

COMPARATIVE STUDY OF RESPONSE TO TOPICAL STEROID AND TACROLIMUS THERAPY IN ORAL LICHEN PLANUS

Dermatology

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ABSTRACT

Background: Oral lichen planus (OLP) is a chronic, autoimmune mucocutaneous disease of oral cavity. The prevalence of oral lichen planus in general population varies from 1-2%.

Clinically the oral lesions have been grouped into reticular, papular, plaque like, atrophic, erosive and bullous forms. OLP usually occurs in a bilaterally symmetrical pattern, commonly involving buccal mucosa, gingiva and dorsum of the tongue. The lesions are usually painless, though pain and burning sensation are associated with erosive and atrophic lesions.

Methods: 80 patients with clinically and histologically proven oral lichen planus were enrolled in the study. Patients were randomly divided into Group A and Group B. 40 patients were included in each group. Group A was treated with triamcinolone acetonide 0.1% ointment. Group B was treated with tacrolimus 0.1% ointment. Follow up was done during treatment at 4 weeks, 8 weeks, 12 weeks during which assessment of the lesion was done and all findings were recorded.

Results: Patients on topical triamcinolone acetonide 0.1% showed 46.77% reduction in disease at 12 weeks of treatment. In group A, 12 patients showed complete response, 10 patients showed partial response and 14 patients showed no response.

Patients on topical tacrolimus 0.1% showed a 62.53% reduction in disease at 12 weeks of treatment. In group B, 19 patients had complete response, 11 patients had partial response and 10 patients had no response.

Conclusion: Topical steroids are used as first choice treatment for oral lichen planus.

Topical tacrolimus 0.1% ointment can be an effective alternative to topical steroids and may be considered as one of the first line therapies in management of oral lichen planus.

KEYWORDS

Oral lichen planus, Triamcinolone acetonide, Tacrolimus.

INTRODUCTION:

Oral lichen planus (OLP) is a chronic, autoimmune mucocutaneous disease of the oral cavity. The prevalence of oral lichen planus in general population varies from 1-2%.¹

The average age of occurrence in males and females is 40-49 years and 50-59 years, respectively.²

Clinically the oral lesions have been grouped into reticular, papular, plaque like, atrophic, erosive and bullous.² OLP usually occurs in a bilaterally symmetrical pattern, commonly involving buccal mucosa, gingiva and dorsum of the tongue.³ The lesions are usually painless, though pain and burning sensation are associated with erosive and atrophic lesions.⁴

Oral lichen planus has uncertain etiopathogenesis. Several factors including stress, genetics, systemic diseases, viruses, dental restorative materials and drugs have been implicated as causative agents.

The disease seems to be mediated by an antigen specific mechanism, activating cytotoxic T cells, and non specific mechanisms like mast cell degranulation and matrix metalloproteinase activation.

The current treatment modalities are not only inadequate for treatment and preventing recurrences, but also have significant side effects.

Numerous topical and systemic treatments for OLP have been reported to be effective, including corticosteroids (both topical and systemic), retinoids, ultraviolet phototherapy, steroid sparing agents (hydroxychloroquine, azathioprine, mycophenolate mofetil), and pimecrolimus.⁵

Corticosteroids have been the mainstay for OLP yet, other modalities like calcineurin inhibitors, retinoids, dapson, hydroxychloroquine, mycophenolate mofetil and enoxaparin have contributed significantly toward treatment of the disease.

Although these drugs have shown positive results in OLP, resistance and a high risk of toxicities limit their use.

Tacrolimus is a newer immunosuppressant that has shown to be effective and safe in the treatment of OLP.⁶ Tacrolimus has ability to inhibit IL-2 mRNA synthesis, mediator release from basophils and mast cells. It inhibits enzyme calcineurin phosphatase activity,

resulting in decreased IL-2 synthesis and secretion, hence inhibiting T cell multiplication.

