

## Original Article

# Treatment of extensive alopecia areata with oral prednisolone mini-pulse regimen

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**Abstract** *Background* Systemic steroids in mini doses have been reported effective in the treatment of alopecia areata.

*Objective* To evaluate the efficacy of oral prednisolone in mini pulse regimen in the treatment of severe forms of alopecia areata.

*Patients and methods* This open uncontrolled study was conducted at the Department of Dermatology and Medicine, Liaquat University Hospital, Hyderabad from June, 2007 to July, 2008. All adult patients of both genders not receiving any topical or systemic treatment were enrolled in study. Non-probability convenience technique was used for sampling. After recording personal data and short history regarding the onset, duration and treatment received; thorough cutaneous and systemic examination was done. The patients were assessed clinically and with photographs at all visits. All patients received 30 mg oral prednisolone for 3 consecutive days in a week for 6 months. They were assessed for response and side effects at monthly intervals. The post treatment follow-up was done for 6 months. The findings were recorded on close ended proforma. The data were analyzed using SPSS software version 11.0.

*Results* Fourteen male and 8 female patients aged between 16 and 40 years (mean 25.5 years) were enrolled for study. The duration of the disease at the time of presentation was from 6 months to 10 years (mean 3.6 years). Fourteen patients had extensive alopecia of scalp, 6 alopecia totalis while 2 alopecia universalis. Eight (15.7%) patients showed excellent response and 5 (9.8%) good response. The response was satisfactory in 7 (13.7%) and unsatisfactory in 2 (3.9%) patients.

*Conclusion* Low dose steroids in mini-pulse regimen are an effective treatment modality for treating AA.

### *Key words*

Alopecia areata, extensive alopecia areata, alopecia totalis, mini-pulse therapy, oral steroids.

## Introduction

Alopecia areata (AA) is a non-inflammatory, self-limited disorder characterized by

patchy, non-scarring alopecia.<sup>1</sup> Children and young adults are more frequently affected though disease may occur at any age.<sup>2</sup> The lifetime risk is estimated to be 1.7% among general population.<sup>3</sup> Among the various factors suggested for its etiology the autoimmunity is most plausible one.<sup>4,5</sup> It runs an erratic course with uncertain outcome.<sup>6</sup> Treatment of localized and

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limited forms poses no problem but it has been very difficult to treat its severe forms like extensive AA, alopecia totalis and alopecia universalis. There are diverse therapeutic options available for treating AA but none is found satisfactory. Relapse after some period is bothering for patients as well as for their physician. Systemic corticosteroids are in use since a long time in the treatment of severe AA. These induce remission in no time, but the long duration of therapy with its concurrent side effects and frequent relapses after stopping these agents have provoked continuous search for more efficacious regimens with lesser side effects.<sup>7</sup> In this zeal, small doses of oral steroids in pulse regimen (OMP) have been tried with favourable response in the treatment of AA.<sup>8</sup>

We aimed to evaluate the OMP with prednisolone in patients with severe forms of AA in an open uncontrolled design.

### **Patients and methods**

**Study population** The study was conducted at the Department of Dermatology, Liaquat University of Medical & Health Sciences Jamshoro, from June, 2007 to July, 2008. The adult patients above 16 years age with severe forms of AA (AA involving more than 50% of scalp, alopecia totalis, alopecia universalis) were included in study. The diagnosis was essentially clinical. An informed consent was sought from them after due explanation of the purpose and procedure of study. The study was approved by local ethical committee. The data obtained were entered into a pre-structured, close-ended pro forma. The unwilling patients were excluded from the study.

**History** This included biodata of patient (name, age, address and occupation), the age of onset, duration, and evolution of their disease, drug and family history of disease.

**Clinical assessment** Scalp and full body examination was conducted every time by the same dermatologist. The extent and severity of the hair loss were noted. The photographs of the patient were taken for comparison on next visit. The data were analyzed for frequency and means using SPSS software version 11.0.

The baseline investigations included complete blood counts, urinalysis, blood sugar, serum electrolytes, liver function tests, X-ray chest and examination of stools especially for occult blood. Blood pressure and body weight were also recorded. All patients underwent ophthalmological examination before starting therapy.

Prednisolone 30 mg daily after breakfast was administered to all patients for three consecutive days every week. This regimen was continued for 6 months, after which the drug was gradually tapered off over next 3-4 months. Patients were advised to visit monthly for assessment of response and monitoring of side effects. All the investigations were repeated every 3 months except X-ray chest which was repeated at 6 months. The response was graded as excellent with more than 76% hair growth, good with 51-75% growth, average with less than 50% growth and negligible with less than 5% growth. Post-treatment follow-up was done for further 6 months.

