# Mini pulse corticosteroid therapy with oral dexamethasone for moderate to severe alopecia areata: a multicentric study

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## Introduction

Extensive subtypes of alopecia areata (AA) (totalis, universalis or multifocal) still have no approved and effective treatments in Europe, although Janus kinase inhibitors are promising treatments that have been recently approved by the FDA. Nowadays, the higher costs and the lower experience with Janus kinase inhibitors, provide more difficulties in its accessibility. In 2016, a new regimen of mini pulse corticosteroid therapy with oral dexamethasone (MPCT-OD) 0.1mg/kg/day twice per week for adult patients with AA totalis or universalis, was reported to be effective with a lower rate of adverse effects.

## Materials & methods

We performed a retrospective and multicentric study to collect data from patients with extensive forms of AA who had received MPCT-OD (0.1 mg/kg/day twice weekly of dexamethasone) for at least 24 weeks. We included adult patients (≥ 18 years) with extensive forms of AA (SALT index ≥ 10) that did not respond to previous treatments. Results are shown in Table 1.

Median baseline SALT score was 65.3% (range 9.5-100). After 24 weeks of MPCT-OD, 88.9% (40/45) of the patients had an improvement in SALT score with a median change in SALT of 71.1%. Of the patients that experienced an improvement in SALT score, 25% had a complete hair regrowth (10/40). Changes in EBA and ELA after 24 weeks were of 1 and 0.4 points, respectively. Median dose of dexamethasone was 6.8 milligrams (range 4-10) and the median duration of the treatment was 8.5 months. Mean time of SALT reduction started at 3 months. Among the responders, 60% experienced a relapse after discontinuation of the MPCT-OD within a median time of 3.5 months. MPCT-OD alone was the only treatment for 60% of the patients while for the other 40% it represented a bridge therapy to other treatments such as methotrexate or cyclosporine.

Regarding safety, a total of 60% (27/45) suffered from any adverse effects and 5 of them required discontinuation due to an impairment in their quality of life. The adverse effects included: sleeping disorders (onset insomnia, maintenance insomnia) [29.6%], weight gain [18.5%], gastrointestinal symptoms [18.5%], mild infections [14.8%], acneiform eruptions [14.8%], hirsutism or hypertrichosis [14.8%], arthromyalgias [14.8%], psychiatric disorders (anxiety, mood changes) [11.1%], hypertriglyceridemia [3.7%], headache [3.7%], Cushing syndrome [3.7%], tachycardia [3.7%] and hypertension [3.7%].

We performed a bivariant statistical analysis between basal SALT, EBA and ELA and the rest of the variables and between SALT, EBA and ELA after 6 months of treatment. We found an association between a greater SALT change after 6 months and the group of patients with alopecia areata universalis, the group of patients with nail changes and the groups of patients with underweight or grade II and III obesity ($p < 0.05$).

## Discussion

We compared our series with two other reported series in which patients received the same dosage of dexamethasone (Table 2). Our data showed a higher mean age, family history, duration of AA and eyebrow and eyelash involvement. We first reported the weight of AA patients undergoing MPCT-OD which we considered that is an important data due to the adjustment of dexamethasone dosage. Our patients experienced more adverse events, probably because of the higher mean dexamethasone dose. We also detailed the eyebrow and eyelash response to MPCT-OD. The rate of relapse after treatment discontinuation was of 60% of the patients, very similar to the series of Vaño et al., suggesting the need of searching the lowest and safest effective dose that keeps a good efficacy. The duration of AA, suffering from hypothyroidism did not affected to the response of the treatment.

