

The Comparison of Efficacy of Adcortyl Ointment and Topical Tacrolimus in Treatment of Erosive Oral Lichen Planus

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Abstract

Background and aims. Oral lichen planus (OLP) is a common chronic mucocutaneous disease. Patients with atrophic and erosive lichen planus often have symptoms of soreness and need proper treatment. The main therapy of OLP has been the administration of topical or systemic corticosteroids. Potent topical corticosteroids have been increasingly prescribed in the treatment of erosive lichen planus. The purpose of this study was to compare the efficacy of adcortyl ointment (triamcinolone in orabase) with topical tacrolimus for the treatment of erosive oral lichen planus.

Materials and methods. Sixty Patients with histopathologically confirmed oral lichen planus were enrolled in the study. The severity of lesions was scored from 0 to 5 according to the criteria described in a previous study. Patients were randomly given adcortyl (group A) and topical tacrolimus ointment (group B) and asked to apply the medication on dried lesions 4 times a day. The lesions were evaluated after 4 weeks of treatment. Visual analogue scale was used to assess the severity of pain before and after treatment. The severity scores were analyzed using the Kruskal-Wallis k-sample test.

Results. The average score of lesions improved from 3.4 to 1.5 in patients who received adcortyl ointment and from 3.2 to 1.2 in patients who received topical tacrolimus ointment. The differences between the improvements in scores were not statistically significant in the two groups. The average pain severity in A and B groups was 8.2 and 7.8 at the beginning of treatment, and 3.5 and 3.2 at the end of treatment, respectively. There was a statistically significant reduction in pain severity in both groups.

Conclusion. Topical tacrolimus is a safe and effective alternative therapy in the treatment of oral lichen planus.

Key words: Adcortyl, Lichen Planus, Soreness, Tacrolimus, Triamcinolone.

Introduction

Oral lichen planus (OLP) is a common chronic mucocutaneous disease.¹ The prevalence of OLP varies from 0.1% to about 4% depending on the population sampled.²⁻⁴

OLP is mostly found in middle-aged and elderly patients; the female-to-male ratio is nearly 2:1. Various forms of OLP appear clinically (reticular, papular, plaque-like,

atrophic, erosive, and bullous lesions) that can occur separately or simultaneously. OLP is characterized histopathologically by variable epithelial thickness, basal cell destruction, and a band-like infiltrate of mononuclear cells in the lamina propria.¹ Although the pathogenesis of OLP is still an area of active investigation, it is well documented that OLP represents a cell-mediated immune response with the infiltrating cell population composed of both T₄ and T₈ lymphocytes.⁵ In general, non-erosive lichen planus is asymptomatic. Patients with atrophic and erosive lichen planus, however, often have symptoms of soreness and need proper treatment. The main therapy of OLP has been the administration of topical or systemic corticosteroids. The use of systemic corticosteroids is limited because of their adverse effects. Potent topical corticosteroids have been increasingly prescribed in the treatment of erosive lichen planus.¹ Tacrolimus is a calcineurin-inhibitor initially used to prevent solid organ allograft rejection. Topical formulations of tacrolimus have been developed for use to treat atopic dermatitis.⁶ Recent studies showed that topical tacrolimus could reduce the severity of atrophic and erosive lichen planus without serious complications.⁷ More recent studies have also demonstrated the efficacy of tacrolimus in treating erosive OLP.^{8,9} Byrd et al¹⁰ has reported that topical tacrolimus is effective for the treatment of oral lichen planus. They selected 37 patients with symptomatic OLP and treated them with topical tacrolimus. In the end of treatment, 89% of patients reported symptomatic improvement. Riano et al¹¹ presented a case of oral erosive lichen planus, refractory to numerous treatments, mainly corticosteroids. During 15 days the lesion responded to the administration of topical tacrolimus. Passeron et al¹² evaluated the efficacy of topical tacrolimus in treating oral erosive lichen planus and compared it with placebo group. Results showed that this drug was an effective and well-tolerated treatment for oral erosive lichen planus. Hodgson et al¹³ evaluated the effects of topical tacrolimus in treatment of OLP and demonstrated that fourteen percent of the patients had complete resolution of ulcers or erosions in the end of treatment. The purpose of the present study was to compare the efficacy of adcorlyl ointment

with topical tacrolimus in treatment of oral lichen planus.

Materials and Methods

Patients with erosive and atrophic OLP attending the Oral Medicine Clinic, Faculty of Dentistry, Ahwaz Jondishapoor University of Medical Sciences, volunteered in this study. None of the patients had any systemic disease and none took drugs which may cause lichenoid reactions. Lesions in contact with dental materials were not included in the study. Diagnosis of OLP was made by clinical examination and confirmed by histological examination. Any topical medication for treatment of OLP was stopped for 2 weeks and systemic therapy for at least 4 weeks prior to the study.

