a reversible disease of hair follicles characterized by the spontaneous appearance of circumscribed areas of complete hair loss which, when severe, can result in loss of all scalp and body hair [2]. Ikeda classified AA based on the associated conditions of the disease.Atopic type which begins early in life and mostly (30-75%) progresses to AT. Autoimmune type is seen in middle-aged groups associated with autoimmune diseases, diabetes mellitus and progresses to AT in 10-50%. Prehypertensive type is seen in young adults whose parents were hypertensive and progress fastly to AT in 40% of cases.Common type affects adults aged 20-40 years and AT develops in 5-15% of cases It can occur as patchy, confluent or diffuse patterns and is a common disease encountered by dermatologists, with a frequency ranging from 0.7% to 3.8% of patients [3,4]. The reported lifetime risk of developing AA has been estimated to be 1.7% [5]. The disease can begin at any time of life, but with a peak incidence between 20 and 50 years of age [6,7,8]. Pediatric alopecia areata is not uncommon. It constitutes approximately 20% of AA cases [9,10] and as many as 60% of patients with AA will present with a first patch before 20 years of age [11]. It frequently occurs in association with atopic dermatitis, generalized vitiligo, lichen sclerosus et atrophicus, lichen planus, pemphigus foliaceus, Hashimoto's thyroiditis, hypothyroidism, endemic goiter, lupus erythematosus, diabetes mellitus, Down's syndrome and others [12,13,14]. It has been suggested that AA in atopic subjects tends to occur at an earlier age and more severe than in non atopic subjects [15].

It is possible that the immune dysregulation characteristic of atopic state contributes to intensifying the tissue specific autoimmune phenomena. Some studies have related emotional stress and psychological disorders with AA [16,17] while others demonstrated otherwise [18]. A decrease in the expression of calcitonin gene related peptide (CGRP) and substance P in the scalp of alopecia areata patients was observed [19,20]. CGRP has an anti-inflammatory action [21] and its decrease in alopecia areata could favor the characteristic follicular inflammatory phenomena. Substance P is capable of inducing hair growth in mice [22] and its decrease in alopecia areata could be a contributing factor to the reduced proliferation of pilar follicles. Alopecia can be broadly classified either based on Ikeda's types or based on the pattern of hair loss. Following an extensive clinical survey conducted over 18 years, Ikeda classified AA patients based on associated conditions and course of the disease into four types [23].

PATIENTS & METHODS:

This is an observational study conducted over a period of 18 months, from January 2014 to June 2015 in Department of DVL of Gandhi Hospital, Secunderabad, Telangana. Patients with Alopecia areata who are less than 18years age, presenting to dermatology OPD, are included in the study. All the patients with alopecia areata presenting to DVL OPD were included in the study with prior informed parental consent. Name, age, sex and detailed demographic data of the patient were recorded. A detailed history on duration of AA, chief complaints, skin lesions, onset and progression of lesions was elicited and recorded. Dietary history and family history were noted. History of atopy, thyroid disorders, diabetes, connective tissue disorders and any history suggestive of other autoimmune disorders and HTN in patients or other family members was taken. A detailed general and systemic examination was carried out and findings were noted. The atopic itch, the atopic dry skin, the atopic eczema were used to identify atopics. In Dermatological examination, size, surface, number, site of patch/patches, nail changes, pattern of hair loss and hair changes like exclamatory mark hairs were noted. SALT scoring was done in all cases. Severity of AA was graded as mild (SALT Score less than 25), moderate (SALT Score 25-75) and severe (SALT Score more than 75). Examination for other dermatological disorders was done. Patients were also examined for caries tooth. Routine investigations like, complete blood picture, absolute eosinophil count, blood sugar, blood urea, serum creatinine, liver function tests and thyroid profile were carried out in all patients. Data was tabulated and analyzed using SPSS software.