The most effective treatment modality to control the disease is short courses of systemic steroids and topical high-potency corticosteroids. Steroids have been found to be effective in treating symptomatic oral lichen planus by reducing pain and inflammation. In fact, systemic steroids should be reserved for acute exacerbation, multiple or widespread lesions. They may be indicated in patients unresponsive to topical steroids. However, various potent topical steroids can be used as the first line drugs in the treatment of OLP with no serious side-effects. Because OLP is a chronic disorder that requires long-term treatment, topical steroids are recommended for the treatment OLP because of minimal side-effects and the cost benefit. Topical steroid like triamcinolone acetonide can be used for treatment of oral LP cases because of their ability to modulate inflammation and immune response by reducing the lymphocyte exudates and stabilizing the lysosomal membrane.

To date limited number of studies have evaluated the response of treatment for oral lichen planus using two modalities that is, topical Tacrolimus and topical steroid.

Hence the present study was undertaken to compare the response of treatment using topical Tacrolimus and topical steroid in patients of oral lichen planus.

AIMS AND OBJECTIVES:

The study was done to compare response of treatment of oral lichen planus using two modalities Topical steroid and Topical Tacrolimus.

MATERIALS AND METHODS:

80 pts with histologically proven Oral lichen planus, were included in the study. Patients with known allergy or contraindication to study medication were not included in study. Pregnant and lactating mothers were not included in the study.

The patients were randomly divided into two groups. 40 patients were included in each group.

Group A was treated with Topical Triamcinolone acetonide (0.1%) ointment. Group B was treated with Topical Tacrolimus (0.1%) ointment. Follow up for all patients included three visits during the treatment course (at 4 weeks, 8 weeks, 12 weeks). Photographs were taken before starting treatment and at each follow-up visit.

At each visit, objective improvement in the lesions was assessed by a semi-quantitative scale proposed by Pinboonniyom SO et al

4 patients did not complete the treatment in group A while all the patients completed the treatment in group B.

METHODOLOGY:

Group A

This group consists of patients treated with Triamcinolone acetonide (0.1%) ointment. The lesions of oral lichen planus were clinically graded at baseline, using Pinboonniyom SO et al scale. The oral cavity of each patient was divided into six sites right and left buccal mucosa; lips and labial mucosa; tongue, gingivae, palate. Each site was assessed and scored according to the area involved as follows: no lesion=0; lesion with area $<1\text{cm}^2=1$; lesion with area $1-3\text{cm}^2=2$; lesion with area $>3\text{cm}^2=3$. Each site was also assessed for the severity of lesions according to whether lesions are reticular lesions which included striae, papules and plaques, erosive lesions, which included erythematous or atrophic areas of thinned but unbroken epithelium, or ulcerative lesions. Patients in group A were prescribed commercially available 0.1% triamcinolone acetonide ointment. The patients were advised to apply the prescribed drug regularly three times a day after food for 4 weeks. They were instructed to apply the drug with finger rub application on dried lesions and to abstain from food, liquids and smoking 30 minutes after application.

During treatment, follow up and evaluation of lesion was done at 4 weeks, 8 weeks & 12 weeks. Photographic records were maintained.

Group B

This group consists of patients treated with Tacrolimus 0.1% ointment.

The lesions of oral lichen planus were clinically graded at baseline, using Pinboonniyom SO et al scale. The oral cavity of each patient was divided into six sites right and left buccal mucosa; lips and labial mucosa; tongue, gingivae, palate. Each site was assessed and scored according to the area involved as follows: no lesion=0; lesion with area $<1\text{cm}^2=1$; lesion with area $1-3\text{cm}^2=2$; lesion with area $>3\text{cm}^2=3$. Each site was also assessed for the severity of lesions according to whether lesions are reticular lesions which included striae, papules and plaques, erosive lesions, which included erythematous or atrophic areas of thinned but unbroken epithelium, or ulcerative lesions. The drug tacrolimus is not available in orabase in India. Hence, tacrolimus powder was added to the orabase and the concentration of 0.1% was obtained following the procedure described below. A total of 250mg of tacrolimus powder was weighed and slowly added to 100 gm of previously weighed orabase until the mixture was uniform and dispensed in a sterile plastic container. Each patient in group B was given 15 gm units of the drug.

The patients were advised to apply the prescribed drug regularly three times a day after food for 4 weeks. They were instructed to apply the drug in same way as in group A.

During treatment, follow up and evaluation of lesion was done at 4 weeks, 8 weeks & 12 weeks. Photographic records were maintained.



