



PIMECROLIMUS CREAM 1% FOR TREATMENT OF ALOPECIA AREATA

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ABSTRACT

A study was carried out to explore the effectiveness of pimecrolimus Cream 1% used twice daily (BID) for the treatment of alopecia areata. Ten patients were included in this study all of them were males. Patients were used pimecrolimus cream 1% monotherapy BID for at least 2 months and who had photographs taken at baseline and after one month and after two months of treatments. The total effected surface area (cm) of alopecia areata in the baseline was measured by metric tape and followed up for comparison. Results revealed that the response to pimecrolimus cream 1% BID was about 20-40% decrease in the size of patches after one month of treatment but all patients were completely cured (100%) after two months of treatments. In conclusion: the pimecrolimus cream 1% could be used by dermatologist for the treatment of alopecia areata.

KEYWORDS: Alopecia areata, pimecrolimus cream.

INTRODUCTION

Alopecia areat

Alopecia areata is a non-cicatricial alopecia that is postulated to be hair –specific auto immune disease with genetic features involved in disease.^[2,3,4] In the acute progressive stage of alopecia areata, the lymphocyte infiltrates are seen around and sometimes within the hair bulb region of anagen follicles.^[1] The chronic relapsing nature of alopecia areata and its profound effect on physical appearance make the development of this condition a distressing and life-changing event for many affected individuals.^[5] The prevalence of alopecia areata in the US is approximately 0.1% to 0.2 of the population.^[6] T-lymphocyte interaction with follicular antigens has been implicated in alopecia areata.^[2] Sections of scalp skin from patients with alopecia areata will grow hair when engrafted onto congenitally athymic nude mice and its possible to transfer alopecia areata to human skin explants on SCID mice by the injection of scalp-infiltrating lymphocytes but not with non-follicular scalp homogenates.^[7] Melanocytes-associated antigens recognized by T cells might be also function as possible autoantigens.^[8] Normal anagen hair follicular keratinocytes typically has a lack expression of class I and class II major histocompatibility (MHC) antigens suggesting immunologic privilege of the human hair follicle bulb.^[9,10]

Alopecia means hair loss when a person has a medical condition called alopecia areata, the hair falls out in

round patches, the hair can full out on the scalp and elsewhere on the body.

Alopecia areata characterized by rapid and complete loss of hair in one or more often, several round or oval patches, usually on the scalp, bearded area, eyebrows, eyelashes and less commonly, on other hairy areas of the body.

Often the patches are from 1-5 cm in diameter. After resting hair, they may be found within the patches. Early in the course there may be sparing of gray hair. At most the hair less is patch in distribution, however, case may present in a diffuse pattern.

At the periphery of the bald patch are loose hairs that may be broken off near the scalp leaving short stumps, as a result of atrophy of that portion, hence the term exclamation point hair?

Alopecia areata can case different types of hair loss
Each of these types has a different name
-Alopecia areata (hair loss in patches)
-Alopecia totalis (lose all hair on the scalp)
-Alopecia universalis (lose all hair on the body)

Not everyone loses all the hair on the scalp or body.

This happens to a about 5% of people. Hair often grows back but may fall out again sometimes the hair loss lasts for many years.

Alopecia is not a contagious, it is not due to nerves, It occurs when the immune system attacks the hair follicles causing hair loss.

This disease most often occurs in otherwise healthy people. Alopecia areata usually occurs without associated diseases. However, there is a higher incidence than usual in patients with atopic dermatitis, Down syndrome, lichen planus and other autoimmune diseases such as systemic lupus erythematosus, thyroiditis, myasthenia gravis and vitiligo.

In about 10% of cases of alopecia areata associated with nail involvement.

People can have this type of hair loss at any age. Alopecia areata is an autoimmune disease and there is no cure for alopecia areata.

Hair often regrow on its own and treatment can help the hair regrow more quickly. So dermatologist may prescribe one or more of the Following (to suppresses or alters the immune system).

- Corticosteroids
- Anthralin
- Diphencyprone (DPCP)
- Other treatments

Researchers are working to advance the treatment of alopecia areata, they are exploring other medicines that work on the patient immune system.

