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PRESCRIPTION PATTERNS AND TREATMENT OUTCOMES IN LICHEN PLANUS

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Abstract

Background: Lichen Planus is a chronic inflammatory dermatosis affecting the skin and mucous membranes, with variable clinical presentations and therapeutic responses. Despite multiple treatment options, standardized outcome data remain limited.

Methods: Eighty-four patients with clinically confirmed Lichen Planus were enrolled and followed for 12 months. Treatment modalities, including topical corticosteroids, calcineurin inhibitors, systemic agents, and combination therapies, were documented. Disease severity was assessed using the Lichen Planus Area and Severity Index (LPASI), and quality of life was measured using the Dermatology Life Quality Index (DLQI). Statistical analysis included paired t-tests and logistic regression to identify predictors of treatment response.

Results: Topical corticosteroids were prescribed in 78.5% of cases, followed by systemic therapy (26.1%) and calcineurin inhibitors (19%). At 12 weeks, 41.6% of patients achieved complete resolution, 38% showed partial improvement, and 20.4% had minimal or no response. LPASI and DLQI scores improved significantly ($p < 0.001$). Systemic corticosteroids were associated with higher response rates, especially in hypertrophic and genital variants.

Conclusion: Topical corticosteroids remain the mainstay of treatment for Lichen Planus, while systemic agents offer enhanced outcomes in extensive disease. Combining objective and patient-reported measures provides a robust framework for evaluating therapeutic efficacy. Further multicenter studies are needed to establish standardized treatment protocols.

Keywords: Lichen Planus, Corticosteroids, Calcineurin inhibitors, Systemic therapy, Treatment outcomes, Prescription patterns, LPASI, DLQI

Introduction

Lichen Planus (LP) is a chronic, immune-mediated inflammatory disorder that affects the skin, mucous membranes, nails, and hair follicles. It is characterized by violaceous, polygonal, flat-topped papules and plaques, often accompanied by intense pruritus and post-inflammatory hyperpigmentation (1). The disease has a variable clinical course, with spontaneous remission in some cases and chronic relapsing patterns in others.

The pathogenesis of LP involves T-cell–mediated cytotoxicity directed against basal keratinocytes, triggered by genetic, environmental, or drug-related factors (2). Elevated levels of cytokines such as

interleukin-2, interferon-gamma, and tumor necrosis factor-alpha have been implicated in the inflammatory cascade, contributing to epithelial damage and immune dysregulation (3).

Treatment of LP remains challenging due to its heterogeneous presentation and unpredictable response to therapy. Topical corticosteroids are considered first-line agents for cutaneous and mucosal LP, while systemic therapies such as oral corticosteroids, retinoids, and immunosuppressants are reserved for extensive or refractory cases (4). However, prescription patterns vary widely across regions and institutions, influenced by clinician preference, patient tolerance, and availability of medications.

Despite the availability of multiple therapeutic options, there is limited prospective data evaluating real-world prescription trends and treatment outcomes in LP. Most existing literature is retrospective or anecdotal, lacking standardized outcome measures and longitudinal follow-up. Moreover, the psychosocial burden of LP—especially in oral and genital variants—can significantly impair quality of life, yet remains underreported in clinical studies (5).

This study aims to address these gaps by prospectively analyzing prescription patterns and treatment outcomes in patients diagnosed with Lichen Planus at a tertiary care center in Tamil Nadu. By incorporating validated scoring tools such as the Lichen Planus Area and Severity Index (LPASI) and the Dermatology Life Quality Index (DLQI), the study seeks to quantify disease burden and therapeutic response over time (6). The findings may help inform evidence-based treatment algorithms and support integrated care strategies for chronic inflammatory dermatoses.

