# Usage of Topical Therapies in the Management of Oral Lichen Planus

Haripriya R, Jayanth Kumar Vadivel*

Department of Oral Medicine, Saveetha University, Chennai, India

**INTRODUCTION**

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Oral Lichen Planus is a mucocutaneous chronic inflammatory condition with cell mediated immunological dysfunction. It implicates T cell mediated cytotoxins and involves the mucosal surfaces. Topical formulations are the favourite for majority of cases, adhesive formulations have been considered very useful and practical for local drug delivery in oral mucosa.

**AIM**

The aim of the present study is to analyse the usage of topical therapies in the management of oral lichen planus.

**MATERIALS AND METHODS**

The study was done in a hospital setting. The data was collected from the patient software system of Saveetha Dental College and the samples included patients treated with oral therapies for oral lichen planus. The data collected was tabulated and statistically analysed using SPSS software. The results were tabulated and graphically represented.

**RESULTS**

Among the oral drugs prescribed, corticosteroids was the most commonly prescribed drug among which tacrolimus was the most commonly prescribed drug.

**KEYWORDS**

Vitiligo, Chronic autoimmune skin disease, Dermatology

*Corresponding Author:*

*Jayanth Kumar Vadivel, Department of Oral Medicine, Saveetha University, Chennai, India;Email: jdoctorjayanth@gmail.com*

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## INTRODUCTION

Oral lichen planus is a chronic inflammatory mucocutaneous condition. The disease occurs first in the oral mucosa and then it manifests in the skin.[1] It is implicated by an antigen specific mechanism activating T cell-mediated cytotoxicity and non-specific mechanisms like mast cell degranulation and matrix metalloproteinase activation.[2] Off late there has been several studies pointing to the role of the mast cells. It may be the mast cells which is responsible for the persistence of the lesions.[3] It affects the oral mucosal membrane with stratified squamous epithelium.[4-6] Though the exact etiology is unknown. But there are definitive risk factors like genetic background, infectious agents, dental materials, stress, trauma, habits, systemic diseases, etc. are associated with it.[5-11] The disease is characterized by lesions with radiating white, velvety, grey, papules that resemble thread in a linear pattern, annular and reform arrangement forming typical lacy, reticular patches, rings and streaks.[12] The lesions are usually asymptomatic. The lesions occur mostly on buckle mucosa, lips, tongue, gingiva, floor of mouth and palate.[13] The oral lichen planus has six clinical presentations. They are reticular, bullous, plaque like, erosive, atrophic, papular.[6,13]

Biopsy is often helpful in the diagnosis of oral lichen planus. Patient's physiological profile and medical history play an important role in the effectiveness of OLP treatment. The first line of treatment for oral lichen planus includes topical administration of the drug as it is the most suitable and effective of all treatment modalities.[14] Topical administration of drugs on the lesion is found to be the most successful on oral soft tissues. Corticosteroids and immunosuppressant's are the most commonly prescribed drugs for topical treatment of oral lichen planus.[14,15]

The goal of lichen planus treatment is to relieve pain and to reduce the signs and symptoms. The current treatment modalities are palliative than curative and recurrence usually occurs.[13]

Our team has extensive knowledge and research experience that has translate into high quality publications.[16-35] The aim of this study is to evaluate the different topical drugs used in the management of oral lichen planus

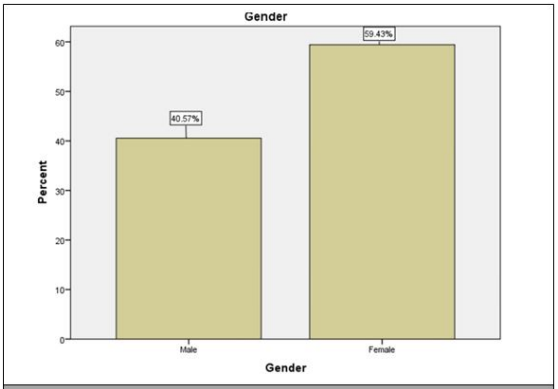
## MATERIALS AND METHODS

The present study was done under a university setting. The similar characteristics of the study are that it was done with the available data and under similar ethnicity of the population. The disadvantage of the study can be the geographic isolation. The study was approved by the Institutional Ethics Board. This was a retrospective cross sectional study. The samples include patients with oral lichen planus who underwent topical therapy. To minimize error, the duplicate and invalid records were excluded. The internal validity included convenience sampling and the external validity of the study is questionable when considered for the entire population. The data collection was done from the dental archives of the patient management software system patented by Saveetha Dental College. If invalid or duplicate records were entered, they were excluded from the study. The data was reviewed by an external reviewer and tabulated using