**Table 2: comparison between the main series of patients treated with PCT-OD for extensive types of AA**

| | Vañó et al. | Sánchez-Díaz et al. | Lobato-Berezo et al. |
|---|---|---|---|
| Number of patients | 31 | 40 | 45 |
| Mean age (years) | 35.2 | 32.28 | 42.8 |
| Family history of AA (%) | Not reported | 17.5 | 22.2 |
| Subtype of alopecia areata (%) | | | |
| Universalis | 71 | | 46.7 |
| Totalis | 29 | Not reported | 8.9 |
| Multifocal | | | 40 |
| Ophiasic | | | 2.2 |
| DIffuse/incognito | | | 2.2 |
| AA duration (years) | Not reported | 5.1 | 6.7 |
| Body mass index | Not reported | Not reported | 25.5 |
| Previous treatments (%) | | | |
| Topical corticosteroids | | 100 | 77 |
| Topical minoxidil | | 80 | 66.6 |
| Intralesional corticosteroids | | 60 | 31.1 |
| Oral corticosteroids | | 52.5 | 24.4 |
| Contact immunotherapy | 39% (fail to previous systemic | 42.5 | 24.4 |
| Methotrexate | therapy, not specified) | 10 | 13.3 |
| UVA- phototherapy | | | 11.1 |
| Cyclosporine | | 10 | 4.4 |
| Oral minoxidil | | | 4.4 |
| Hypnosis | | | 2.2 |
| Aromatherapy | | | 2.2 |
| Hypothyroidism (%) | Not reported | 27.5 | 11.1 |
| Basal SALT (%) | Not reported | 70,78 | 65.3 |
| Eyebrow/eyelash involvement (%) | Not reported | 56.4 | 66.7 |
| Mean dexamethasone dose (mg) | 8 | 2.72 | 6.8 |
| Therapeutic response (%) | 80.6 | Stratified | 88.9 |
| Eyebrow alopecia response (%) | Not reported | 63.63 | 48.9 |
| Eyelash alopecia response (%) | Not reported | | 24.4 |
| Mean time until response (months) | 1.55 | Not reported | 3 |
| Mean duration of therapy (months) | 12.9 | 12.22 | 8.5 |
| Relapse (%) | 68 | Not reported | 60 |
| Mean time until relapse (months) | Not reported | Not reported | 3.5 |
| Adverse events (%) | 32 | 40 | 60 |

**Table 1: demographic, clinical data and main features and outcomes of the treatment with dexamethasone**

| | | N = 45 |
|---|---|---|
| Age, mean (SD) | | 42,8 (12,9) |
| | ≤ 35 years | 13 (28,9%) |
| | 35 – 50 years | 17 (37,8%) |
| | > 50 years | 15 (33,3%) |
| Sex | | |
| | Male | 15 (33,3%) |
| | Female | 30 (66,7%) |
| Race | | |
| | Caucasian | 42 (93,3%) |
| | Asian | 3 (6,7%) |
| BMI*, mean (SD) | | 16,1 (13,8) |
| Classification I | | |
| | Underweight | 18 (40,0%) |
| | Normal weight | 16 (35,6%) |
| | Overweight or pre obese | 5 (11,1%) |
| | Obese grade I | 2 (4,4%) |
| | Obese grade II | 3 (6,7%) |
| | Obese grade III | 1 (2,2%) |
| Classification II | | |
| | Underweight | 18 (40,0%) |
| | Normal weight | 16 (35,6%) |
| | Overweight | 11 (24,4%) |
| AA** type | | |
| | Diffuse | 1 (2,2%) |
| | Ophiasic | 1 (2,2%) |
| | Plaque | 18 (40,0%) |
| | Totalis | 4 (8,9%) |
| | Universalis | 21 (46,7%) |
| Alopecia duration (months), mean (SD) | | 80,2 (98,3) |
| | (≤ 24 months) | 17 (37,8%) |
| | (25 a 84 months) | 13 (28,9%) |
| | (>84 months) | 15 (33,3%) |
| Family history of AA | | |
| | No | 35 (77,8%) |
| | Yes | 10 (22,2%) |
| Nail changes | | |
| | No | 29 (64,4%) |
| | Yes | 16 (35,6%) |
| Autoimmune comorbidities | | |
| | No | 30 (66,7%) |
| | Yes | 15 (33,3%) |
| Hypothyroidism | | |
| | No | 40 (88,9%) |
| | Yes | 5 (11,1%) |
| Dexamethasone dose (milligrams) | | 6,8 (1,6) |
| | 4 | 6 (13,3%) |
| | 6 | 17 (37,8%) |
| | 7 | 1 (2,2%) |
| | 8 | 18 (40,0%) |
| | 10 | 3 (6,7%) |
| Relapse after treatment discontinuation | | |
| | No | 27 (60,0%) |
| | Yes | 18 (40,0%) |
| Adverse events | | |
| | No | 18 (40%) |
| | Yes | 27 (60%) |
| Overlap with other treatments | | |
| | No | 27 (60,0%) |
| | Yes | 18 (40,0%) |
| Basal alopecia indexes | | |
| SALT, mean (SD) | | 65,3 (33,2) |
| EBA, mean (SD) | | 1,3 (1,3) |
| | 0 | 19 (42,2%) |
| | 1 | 8 (17,8%) |
| | 2 | 3 (6,7%) |
| | 3 | 15 (33,3%) |
| ELA, mean (SD) | | 1,7 (1,2) |
| | 0 | 11 (24,4%) |
| | 1 | 11 (24,4%) |
| | 2 | 5 (11,1%) |
| | 3 | 18 (40,0%) |
| 24 weeks alopecia indexes after MPCT-OD*** | | |
| SALT, mean (SD) | | 24,8 (28,8) |
| EBA, mean (SD) | | 2,3 (0,9) |
| | 0 | 3 (6,7%) |
| | 1 | 4 (8,9%) |
| | 2 | 13 (28,9%) |
| | 3 | 25 (55,6%) |
| ELA, mean (SD) | | 2,0 (1,1) |
| | 0 | 6 (13,3%) |
| | 1 | 6 (13,3%) |
| | 2 | 13 (28,9%) |
| | 3 | 20 (44,4%) |