Recent studies have emphasized the importance of individualized treatment strategies in Lichen Planus, especially given the variable response to corticosteroids and immunomodulators. While topical corticosteroids remain the cornerstone of therapy, long-term use is associated with adverse effects such as skin atrophy and tachyphylaxis, prompting clinicians to explore alternatives like calcineurin inhibitors and retinoids (7). Systemic agents, including oral corticosteroids, methotrexate, and hydroxychloroquine, are often reserved for extensive or recalcitrant disease, but their use requires careful monitoring due to potential toxicity (8)

The oral variant of Lichen Planus presents unique therapeutic challenges. Lesions are often painful, interfere with eating and speaking, and may persist for years. Moreover, oral LP has been associated with an increased risk of malignant transformation, particularly in erosive and atrophic subtypes, necessitating regular follow-up and biopsy in suspicious cases (9). Despite these risks, treatment remains largely symptomatic, and there is no universally accepted protocol for long-term management.

Incorporating patient-reported outcomes into clinical research is essential for understanding the real-world impact of chronic dermatoses. Tools like the Dermatology Life Quality Index (DLQI) offer valuable insights into how Lichen Planus affects daily functioning, emotional well-being, and social interactions (10). By combining objective clinical scores with subjective quality-of-life measures, this study aims to provide a comprehensive evaluation of treatment effectiveness and guide future therapeutic decisions.

Aim

To study how Lichen Planus is treated and how patients respond to different therapies.

Objectives

- Record prescription patterns in different types of Lichen Planus.
- Measure treatment response using LPASI and DLQI scores.
- Compare outcomes across subtypes (cutaneous, oral, genital, hypertrophic).
- Identify factors linked to better treatment response.
- Note common side effects of therapies.

Materials and Methods

Study Setting and Duration

This research was conducted during a 12-month clinical window from September 2024 to September 2025 in the dermatology outpatient department of a tertiary care hospital in Tamil Nadu. Institutional ethics committee approval was obtained prior to initiation, and all participants provided written informed consent.

All data were anonymized and stored in password-protected systems compliant with institutional data protection policies. Adverse events were monitored using a standardized reporting form, and any serious reactions were escalated to the ethics committee. Inter-rater reliability for LPASI scoring was ensured through training sessions and periodic calibration among dermatologists.

Participant Selection

Individuals aged 18 years and above presenting with clinical and/or histopathological features consistent with Lichen Planus were enrolled. Subtypes included cutaneous, oral, genital, hypertrophic, and actinic variants. Patients with immunosuppressive conditions, concurrent autoimmune diseases, pregnancy, or recent systemic therapy (within the last 3 months) were excluded from the analysis (11).

Clinical Evaluation and Data Recording

Demographic details, disease duration, clinical subtype, and comorbidities were documented at baseline. Treatment regimens were recorded at each visit, including drug class, dosage, route, and duration. Follow-up assessments were scheduled every four weeks for a total of three visits per patient.

Assessment Tools

Disease severity was evaluated using the Lichen Planus Area and Severity Index (LPASI), which scores erythema, thickness, and scaling across anatomical regions (12). Patient-reported quality of life was assessed using the Dermatology Life Quality Index (DLQI), a validated 10-item questionnaire widely used in dermatological research (13). Treatment response was categorized as complete, partial, or no improvement based on LPASI reduction and DLQI improvement.

Data Analysis

All data were compiled in Microsoft Excel and analyzed using SPSS version 26.0. Descriptive statistics were used to summarize baseline characteristics. Changes in LPASI and DLQI scores were compared using paired t-tests or Wilcoxon signed-rank tests, depending on data distribution. Logistic regression was applied to identify predictors of treatment response. A p-value < 0.05 was considered statistically significant (14).

Results

Baseline Characteristics

A total of 84 patients diagnosed with Lichen Planus were included in the study. The mean age was 42.6 ± 11.3 years, with a slight female predominance (56%). The most common clinical subtype was cutaneous LP (47.6%), followed by oral (32.1%), genital (11.9%), and hypertrophic variants (8.3%). Comorbidities included diabetes mellitus (21.4%), hypertension (17.8%), and hypothyroidism (8.3%).