Pimecrolimus(ELIDEL)

It is an anti-inflammatory macrolactam developed specifically for the treatment of inflammatory skin diseases.^[12]

Its mode of action is the selective inhibition of T-cell activation via the calcineurin pathway and inhibition of the release of inflammatory cytokines from mast cells thereby preventing the cascade of immune and inflammatory signals.^[13]

In contrast to corticosteroid pimecrolimus has no atrophogenic potential or other steroid-specific side effects.^[14]

Elidel cream(pimecrolimus) is used to treat the early signs and symptoms of eczema(atopic dermatitis) such as itching, redness and tiny bumps or thickening of the skin.

It is suitable for infant 3 months or older children teenagers and adults. Elidel can be used to treat repeated episodes of eczema.^[15] Treatment is started as soon as the first symptoms of eczema appear to prevent these from progressing to more severe symptoms that may require the use of a steroid cream. However, if a steroid cream is required to treat an episode of eczema. Elidel cream can be used to treat any remaining symptoms after the steroid cream has been stopped. Elidel cream is

steroid-free medicine that treats inflammation of the skin.^[14] Tacrolimus is a calcineurin inhibitor. It binds to the FK506-binding protein leading to the inhibition of calcineurin and prevention of activation of NFAT (Nuclear Factor of Activated Tcell).^[15] This blocks transcription of the gene encoding IL-2 and blocks Tcell activation and further cytokine production. Also tacrolimus inhibits the release of histamine from cells and basophils.^[16] These action may reduce pruritis. Various reports have shown the efficacy of tacrolimus in number of inflammatory cutaneous disorders such as psoriasis seborrheic dermatitis.^[16] Netherton syndrome often shows pseudolymphoma like histopathology with predominant T lymphocytes.^[11] Pimecrolimus, another calcineurin inhibitor has already been shown to be of benefit in Netherton syndrome.^[17] pimecrolimus cream 1% is an immunosuppressant. It work by decreasing body immune system to help slow down the growth of atopic dermatitis on your skin and it used to treat sever atopic dermatitis when other medications have not work well.

Also pimecrolimus cream have been shown to repigment skin in patient with vitiligo autoimmune disease.

METHODS

Ten male patient were included in the present study with age range from 20-40 years and the patient diagnosed clinically with alopecia areata had received pimecrolimus cream 1% BID as a monotherapy for the treatment of their hair loss for at least 2 months and for which photos had been taken before and after treatment.

The age of the patients gender, duration, number of patches, site, size of lesion and family history of alopecia areata or other autoimmune disease had been recorded.

All patients were photographed with iPhone 6 camera at the baseline and after one month of therapy and after two months of therapy and the extent patch (size) was measured by metric tape at the baseline and after 1 month of treatment and after two month of treatment.

RESULTS

All patient were included in this work were male and aged between 21-40 years with single and multiple patches of alopecia areata, over the scalp and beard area and the size measured by metric tape were between 1-5 cm in diameter and the duration of alopecia areata range from 2-4 months.

There was a significant response to pimecrolimus cream specially after 2 month of treatment.