Fig.1 Pretreatment oral LP



Fig.2 Post treatment with topical Triamcinolone acetonide



Fig.3 Pretreatment OLP

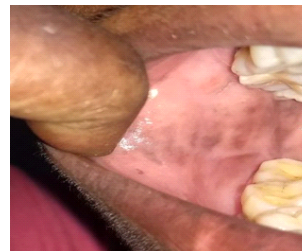


Fig.4 Posttreatment with topical Tacrolimus

DISCUSSION :

The pre treatment baseline score of disease in group A had mean 1.42 while that in group B had mean 1.43. After treatment, the disease score in group A had mean 0.75 while that in group B had mean 0.55 i.e. 46.77% reduction in disease was seen in group A while 62.53% reduction in disease was seen in group B.

Table 1: Comparison between Group A and B at 4 weeks

	Group	N	Mean	Std. Deviation	t	df	p	Inference
Disease at 4 weeks	Group A	36	1.39	.64	-.071	74	.943	Not significant
	Group B	40	1.40	.71				

Graph 1: Comparison between Group A and B at 4 weeks

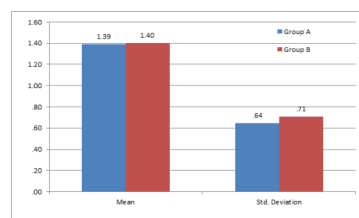


Table 2: Comparison between Group A and B at 8 weeks

	Group	N	Mean	Std. Deviation	t	df	p	Inference
Disease at 8 weeks	Group A	36	1.03	.65	.176	74	.861	Not significant
	Group B	40	1.00	.72				

Graph 2: Comparison between Group A and B at 8 weeks

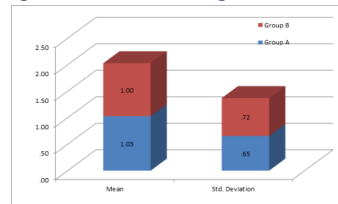
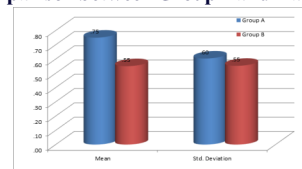


Table 3: Comparison between Group A and B at 12 weeks

	Group	N	Mean	Std. Deviation	t	df	p	Inference
Disease at 12 weeks	Group A	36	.75	.60	1.508	74	.136	Not significant
	Group B	40	.55	.55				

Graph 3: Comparison between Group A and B at 12 weeks

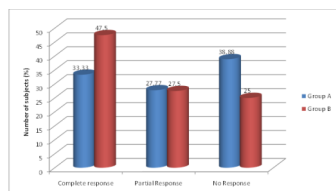


Out of the total patients who completed the study, 40.79% patients showed complete response, 27.63% patients showed partial response, 31.58% patients showed no response.

Table 4: Distribution according to response after treatment.

		Group A		Group B		Total
		Frequency	Percent	Frequency	Percent	
Response	Complete response	12	33.33	19	47.5	31(40.79)
	Partial Response	10	27.77	11	27.5	21(27.63)
	No Response	14	38.88	10	25	24(31.58)
	Total	36	100.00	40	100.00	76(100)

Graph 4: Distribution according to response after treatment



CONCLUSION:

In this study 40 patients each of Oral lichen planus were allotted in two groups. Patients in group A were treated with topical steroid Triamcinolone acetonide 0.1% ointment while patients in group B were treated with Topical Tacrolimus 0.1% ointment. 36 patients completed the treatment in group A while all 40 patients completed the treatment in group B. Most of the patients belonged to 31-50 age group.

Patients on topical triamcinolone acetonide 0.1% showed 46.77% reduction in disease at 12 weeks of treatment.

Patients on topical tacrolimus 0.1% showed a 62.53 % reduction in disease at 12 weeks of treatment. In group A, 12 patients had complete response, 10 patients had partial response and 14 patients had no response.

In group B, 19 patients had complete response, 11 patients had partial response and 10 patients had no response.

Topical steroids are used as first choice treatment for oral lichen planus.

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CONFLICTS OF INTEREST: None

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