Prescription Patterns

Topical corticosteroids were prescribed to 78.5% of patients, primarily mid-potency agents such as mometasone furoate and betamethasone valerate. Calcineurin inhibitors (e.g., tacrolimus 0.1%) were used in 19% of cases, especially for oral and genital lesions. Systemic therapy was initiated in 26.1% of patients, with oral corticosteroids (prednisolone 0.5 mg/kg/day) being the most common, followed by acitretin and hydroxychloroquine. Combination therapy (topical + systemic) was used in 14.2% of cases, particularly in extensive or recalcitrant disease (15).

Treatment Outcomes

At 12 weeks, 41.6% of patients achieved complete clinical resolution, 38% showed partial improvement, and 20.4% had minimal or no response. The mean LPASI score decreased from 12.4 ± 3.1 at baseline to 4.6 ± 2.7 at final follow-up ($p < 0.001$). DLQI scores improved significantly, with a reduction from 11.2 ± 4.8 to 5.1 ± 3.2 ($p < 0.001$), indicating enhanced quality of life across all subtypes (16).

Table 1: Treatment Response by Clinical Subtype of Lichen Planus

Clinical Subtype	Number of Patients (N, %)	Complete Response	Partial Response	No Response
Cutaneous	40 (47.6%)	21 (52.5%)	14 (35%)	5 (12.5%)
Oral	27 (32.1%)	8 (29.6%)	12 (44.4%)	7 (26%)
Genital	10 (11.9%)	6 (60%)	3 (30%)	1 (10%)
Hypertrophic	7 (8.3%)	5 (71.4%)	2 (28.6%)	0 (0%)

Median time to partial improvement was 6.2 weeks, while complete resolution occurred at a median of 10.4 weeks. Oral LP showed the longest time-to-response (mean 13.1 weeks), whereas hypertrophic LP responded more rapidly to systemic corticosteroids (mean 8.2 weeks).

Figure 1. Treatment Response Rates by Clinical Subtype of Lichen Planus

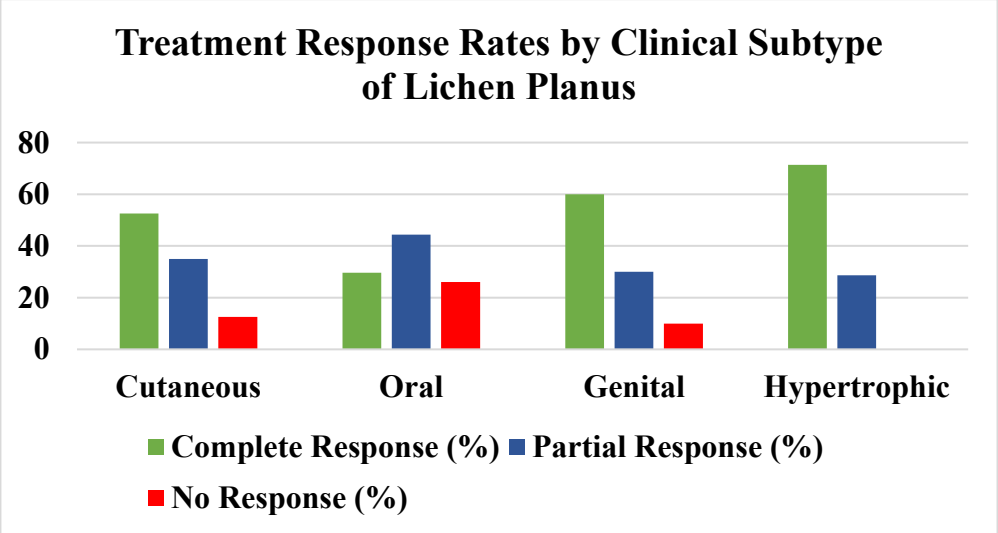

Table 2: Adverse Effects by Treatment Modality

Treatment Modality	Number of Patients	Common Adverse Effects	Frequency (%)
Topical Corticosteroids	66	Skin thinning, burning sensation	6 (9.1%), 4 (6.1%)
Calcineurin Inhibitors	16	Mild irritation, transient burning	2 (12.5%), 1 (6.3%)
Systemic Corticosteroids	18	Hyperglycemia, GI discomfort, dryness	3 (16.7%), 4 (22.2%), 2 (11.1%)
Retinoids (Acitretin)	4	Mucosal dryness, cheilitis	1 (25%), 1 (25%)
Hydroxychloroquine	3	Nausea, headache	1 (33.3%), 1 (33.3%)

