An open label study to compare the efficacy of topical mometasone furoate with topical placental extract versus topical mometasone furoate with topical tacrolimus in patients with vitiligo involving less than 10% body surface area

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ABSTRACT

Vitiligo is a common skin disorder affecting about 1 to 2% of the world population. The prevalence in Nepal is 2-3%. This disease is associated with profound psychological distress. Though many treatment options are available none of these are universally effective. The main objective of the study is to compare the efficacy and rate of repigmentation with use of topical steroid and topical placental extract versus topical steroid and topical tacrolimus 0.1% in treating patients with localized vitiligo. One hundred patients visiting the dermatology outpatient department of Nepal Medical College and Teaching Hospital with the diagnosis of vitiligo involving less than 10% of body surface area were taken. 50 of these patients (Category A) were randomly selected and treated with topical steroid (Mometasone furoate 0.1% cream) and Topical placental extract gel. Other 50 patients (Category B) were given the same topical steroid with Topical Tacrolimus 0.1% cream. The patients were examined every month and final outcome was seen at the end of 3 months. Of the total 100 patients 51% were male and 49% were female. Seventeen percent of patients had lesions over face and neck, 49% had lesions over the extremities and 34% had lesions over trunk. At the end of 3 months the rate of repigmentation was better in patients of Category B than Category A and the result was statistically significant. Topical Tacrolimus 0.1% ointment could be better option for the treatment of localized vitiligo when compared to topical placental extract but in combination with a steroid cream.

Keywords: Vitiligo, Mometasone, Tacrolimus, placental extract

INTRODUCTION

Vitiligo is a common skin disorder affecting about 1 to 2 % of the world population.[1] The pattern of this disorder differs in different countries and in various locations in the same country. In Nepal the prevalance rate of this disorder is found to be about 2.82%.[2] In Western Nepal its prevalance rate has been found to be about 2.14%.[3] The disease is associated with profound psychological distress, especially in people with colored skin.[4,5] Huge armamentariums of therapies are available for the treatment of this distressing disorder but none of these are universally effective.

The exact mechanism of action of human placental extract in vitiligo is not known but it is claimed to have a mitogenic effect on the skin melanocytes as well as a stimulatory effect on the process of melanogenesis in surviving melanocytes.[6,7]

The role of topical steroid is well known and it has been proven in many studies. Mometasone furoate is a non fluorinated topical steroid with high potency and safety profile.[8]

Tacrolimus a macrolide immunomodulator has shown promising results in the treatment of vitiligo.[9-19] Topical placental extract is quite commonly used in Nepal usually in combination with topical steroid. As topical tacrolimus has shown promising result in different studies we conducted this study to compare the efficacy of Topical Placentral extract and Topical Tacrolimus when both used in combination with Topical Mometasone Furoate in patients with vitiligo of <10% body surface area.

MATERIAL AND METHODS

Study design: A prosective study was conducted at the dermatology outpatient department of Nepal Medical College and Teaching Hospital. A detailed history including age, sex, onset of lesions, distribution of lesions, size of lesions, family history of lesion was taken.

Patients: One hundred patients of age group 15 to 55 years with vitiligo with less than 10% body surface area involved were included in the study and the patients were randomly divided into 2 groups of 50 patients each. Group A was treated with Topical Mometasone furoate with Topical Placentral extract whereas Group B was treated with Topical Momentasone furoate with

Topical Tacrolimus 0.01%. Patients with lip and tip vitiligo, pregnant or lactating women, patients who had received some form of treatment within last 3 months and patient with known hypersensitivity to either of the drugs were excluded from the study. The patients were asked to come for follow up once monthly and the final result was compared at the end of 3 months.

Evaluation of treatment efficacy

Repigmentation was graded as follows:

Grade 0 – absent repigmentation,

Grade 1 – slight (1-25%),

Grade 2 – moderate(26-50%),

Grade 3 – good (51-75%)

Grade 4 – excellent (76-100%)

Unprotected natural sunlight exposure was allowed in all the patients.

Statistical analysis: The data was analysed using SPSS windows version 15. For statistical analysis Independent Chi square test was used to compare the repigmentation between the patients of Category A and Category B. P value of <0.05 was considered significant.

Ethical consideration: Informed consent was obtained from the patients. Details of possible benefits and adverse effects were carefully explained and counseling about the disease was done to the patients. The study was approved by the ethical research clearance committee of Nepal Medical College and Teaching Hospital.

RESULTS

Patient data: Of the total 100 patients 51% was male and 49% was female. Fig. 1 shows the distribution of patients according to the age of onset of vitiligo which shows that maximum number (35%) of patients belonged to the age group 26-35 years. Family history of vitiligo was present in 12% of patients.

Response to treatment: Table-1 shows the result of treatment at the end of 3months in the two categories. Among the patients who received Mometasone with Placental extract 12 patients i.e. 24% did not show any repigmentation at the end of 3mths. But in category B who received Mometasone with Tacrolimus all the patients showed some degree of repigmentation at the end of 3 months.

