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Intralesional triamcinolone acetonide with or without dermaroller in alopecia areata

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Abstract:

Background & Methods: The aim of the study is to study Intralesional triamcinolone acetonide with or without dermaroller in alopecia areata. About 110 as per solvins formula (plus 10 patients extra due to loss of follow up) patients of clinically diagnosed alopecia areata coming to dermatology outpatient department from December 2022 to March 2023 will be divided in 2 groups based on odd and even.
Results: Pain wise comparison of study subjects in two groups results revealed that mild pain observed in all 60 subjects of group 1 whereas mild pain found in 32 subjects and moderate pain in 28 subjects of group 2 it was found statistically significant (P<0.01).

Conclusion: Alopecia areata is one of the most difficult to treat conditions and can substantially Impact patient's quality of life if not effectively controlled. Treatment with intralesional triamcinolone acetonide with or without derma roller has nearly similar efficacy in causing regrowth of hair. Based on result of our study females suffered from alopecia areata more than males and it was more commonly seen in students and housewives. Past history or family history of hair loss was not significant. Patients had also been informed to avoid using hair color of any form throughout the study. Also, patients having systemic conditions underwent regular check-ups for the same.

Keywords:

Intralesional, triamcinolone, acetonide, dermaroller & alopecia

Introduction

Alopecia areata (AA) is a common, autoimmune, nonscarring, organ-specific disease manifesting as patchy hair loss. Alopecia areata (AA) typically presents with sharply demarcated round patches of hair loss that can affect individuals regardless of gender or age[1].
The overall incidence is approximately 20.2 per 100,000 person-years. The lifetime risk of presenting AA in the general population is approximately 2%. Alopecia areata incidence appears to increase almost linearly with age, but the mean age of onset appears to be between 25 and 36 years.
AA typically presents as smooth, sharply demarcated, round patches of hair loss without atrophy with "exclamation point hairs" observed on the periphery of the patches.7 Special designations of the disease include alopecia universalis (AU) (total body hair loss), alopecia totalis (AT) (total scalp hair loss, or alopecia in an ophiasis pattern (band-like hair loss on the temporal and occipital

scalp) [2]. Less common variants include the diffuse variant with widespread thinning of hair across the scalp or the reticular pattern with recurrent hair loss in one area and spontaneous hair regrowth in another. Ophiasis inversus causes band-like hair loss in the frontoparietotemporal area[3].

The exact pathophysiology of the disease is currently unknown. However, evidence suggests that AA is caused by an autoimmune reaction to the hair follicles due to both genetic and environmental factors[4-6].

A significant feature of the hair follicle is its relative immune privilege, this mainly established by suppression of surface molecules required for presenting autoantigens to CD8+ T lymphocytes (i.e., MHC class I) and by the generation of an inhibitory local signaling environment. The breakdown of the immune privilege of the hair follicle has been thought to be a significant driver of AA[7].

Alopecia areata is a disorder of hair follicle-cycling, where inflammatory cells attack the hair follicle matrix epithelium that is undergoing early cortical differentiation (anagen hair follicles), which are then prematurely induced into the catagen phase. However, since no destruction of hair-follicle stem cells occurs, the hair follicle retains its capacity to regenerate and continue cycling. Thereby, follicles re-enter the anagen phase normally but do not develop beyond the anagen III/IV phase[8].

Material and Methods

Study was undertaken on all patients >18 years of age clinically identified as alopecia areata. A experimental study was carried out after obtaining permission from the Institutional Ethical committee.

A sum of 120 patients in the age range of 20– 60 years, were selected. Patients were randomly separated into two groups of 60 patients each (Group 1-Intralesionl triamcinolone acetonide without dermaroller and Group 2- Intralesional triamcinolone acetonide with Derma roller).

All the medicines related to hair growth or applications had to be stopped 1 months prior to commencing the study and the patients were not permitted to start any medications during the study period. Patients had also been informed to avoid using hair color of any form throughout the study. Also, patients having systemic conditions underwent regular check-ups for the same.