**Table 1** Types of alopecia areata (AA) with gender distribution (n=22)

Type of AA	Gender		n (%)
	Male (n=14)	Female (n=8)	
Extensive	9	5	14 (63.6)
Totalis	4	2	6 (27.3)
Universalis	1	1	2 (9.1)

**Table 3** Frequency and pattern of side effects

Side effects	n = 22*
Gastric upset	7
Acneiform eruptions	6
Weight gain	3
Generalized weakness	4
Depressed mood	3
Cushingoid features	3

\* Some of the patients had multiple side effects hence the number exceeds the actual number of patients

**Table 2** Severity of alopecia areata (AA) and degree of response to treatment (n=22)

Type	Response to treatment				n (%)
	Excellent	Good	Average	Negligible	
Extensive AA (> 50% scalp involvement)	8	4	2	0	14 (63.6)
Alopecia totalis	0	1	5	0	6 (27.3)
Alopecia universalis	0	0	0	2	2 (9.1)

## Results

Of the 22 patients studied 14 (63.6%) were males and 8 (36.4%) females with male to female ratio of 1.75: 1. The mean age at presentation was 25.5±5.93 years. The duration of the disease at the time of presentation ranged from 6 months to 10 years (mean 3.6 years). **Table 1** shows patients distribution within types/severity and each gender. Family history of disease was present in 2 patients. Among these one had extensive AA and one alopecia totalis. Three patients had family (but not personal) history of atopy.

Earliest growth of hair was seen after the interval of 6 weeks. That was acceptably significant by 4- 7 months (average 5.5 months). This implies that more than 70% of bald areas over scalp, eyebrows and in males moustaches and beard areas were covered with terminal hair. The eyelash growth was a bit delayed by 2-3 weeks (started after 8 weeks). The extremities were the last to show hair growth; that is after an interval of 8 weeks. At all areas the hair was initially

fine and less pigmented but as it grew it acquired more colour and firmness. The most favorable response was observed in extensive and the poorest in alopecia universalis. The patients showing good response had their disease for less than 1 year. The degree of response in each type is shown in **Table 2**. Among the patients with excellent response, 6 had significant growth of hair at the end of 6 months. In these the dose of steroids was tapered gradually over next 3 months and then finally stopped. In subsequent follow-up for 5 months, 2 patients experienced relapse in which the treatment was resumed. Further 5 patients showed good response. The treatment was continued in the same dosage for further 2 months in these patients and then gradually tapered. No relapse was observed in these patients. The response was average in 7 and poor in 2 patients. Most of these patients had totalis and universalis varieties of AA.

**Table 3** shows the side effects observed in patients. All of these side effects were mild in severity and didn't warrant discontinuation of therapy. The treatment,

however, had to be stopped in two patients with alopecia universalis because of very poor response.

## Discussion

AA has always remained a therapeutic challenge for the treating physician. The frequent relapses with erratic response has provoked continuous search for an efficacious treatment modality. Currently the treatment modalities being used include corticosteroids (intralesional and systemic), topical immunomodulators e.g. dinitrochlorobenzene (DNCB), diphencyprone (DCP) and squaric acid dibutyl ester (SADBE), topical irritants (dithranol, phenol), topical minoxidil, oral photochemotherapy, methotrexate,<sup>9</sup> oral cyclosporine<sup>10</sup> and recently alefacept.<sup>11</sup> Topical tacrolimus is under trials for use in humans.<sup>12</sup>

Systemic steroids have been used in various regimens and dosages in the treatment of extensive AA with variable responses. The high doses of intravenous methylprednisolone for 3 days per month have shown good results in patients with multifocal AA and alopecia totalis. However this regimen was not found effective in ophiasis AA.<sup>13</sup> Kurosawa *et al.*<sup>14</sup> conducted a detailed study to compare three different regimens of steroids for efficacy, side effects and relapse rate in patients with extensive AA. They divided his patients into three groups; (1) receiving oral dexamethasone 0.5 mg/day for 6 months (Dex group), (2) intramuscular triamcinolone acetonide (imTA) 40 mg once a month for 6 months (imTA group), and (3) oral predonine 80 mg for 3 consecutive days once every 3 months (PT group). There was

better response and relapse rate with comparatively lesser side effects in patients receiving pulsed prednisolone (PT group) and im triamcinolone (imTA group) than in those receiving dexamethasone.<sup>14</sup> Other studies have also confirmed efficacy of oral steroids in mini-pulsed manner in the treatment of extensive AA.<sup>15-17</sup>

This study was conducted to evaluate response of patients with severe AA to oral steroid pulse therapy. The male:female ratio in our study was 1.75:1, which is different from previous studies in which the ratio was either equal or there was slight female preponderance.<sup>18</sup> We used oral prednisolone in a dosage 30 mg for three consecutive days per week which was much lower than that used by Kurosawa *et al.*<sup>14</sup> However the regimen was similar to one tried in another study.<sup>19</sup> There was excellent to good response in patients with extensive alopecia areata of less than one year duration. A similar favourable response was also observed in a study from Japan conducted with pulsed methylprednisolone in patients who presented within 6 months of onset of their disease.<sup>20</sup> The patients in our study with extensive AA had their disease for less than 1 year. This may be a chance finding as the sample size in our study was small. The short period of illness may be a contributing factor for excellent response seen in this group. There is a direct relationship between severity of AA and long term prognosis. The more severe the disease at onset, the poorer is the prognosis.<sup>21</sup>

The patients in our study did not develop any serious side effects from steroid use. The reason may be low dosage and steroid free intervals of our regimen. No patient in our study was dropped because of side

effects. This proves the better side effect profile with mini-pulse therapy. As depicted in results only 2/22 (9%) patients had relapse of the disease. This relapse rate is comparable to one seen in other study from India.<sup>8</sup>

The children below 15 years were excluded from study because of possible long-term side effects of steroids including growth retardation. Considering the different physiological parameters and the profile of side effects in children, it would be more useful to conduct a separate study in children with this regimen.