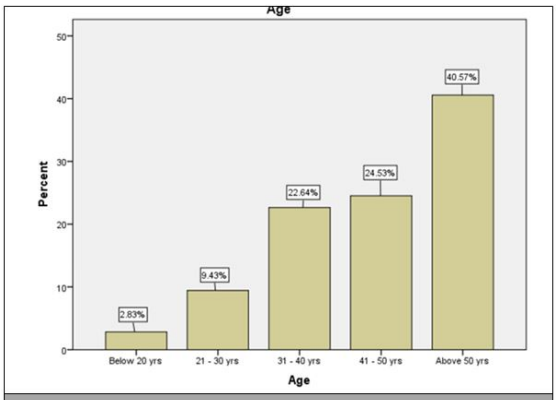
Excel and was imported to SPSS (version 26) and the variables were defined. The independent variables included the gender, age and site. The dependent variable included the drugs for treatment of lichen planus. Chi square test and Pearson correlation was done on the data obtained using SPSS software.

## RESULTS

In the present study, a total of 106 patients were involved among which 43 patients (40.6 %) were male patients and 63 patients (59.4 %) were female patients. (Graph 1) Among the 106 patients, 3 patients (2.8 %) were below 20 years, 10 patients (9.4 %) were 21- 30 years, 24 patients (22.6 %) were 31 - 40 years, 26 patients (24. 5 %) were 41 - 50 years, 43 patients (41.6 %) were above 50 years. Oral lichen planus was more prevalent in elderly patients (Graph 2).

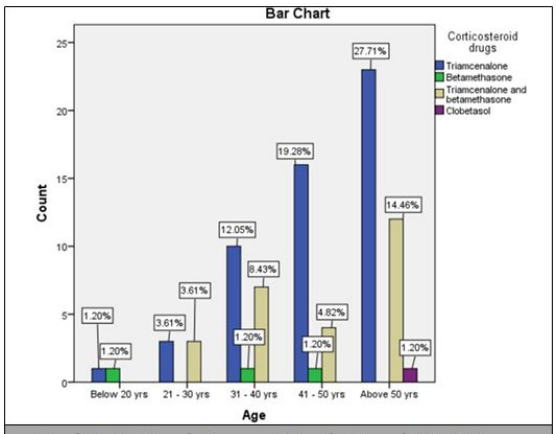



**Graph 1. Bar Graph Representing the Gender Distribution in the Present Study.**



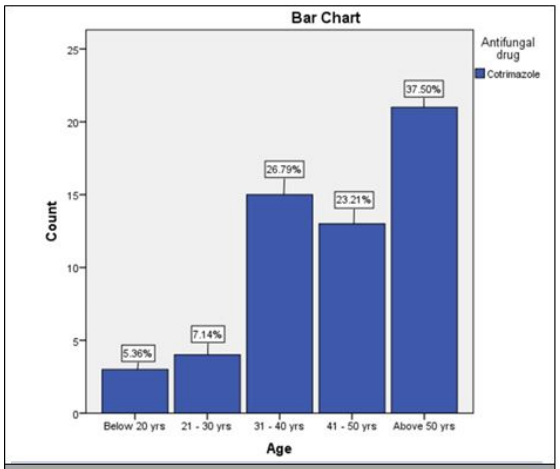

**Graph 2. Bar Graph Representing the Age Distribution in the Present Study.**

It was found that corticosteroids were the most commonly prescribed drug for lichen planus (78 %) followed by anti-fungal drugs (52 %) and steroid sparing Immunomodulatory drugs (20 %) Among corticosteroids, triamcinolone was the most commonly prescribed drug especially in elderly patients (27.7 %) followed by combination of triamcinolone and betamethasone drugs (14.46 %), and clobetasol was prescribed only in elderly patients (1.2 %). In young patients (below 20 years), only triamcinolone (1.2 %) and betamethasone (1.2 %) was prescribed for patients at the age of 30 - 40 years. In patients between 31 - 40 years, triamcinolone (12.05 %), betamethasone (1.2 %) and combination of triamcinolone and betamethasone (8.43%) were prescribed. In all age groups, triamcinolone was the most commonly prescribed drug in corticosteroids (Graph 3).



