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ORIGINAL ARTICLE

Effects of potent topical steroids versus topical tretinoin in patchy alopecia areata of scalp

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ABSTRACT:

Background: Alopecia areata (AA) is a common condition causing patchy alopecia of scalp. It can follow an unpredictable course with spontaneous exacerbations and remissions. Various therapeutic options have been tried to alleviate the cosmetic concern of the patient. The objective of this study is to compare the efficacy and safety of potent topical steroid versus topical 0.05% tretinoin in limited patchy alopecia areata of scalp. **Methods:** In this study 70 patients of age group above 5 years and of both sexes having localized alopecia areata of scalp (<5 patches and <25% scalp involvement) were included in the study after taking an informed consent. It was a randomized prospective study done for a period of 12 weeks. Excluding the age and sex bias, patients were distributed into two treatment groups A and B. Group A was treated with 0.05% betamethasone dipropionate (BMD) cream applied twice daily. Group B was treated with topical 0.05% tretinoin cream applied twice daily. The response was assessed in every patient subjectively as well as objectively by alopecia grading scale and regrowth score (RGS) at the end of 12 weeks. **Results:** otal 70 patients completed the study. There was no patient dropout in both the groups. There was an almost equal sex distribution in both the groups with slight male preponderance. Mean age of onset is 22.3 years. Majority (45%) of patients had a peak age of onset between 21-30 years. **Conclusions:** It can be concluded that 0.05% BMD is still the most effective and economical topical treatment in less extensive forms of AA. However topical 0.05% tretinoin also gives a fairly good response. But further studies with tretinoin are needed to establish its role in limited alopecia areata.

Keywords: Alopecia areata, Betamethasone dipropionate, Tretinoin

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INTRODUCTION

T- lymphocytes are found to play a definitive role in pathogenesis of this chronic inflammatory disease.[1] A positive family history and association with various autoimmune diseases is reported.[2] It follows a chronic unpredictable course marked by spontaneous remissions and episodes of exacerbations. Various therapeutic modalities have been described to suppress the disease activity and to alleviate the cosmetic concern of the patient. Aims and objectives of this randomized prospective study were to evaluate and compare the efficacy of topical 0.05% betamethasone dipropionate (BMD) versus topical 0.05% tretinoin in patchy AA; to compare the adverse effects of both topical treatment modalities; to compare the patient compliance in both the groups.

Alopecia areata may show a spontaneous remission within few months but it may also follow an unpredictable course of exacerbation. As it causes cosmetic concern for the patient along with emotional problems, various therapeutic modalities have been described and are being used for its treatment. Aim of treatment in alopecia areata is to suppress the activity of the disease as none of them are curative. This randomized prospective study was carried out to compare the treatment outcome and safety profile with various topical treatment modalities in the management of alopecia areata.

The findings that tretinoin prolongs anagen phase[3] and increases percutaneous absorption of minoxidil three fold[4] has been impetus for the use of combination of tretinoin and minoxidil in AGA. There is evidence that tretinoin, when combined with minoxidil, may enhance its efficacy. Azelaic acid is an inhibitor of 5 alpha reductase and has been tried in AGA[5] and it could be an effective agent in the treatment of androgen related pathology of human skin. There are no sufficient reports regarding the efficacy of topical tretinoin and azelaic acid in treatment of androgenetic alopecia and there added advantage in treatment of androgenetic alopecia along with minoxidil. In this study we intend to compare efficacy of topical 5% minoxidil versus efficacy of combination of topical minoxidil 5%, topical azelaic acid 1.5% and topical tretinoin 0.01% in treatment of androgenetic alopecia on the basis of dermoscopic analysis in the patients of androgenetic alopecia.

METHODS

The study was a prospective, randomized, comparative, single blinded study. 70 patients of age >5 years and of both sexes presenting to the Dermatology outpatient department with clinical features of AA of scalp were included in this study.

Inclusion criteria

- Patients clinically diagnosed as having localized AA (<5 patches and <25% scalp involvement)

over the scalp.
- Patients who have not received any treatment before.
- Patients of both sexes and aged above 5 years.

Exclusion criteria
- Alopecia of scalp other than AA.
- Extensive AA of scalp (>25% scalp involvement) or involving other areas of body.
- Patients with scars over the bald patch.
- Patients with active infection over the alopecia patch.
- Allergy or hypersensitivity to any component of the treatment products.
- Pregnant and lactating women.
- Patients with any underlying systemic disorders.

Ethical clearance was obtained from the Institutional Ethics Committee before the commencement of the study. Written informed consent was taken from patients before their participation in the study. Relevant history and clinical examination was done in each patient. Clinical examination of the patches was carried out with respect to number, size and distribution. Serial photographs were taken at each visit for documentation.

Eligible candidates for the study were randomly allocated into two groups viz., Group A and B. In each group, patients were given a different topical treatment for a period of 12 weeks. Group A patients applied 0.05% BMD cream twice daily. Group B patients applied topical 0.05% tretinoin cream twice daily over the patch.

Each patient was followed up fortnightly for a period of 12 weeks and response to treatment was evaluated subjectively and objectively. At each visit, history of any side effects due to treatment modality, appearance of any new patches, decrease in the size of present patches and patient compliance were noted.

RESULTS

RGS of equal to or more than 3 was considered as improved and statistically significant response. Chi-square test was for the statistical analysis of the data. A p value of 0.05% was considered as significant.

