

## ORIGINAL RESEARCH

# Intravenous Pulse Dexamethasone Therapy for Severe Alopecia Areata: A Prospective Study of 13 Patients

Sonal Tinna<sup>1</sup>, P.K. Rathore<sup>2</sup>

## ABSTRACT

**Introduction:** Alopecia areata is a difficult entity to treat because of high recurrence rate owing to its autoimmune etiology. Various treatment options are available, but it has a high failure rate in extensive disease. The use of systemic corticosteroids in extensive alopecia areata is controversial. Several studies have shown encouraging results with high dose pulse corticosteroid therapy in extensive multifocal alopecia areata. We undertook a prospective study between January 2014 and April 2015 using repeated pulse each month, with the aim of identifying the effects of therapeutic regimen and underlining its best indications.

**Materials and Methods:** 13 patients aging 14 to 60 years old presenting with alopecia areata were included in this study. These included extensive multifocal alopecia areata exceeding 30% of the scalp surface (n=6), alopecia totalis (n=4), alopecia universalis (n=1) and ophiasis alopecia (n=2). The administered treatment was dexamethasone 100 mg per day for 3 consecutive days. These pulses were repeated every 4 weeks. The main evaluation criterion was the percentage of new terminal hair appearing on the bald areas, appreciated by clinical and photographic evaluation.

**Results:** Of 13 patients, 11 (84.6%) reported a clinical response. 2 patients (15.3%) showed complete hair regrowth, 3 patients (23%) showed >50% hair regrowth, 6 (46.1%) had <50% hair regrowth and 2 (15.3%) were non-responders. Another 2 patients (15.3%) had relapse after an initial regrowth. Analysis revealed that patients with multifocal disease had the best results.

**Conclusion:** Dexamethasone infusions represent a possible therapeutic option for patients with multifocal alopecia areata.

**Keywords:** Alopecia areata, Corticosteroids, Dexamethasone

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**Conflict of Interest:** None

## INTRODUCTION

Alopecia areata is a chronic inflammatory disease that involves the hair follicle and sometimes the nails. Current evidence indicates that hair follicle inflammation in alopecia areata is caused by a T-cell-mediated autoimmune mechanism occurring in genetically predisposed individuals. Environmental factors may be responsible for triggering the disease.<sup>1</sup>

The 'external' factor most frequently implicated in triggering alopecia areata is psychological stress.<sup>2</sup>

Anagen follicles at the margins of expanding patches of alopecia areata characteristically show a perifollicular and intrafollicular inflammatory cell infiltrate, concentrated in and around the hair bulb. The inflammatory infiltrate is composed mainly of activated T lymphocytes, with a preponderance of CD4 cells, and an admixture of macrophages and Langerhans' cells. In contrast to the inflammatory scarring alopecias, little or none of the inflammatory infiltrate is seen around the isthmus of the hair follicle, the site of hair follicle stem cells.<sup>3</sup>

Alopecia areata causes a disturbance in the normal dynamics of the hair cycle. Anagen follicles are precipitated into telogen. The onset of alopecia areata may be at any age, peaking between the second and fourth decades. The characteristic initial lesion is a circumscribed, totally bald, smooth patch. The skin within the bald patch appears normal or slightly reddened. Short, easily extractable broken hairs, known as exclamation mark hairs, can often be seen at the margins of the bald patches during active phases of the disease. The initial patch may regrow within a few months, or further patches may appear after an interval of 3–6 weeks and then in a cyclical fashion.<sup>1</sup>

Several treatment options are available including potent topical or intralesional corticosteroids, contact immunotherapy, anthralin, minoxidil, psoralen plus UVA (PUVA) phototherapy and dithranol.<sup>1</sup>

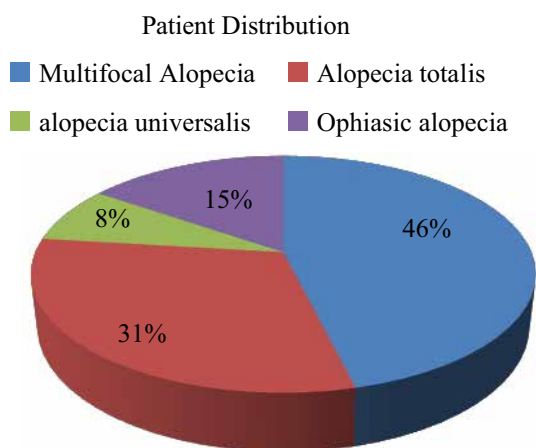
However, all treatments have a high failure rate in this group and some patients prefer not to be treated, other than wearing a wig if appropriate. There are several case series reporting a favourable response to high-dose pulsed corticosteroid treatment using different oral and intravenous regimens.<sup>4</sup>

The aim of this study was to evaluate the effectiveness of Dexamethasone pulse therapy in patients with alopecia areata that is severe and resistant to topical therapies.

**MATERIAL AND METHOD**

The present study was a prospective, uncontrolled study in which thirteen patients with severe alopecia areata who were admitted between January 2014 to April 2015 to the Department of Dermatology at our institute were included. The study was approved by the Institute’s Ethics Committee.

Criteria of inclusion for patients- Patients with Multifocal, active alopecia areata that affected more than 30% of the scalp surface area, Alopecia totalis, Alopecia universalis and Ophiasic alopecia were included. Out of 13, 8 patients were males(61.5%) and 5 were females(38.4%) with mean age of 28 years (Range=14-60 years).



**Figure-1:** Patient distribution

Exclusion Criteria :Patients with poorly controlled hypertension, diabetes mellitus, active infection, peptic ulcer were excluded from study.