Sixty patients were recruited in two groups randomly. Group A consisted of 30 patients who received adcorlyl ointment (triamcinolone in orabase), and group B included 30 patients who received 0.1% topical tacrolimus ointment (Elidel). Patients were instructed to apply the medication on the lesions 4 times a day. The lesions were assessed after 4 weeks of treatment. The severity of OLP was scored at each visit according to the criteria described in a previous study¹⁴ with a score ranging from 0 to 5.

The visual analogue scale was used for assessment of pain at each visit.¹⁵ Patients were asked to score their intensity of pain on a 10-cm visual analogue scale at the beginning and end of each visit with references being made to previous scores. Pain scores ranged from 0 (no pain) to 10 (extreme pain). The Kruskal-Wallis k-sample test was used for the analysis of the pain severity scores.

Results

A total of 60 (10 male and 50 female) patients with atrophic and erosive OLP were assessed. The mean age of the patients was 48 years (ranging from 39 to 60). The mean duration of lesions was 1.6 years. The location of OLP in both groups is presented in table 1. Lesions were mostly found in buccal mucosa followed by gingiva, tongue, and palate, respectively.

Table 1. Location of OLP in the study groups

Group	Number of patients	Buccal mucosa	Gingiva	Tongue	Palate
A	30	25	10	2	1
B	30	27	13	4	0

At the beginning of treatment, the average scores of OLP severity were 3.4 and 3.2 in groups A and B, respectively. No statistical difference in the severity score was found within two groups. At the end of treatment, average score improved from 3.4 and 3.2 to 1.5 and 1.2 in groups A and B, respectively. There were no statistically significant differences in lesion score changes noted in the two groups.

The average pain severity before the beginning of treatment in groups A and B was 8.2 and 7.8, and after treatment 3.5 and 3.2, respectively. There were statistically significant differences in pain changes in the two groups ($P < 0.005$).

No significant differences were found in severity score of lesions and pain severity between the two groups following treatment.

Discussion

In this study the efficacy of Elidel (0.1% topical tacrolimus) was compared with ad-cortyl ointment (triamcinolone in orabase) in treatment of OLP. Our results indicate that both drugs are an effective treatment for erosive lichen planus, which is in line with the findings of other studies.⁸⁻¹²

Rozycki & Rogers⁸ found that topical tacrolimus could decrease the signs and symptoms of lichen planus in patients. Byrd et al¹⁰ reported an improvement in lichen planus lesions after using tacrolimus. Passeron et al¹² and Riano et al¹¹ showed that topical tacrolimus is a well tolerated treatment for erosive lichen planus. The similarity of this study with previous studies could be correlated to properties of ad-cortyl and topical tacrolimus, effective in treatment of oral lichen planus. Lichen planus is a chronic inflammatory mucocutaneous disease affecting 0.5 to 1% of adult population.¹ Cell-mediated immunity seems to play a critical role in the pathogenesis of lichen planus. Although the specific antigens responsible for the activation of T-cell has not been identified, studies

have demonstrated the interaction of T-cells and mast cells in a cyclical nature via the production of cytokines, such as RANTES (regulated on activation, normal T-cell expressed, and secreted) and TNF- α , which may explain the chronic nature of this disease.¹⁶ Investigations have demonstrated the production of RANTES and the presence of specific RANTES receptors, such as CCR1, on T cells and mast cells in OLP lesions.¹⁷ TNF- α , an inflammatory mediator, has been shown to up-regulate expression of CCR1. This suggests that RANTES, CCR1, and TNF- α interact and may be involved in the accumulation of inflammatory cells in OLP.¹⁸

The efficacy of ad-cortyl ointment is mainly due to local anti-inflammatory properties of suppressing T-cell function.¹⁹ This ointment, used in group A, had been proven to adhere well to the oral mucosa.¹⁰ This can provide both transport medium of active drugs and reasonable exposure time. Tacrolimus, a member of the immunosuppressive macrolide family, suppresses T-cell activation by binding to cytosolic FK-binding proteins, which, in turn, interferes with the calcium calmodulin-dependent phosphatase calcineurin.^{20,21}

This ultimately results in the inhibition of cytokine gene transcription, including interleukin 2 and TNF- α . In result, this product can inhibit accumulation of inflammatory cells in OLP.⁷ Although tacrolimus ointment is available in 2 strengths, namely 0.1% and 0.03%, the 0.1% formulation has been shown to be more effective in treating erosive lesions of OLP.⁷

Conclusion

Topical use of tacrolimus is a safe, well tolerated, and effective therapy for oral lichen planus lesions recalcitrant to traditional therapies. This drug is especially useful when lichen planus lesions are resistant to conventional treatments such as steroids.

References

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