

Assessment of itch severity and affected body surface area in classic lichen planus

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Abstract

Introduction Lichen Planus (LP) is an itchy dermatosis. It is of different types with classic LP being a common type. Itching is an important feature of disease that affects the quality of life. The study is designed to assess the severity of itch in classic LP in relation to the body surface area (BSA) involved.

Materials and Methods 110 consecutive patients with classic LP who presented to Benazir Bhutto Hospital were enrolled to assess the severity of itch and its relationship to involved BSA. Severity was assessed using the Visual Analogue Scale and BSA involved was measured using hand surface area equal to 1% of total BSA. Ordinal grouping of both variables was done into three categories i.e. none/mild, moderate and severe. Statistical Analysis was done using SPSS version 23.

Results Out of 110 patients, 31.8% had mild involvement, 48.2% had moderate involvement, and 20% had severe involvement in terms of affected BSA in classic LP. Severity of itch was none or mild in 15.5%, moderate in 34.5%, and severe in 50% of patients. A strong correlation between BSA involved and severity of itch was observed using Kendall's tau-b ($T_b=0.280$, $p=0.01$) and Spearman's test ($R_s=0.307$, $p=0.001$).

Conclusion This demonstrates that Classic LP is an itchy condition with severity of itching directly proportional to BSA involved.

Key words

Classic lichen planus, itch, body surface area, BSA, classic LP, LP, lichen planus.

Introduction

Lichen planus (LP) is a cell mediated autoimmune dermatosis that can involve skin, mucosa, hair and nails.¹ There are different types of lichen planus and the usual presentation of classic LP is red/purple flat-topped papules with Wickham striae that predominantly involves the flexural aspect of arm.² The estimated

prevalence ranges from 0.22% to 5% worldwide.³

LP is an itchy dermatosis that significantly affects quality of life. Itch is a cardinal subjective symptom of LP.^{4,5} Previous studies have demonstrated that dermatology life quality index (DLQI) in LP patients was quite comparable to psoriasis patients.⁶ DLQI is a simple, highly reliable, and validated questionnaire that measures the impact of disease and treatment on quality of life.⁷ It has been demonstrated in many dermatological conditions that extent of disease or body surface area (BSA) involved is directly proportional to

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the itch severity and hence, a determinant of DLQI in these conditions.^{8,9}

It has been unknown if BSA involvement in classic LP has any effects on itch severity. After extensively searching various databases, no study that relates the BSA involvement in classic LP with itch was found. So it has not been determined whether the DLQI is affected by the extent of disease in LP.

This study is designed to assess the relationship between itch severity and affected BSA in classic LP. This may give us insight into what effect the extent of disease in LP has on DLQI which is of particular interest given that itch has a serious impact on DLQI equivalent to that of chronic pain.^{10,11}

Materials and Methods

A cross sectional study was carried out at Department of Dermatology, Benazir Bhutto Hospital, Rawalpindi from June, 2016 to November, 2016. A total of 110 patients with classic LP presenting to the outpatient department were enrolled to assess itch severity.

Patients were diagnosed with classic LP on the basis of clinical examination by two dermatologists. Patients of both genders aged 8 years old and above with classical LP for less than 6 months who were not on any antipruritic medications were included in the study. Patients with known co-morbidities including diabetes mellitus, chronic renal failure, chronic lung disease, hypertension, any other dermatoses or any psychiatric illness were excluded from the study.

A complete cutaneous examination was done to determine the extent of disease. BSA was measured by using the total palmar surface of hand, including the five digits, which is

approximately 1% of total BSA.¹² Patients were classified on basis of BSA into mild (<3% BSA affected), moderate (3-10% BSA affected), and severe (>10% BSA affected) categories.¹³ This scale is primarily used for classification of psoriasis and no similar scale was found for LP, it was useful practically and clinically for this study as well. Itch severity was assessed by visual analogue scale (VAS) for itching. The scale includes a score from zero to ten where 0 indicates no itch at all and 10 represents maximally severe itch. Patients reported their itch severity score (from 0-10) on paper survey. Patients were subdivided on the basis of VAS score into none or mild (VAS score 0-3), moderate (VAS score 4-6) and severe (VAS score 7-10) groups.¹⁴

Duration of disease, BSA, VAS score, and demographic details of patients were documented. Statistical analysis was performed using SPSS v.23.