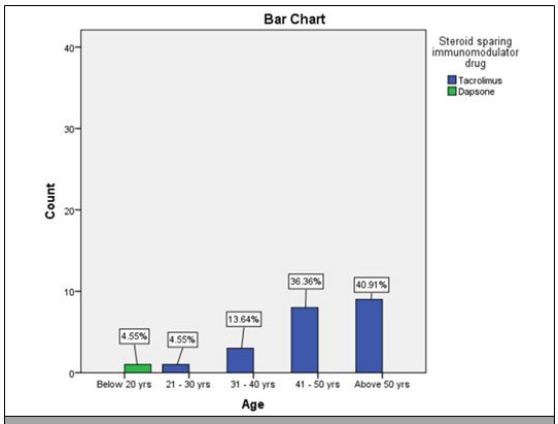

**Graph 3. Bar Graph Representing the Correlation Between Age Group and Different Types of Corticosteroid Drugs Prescribed.**

In antifungal drugs, Clotrimazole was the commonly prescribed drug. In elderly patients, 37.5 % were prescribed, in patients between 41 - 50 years, 23.2 % were prescribed with Clotrimazole, in patients between 31 - 40 years, 26.7 % were prescribed, in 21 - 30 years patients, 7.14 % were prescribed and in younger patients, below 20 years, 5.36 % were prescribed with Clotrimazole (Graph 4).




**Graph 4. Bar Graph Representing the Correlation Between Age Group and Anti-Fungal Drugs Prescribed.**

In steroid sparing immunomodulator drugs, dapsone was prescribed for younger patients ie below 20 years (4.55 %) while the adult patients were prescribed with tacrolimus (Graph 5).




**Graph 5. Bar Graph Representing The Correlation Between Age Group and Steroid Sparing Immunomodulatory Drugs Prescribed.**

## DISCUSSION

Corticosteroids were the predominant drugs used in the management of OLP. This is primarily because the disease has an immune mediated reaction and there is an exaggerated immune response which may be triggered. The usage of steroids suppress the inflammation and reduces the recruitment of inflammatory cells to the site of the lesion.[13] In a study comparing the effectiveness of steroids and hyaluronic acid it was found that steroids brought out a quicker resolution of the lesion as evidenced by the reduction of lesion size and reduction in pain score. This study which evaluated the effectiveness of steroids and hyaluronic acid was a double blind randomized control trial.[36]

In a study done to assess the therapeutic Effectiveness of clobetasol propionate 0.01 % there were three different vehicles used for dispensing the drug. The first vehicle was an ointment the second vehicle was clobetasol propionate in rebase which contained benzocaine and the third vehicle was clobetasol propionate in denture adhesive base. This study was a randomized controlled double blind control study. There were a total of 24 patients with 8 patients in each group. The pain scores returned to a early in the or abase group compared to the other two groups.[37]

The usage of antifungal is double pronged as any mucosal abnormality is bound to the causation of candida colonizing the mucosal surface and the usage of anti-fungal is bound to reduce the colonization. Also the usage of antifungals causes a reduction in the occurrence of secondary candidiasis which tends to co-occur with the usage of steroids.[38]

The usage of tacrolimus has been associated with its role in reducing the inflammation without the adverse effects of steroids. Also the drugs can cause a reduction in the number of mast cells and there by brings out a resolution of the lesion.[39]

## CONCLUSION

From the present study we can conclude that corticosteroids were the most commonly prescribed topical drug for oral lichen planus among which tacrolimus was commonly prescribed followed by antifungal drug (clotrimazole) and steroid sparing immunomodulator drugs were the least prescribed. However the sample size is smaller and it is a unicentric study. A metacentric trial needs to be adopted to ensure that an effective conclusion can be made.

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