Group-1 (n=60) patients were given intralesional triamcinolone acetonide alone

Group-2 (n=60) patients were given combination therapy of intralesional triamcinolone acetonide with dermaroller.

Inclusion criteria:

- Patch with no vellus or terminal hair involving less than 20% of scalp area.
- Patients willing to participate in the study.
- Patients who had no treatment either topical or systemic in the past 1 months
- Patient of age more than 18 years

Exclusion criteria:

- Patient who did not willing to give consent.
- Patient with alopecia universalis, totalis
- Patients with oophiasis and sisaipho pattern
- Pregnant or lactating females.
- Patient of age younger than 18 years

Results

Table 1: *Age group wise distribution of study subjects in two groups*

Age group	Group 1 (Intralesional triamcinolone acetonide)		Group 2 (Intralesional triamcinolone acetonide + dermaroller)	
	Frequency	Percent	Frequency	Percent
<20	17	28.3	18	30.0
21-30	21	35.0	19	31.7
31-40	11	18.3	15	25.0
41-50	8	13.3	5	8.3
51-60	1	1.7	2	3.3
>60	2	3.3	1	1.7
Total	60	100.0	60	100.0
Chi square value- 2.102/ p value – 0.834				

Age group wise distribution of study subjects in two groups results revealed that 17 subjects of group 1 and 18 subjects of group 2 belonged to <20 years of age, 21 subjects of group 1 and 19 subjects of group 2 belonged to 21-30 years of the age, 11 subjects of group 1 and 15 subjects of group 2 belonged to 31-40 years , 8 subjects of group 1 and 5 subjects of group 2 belonged to 41-50 years, one subject of group 1 and 2 subjects of group 2 belonged to 51-60 years, 2 subjects of group 1 and one subject of group 2 belonged to >60 years of age it was found statistically non significant (P=0.834).

Table 2: *comparison of Duration (Months) of Alopecia areata patches in study subjects among two groups*

Duration of disease	Group 1		Group 2	
	Frequency	Percent	Frequency	Percent
1	30	50.0	32	53.3
2	18	30.0	16	26.7
3	8	13.3	4	6.7
5	0	0	1	1.7
6	0	0	1	1.7
12	0	0	2	3.3
24	1	1.7	2	3.3
Not reported	2	3.3	2	3.3
Chi square value- .5.84/ p value – 0.55				

Duration (Months) of patches wise comparison of study subjects in two groups results revealed that maximum 30 subjects of group 1 and 32 subjects of group 2 had patches since one month followed by 18 subjects of group 1 and 16 subjects of group 2 had patches since 2 months, 8 subjects of group 1 and 4 subjects of group 2 had since 3 months, one subject of group 2 had since 5 months, one had since 6 months and 2 subjects of group 2 had since one year, one subject of group 1 and 2 subjects of group 2 had disease since 2 years and 2 subjects of group 1 and 2 subjects of group 2 did not reported the duration of patches it was found statistically non significant (P=0.55).

Table 3: *Site, Number, & Size of Alopecia areata patch in study subject in two groups.*

Examination		Group 1		Group 2		Chi square value; p value
		Frequency	Percent	Frequency	Percent	
Site	frontal	15	25.0	27	45.0	0.290;0.590
	occipital	15	25.0	21	35.0	
	temporal	30	50.0	12	20.0	
No. of patch	1	53	88.3	51	85.0	0.288;0.591
	2	7	11.7	9	15.0	
Size (in Cm)	1x2	18	30.0	13	21.7	10.12; 0.519
	1x3	21	35.0	25	41.7	
	1x4	16	26.7	16	26.7	
	2x2	1	1.7	0	0.0	
	2x3	1	1.7	1	1.7	
	2x4	0	0.0	2	3.3	
	2x5	1	1.7	0	0.0	
	3x1	1	1.7	0	0.0	
	3x3	0	0.0	1	1.7	
	3x5	0	0.0	1	1.7	
	3x6	0	0.0	1	1.7	
	4x2	0	0.0	1	1.7	