Table 1: Grading of RGS.

RGS	Regrowth (%)	Grade
0	<10	Poor
1	11-25	Mild
2	26-50	Moderate
3	51-75	Good
4	>75	Excellent

Total 70 patients completed the study. There was no patient dropout in both the groups. There was an almost equal sex distribution in both the groups with slight male preponderance. Mean age of onset is 22.3 years. Majority (45%) of patients had a peak age of onset between 21-30 years. A positive family history of AA was seen in 8% of the patients. Majority of patients had 1 to 3 patches at the time of presentation. Baseline mean AGS in both the groups were comparable.

Table 2: Patient profile and mean AGS in both the groups.

	Group A steroid (0.05% BMD)	Group B (0.05% tretinoin)
Total no. of patients	35	35
Mean age in years	21.7	22.3
Gender		
Male	18	19
Female	17	16
Mean AGS		
Baseline AGS	14.07	12.91
AGS at 12 weeks	5.17	7.81

Patients having RGS of 3 and 4 were considered to have significant improvement. Based on RGS, findings noticed at the end of 12 weeks of treatment (Table 3) are 72% patients (18 of 25) in Group A showed significant improvement with majority 40% (14) showing excellent response (RGS 4).

Table 3: RGS and number of patients in each score at the end of 12 weeks.

RGS	Group A	Group B
0	0	0
1	0	7
2	10	15
3	11	10
4	14	3

Folliculitis was seen in 2 patient treated with 0.05% BMD cream. Erythema with burning sensation was seen in 5 patients with topical 0.05% tretinoin. These side effects were temporary and reversible (Table 4).

Table 4: Side effects of treatment modalities.

Side effects	Group A	Group B
Folliculitis	2	-
Erythema with burning sensation	-	5

DISCUSSION

In this study, in Group A, 72% of the patients treated with 0.05% BMD cream showed RGS of 3 and 4 at the end of 12 weeks and only one patient in the group developed folliculitis as side effect. In the study done by Das et al, RGS >3 was seen in 70% of the patients treated with topical Betamethasone dipropionate, which is similar to this study.[6] In another study done by Mancuso et al, a RGS >3 was observed in 61% of the patients treated with Betamethasone valerate foam.[7] And an RGS >3 was seen in 27% of patients treated with betamethasone dipropionate lotion. A study carried out by Fiedler in 1992 showed similar response using Betamethasone dipropionate cream, which is similar to this study.[8]

In a study done by Das et al, RGS (>3) was observed in 35% of patients treated with 0.05% tretinoin cream.[6] However study done by Baird et al , showed insignificant response with topical tretinoin when applied for a period of 3 months.[9]

In a study done by Price VH5, on patients with extensive patchy AA in the age group of 9 to 65 years with 3% topical Minoxidil solution, it was seen that minoxidil application was generally well tolerated except for scalp itching in 3 patients. Hair growth was seen in 63.6% of the patients in the minoxidil treated group but cosmetically acceptable hair growth (RGS>3) was seen in only 27.3% of patients in the minoxidil treated group. Examination of vital signs and lab measurements revealed no evidence of systemic effects of minoxidil. In another study done by Fiedler – Weiss,[10] a dose response efficacy comparing 1% and 5% topical minoxidil was demonstrated. Patients with extensive scalp hair loss showed a response rate of 38% with 1% minoxidil. Similar findings were also seen in our study in Group B patients, who were treated with topical 2% minoxidil solution. About 37% of the patients showed improvement or a RGS of 3 and 4 at the end of the 12 weeks of study. And only one patient each showed the side effect of scaling and hypertrichosis which also reversed after the stoppage of treatment. In a study done by Fiedler-weiss VC et al,[11] the efficacy of anthralin cream in the treatment of severe AA in 68 patients was evaluated. Cosmetic response that is RGS > 3 was seen in 25% of the patients. In another study done by Das S et al,[6] 35% of the patients treated with topical anthralin (Dithranol paste) showed >60% regrowth at the end of study in patchy AA. In our study, 21.7% of the patients in Group C showed a RGS of 3 and 4 at the end of 12 weeks. Erythema with burning sensation was seen in only 1 patient of the group.

Best treatment response was seen in Group A who were treated with 0.05% Betamethasone Dipropionate cream when compared with the other three groups. Least response was seen in Group D who were treated with 0.03% Tacrolimus ointment. Patients treated with 2% minoxidil and 1.15% anthralin ointment showed a response better than Group D but less than that of Group A patients. In our study, best response at 12 weeks among cases with Reticulate type of AA was seen in Group A treated with 0.05% BMD cream followed by Group C treated with 1.15% Anthralin ointment. Among ophiasis pattern, best response was seen in Group A treated with 0.05% BMD cream followed by Group C treated with 1.15% Anthralin ointment. Side effects with various treatment modalities were mild, minimal, temporary and reversed as soon as the treatment was stopped. Patient compliance was good in all the four groups.

CONCLUSION

From this study, it can be concluded that potent topical steroid is still the most effective and economical topical treatment and superior to other topical treatment modalities in less extensive forms of AA (less than 25% scalp hair loss). However topical tretinoin also gives a fairly good response. But further studies with topical retinoids and with larger sample size are needed to assess its efficacy in AA.

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