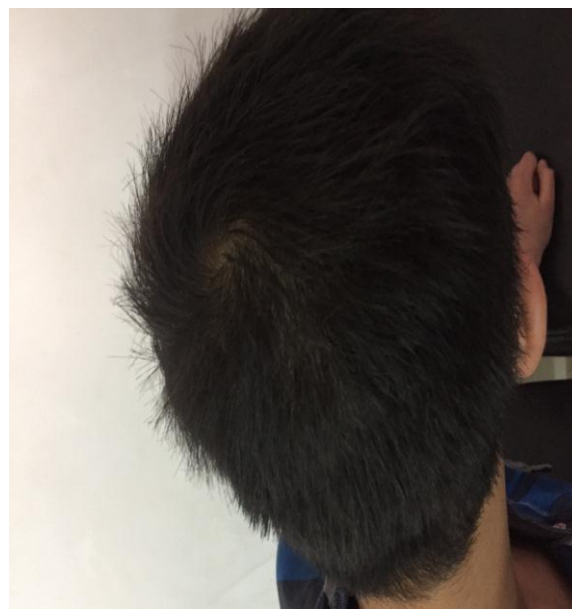
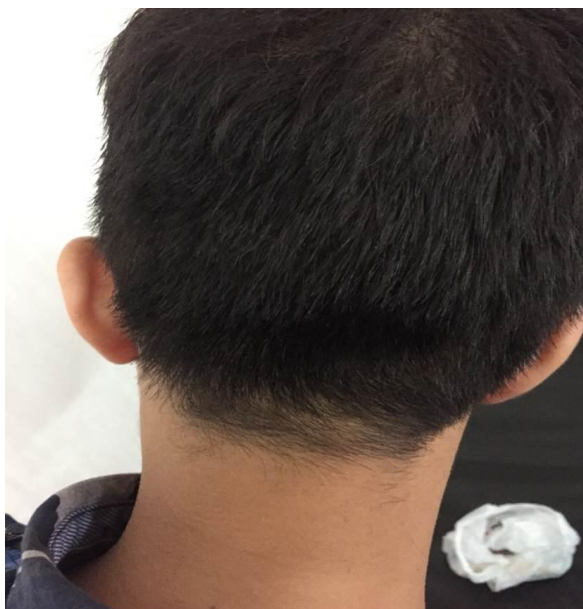
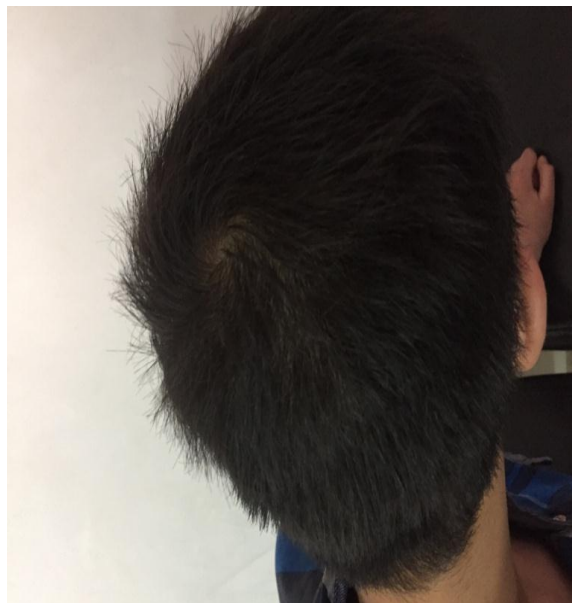
The size of patch decrease by about 20-40% (2-4 cm) decrease in size of patches after one month of treatment but all patients were completely cured (100%) after two months of treatments (Table 1).

Table 1: Percentages of cure after one and two months.

| Patient No. | Age | Gender | Duration of the lesion | No.of the Patch | Site of the lesion | Family history | Size of the lesion | Percentage of cure after 1m of Rx | Percentage of cure after 2m of Rx |
|-------------|-----|--------|------------------------|-----------------|--------------------|----------------|--------------------|-----------------------------------|-----------------------------------|
| 1 | 21 | Male | 1 M | 1 | Scalp | -ve | 1cm | 20% | 100% |
| 2 | 25 | Male | 2 M | 2 | beard | +ve | 1cm | 30% | 100% |
| 3 | 22 | Male | 3 M | 2 | Scalp | -ve | 5cm | 35% | 100% |
| 4 | 24 | Male | 1 M | 1 | Scalp | -ve | 2cm | 20% | 100% |
| 5 | 30 | Male | 2 M | 2 | Scalp | +ve | 1cm | 40% | 100% |
| 6 | 29 | Male | 4 M | 2 | beard | -ve | 2cm | 40% | 100% |
| 7 | 40 | Male | 3 M | 1 | Scalp | -ve | 3 cm | 30% | 100% |
| 8 | 39 | Male | 1 M | 2 | beard | -ve | 4 cm | 20% | 100% |
| 9 | 30 | Male | 3 M | 1 | beard | -ve | 2 cm | 40% | 100% |
| 10 | 40 | Male | 4 M | 1 | beard | +ve | 5 cm | 30% | 100% |

Before treatment with ELIDEL

After treatment with ELIDEL



DISCUSSION

Alopecia areata is not a contagious disease. It's an autoimmune disease and what happen is that the immune system attack the hair follicles causing hair loss.

There is no cure for alopecia areata and the hair often regrows on its own.

Treatment can help the hair regrow more quickly and this is very important point because this disease can cause considerable stress to those who suffer from it.

We chose pimecrolimus cream 1% to treat alopecia areata because it is an autoimmune disease and pimecrolimus is an immunosuppressant.

The result of these study suggest that pimecrolimus cream 1% BID for two months duration could be effective therapy for the treatment of alopecia areata and this study regarded as the first study had been done for the treatment of alopecia areata by pimecrolimus cream 1% and the result was very excellent because all patient had been cured (100%).

CONCLUSION

Pimecrolimus cream 1% may be used by dermatologist as an excellent therapy for the treatment alopecia areata.

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