

Analysis of Role of Intralesional Triamcinolone Acetonide for Patients of Alopecia Areata: An Institutional Based Study

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ABSTRACT

Background: Alopecia areata (AA) is a prevalent autoimmune disorder characterized by patchy hair loss.

Objectives: To analyze the role of intralesional triamcinolone acetonide for patients of alopecia areata.

Methods: This prospective, interventional study enrolled 100 patients (ages 20-60) with alopecia areata involving <20% of the scalp area. Patients received intralesional triamcinolone acetonide injections (10mg/ml) and were followed up monthly for three months.

Results: Significant improvements in hair growth were observed. At 1 month, 80% of patients exhibited vellus hair growth, increasing to 83% at 3 months, with 17% achieving terminal hair growth. No significant side effects were reported.

Conclusion: Intralesional triamcinolone acetonide is an effective and safe treatment option for alopecia areata, promoting significant hair regrowth.

Keywords: Alopecia Areata, Intralesional Triamcinolone Acetonide, Hair Regrowth, Autoimmune Disorder.

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Article History:

Received: 02-02-2019, Revised: 25-02-2019, Accepted: 15-03-2019

Access this article online

Website:

www.ijmrp.com

DOI:

10.21276/ijmrp.2019.5.2.071

Quick Response code



INTRODUCTION

Alopecia areata (AA) is a prevalent autoimmune disorder characterized by patchy hair loss, lacking scarring and organ specificity.[1,2] The incidence of AA increases linearly with age, peaking between 25 and 36 years.[3] Clinically, AA presents as smooth, well-demarcated, round patches of hair loss without atrophy, often accompanied by "exclamation point hairs" at the patch peripheries.[4]

Alopecia areata manifests in various forms, including several distinct patterns. These include Alopecia universalis (AU), characterized by total body hair loss, and Alopecia totalis (AT), marked by complete scalp hair loss. Other forms include the ophiasis pattern, featuring band-like hair loss on the temporal and occipital scalp, and the diffuse variant, involving widespread thinning of hair across the scalp. Additionally, there are two less common patterns: the reticular pattern, characterized by recurrent hair loss in one area accompanied by spontaneous regrowth in another, and ophiasis inversus, marked by band-like hair loss in the frontoparietotemporal area.[4]

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.[5]

Topical treatments in alopecia areata aim to achieve hair regrowth, but do not alter the underlying pathology, whereas systemic treatments can modify the course of the disease. In neither case does treatment provide a cure.[6,7] Corticosteroids topically remain the first line of treatment.[8] Hence, the present study undertaken to analyze the role of intralesional triamcinolone acetonide for patients of alopecia areata.

MATERIALS AND METHODS

The present interventional, prospective study comprised 100 patients presenting with alopecia areata to the dermatology OPD and patients were given intralesional triamcinolone acetonide. Patients were included if they presented with a patch of alopecia areata involving less than 20% of the scalp area, with no existing vellus or terminal hair. Additional requirements included willingness to participate, no prior topical or systemic treatment within the past month, and age above 18 years. The exclusion criteria comprised patients who declined consent, those

diagnosed with alopecia universalis, totalis, ophiasis, or sisaipho pattern, and pregnant or lactating females were excluded from the study. This experimental study focused on patients above 18 years of age clinically diagnosed with alopecia areata. Following Institutional Ethical Committee approval, 100 patients between 20-60 years old were selected. Participants were required to discontinue all hair growth medications and applications one month prior to the study and refrain from starting new treatments during the three-month study period. Additionally, patients were advised against using hair color and those with systemic conditions underwent regular check-ups.

Before commencing the study, subjects received counseling on alopecia areata and provided informed written consent. Enrolled patients with willingness to participate and attend monthly follow-ups for three months. A comprehensive history and dermatological assessment were conducted, and lesions were photographed at the start and end of the study. Routine investigations were performed, and topical anesthesia was applied 30-40 minutes before the procedure. Patients underwent intralesional triamcinolone acetonide injections (10mg/ml). Follow-up evaluations occurred monthly for three months, monitoring treatment response and potential side effects.

Statistical Package for the Social Sciences (SPSS version 17, IBM Corp., New York, NY, USA) was used for statistical analysis. In all tests, the statistical significance was indicated by $P < 0.05$.