Site, Number, & Size of Alopecia areata patch in study subject in two groups. results revealed that 15 subjects of group 1 and 27 subjects of group 2 had lesions on frontal region, 15 subjects of group 1 and 27 subjects of group 2 on occipital region and 30 subjects of group 1 and 12 subjects of group 2 had lesions on temporal region it was found statistically non significant (P=0.590). 53 subjects of group 1 and 51 subjects of group 2 had single patch and 7 subjects of group 1 and 9 subjects of group 2 had 2 patches it was found statistically non significant (P=0.591). Maximum size of the patch was observed 1x3 cm in diameter among 21 subjects of group 1 and 25 subjects of group 2 followed by 1x2 cm in 18 subjects of group 1 and 13 subjects of group 2,1x4 cm among 16 subjects of group 1 and 16 subjects of group 2 and maximum size 4x2 was observed in one subject of group 2 it was found statistically non significant (P=519).

Table 4: *Comparison of Procedural pain among study subjects in two groups*

Pain	Group 1		Group 2	
	Frequency	Percent	Frequency	Percent
Mild pain	60	100.0	32	53.3
Moderate pain	0	0	28	46.7
Chi square value- 88.0/ p value – <0.01*				

Pain wise comparison of study subjects in two groups results revealed that mild pain observed in all 60 subjects of group 1 whereas mild pain found in 32 subjects and moderate pain in 28 subjects of group 2 it was found statistically significant (P<0.01).

Discussion

Alopecia areata is a long-lasting, immune-mediated autoimmune condition that specifically impacts hair follicles, nails, and sometimes the retinal pigment epithelium. This disorder specifically affects the anagen hair follicles in individuals and causes hair loss without causing permanent harm to the follicles. Alopecia areata is caused by an autoimmune disturbance that affects the normal hair growth cycle, leading to the loss of immunological protection in the hair follicles[9].
The present study prospectively compared the effect of intralesional triamcinolone acetonide with or without dermaroller on hair growth in patients suffering from alopecia areata. Present study consisted of 120 patients, divided in two groups. Each group consisted of 60 patient's group 1 (ITA) was administered Intralesional triamcinolone acetonide and in group 2 was treated with Intralesional triamcinolone acetonide + dermaroller (ITA Plus dermaroller) [11].

The distribution of study subjects in two groups based on age revealed that majority of the patients were aged between 21-30 years i.e. 35% in ITA group and 31.7% in ITA Plus dermaroller group, followed by 13.3% aged 31-40 years in ITA group and 25% in ITA Plus dermaroller group[12]. Similar result was reported by Tan E et al the age group with the highest number of individuals seeking care was 21–40 years old, followed by the 1–20-year age group, the 41–60-year age group, and lastly the 61–80-year age group. The average age at which symptoms first appear has been documented as ranging from 25.2 to 36.3 years.
In present study majority of the patients were female 68.3% in ITA group and 60% in ITA Plus dermaroller group. Female predominance was seen in our study. Our results are in accordance with Goh C et al.[13] However, Devi M et al[14] found male dominance in their study i.e. 72.6%. The variations in findings across different research can be attributed to disparities in sociodemographic, ethnic, genetic, and lifestyle attributes of the populations under investigation, as well as discrepancies in the diagnostic techniques employed.

Conclusion

Alopecia areata is one of the most difficult to treat conditions and can substantially Impact patient's quality of life if not effectively controlled. Treatment with intralesional triamcinolone acetonide with or without derma roller has nearly similar efficacy in causing regrowth of hair. Based on result of our study females suffered from alopecia areata more than males and it was more commonly seen in students and housewives. Past history or family history of hair loss was not significant. Patients had also been informed to avoid using hair color of any form throughout the study. Also, patients having systemic conditions underwent regular check-ups for the same.

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