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Original Research Article

Efficacy of 0.1% Tacrolimus with Colgate Oraguard-B Paste for the Treatment of Patients with Oral Lichen Planus

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Abstract

Background: There is no standard protocol for treating oral lichen planus. We need to develop potent alternative immunosuppressive agent to benefit the patients. ***Aim:*** To investigate the efficacy of 0.1% tacrolimus with Colgate Oraguard-B paste for the treatment of patients with oral lichen planus. ***Methods:*** One hundred patients with clinical evidence of the lesion of oral lichen planus followed by histopathological confirmation seeking care at outpatient department were included in the study. Patients were provided with 0.1% tacrolimus ointment with Colgate Oraguard-B paste as the study medication. Reassessment was done from 3 months to 4 months, with follow-up of 2 years and 6 months. ***Results:*** Mean values of pre and post VAS (Visual Analogue Scale) for erosive and atrophic forms of oral lichen planus were 9.35±1.02, 2.96±0.24 and 7.82±0.56, 1.71±0.22 respectively. Similarly mean pre and post VAS scores for reticular and mixed forms of oral lichen planus were 4.16±0.44, 1.32±0.34 and 7.36±0.59, 3.33±0.48 respectively. Statistically significant results were obtained between pre and post treatment values on the Visual Analogue Scale among all forms of oral lichen planus. ***Conclusion:*** Topical tacrolimus ointment 0.1% with Oraguard-B paste showed us encouraging results for symptomatic Oral lichen planus. Clinical improvement was achieved in about a month's treatment course.

Keywords: Tacrolimus, oral lichen planus, treatment.

INTRODUCTION

Lichen planus, an autoimmune disease by nature, is known to affect the mucosa and the skin and its appendages. Oral lichen planus (OLP) is a T cell mediated chronic inflammatory oral mucosal disease of unknown etiology [1], but it is believed to result from an abnormal T cell mediated immune response in which basal epithelial cells are recognized as foreign body because of changes in the antigenicity of their cell surface [2].

The disease may involve various mucosal surfaces, either independently or concurrently, with cutaneous involvement or serially. The disease is characterised by relapses and remissions, so management should aim to resolve painful symptoms and oral mucosal lesions, reduce the oral cancer risk, and maintain good oral hygiene [3, 4]. Oral lesions are chronic, rarely undergo spontaneous remission, potentially premalignant and are often a source of morbidity. Furthermore, oral lesions, unlike cutaneous lesions, are difficult to palliate [5, 6].

There is no standard protocol for treating oral lichen planus. Corticosteroids are the class of drug most commonly used for the treatment of Oral lichen planus because of their action in suppressing cell-mediated immune activity.[7] We need to develop potent alternative immunosuppressive agent to benefit the patients. Therefore, the present study was to investigate the efficacy of 0.1% tacrolimus with Colgate Oraguard-B paste for the treatment of patients with oral lichen planus.

METHODS

This cross-sectional study was planned in the department of Oral Medicine and Radiology of a dental hospital of Jammu region. One hundred patients with clinical evidence of the lesion of oral lichen planus followed by histopathological confirmation seeking

care at outpatient department were included in the study. Exclusion criteria laid down were subjects on medication for other systemic diseases or with any history of renal, hepatobiliary or malignant disease, uncontrolled hypertension or recurrent acute infection etc. Relavent information was captured such as patient age, gender, medical history and habits along with clinical photographs of the affected site.

Assessment of patient for symptoms of pain and burning was performed by means of a Visual Analogue Scale (VAS). Pain intensity can be measured by the VAS rating. The pain VAS is a unidimensional measure of pain intensity, which has been widely used in diverse adult populations. The pain VAS is a continuous scale comprised of a horizontal (HVAS) or vertical (VVAS) line, usually 10 cm (100 mm) in length, anchored by two verbal descriptors, one for each symptom extreme. Instructions were given to the patient that VAS consists of a 10 cm line on which 0 cm is "no pain" and 10 cm is "pain as bad it could be." The patient is asked to mark the point along the line to know his best experience of pain score and then it is measured from "no pain" to the "worst pain" till the end of the scale. The extent and types of lichen planus were recorded by using a scoring system. In this study, patients were provided with 0.1% tacrolimus ointment with Colgate Oraguard-B paste for the study medication. Patients were asked to use the medication over the symptomatic areas three times a day until resolution of the lesion. Patients were recalled to assess the drug response every 15 days.

Written and informed consent was obtained from study subjects. Permission of ethical committee was obtained from the Institutional Ethics Committee. All the questionnaires were manually checked and edited for completeness and consistency and were then coded for computer entry. After compilation of collected data, analysis was done using Statistical Package for Social Sciences (SPSS), version 21 (IBM, Chicago, USA). The results were expressed using appropriate statistical variables.

RESULTS

Mean values of pre and post VAS (Visual Analogue Scale) for erosive and atrophic forms of oral lichen planus were 9.35±1.02, 2.96±0.24 and 7.82±0.56, 1.71±0.22 respectively. Similarly mean pre and post VAS scores for reticular and mixed forms of oral lichen planus were 4.16±0.44, 1.32±0.34 and 7.36±0.59, 3.33±0.48 respectively. Statistically significant results were obtained between pre and post treatment values on the Visual Analogue Scale among all forms of oral lichen planus (Table-1).