RESULTS:

In our study, the mean age of onset of alopecia areata in atopics (8.57 years) and non-atopics (8.8 years) showed no significant difference (Table 1). Among children with family history of AA, 54.5% were atopics and 45.5% were non-atopics indicating an association of family history of AA and atopy (Table 2). Occipital region was the most common site of onset of AA in majority (71.4%) of atopics (Figure 1). Whereas in non-atopics, occipital region (34.4%) followed by vertex (28.1%) are the commonly involved regions. Forty (40%) of AA patients with atopy had occipital involvement in comparison with 24.64% of occipital involvement in non-atopics indicating increased tendency of occipital involvement in atopics. Seventy one (71.43%) percent of AA patients with atopy had multiple lesions in comparison with 54.55% without atopy

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indicating increased severity in atopic individuals (Figure 2&3). In atopic children, ophiasis was the most common pattern of AA observed whereas in non-atopic children patchy AA was most common (Figure 4). Twenty eight (28.6%) percent of atopic children and 30.3% of non-atopic children had facial involvement showing no difference (Table 3). In our study, 71.43% of atopics had nail changes in contrast to 18.18% of nail involvement in non-atopics (Figure 5). In our study, 71.43% children with atopy showed exclamatory mark hair when compared to 60.61% in non-atopic children indicating an increased disease activity in atopic individuals (Figure 6). Further, 14.29% of atopics had moderate to severe AA whereas 31.25% of the same in non-atopics (SALT scoring system) (Figure 7). Out of 7 children with atopy, four had atopic dermatitis, two had allergic rhinitis and one had asthma.

Table 1: MEAN AGE OF ONSET

Atopics	**Non-atopics**
8.57 years	8.8 years

Table 2: FAMILY HISTORY OF AA AND ATOPY

	Males	Females	Total
Atopics with family history of AA	5	1	6
Non-atopics with family history of AA	4	1	5
Total	9	2	11

Table 3: INVOLVEMENT OF FACE IN ATOPICS AND NON-ATOPICS

	Atopics	Non-atopics	**Total**
Both eyebrow & eyelash	1	6	**7**
Eyelash	1	2	**3**
Eyebrow	0	2	**2**
Total	**2**	**10**	**12**

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Figure 1:SITE OF ONSET IN RELATION TO ATOPY