The follow-up period in our study was very short which is insufficient for evaluation of long-term side effects. Therefore this study confirms only the short-term efficacy and safety of oral steroids in recent onset AA. To establish long term efficacy and safety of this regimen, large studies with prolonged follow-up are needed.

## Conclusion

We conclude that prednisolone oral mini-pulse therapy is a convenient and effective therapy for the treatment of extensive alopecia areata of recent onset.

## References

1. Norris D. Alopecia areata: current state of knowledge. *J Am Acad Dermatol* 2004; **51** (Suppl): S16-S17
2. Sharma VK, Dawn G, Kumar B. Profile of alopecia areata in northern India. *Int J Dermatol* 1996; **35**: 22-7.
3. McDonagh AJG, Tazi-Ahnini R. Epidemiology and genetics of alopecia areata. *Clin Exp Dermatol* 2002; **27**: 405-9.
4. Alexis AF, Dudda-Subramanya R, Sinha AA. Alopecia areata: autoimmune basis of hair loss. *Eur J Dermatol* 2004; **14**: 364-70.
5. Grandolfo M, Biscazzi AM, Pipoli M. Alopecia areata and autoimmunity. *G Ital Dermatol Venereol*. 2008; **143**: 277-81.
6. Madani S, Shapiro J. Alopecia areata update. *J Am Acad Dermatol* 2000; **42** : 549-66.
7. Kar BR, Handa S, Dogra S, Kumar B. Placebo-controlled oral pulse prednisolone therapy in alopecia areata. *J Am Acad Dermatol* 2005; **52**: 287-90.
8. Khaitan BK, Mittak R, Verma KK. Extensive alopecia areata treated with betamethasone oral mini-pulse therapy: An open uncontrolled study. *Indian J Dermatol Venereol Leprol* 2004; **70**: 350-3.
9. Moreno JC, Ocana MS, Velez A. Cyclosporin A and alopecia areata. *J Eur Acad Dermatol Venereol* 2002; **16**: 417-8.
10. Joly P. The use of methotrexate alone or in combination with low doses of oral corticosteroids in the treatment of alopecia totalis or universalis. *J Am Acad Dermatol* 2006; **55**: 632-6.
11. Heffernan MP, Hurley MY, Martin KS *et al*. Alefacept for alopecia areata. *Arch Dermatol* 2005; **141**: 1513-6.
12. McEleavee KJ, Rushton DH, Trachy R, Oliver RF. Topical FK506: a potent immunotherapy for alopecia areata? Studies using the Dundee experimental bald rat model. *Br J Dermatol* 1997; **137**: 491-7.
13. Assouly P, Reygagne P, Jouanique C *et al*. Intravenous pulse methylprednisolone therapy for severe alopecia areata: an open study of 66 patients. *Ann Dermatol Venereol* 2003; **130**: 326-30.
14. Kurosawa M, Nakagawa S, Mizuashi M *et al*. A comparison of the efficacy, relapse rate and side effects among three modalities of systemic corticosteroid therapy for alopecia areata. *Dermatology* 2006; **212**: 361-5.
15. Pasricha JS, Kumrah L. Alopecia totalis treated with oral mini-pulse (OMP) therapy with betamethasone. *Indian J Dermatol Venereol Leprol* 1996; **62**: 106-9.
16. Sharma VK, Gupta S. Twice weekly 5 mg dexamethasone oral pulse in the

- treatment of extensive alopecia areata. *J Dermatol* 1999; **26**: 562-5.
17. Vijayakumar M, Thappa DM. Dexamethasone pulse therapy for extensive alopecia areata: To use or not to use. *Indian J Dermatol Venereol Leprol* 2002; **68**: 52-3.
  18. Seyrafi H, Akhiani M, Abbasi H *et al*. Evaluation of the profile of alopecia areata and the prevalence of thyroid function test abnormalities and serum autoantibodies in Iranian patients. *BMC Dermatol* 2005; **5**: 11
  19. Alabdulkareem AS, Abahussein AA, Okoro A. Severe alopecia areata treated with systemic corticosteroids. *Int J Dermatol* 1998; **37**: 622-4.
  20. Nakajima T, Inui S, Itami S. Pulse corticosteroid therapy for alopecia areata: study of 139 patients. *Dermatology* 2007; **215**: 320-4.
  21. Tosti A, Bellavista S, Iorizzo M: Alopecia areata: a long-term follow-up study of 191 patients. *J Am Acad Dermatol* 2006; **55**: 438-41.

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