Table-1: VAS (Visual Analogue Scale) scoring of different forms of oral lichen planus among study subjects

Forms of oral lichen planus	Pre-VAS		Post-VAS		P-value*
	Mean	SD	Mean	SD	
Erosive	9.35	1.02	2.96	0.24	<0.05
Atrophic	7.82	0.56	1.71	0.22	<0.05
Reticular	4.16	0.44	1.32	0.34	<0.05
Mixed	7.36	0.59	3.33	0.48	<0.05
*Wilcoxon Signed Ranks test					

Table-2: Response to tacrolimus therapy for various time duration among study subjects

Duration of tacrolimus therapy	Percentage of group	Clinical response
4-6 months	9.33%	No response/ recurrence
15-28 months	43.33%	Partial remission/ incomplete size reduction of lesion
13-25 months	47.33%	Complete remission/size reduction of lesion

DISCUSSION

Oral lichen planus is a T-cell-mediated chronic inflammatory oral mucosal disease of unknown etiology, but it is believed to result from an abnormal T-cell-mediated immune response in which basal epithelial cells are recognized as foreign body because of changes in the antigenicity of their cell surface. The lymphocytic infiltrate in Oral lichen planus is composed almost exclusively of T-cells, and the majority of T-cells within the epithelium and adjacent to damaged basal keratinocytes are activated CD8+ lymphocytes [8]. There are no consistent serological changes associated with Oral lichen planus [9].

Oral lichen planus is diagnosed on the basis of the presence of Wickham's striae that produce either a lacelike pattern or radiating lines that can be faint or prominent, which presents a symmetrical and bilateral distribution on the buccal mucosa. They appear as white papules, plaques, erythema, erosions or blisters, affecting predominantly the buccal mucosa, tongue and gingivae [10]. Lesions are usually bilateral, and atrophic and erosive lesions are often sensitive or painful [11].

One problem is that although several groups of drugs (including corticosteroids and immunomodulators) have been used to treat this disease, no standard modality has been established. The multiple management options for oral lichen planus

suggest that a single agent is inadequate to provide symptom relief to patients [12]. A systematic review compared the results of 28 randomised controlled trials [14]. The wide range of interventions suggests that there is insufficient evidence that any specific treatment is most effective. Another problem is that prolonged topical corticosteroid use can result in secondary candidiasis.

The most widely accepted treatment is topical and systemic corticosteroids. Alternative treatments include retinoids, ultraviolet phototherapy, steroid-sparing agents (hydroxychloroquine, azathioprine, mycophenolate mofetil) and pimecrolimus.

In this study, we observed that mean values of pre and post VAS (Visual Analogue Scale) for erosive and atrophic forms of oral lichen planus were 9.35±1.02, 2.96±0.24 and 7.82±0.56, 1.71±0.22 respectively. Similarly mean pre and post VAS scores for reticular and mixed forms of oral lichen planus were 4.16±0.44, 1.32±0.34 and 7.36±0.59, 3.33±0.48 respectively. Another study by Nisa U *et al*., [15] observed that of 150 patients, 71 (47.33%) patients had complete resolution of the lesion to the topical tacrolimus therapy. Sixty-five (43.33%) patients had marked resolution of their lesions, i.e., the size of the lesion was decreased. Fourteen (9.33%) patients had remission of lesion (reduction in burning sensation and size of lesion) in symptoms as recorded by the VAS.

Azizi *et al.*, [16] treated erosive lichen planus with topical tacrolimus and triamcinolone and reported a 57.3 per cent improvement in symptom scores (using a visual analogue scale (VAS) and a 55.8 per cent improvement in sign scores. These less comparable outcomes may be the result of including only patients with erosive lesions, the shorter study period (four weeks) and use of a different symptom scoring system. Giustina *et al*., [17] reported that twice daily application of 0.1 per cent isotretinoin gel for eight weeks was effective in improving symptoms in 90 per cent of oral lichen planus patients.

Sahebjamee *et al.*, [18] found significant differences in efficacy for 0.05 per cent retinoic acid vs 0.1 per cent triamcinolone acetonide for treating atrophic and erosive oral lichen planus ($p \leq 0.003$ and $p \leq 0.0001$, respectively). Kutcher *et al*., [19] reported no adverse effects of triamcinolone acetonide in doses up to 480 mg for several months, although plasma cortisol levels were not measured. Raj *et al.*, [20] reported that after dapsone treatment 54.54 per cent of patients with resistant erosive oral lichen planus had an improved symptom score of 0, 45.45 per cent had an improved symptom score of 1 and 83.36 per cent had an improved sign score of 0.16.

CONCLUSION

On the basis of findings of this investigation, it can be concluded that topical tacrolimus ointment 0.1% with Oraguard-B paste showed us encouraging results for symptomatic Oral lichen planus. Clinical improvement was achieved in about a month's treatment course. Lesions may flare up if treatment is discontinued. Further larger studies are needed to support our findings.

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