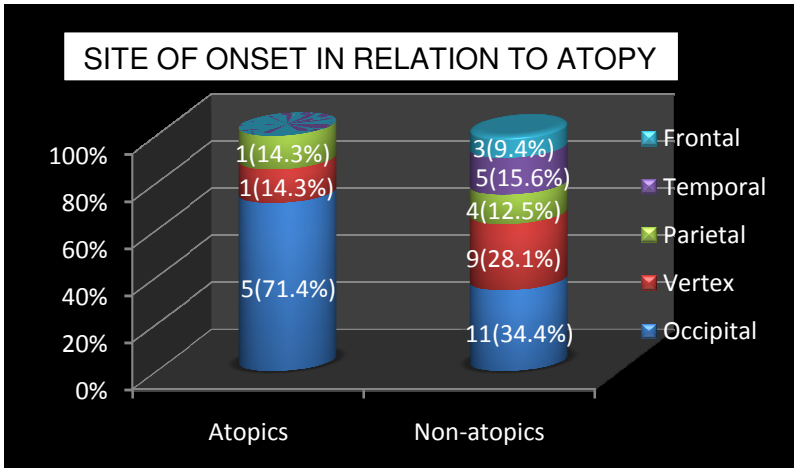

Figure 2 : NUMBER OF LESIONS IN RELATION TO ATOPY

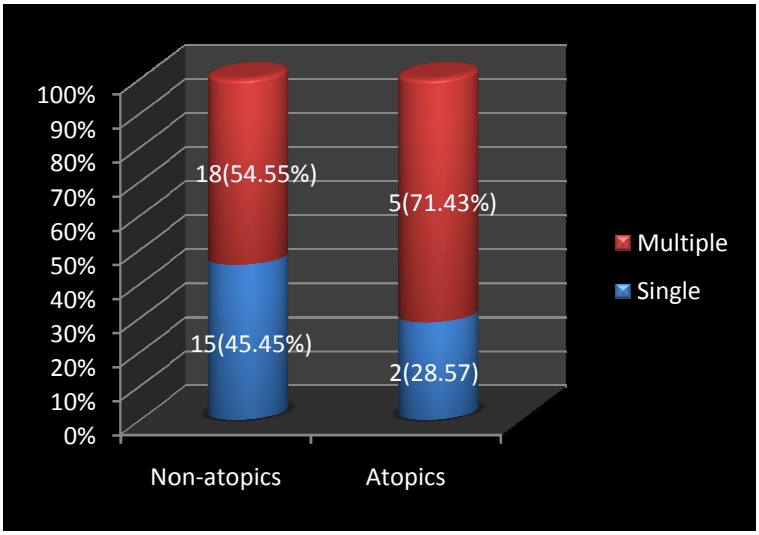

Figure 3: SITE OF SCALP INVOLVEMENT IN ATOPICS AND NON-ATOPICS

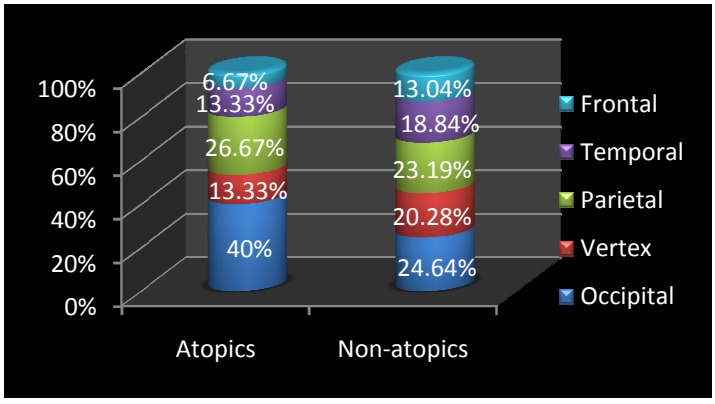

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Figure 4: PATTERNS OF ALOPECIA AREATA IN ATOPICS AND NON-ATOPICS

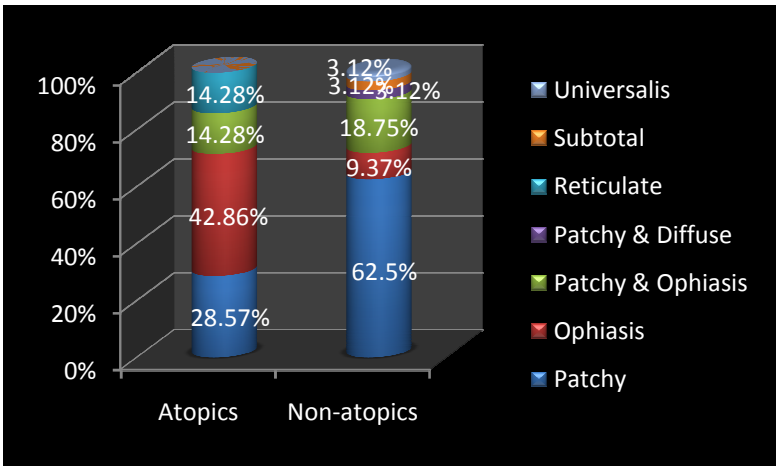

Figure 5: NAIL INVOLVEMENT IN ATOPICS

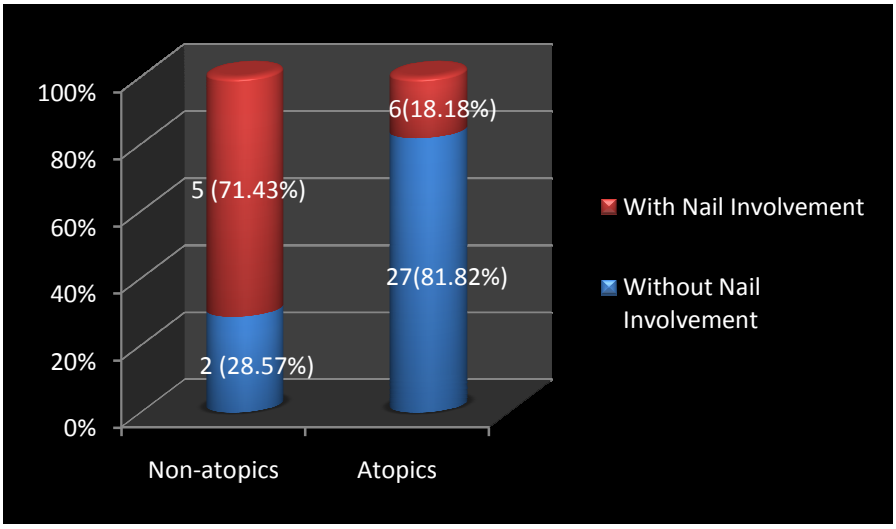

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Figure 6: EXCLAMATORY MARK HAIR IN ATOPICS