RESULTS

The study's age distribution consists of 100 subjects divided into six categories. The majority (35%) fall within the 21-30 year range, followed by 20% in the 41-50 year range, 19% each in the under 20 and 31-40 year ranges, and smaller percentages in the 51-60 (3%) and over 60 (4%) age groups. Table 2 shows 63 patients were female and 37 males. Clinical assessments (table 3) were conducted by clinicians at monthly intervals revealing progressive improvements in hair growth. Initially, 100% of subjects had no vellus or terminal hair. By the 1-month mark, 20% showed no improvement, while 80% exhibited significant vellus hair growth and none had terminal hair. At 2 months, the percentage with no improvement decreased to 12%, significant vellus hair growth was observed in 84%, and 4% demonstrated terminal hair growth. By the 3-month assessment, all subjects showed improvement, with 83% maintaining significant vellus hair growth and 17% achieving terminal hair growth, indicating notable progress in hair regeneration over the three-month period.

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

Age	Number/Percentage (n=100)
<20	19
21-30	35
31-40	19
41-50	20
51-60	3
>60	4
Total	100

Table 2: Gender wise distribution of study subjects

Gender	Number/Percentage (n=100)
Female	63
Male	37

Table 3: Assessment of Result by Clinician at Monthly Interval in Both The Groups.

Clinical Assessment	Percentage
First Visit	No Vellus/Terminal Hair 100
1 month	No Improvement 20
	Significant Vellus Hair 80
	Terminal Hair 0
2 months	No Improvement 12
	Significant Vellus Hair 84
	Terminal Hair 4
3 months	No Improvement 0
	Significant Vellus Hair 83
	Terminal Hair 17

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.^[1]

The study's age distribution consists of 100 subjects divided into six categories. The majority (35%) fall within the 21-30 years range, followed by 20% in the 41-50 year range, 19% each in the under 20 and 31-40 year ranges, and smaller percentages in the 51-60 (3%) and over 60 (4%) age groups. The average age at which symptoms first appear has been documented as ranging from 25.2 to 36.3 years.^[9,10] Female predominance was seen in our study which corresponds with study carried by Goh C et al.^[10]

In the present study, clinical assessments were conducted after application of intralesional triamcinolone acetonide in treatment of alopecia areata monthly reporting steady improvements in hair growth. Initially, all subjects lacked vellus and terminal hair. However, by one-month, significant progress was observed, with 80% exhibiting vellus hair growth, while 20% showed no improvement. At the two-month mark, the percentage with no improvement decreased to 12%, and terminal hair growth was noted in 4% of subjects, alongside continued vellus hair growth in 84%. By the third month, all subjects demonstrated improvement, with 83% maintaining significant vellus hair growth and 17% achieving terminal hair growth, underscoring the substantial progress in hair regeneration over the quarter-year period. Our results are in line with Ganjoo S et al^[11] that treated localized patchy alopecia areata, with intralesional steroid injections at 4-week intervals over 24 weeks. Treatment response was evaluated using the Regrowth Scale (RGS) and dermoscopy. Results showed that 28 patients responded early, achieving significant regrowth (RGS 4) within 12 weeks, while 29 patients responded later, reaching RGS 4 within 24 weeks. Three patients did not achieve RGS 4. Notably, late or incomplete responders had a significant association with family history, recurrent disease, and nail changes. Dermoscopic analysis revealed rapid regrowth of new vellus hair, disappearance of tapering hairs, and resolution of disease activity markers. Adverse effects were detectable earlier through dermoscopy than clinical assessment. The study concludes that intralesional triamcinolone acetonide is effective for localized patchy alopecia areata, and dermoscopy is a valuable tool for monitoring treatment response, adverse effects, and disease activity. Another study by Chandrashekar B et al^[12] evaluated the effectiveness of triamcinolone, results showed significant hair growth improvements in 8 patients after three sessions and 12 patients after six sessions, indicating the therapeutic potential of this treatment approach for alopecia areata.

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Source of Support: Nil.

Conflict of Interest: None Declared.

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Cite this article as: Pendyala Pradeep, Namratha Damera. Analysis of Role of Intralesional Triamcinolone Acetonide for Patients of Alopecia Areata: An Institutional Based Study. *Int J Med Res Prof.* 2019 Mar; 5(2): 306-08. DOI:10.21276/ijmrp.2019.5.2.071