

Original Research

Efficacy of curcumin in treatment of oral lichen planus

¹Dr. Mitali Singh, ²Dr Aishwarya Pratap Singh, ³Dr. Kaushal Pati Tripathi, ⁴Dr.Sadaf Ashraf, ⁵Dr Nimisha Kumari, ⁶Dr. Mohd. Sameem Alam

¹MDS, Oral Medicine & Radiology, Sr. Lecturer Maharana Pratap College of Dentistry & Research Center., Gwalior(M.P.);

²MDS, Oral & Maxillofacial Surgeon, Consultant, Ramakrishna Mission Hospital, Itanagar, Arunachal Pradesh;

³MDS, Periodontics & Implantology, Senior Resident ,Faculty of Dental Science IMS BHU (U P);

⁴Department of Periodontology and Oral Implantology, Senior Lecturer, Inderprastha Dental College and Hospital, Ghaziabad (U.P.);

⁵MDS, Department of Periodontology and Oral Implantology, Reader, Inderprastha Dental College and Hospital, Ghaziabad (U.P.);

⁶MDS, Periodontology and Oral Implantology, Private Practitioner at Family Dental & Medical Center Delhi

ABSTRACT:

Introduction: Oral lichen planus (OLP) is a moderately common immunological mucocutaneous lesion that causes pain and low quality of life. Curcumin has been accounted for to be a protected and successful treatment for OLP. The target of this survey is to assess existing evidence for the safety of curcumin in regarding OLP just as its adequacy contrasted and that of corticosteroids. **Material and methods:** The research group comprised of 50 grown-up OLP patients, who were haphazardly separated into two gatherings. The control group (n = 25) was treated with triamcinolone acetonide 0.1% and the study group (n = 25) with commercially available curcuminointment each to be applied threefold day by day for about fourteen days. The patients were inspected each week. **Result:** The correlation showed huge improvement in the erythema, however non-significant decrease in pain, and ulceration in the study when contrasted with the control group. **Conclusion:** Curcumin can be utilized as an option in contrast to steroid in the management of signs and symptoms of OLP with negligible side effects when contrasted with steroids with comparable adequacy. Curcumin is a safe treatment and can be utilized as an adjunct in mix with corticosteroids to decrease pain, burning sensations, and the clinical appearance of oral lesios in OLP patients

Key words: Turmeric, curcuminoids, curcumin, oral lichen planus.

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Corresponding address: Dr. Mitali Singh, MDS, Oral Medicine & Radiology, Sr. Lecturer Maharana Pratap College of Dentistry & Research Center, Gwalior(M.P.)

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INTRODUCTION

Lichen planus (LP) is an chronic inflammatory muco- cutaneous disease. Since problems of NK- cell ufunctional activity could be seen in patients with LP, it is viewed as an immune system disease. The pathogenesis of LP is intricate and not totally comprehended. The association of mucous layers is regularly seen, generally asymptomatic, but occasionally complicated by extensive painful erosions, causing a considerable loss of quality of life.¹Patients with suggestive oral lichen planus (OLP) frequently require escalated treatment to lessen the signs and manifestations of this excruciating and

incapacitating provocative illness. OLP is viewed as a precancerous lesion for the development of squamous cell carcinomas. OLP is profoundly resistant to topical treatment and tends to pursue a chronic course with little tendency to spontaneous resolution. Until now meta- analysis provided little evidence for the superiority of the assessed interventions over placebo for palliation of symptomatic OLP.²

Oral lichen planus (OLP) is a moderately basic immunological mucocutaneous illness that regularly includes the oral mucosa. The sickness influences 0.2-2.5% of the

all inclusive community. The clinical features are an erosive or ulcerative mucosa, as well as desquamative gingivae, entwined with diffuse white striations.³ OLP is a mucosal variation of lichen planus, which will in general influence ladies more frequently than men, with a regularly more persistent course and the potential for threat. Treatments for OLP are intended to control manifestations, and there is still no total cure. As of now, the typical treatment for OLP is the utilization of corticosteroids due to their immunosuppressive impacts. In any case, symptoms of corticosteroid treatment incorporate optional candidiasis, gastrointestinal disturbance, adrenal concealment, modifications to circulatory strain and glucose levels, changes in temperament, sleep deprivation and polyuria.⁴ Accordingly, patterns toward medications of natural or herbal origin with anti-inflammatory properties, with or without corticosteroids, have been considered for the treatment of OLP.