**BMI: body mass index*
***AA: alopecia areata*
****MPCT-OD: pulse corticosteroid therapy with oral dexamethasone*

## Conclusions

In conclusion, we report a large multicentric series of patients treated with MPCT-OD. We highlight the important rate response in SALT (70%) and a significant persistent response rate (40%) after 24 weeks of treatment. The MPCT-OD is safe although an important number of mild adverse events were recorded, which mostly did not require treatment discontinuation. While JAK inhibitors seem a promising therapy for AA, MPCT-OD continues being a more accessible treatment option for extensive forms of AA.

## REFERENCES

1. Vañó-Galván S, Hermosa-Gelbard Á, Sánchez-Neila N, Miguel-Gómez L, Saceda-Corralo D, Rodrigues-Barata R, Ma DL, Jaén P. Pulse corticosteroid therapy with oral dexamethasone for the treatment of adult alopecia totalis and universalis. J Am Acad Dermatol. 2016 May;74(5):1005-7
2. Friedli A, Labarthe MP, Engelhardt E, Feldmann R, Salomon D, Saurat JH. Pulse methylprednisolone therapy for severe alopecia areata: an open prospective study of 45 patients. J Am Acad Dermatol. 1998 Oct;39(4 Pt 1):597-602
3. Burton JL, Shuster S. Large doses of glucocorticoid in the treatment of alopecia areata. Acta Derm Venereol. 1975;55(6):493-6
4. Sharma VK, Gupta S. Twice weekly 5 mg dexamethasone oral pulse in the treatment of extensive alopecia areata. J Dermatol. 1999 Sep;26(9):562-5.
5. Kurosawa M, Nakagawa S, Mizuashi M, Sasaki Y, Kawamura M, Saito M, Aiba S. A comparison of the efficacy, relapse rate and side effects among three modalities of systemic corticosteroid therapy for alopecia areata. Dermatology. 2006;212(4):361-5.
6. Jahn-Bassler K, Bauer WM, Karlhofer F, Vossen MG, Stingl G. Sequential high- and low-dose systemic corticosteroid therapy for severe childhood alopecia areata. J Dtsch Dermatol Ges. 2017 Jan;15(1):42-47.
7. Fujii H, Endo Y, Dainichi T, Otsuka A, Fujisawa A, Tanioka M, Miyachi Y, Kabashima K. Predictive factors of response to pulse methylprednisolone therapy in patients with alopecia areata: A follow-up study of 105 Japanese patients. J Dermatol. 2019 Jun;46(6):522-525.
8. Shreberk-Hassidim R, Ramot Y, Gilula Z, Zlotogorski A. A systematic review of pulse steroid therapy for alopecia areata. J Am Acad Dermatol. 2016 Feb;74(2):372-4.e1-5
9. Kar BR, Handa S, Dogra S, Kumar B. Placebo-controlled oral pulse prednisolone therapy in alopecia areata. J Am Acad Dermatol. 2005 Feb;52(2):287-90.
10. Sánchez-Díaz M, Montero-Vilchez T, Bueno-Rodriguez A, Molina-Leyva A, Arias-Santiago S. Alopecia Areata and Dexamethasone Mini-Pulse Therapy, A Prospective Cohort: Real World Evidence and Factors Related to Successful Response. J Clin Med. 2022 Mar 18;11(6):1694

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