All patients were given intravenously 100mg of Dexamethasone per day for 3 consecutive days. This Pulse was repeated every 4 weeks. Patients were monitored

(including regular monitoring of pulse and blood pressure) during each infusion for any side effects of the therapy.

The main evaluation criterion was the percentage of new terminal hair appearing on the bald areas, appreciated by clinical and photographic evaluation at every month for 12 months of follow up. Evaluation was based on observation of the hair regrowth in the bald lesions. Terminal hair growth was recorded as following: 100%, complete regrowth, more than 50% significant regrowth (cosmetically acceptable), and less than 50%, minimal regrowth. Cosmetically acceptable growth was defined as sufficient hair regrowth such that patient didn’t felt the need to conceal the hair loss. Relapse was defined as hair loss of at least 25% of the initially regrown hair and was recorded at a 12-months follow-up.

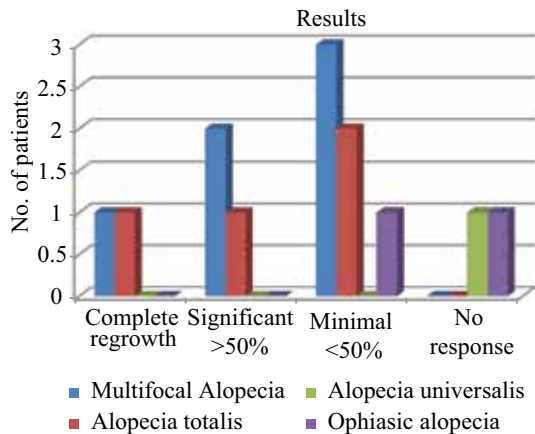
**STATISTICAL ANALYSIS**

SPSS version 21 was used to generate graphs. Descriptive statistics was used to get results.

**RESULTS**

In 11 out of 13 patients (84.6%), a favorable clinical response was observed. 2 out of 13 patients (15.3%) showed complete regrowth of scalp hair, 3 patients (23%) had more than 50% regrowth, 6 patients (46.1%) had a regrowth less than 50%, and 2 patients (15.3%) had no response. Of the 11 responders, 2 patients (15.3%) showed a relapse at the 12 months of evaluation. The response to treatment regimen was significantly better in patients who presented with the first episode compared to those who had previously experienced hair loss.

The treatment response was also influenced by the type of alopecia with patients with multifocal alopecia areata showing a better response than patients with alopecia totalis and alopecia universalis. Of 6 patients with multifocal alopecia areata, 1 patient had complete regrowth, 2 patients had significant regrowth and 3 patients had minimal regrowth. Treatment response was much lower for patients with alopecia universalis, alopecia totalis and ophiasic alopecia. 2 out of 4 patients(50%) with alopecia totalis showed unsatisfactory regrowth (minimal response or relapse) whereas only 1 (7%) patient with alopecia totalis was included in the study showing no response. Out of 2 patients with Ophiasic alopecia, 1 showed minimal response and other showed no response. ( Figure-2)



**Figure-2** : Results of treatment

None of the patients developed any adverse effects of corticosteroid therapy. Hypertension, weight gain, gastritis, peptic ulceration and elevated blood sugar were not noted in any of the patients.

## DISCUSSION

Alopecia areata is difficult to treat and few treatments have been tested in randomized, controlled trials. The tendency to spontaneous remission and the lack of adverse effects on general health are important considerations in management, and counselling, with no treatment, is the best option in many cases. Multifocal, progressive, therapy-resistant alopecia areata represents a challenge for the treatment.<sup>5</sup>

High-dose corticosteroid pulse therapy represents a treatment option for severe alopecia areata, even though the data supporting its effectiveness is limited and further evidence is needed to assess the benefit/risk ratio of this therapy. Systemic corticosteroids have been proven to induce hair regrowth, however, treatment relapse and therapy side effects limit this approach. Olsen et al., obtained more than 25% hair regrowth after a 6-weeks oral prednisone regimen which was maintained with topical application of 2% minoxidil at the 20-weeks assessment. Side effects were considered to be acceptable.<sup>6</sup>

Although Kar et al. noted considerable hair regrowth in patients treated with 200 mg oral prednisolone compared to placebo control at 6 months.<sup>7</sup>

Intravenous corticosteroid pulse therapy represents a viable alternative to oral administration due to fewer side effects and relative ease of administration.<sup>8,9</sup>

Our results are consistent with the previously published data as multifocal alopecia areata responded better to systemic steroids than alopecia totalis and alopecia universalis. We used a regimen of 100mg Intravenous

Dexamethasone for 3 consecutive days every 4 weeks. The unpredictable course of Alopecia areata and the variable prognostic factors have led to a multiplicity of treatment options.<sup>10</sup> Pulses of methyl-prednisolone have been shown to stop the course of disease in active state, but do not permit a stable control with course more than 1 year.<sup>11</sup> Our protocol of monthly pulses of alopecia areata has shown favourable results in majority cases and has enabled cosmetically acceptable hair growth in majority of patients. But as Alopecia areata is a chronic disease with frequent relapses, the results of this therapy needs further follow up. Moreover side effects of monthly pulse corticosteroid therapy are considerably low and hence indicated for extensive alopecia areata as a therapeutic modality.

## CONCLUSION

In conclusion, our results suggest that Pulsed infusions with Dexamethasone may represent an option for patients with multifocal alopecia areata who are resistant to topical therapies and who need professional treatment at the first episode of hair loss. Also it shows promising results for Alopecia totalis and ophiasic alopecia.

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