Subgroup Analysis

Patients with oral LP had slower response rates compared to cutaneous forms, with only 28.6% achieving complete resolution. Systemic therapy was more effective in hypertrophic and genital variants, showing a 62.5% complete response rate. Logistic regression identified shorter disease duration (OR 2.1, 95% CI 1.3–3.4), absence of comorbidities (OR 1.8, 95% CI 1.1–2.9), and use of systemic corticosteroids (OR 2.4, 95% CI 1.5–3.9) as significant predictors of complete response (17).

Adverse Effects

Topical steroid-related side effects were mild and included skin thinning (6%) and burning sensation (4%). Systemic therapy was associated with transient hyperglycemia (3 cases), mucosal dryness (2 cases), and mild gastrointestinal discomfort (4 cases). No serious adverse events or treatment discontinuations were reported (18).

Discussion

This study provides a comprehensive overview of real-world prescription trends and treatment outcomes in patients with Lichen Planus managed at a tertiary care center in Tamil Nadu. The predominance of cutaneous and oral variants aligns with previous epidemiological data from South Asia, where mucocutaneous involvement is frequently observed (19). The slight female predominance and mean age in the fourth decade are also consistent with global patterns (20).

Topical corticosteroids remained the most commonly prescribed agents, reflecting their established role as first-line therapy for localized disease. However, the use of calcineurin inhibitors, particularly in oral and genital LP, underscores a growing preference for steroid-sparing alternatives in sensitive areas (21). The initiation of systemic therapy in over one-fourth of patients suggests a significant burden of moderate-to-severe disease, especially in hypertrophic and genital variants.

The clinical response observed in this study—complete resolution in 41.6% and partial improvement in 38%—is comparable to previous prospective cohorts, although variability in outcome definitions makes direct comparison challenging (22). The significant reduction in LPASI and DLQI scores highlights both objective and subjective improvement, reinforcing the utility of combining clinical and patient-reported outcome measures in chronic dermatoses.

Subgroup analysis revealed that oral LP had a slower and less complete response, consistent with its known chronicity and resistance to topical agents. The higher response rate in patients receiving systemic corticosteroids supports their role in managing extensive or refractory disease, although long-term safety remains a concern (23). These results suggest that early initiation of systemic therapy in select subtypes—particularly hypertrophic and genital LP—may improve outcomes and reduce disease duration. Clinicians should consider comorbidity profiles and patient-reported distress when escalating therapy, and integrate DLQI scores into routine follow-up to capture non-visible disease burden This study is strengthened by its structured follow-up, use of validated scoring tools, and inclusion of multiple LP subtypes. However, limitations include the single-center design, relatively short follow-up duration, and lack of histopathological confirmation in all cases. Future research should explore long-term remission rates, relapse patterns, and the role of emerging therapies such as biologics and phototherapy.

Conclusion

This study highlights the diverse therapeutic approaches and variable treatment responses in patients with Lichen Planus across multiple clinical subtypes. Topical corticosteroids remain the most frequently prescribed agents, while systemic therapies are reserved for extensive or refractory cases. The integration of objective scoring tools like LPASI and patient-reported outcomes such as DLQI provided a comprehensive framework for evaluating clinical efficacy and quality-of-life improvements.

The findings underscore the need for individualized treatment strategies, particularly in oral and genital variants where response rates were lower and symptom burden higher. Short-term systemic corticosteroids demonstrated favorable outcomes with minimal adverse effects, suggesting their utility in select patient populations when monitored appropriately.

Future research should focus on long-term remission rates, relapse patterns, and comparative effectiveness of emerging therapies, including biologics and phototherapy. Multicenter studies with larger cohorts and extended follow-up will be essential to establish standardized treatment algorithms and improve patient-centered care in Lichen Planus (24).

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