Original Article

Frequency of Diabetes Mellitus and Impaired Fasting Glucose in Patients with Lichen Planus Attending a Tertiary Care Hospital Quetta

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ABSTRACT

Objective: The objective of the study was to determine the frequency of diabetes mellitus and impaired fasting glucose in patients with lichen planus.

Study Design: Cross sectional study.

Place and Duration of Study: This study was conducted at the Department of Dermatology, Bolan Medical College/ Sandeman Provincial Hospital, Quetta for a period of six months.

Materials and Methods: After taking ethical committee approval this study was started. A total of 155patients with the diagnosis of LP were included in this study. Male and female ratio, frequency and percentage was calculated for patient having LP with diabetes mellitus and impaired fasting glucose. Data was stratified in different age group, gender and duration of symptoms to control effect modifier. Data was analyzed using SPSS version 17.

Results: A total of 155 patients were included in the study. Out of total 155 patients, mean age of the patients was 42.69 ±8.64 years. Males were predominantly higher 91 (58.7%) as compared to females 64 (41.3%). Frequency of impaired fasting glucose was observed in 1 (0.6%) whereas diabetes mellitus in 26 (16.8%) of the patients.

Conclusion: The frequency of diabetes mellitus was found higher in patients with lichen planus. Therefore, we need to educate our patients and also need to discuss with our colleagues to exclude diabetes mellitusin patients of LP.

Key Words: Lichen Planus, Diabetes Mellitus, Impaired fasting glucose

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INTRODUCTION

Lichen planus (LP) is an immunologically mediated mucocutaneous disease that is triggered by varied etiological agents and present as various forms i.e. reticular, atrophic, papular, bullous, plaque, ulcerative and follicular with different prognosis.[1] Clinically, LP presents as flat-topped, violaceous papulosqamous eruptions on the skin affects the skin, scalp, oral cavity, nails and genitals and is classically described as pruritic, purple (violaceous), polygonal, and papules or plaques.[1, 2] Papules may be isolated or may coalesce to form larger plaques.

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Oral lichen planus presents as white stripes in reticular pattern. Diagnosis can be made based on clinical findings.2 Onset of LP is common in middle age (30–60 years of age). However, the prevalence of lichen planus in people with type 1 or type 2 diabetes has been noted to be 2–4%.[2]

LP also arises in association with various other systemic conditions such as hypertension, diabetes mellitus and Hepatitis C and many research works are now producing evidence that abnormal glucose tolerance associated with lichen planus supported the possibility that, lichen planus and disorder of carbohydrate metabolism could be related.[3, 4]Lauritano D et al. reported incidence of diabetes mellitus was 24.1% (24 out of 87) in Oral lichen planus patients.4 Ara S A et al. reported incidence of diabetes mellitus was 10% (5 out of 50).[5]

Diabetes mellitus (DM) is defined as a syndrome in which hyperglycemia occurs because of insulin defects and skin lesions can be seen in DM according to dysregulation of glucose, insulin, and lipids.[6]

Previous researchers have also found association of DM and abnormal glucose tolerance test among patients with LP.[5, 6]Atefi N et al. reported 20% (16 out of 80 LP) had diabetes and 17.5% (14 out of 80 LP) had Impaired fasting glucose.[6] Shah S M A et al. reported no

association between oral lichen planus and diabetes mellitus.[7]

The rationale of this study was to find the frequency of DM and Impaired fasting glucose and if found a greater frequency we would screen patients of LP for diabetes mellitus and impaired fasting glucose (IFG) as these disorders are usually indolent and can cause serious complications if left undiagnosed.

MATERIALS AND METHODS

This Cross sectional was conducted at Department of Dermatology, Bolan Medical College/ Sandeman Provincial Hospital, Quetta. The Study duration was 6 months. The sampling technique used was Non-probability consecutive sampling. Sample size was calculated using WHO calculator taking the Prevalence of diabetes mellitus and impaired fasting glucose in Lichen Planus[6] = confidence level = 95%, Absolute precision required = 6%, n= 155 patients.

We included all patients between the ages30-60 years, diagnosed as lichen planus as per operational definition. We Excluded all Patient taking drugs like Non-Steroidal Anti-Inflammatory Drugs (NSAIDs), Anti-hypertensive i.e. ACE Inhibitors, Beta Blockers and Thiazide diuretics and heavy metals like Mercury and Penicillamine (Because these are effect modifier and could produce bias in the study). The data collection was started after an approval from the concerned department. After taking ethical committee approval and explaining the procedure informed constant was taken. A total of 155 patients were recruited from Out Patient Department of Department of Dermatology, Bolan Medical College/ Sandeman Provincial Hospital, Quetta onthe basis of inclusion criteria. Blood samples of the patients' were sent and the diagnosis of diabetes mellitus or impaired fasting glucosewere made as per operational definitions and were noted in proforma by researcher. Data was analyzed using software of Statistical Package of Social Sciences (SPSS version 17). Mean + SD were calculated for continuous variable of age, sex, frequency of symptoms and presence or absence of diabetes mellitus or impaired fasting glucose. Assuming the P value of <0.05 as significant, Chi-Square was used to detect the difference between the categories.