Hereditary, mental variables start immune system intervened reaction. Malignant transformation rate went somewhere in the range of 0.07% and 5.8%. It usually influences females in their fourth decade of life and clinically show as white striations, disintegrations and desquamative gingivae.⁵ Its clinical types are reticular, erosive, erythematous and ulcerative.

Principle pathogenesis of OLP is antigen specific cell mediated immune reaction, which remembers collection of enacted CD8+lymphocytes for basal keratinocytes causing apoptosis. As there is dysregulation of T-cell intervened invulnerability, impeding the movement of IL-12, TNF- α , IFN- γ , MMP-9, RANTES and up-controlling TGF- β 1 will benefit the treatment parts of OLP. No extreme treatment for OLP is available, inspite of expanded spotlight on pathogenesis and treatment alternatives. Curcuminoids are parts of root turmeric (*Curcuma longa*) that has a place with Zingiberaceae family. It is a well known non-poisonous treatment choice owing to its anti oxidant, anti-inflammatory, anti-carcinogenic, anti-microbial, anti-proliferative and wound healing properties. Studies show that curcumin diminishes numerous sclerosis, rheumatoid joint pain, psoriasis, incendiary inside illness in human and creature models.⁶ It down manages provocative reaction by discouraging the action of cyclooxygenase-2, lipoxygenase, inducible nitric-oxide synthase proteins, inhibits the production of the

inflammatory cytokines, tumor necrosis factor, interleukins. Thus, this systematic review was aimed to analyse the existing literature on the role of curcumin in alleviating the symptoms of oral lichen planus.

MATERIAL AND METHODS

Subjects were recruited with clinical signs of erosive-atrophic OLP that was confirmed by clinical or histopathological examination. Patients were screened by review of their medical record, medications used, current symptom score (for OLP), associated oral examination. The exclusion criteria includes patients with gestation, lactation, current use of anticoagulants or antiplatelet agents, current treatment, history of internal organ ulcers, small intestine ulcers, gallstones, internal organ diseases, any existing malignancy or infection in mouth, receiving any topical treatment for OLP within the past time period or any general treatment for OLP within the past four weeks, use of medicament, cyclosporine or receiving PUVA, UVA or UVB within the last month, a history of allergic reaction to corticosteroids or curcumin.

A total of fifty patients with symptomatic OLP were screened for this study. Patients were randomly divided into 2 treatment teams Case/study group (n=25) and control group (n=25) receiving curcumin and corticosteroid respectively. Organization was performed employing a computer-generated random variety table. Throughout treatment, each of the practitioners and also the patients were unaware of medicines they were exploitation. Associate test was conducted, and symptom and erosive changes were quantified supported severity and also the variety of sites concerned. The patients were followed up after 7 and 15 days.

An intensity score for erythema (E) ranging from 0 to 3 was used:

- 0 = Normal
- 1 = Mild erythema
- 2 = Moderate erythema
- 3 = Severe erythema.

The score for ulcerations (U) was based on area of ulceration:

- 0 = No ulcerations
- 1 = Between 0 and 0.25 cm
- 2 = Between 0.25 and 1 cm
- 3 = \geq 1 cm

RESULT

Fifty patients with erosive-atrophic lichen were evaluated during this study. The buccal membrane and tongue were the foremost common sites for OLP lesions followed by gingival tissue and labia membrane. Demographics and clinical characteristics square measure provided in Table 2. There have been no important variations between the 2 teams for the baseline characteristics as well as age, gender, history of previous treatment, skin involvement, area of lesions and systemic diseases. The efficaciousness of treatment was evaluated per Severity of pain and burning (VAS score) similarly as sort and severity of lesion (Thongprasom score).