Table-1: Grading of repigmentation in the 2 categories

Grading of repigmentation	Category A		Category B		Total		P-value
	n	%	n	%	n	%	
Grade 0	12	24	0	0	12	12	
Grade I	16	32	18	36	34	34	0.00
Grade II	7	14	13	26	20	20	0.00
Grade III	8	16	10	20	18	18	0.00
Grade IV	7	14	9	18	16	16	0.00
Total	**50**	**100**	**50**	**100**	**100**	**100**	

The statistical analysis shows that the grade of repigmentation in the two categories has p value less than 0.05 which means it is highly significant.

Table-2 shows the distribution of lesions in different sites and the result of treatment with both the categories in different sites. Treatment with Category B has resulted in repigmentation in all the 50 patients independent of the site of lesion. But with Category A in exposed areas like face and neck all the patients has repigmentation and in covered areas like upper limb, chest, abdomen, back and lower limb some patients did not have repigmentation at all.

Safety: The reported adverse effects were burning sensation (in 5 patients) and pruritus (in 2 patients) in Category B. In patients of Category A non of the patients reported any side effects.

DISCUSSION

In our study the distribution of vitiligo is almost same in males and females. In a study conducted in Indian patients by Handa S and Kaur I males constituted 54.5% of the group which is similar to our result.[20] But in contrast to these studies there was slight but not significant female preponderance another study conducted by Kumar *et al* in Nepal.[3] Kovacs also referred to a preponderance of females among patients with vitiligo.[1] Studies conducted in India and Nepal show that vitiligo begins during period of active growth[3,21,22] In our study also 28% have onset before 25 years and 63% have onset before 35 years.

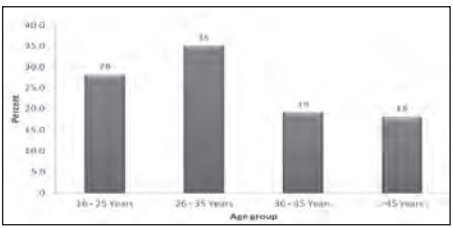

Fig. 1. Distribution of patients according to age of onset of vitiligo

Table-2: Correlation with site of lesions to response with treatment (both Categories A and B)

Site of lesions	Category A		Category B	
	Repigmentation present	No Repigmentation	Repigmentation present	No Repigmentation
Face and Neck	7	0	7	0
Upper Limb	9	1	17	0
Chest	2	3	6	0
Abdomen	3	2	4	0
Back	9	2	8	0
Lower Limb	8	4	8	0
Total	50	100	50	100

In vitiligo involving less than 10% body surface area the most common therapy used is topical steroid. But the problem with the use of steroid in chronic disorders like vitiligo is the adverse effects produced by prolonged use such as atrophy and telangiectasia that also is more common with Class 1 (very potent) topical steroid.[23] Mometasone is a Class 2 (potent) steroid, but only half as potent in suppressing the hypothalamic–pituitary–adrenal axis as compared to very potent steroid and produces limited local and systemic adverse effects.[24,25] Mometasone alone has been proven to be effective in the treatment of vitiligo with minimal side effects even in children.[23,26]

Topical calcineurin inhibitors has been an interesting and innovative addition to the armamentarium of topical drugs used for vitiligo and they offer many advantages over corticosteroids for the management of chronic skin disorders in which prolonged treatment periods are needed.[27] Among topical calcineurin inhibitors only Tacrolimus is available in Nepal till date and has been used in treating vitiligo in the recent years only unlike other countries where Tacrolimus as well as pimecrolimus have been used for a long time in the treatment of vitiligo. Topical Tacrolimus alone has been proven to be effective in treatment of vitiligo in different age groups in different studies conducted in different parts of the world.[9-19] Even in patients with generalized vitiligo it has found to be effective in combination with NBUVB therapy.[28,29] Topical Tacrolimus has been shown to be as effective as topical Clobetasol propionate in a study conducted in children.[10,14]

Very few studies have been conducted with use of topical placental extract in vitiligo. In a study done by Imran Majid topical placental extract when used in combination with narrowband UVB therapy did not show a really significant advantage in comparison to narrowband UVB alone.[29] In our study also addition of Placental extract to Topical Mometasone has not shown significant advantage in comparison to Topical Tacrolimus.

In the studies where only Topical calcineurin inhibitors have been used some percentage of patients do not show any repigmentation even after 12 weeks of treatment. In our study the advantage of adding topical Momentasone to topical Tacrolimus is that at the end of 12 weeks all the patients showed some degree of repigmentation and this is very important for the patient satisfaction.

In conclusion,topical tacrolimus ointment is an effective and well tolerated alternative treatment to be used along with topical steroid for vitiligo. Using it alone may not be as effective as using topical steroid but using it with topical steroid like Mometasone furoate could result in satisfactory repigmentation in significant number of patients. Besides because of it safety profile after some control of disease activity topical steroid can be stopped but topical tacrolimus can be used for prolonged period. But additional studies (multicenter, randomized double-blind and placebo-controlled) still need to be conducted even in our country to support the result of this study.

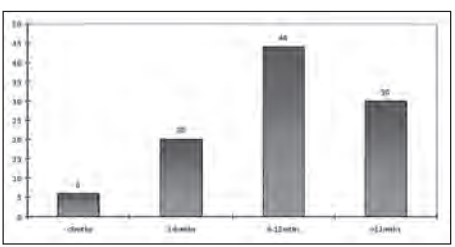

Fig. 2. Distribution of patients according to duration of vitiligo

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