RESULTS

A total of 155 patients were included in the study. Out of total 155 patients, mean age of the patients was 42.69±8.64 years. Males were predominantly higher 91 (58.7%) as compared to females 64 (41.3%). (Fig 2) Mean duration of symptoms was 7.45 ±1.07 months. Table No.1 & Table 2

There were 85 (54.8%) patients with ≤7 months of duration. (Fig 3).

Frequency of impaired fasting glucose was observed in 1 (0.6%) whereas diabetes mellitus in 26 (16.8%) of the patients. (Fig 4 & 5)

Majority 81 (52.3%) of the patients were presented with >40 years of age. (Fig 1).

Table No.1: Age of the Patients n=155

Age of the patients (in years)	Mean ±SD	Minimum	Maximum
	42.69 ±8.64	30	60

Table 2: Duration of Symptoms n=155

Duration of symptoms (in months)	Mean ±SD	Minimum	Maximum
	7.45 ±1.07	6	9

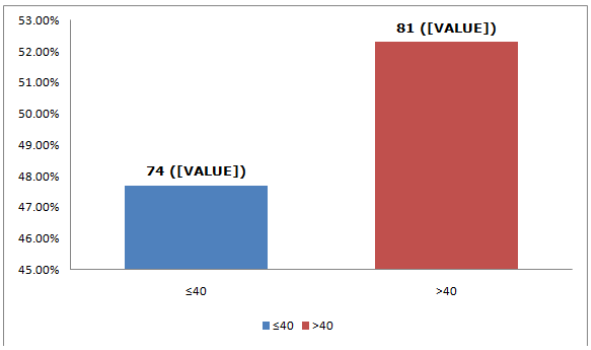

Figure No.1: Age Group of the Patients

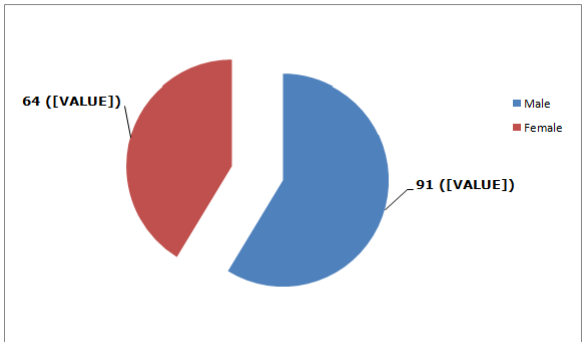

Figure 2: Gender Distribution of the Patients

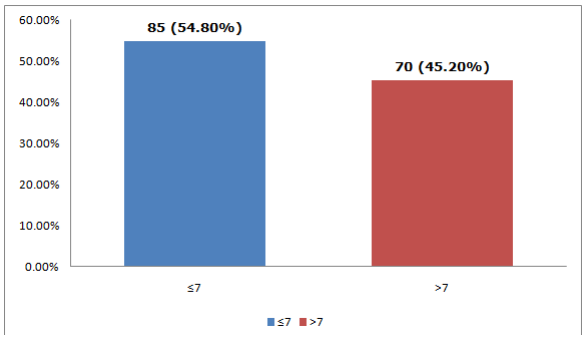

Figure No.3: Duration of Symptoms

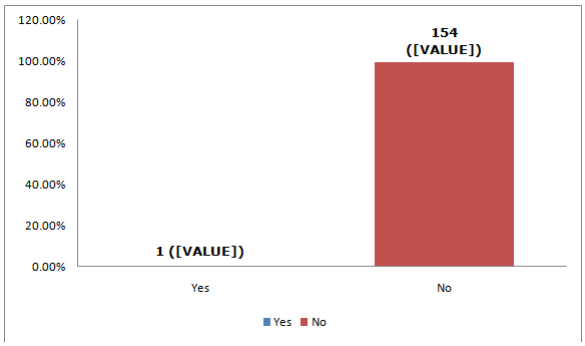

Figure No.4:Frequency of Impaired Fasting Glucose

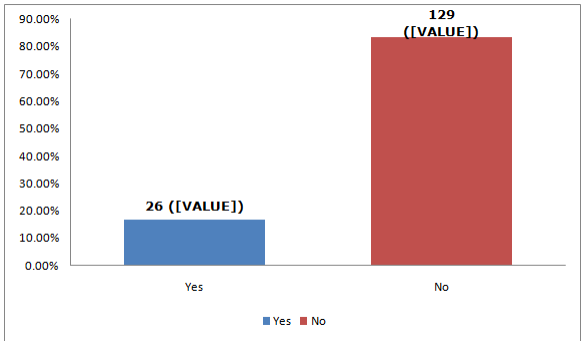

Figure No.5: Frequency of Diabetes Mellitus

Table No.3: Comparison of Age with Impaired Glucose Level n=155

Age (in years)	Impaired glucose level		Total	p-value
	Yes	No		
≤40	0 (0)	74 (48.1)	74 (47.7)	0.338
>40	1 (100)	80 (51.9)	81 (52.3)	
Total	1 (100)	154 (100)	155 (100)	