Score

Score	Clinical signs
0	no lesion, normal mucosa
1	mild white striae, no erythematous area
2	white striae with atrophic area less than 1cm ²
3	white striae with atrophic area more than 1cm ²
4	white striae with ulcerative area less than 1cm ²
5	white striae with ulcerative area more than 1cm ²

Table 2: Demographic data of the study subjects and patient characteristics

Characteristics	Curcumin group	Steroid group
Age	55±8.5	53±7.4
Gender		
Male	11	12
Female	14	13
Type of OLP		
Erosive	16	14
Atropic	9	11
Site of OLP		
Buccal	12	14
Tongue	9	6
Gingiva	1	2
Lip	3	3
Thangprasom score	6.54±3.12	4.84±2.67
Pain and sensation score	3.45±1.50	3.1±1.30

The study group showed a huge reduction in erythema and other mild in other parameters measured. The comparison showed important improvement within the erythema however non-significant reduction in pain, and ulceration within the study group as compared to the control group. VAS score and therefore the Thangprasom score were reduced in each team initially and second visits but, no statistically important distinction was determined between the 2 studied teams. Additionally, no side effects were reported by the patients after the treatment course.

DISCUSSION

OLP is a chronic immune system mucocutaneous condition influencing the oral mucosa. This injury can cause oral uneasiness and change into squamous cell carcinoma in some cases. The pathogenic component of OLP is unpredictable, and the administration of OLP is as yet not absolutely satisfactory.⁷ Curcumin is a natural item and enjoys upper hands over corticosteroids, as steroids can cause mucosal decay and candidiasis whenever utilized more than once. Also, curcumin displays mitigating, antioxidative and anticancer properties for an enormous number of diseases.^{8,9}

Steroids have been the medications of choice in the treatment of lichen planus whether topical or systemic. Their risks and results and contraindications

are notable. NSAIDs drugs have been additionally utilized as an option in contrast to corticosteroid yet with less valuable outcomes notwithstanding their known results. Curcumin, a phytochemical has been utilized as a dietary enhancement just as a remedial agent. Curcumin shows a wide scope of pharmacological properties against different human problems. Curcumin shows solid anti-inflammatory, pain relieving, antioxidant, anti-aging, chemopreventive, antitumoral, against angiogenic, against metastatic, radio-sharping, and chemosensitizing impacts in malignant growth.¹⁰

Of therapeutic interest, it has been demonstrated that curcumin as a therapeutic agent is protected and shows no significant poisonousness.¹¹ Owing to the previously mentioned

activities of curcumin, we speculated that curcumin because of its anti inflammatory impact might actually help limit the hidden fiery cycle in the event of OLP which would forestall the annihilation of the cellar membrane by the lymphocytes in this manner diminishing the illness seriousness by tending to the basic component.

In this investigation, a low dose of curcumin and corticosteroid were administered to 50 patients. Here, the curcumin bunch displayed a more prominent decrease in signs and symptoms as contrasted and the other gathering. Diarrhea was the most common of the side effects.¹² As our examination has been directed with a lower portion of curcumin however for a more extended period contrasted with the investigation by Chainani-Wu N et al., apparently curcumin must be successful at high dosages and this could clarify the critical distinction in the after effects of the two investigations.¹³

Various investigations have exhibited the immunomodulatory impact of curcumin which includes the initiation of the host macrophages and characteristic executioner cells and the adjustment of cell multiplication.^{14,15,16} This impact of OLP would be gainful as the pathogenesis of OLP happens by T cell intervened cytotoxicity and any immunomodulatory impact would be helpful in decreasing the seriousness of the sickness. Three investigations looked at the clinical appearance of sores and pain seriousness before and after treatment.^{17,18} Turmeric fundamentally diminished pain and inflammation seriousness from baseline affirming the job and impacts of oral curcumin in treating OLP.

CONCLUSION

OLP is a chronic condition affecting of the Indian population. Steroids have been the drugs of choice in the treatment of lichen planus whether topical or systemic. Their hazards and side effects and contraindications are well known. We tried to find out herbal modalities for oral lichen planus with no or minimal side effects. The curcumin is found to be an effective treatment in oral lichen planus even in the cases where topical steroids have been used and recurrence was seen. It was discovered to be a decent home grown option in contrast to steroids. Further examinations and clinical preliminaries have been going on curcumin use in different pre cancerous injuries and conditions.

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