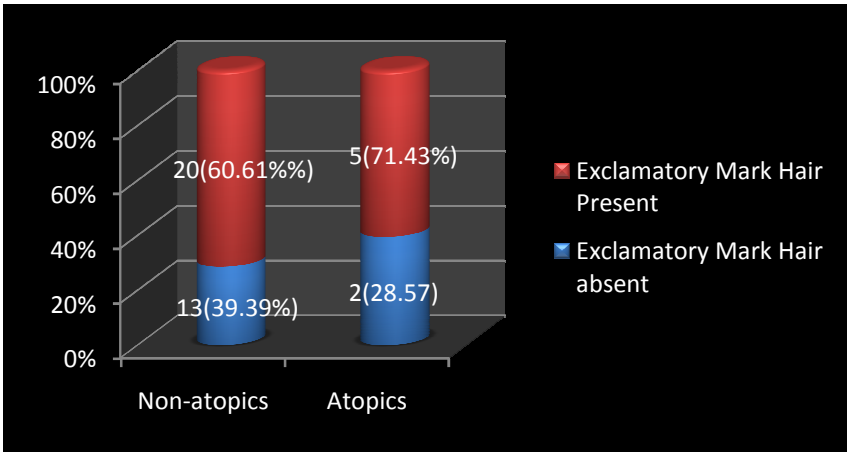
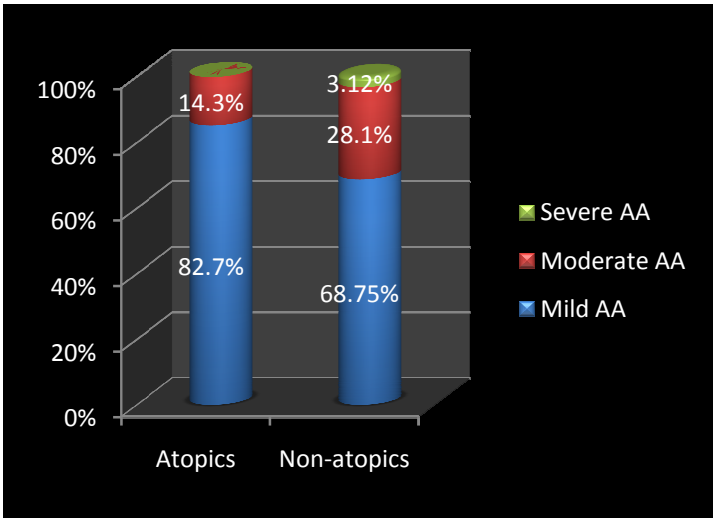


Figure 7: SEVERITY OF ALOPECIA AREATA IN ATOPICS AND NON-ATOPICS



DISCUSSION:

Vishwanath *et al* [24] reported an early age of onset among atopics (5.2 years) compared to non-atopics (6.75 years). In a similar study by Guruprasad et al [25], children with atopy showed earlier age of onset (7.9 years) than non atopics (11.4 years). In atopic children, ophiasis was the most common pattern of AA observed whereas in non-atopic children patchy AA was most common. This in turn indicates a poor prognosis in atopic individuals. Ikeda [23] also observed ophiasis pattern of AA more common in atopics. Pitting was the commonest manifestation in both groups indicating that atopic individuals with AA had an increased tendency to manifest nail changes. Muller and Winkelmann [13] found a personal history of asthma and/or atopic dermatitis in 18% of children in their series. Atopic disease was associated with all forms of AA. Most of the studies show that atopic dermatitis is more frequent than asthma or allergic rhinitis in AA patients and also the association seems to be higher for the more severe forms of AA.

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