Table No.4: Comparison of Gender With Impaired Glucose Level n=155

Gender	Impaired glucose level		Total	p-value
	Yes	No		
Male	0 (0)	64 (41.6)	64 (41.3)	0.400
Female	1 (100)	90 (58.4)	91 (58.7)	
Total	1 (100)	154 (100)	155 (100)	

Table No.5: Comparison of Duration of Symptoms with Impaired Glucose Level n=155

Duration of symptoms (in months)	Impaired glucose level		Total	p-value
	Yes	No		
≤7	0 (0)	85 (55.2)	85 (54.8)	0.269
>7	1 (100)	69 (44.8)	70 (45.2)	
Total	1 (100)	154 (100)	155 (100)	

Table No.6: Comparison of Age with Diabetes Mellitus n=155

Age (in years)	Diabetes Mellitus		Total	p-value
	Yes	No		
≤40	10 (38.5)	64 (49.6)	74 (47.7)	0.299
>40	16 (61.5)	65 (50.4)	81 (52.3)	
Total	26 (100)	129 (100)	155 (100)	

Table No.7: Comparison of Gender with Diabetes Mellitus n=155

Gender	Diabetes Mellitus		Total	p-value
	Yes	No		
Male	9 (34.6)	55 (42.6)	64 (41.3)	0.449
Female	17 (65.4)	74 (57.4)	91 (58.7)	
Total	26 (100)	129 (100)	155 (100)	

Table No.8: Comparison of Duration of Symptoms with Diabetes Mellitus n=155

Duration of symptoms (in months)	Diabetes Mellitus		Total	p-value
	Yes	No		
≤7	20 (76.9)	65 (50.4)	85 (54.8)	0.013
>7	6 (23.1)	64 (49.6)	70 (45.2)	
Total	26 (100)	129 (100)	155 (100)	

Comparison was done to see the effect of age, gender and duration of symptoms on the outcome (impaired fasting glucose and diabetes mellitus). Results are shown in table 3-8.

DISCUSSION

LP also arises in association with various other systemic conditions such as hypertension, diabetes mellitus and Hepatitis C and many research works are now producing evidence that abnormal glucose tolerance associated with lichen planus supported the possibility that, lichen planus and disorder of carbohydrate metabolism could be related.[3, 4]

The findings of this study have showed considerable of cutaneous lichen planus patients with diabetes mellitus. Previous researchers have also found association of DM and abnormal glucose tolerance test among patients with LP.[4]Atefi N et al. reported 20% (16 out of 80 LP) had diabetes and 17.5% (14 out of 80 LP) had Impaired fasting glucose.[6] Shah S M A et al. reported no association between oral lichen planus and diabetes mellitus.10 In this study, frequency of impaired fasting glucose was observed in 1 (0.6%) patients.[7]

Literature review revealed that skin disorders presented in 79.2% of people with diabetes. A study of 750 patients with diabetes found that the most common skin

manifestations were cutaneous infections (47.5%), xerosis (26.4%), and inflammatory skin diseases (20.7%).[8] Individuals with type 2 diabetes are more likely than those with type 1 diabetes to develop cutaneous manifestations. Cutaneous disease can appear as the first sign of diabetes or may develop at any time in the course of the disease.

In our study, it was observed that duration of the disease is significantly associated with the presence of diabetes in lichen planus patients.

Cutaneous lichen planus may resolve spontaneously within one to two years, although lichen planus affecting mucous membranes may be more persistent and resistant to treatment. Recurrences are common, even with treatment. High-potency topical corticosteroids are first-line therapy for cutaneous lichen planus.[8,9] Oral antihistamines (e.g., hydroxyzine [Vistaril]) may be used to control pruritus. Hypertrophic lesions are treated with intralesional triamcinolone acetonide (Kenalog), 5 to 10 mg per mL injection (0.5 to 1 mL per 2-cm lesion).[9]

CONCLUSION

The frequency of diabetes mellitus was found higher in patients with lichen planus. Therefore, we need to educate our patients and also need to discuss with our colleagues to exclude diabetes mellitus in patients of LP.

Author's Contribution:

Concept & Design of Study:	Habib Ullah
Drafting:	Syed Bilal Ahmed
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Revisiting Critically:	Habib Ullah
Final Approval of version:	Habib Ullah

Conflict of Interest: The study has no conflict of interest to declare by any author.

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