Results

A total of 110 patients with classic LP were enrolled in the study under these inclusion and exclusion criteria. 53.6% of the study group was male and 46.4% was female. At time of presentation the mean duration of disease was 2.10 ± 1.3 months (where, 1 month = 30 days). The mean age of subjects was 33.8 ± 15.2 years. Itch was reported by majority of patients and only 1.8% of the population reported a score of 0 using VAS scoring query. The demographic characteristics of the study population are detailed in **Table 1**.

15.5% of all patients reported none or mild, 34.5% reported moderated, and 50.0% reported severe itch (VAS 7-10). With regard to affected BSA, most patients had moderate BSA involvement (3-10%). 31.8% had mild, 48.2% had moderate and 20% had severe BSA

Table 1 Patient characteristics

Characteristic	Patients (n=110)
Age in years M (SD)	33.8 (15.2)
Gender n (%)	
Male	59 (53.6)
Female	41 (46.4)
Duration of disease in months M (SD) (where, 1 month = 30 days)	2.10 (1.3)
Presence of itch n (%)	
Yes	108 (98.2)
No	2 (1.8)

Abbreviations: n, number of subjects; M, mean; SD, standard deviation

Table 2 Ordinal categorization of patients on basis of Extent/ BSA involved and severity of itching in classic LP

Characteristic	None/ Mild N (%)	Moderate N (%)	Severe N (%)
Itch severity	17 (15.5)	38 (34.5)	55 (50)
Extent/ BSA involved	35 (31.8)	53 (48.2)	22 (20)

Abbreviations: N, number of subjects

involvement with classic LP. This ordinal classification of the variables is shown in **Table 2**.

A Kendall's tau-b correlation was run to determine the relationship between BSA involved and VAS score for itch reported by the 110 patients included in the study. There was a strong positive correlation between BSA involved and degree of itching in classical LP, which was statistically significant ($T_b=0.280$, $p=0.01$). A Spearman's correlation was also run to assess the relationship and gave a similar statistically significant and strong positive correlation ($R_s=0.307$, $p=0.001$).

Discussion

LP is a cell-mediated itchy dermatosis with unclear etiology. It can affect patients of any age, but has a predilection for the middle-aged (30-60 years old).¹⁶ The age of classic LP patients presenting to this clinic was highly variable with a median of 30.50 years. There

was slight predominance of male patients in this study. This finding is consistent with some, but not all previous studies.¹⁶⁻¹⁸ In the known literature, no clear cut gender predisposition for the disease has been described yet.

Kalina Welz-Kubiak and collaborators have recently described clinical aspects of itch in LP in a quite comprehensive manner. However, that study did not examine the association between the extents of disease and itch severity.¹⁹ This study utilizes statistical tests that demonstrate a consistent strong positive correlation between the extents of BSA involved and itch severity reported on VAS. These findings suggest that the extent of disease would affect the DLQI in classic LP like other itchy dermatoses, because itch is directly and strongly proportional to DLQI. This is supported by previous studies that have found a positive correlation between affected BSA and DLQI in psoriasis even in the absence of an association between PASI (Psoriasis Area and Severity Index) and DLQI.²⁰ It may be possible to predict the extent of BSA involved in LP by the itch severity reported and vice versa.

The mean time to presentation of patients in this study was 2.10 ± 1.3 months (where 1 month = 30 days). The reason for this may be found in the fact that the peak spread of LP usually occurs within 0.5-4 months and, as there is an association between affected BSA and itch severity, this results in impaired DLQI prompting patients to present to dermatologists. The patients seen at the clinic were of limited financial means and were unlikely to present until skin disease caused substantial interference with their daily routine. Thus, patients present at a time when a substantial portion of body surface area is affected, when itching is severe, and when DLQI is impacted.

Itch is a cardinal symptom of classical LP. The 5P mnemonic of lichen planus (polygonal, papular, pruritic, purple, plane topped) includes itching as well.²¹ In this study, 98.2 % of patients reported itch, which is quite high relative to previous studies.^{19,22} The cause of this discrepancy may be differences between study populations resulting in a higher threshold for presentation to a dermatologist. One of the limitations of this study is the use of a non random convenience sample. This sample may not be representative of other populations. The wider impact of LP on patients' lives is outside the scope of this analysis. An area of future investigation may include administering the DLQI and other health-related quality of life techniques to further examine the relationship between itch, affected BSA, disease severity, and quality of life in patients with lichen planus. Itch severity could potentially be used as an endpoint for lichen planus treatment.

Conclusion

This study demonstrates that % BSA involved in classic lichen planus is directly and strongly proportional to reported itch severity. This finding underscores the importance of assessing itch in clinical practice. It is likely that the extent of the body affected by the disease is a determinant of DLQI.

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