 DOI: 10.18231/2455-6769.2017.0004

Association of diabetes mellitus in patients with Lichen Planus

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Abstract

Background: Lichen planus (LP), the prototype of lichenoid dermatoses, is an idiopathic inflammatory disease of the skin and mucous membrane. LP is a papulosquamous skin eruption characterized by '6P': pruritus, polygonal shape, planar, purple color, papules and plaques. The etiology and pathogenesis of LP are not fully understood, but the disorder has been associated with multiple environmental exposures, including viral infections, medications, vaccinations and dental restorative materials. LP is associated with diabetes mellitus, Increased prevalence of diabetes and carbohydrate intolerance has been observed in patients with LP.

Aim: To evaluate the association between DM and LP.

Objectives: To identify and select clinically diagnosed cases of LP.

To analyse and evaluate the profile of LP patients.

To evaluate association of DM with LP.

Method: It was observational cross sectional study. In this study, 100 patients with LP were enrolled visiting dermatology clinic of our hospital during a span of one year. Inclusion and Exclusion criteria were taken into consideration.

Results: Among 100 patients with LP, 33(33%) had diabetes with a significant statistical association. In the present study, FBS (>100 mg/dl) was significantly high in 33(33%) of Lichen planus cases. Data was statistically significant with p value=0.04. The mean age of diabetic patients was 41.16.

Conclusion: Study showed a high prevalence of DM among patients with LP. There was a significant difference between the prevalence of DM among patients with LP and the overall prevalence of Diabetes. Screening for DM by doing FBS in patients with LP is required to diagnose and prevent untoward complications of DM in its earlier stages.

Keywords: Lichen Planus, Diabetes mellitus, Impaired fasting glucose

Introduction

Lichen planus (LP), portrayed in 1869 by Erasmus Wilson is an incendiary keratotic dermatosis of obscure etiology occurring in 0.5–1.9% of the population.[1,2] Its traditional clinical presentation is portrayed by 6P-planar, purple, polygonal, papules or plaques, pruritic. It influences fundamentally the flexure surface of the wrists, thighs, distal third of lower limits, abdomen, genitals, nails, and oral mucosa. Histologically, a thick, band-like lymphohistiocytic infiltrate is seen with an acanthotic epidermis, hypergranulosis, apoptosis, and liquifactive degeneration of the basal cell layer. The etiology and pathogenesis of LP are not completely clear, but the confusion has been connected with numerous ecological exposures, including viral diseases, drugs, immunizations and dental therapeutic materials. LP-like injuries that take place after idiopathic LP mimics GVHD, where alloreactive T cells that perceive outside histocompatibility complex (MHC) particles are focal effectors. Although its etiopathogenesis stays obscure, the present pattern is to consider LP as an immune system process; T cells get to be enacted through antigen-exhibiting cells. These initiated T lymphocytes assume an essential part in managing epidermal cell acknowledgment, the lichenoid reaction and basal cell damage.[2]

Aggravation produces unsettling influences of lipid metabolism system, for example, increment in the level of serum triglycerides or abatement in high density lipoprotein cholesterol (HDL-C). These lipid aggravations connected to perpetual irritation take part in the expansion of cardiovascular dangers.[3] Epidermal cells have indicated variations from the norm in the protein action and in addition inadequate carbohydrate expression, which may have an association with hormones crucial for the metabolic procedure. This immunological irregularity is likewise connected between lichen planus and strange glucose tolerance.[4]

In view of this foundation, the present study goes for finding a relationship of glucose tolerance elements in patients with lichen planus. Consequently, alongside treatment of lichen planus, by applying suitable essential and optional preventive measures, genuine cardiovascular risks factors like atherosclerosis prompting ischemic coronary illness can be anticipated.[5]

Earlier studies have found that the prevalence of DM and abnormal glucose tolerance test among patients with LP was 14-85%.[6,7,8] The relationship between DM and LP has not been studied in Ujjain. Thus, this study investigates the prevalence of DM among 100 patients with LP in our referral hospital.

Study Design: Observational Study: Cross sectional Study.

Materials and Methods

Study setting **was** Department of Dermatology, Venereology and Leprosy, R.D. Gardi Medical College and C.R. Gardi Hospital, Ujjain (M.P.) Study participants included all those patients who were diagnosed as case of lichen planus on clinical and histopathology ground and were willing to be included in the study. Recruitment of the participants: The suspected patient underwent history, general and systemic examination followed by biochemical investigations including routine and specifically FBS. Method of study included all the Lichen Planus patients attending dermatology OPD/IPD and who were willing to participate were enrolled for the study after taking written informed consent from the participants. A pre structured proforma was used to collect base line data. Detailed history with clinical and dermatological examination was done. Fasting blood sugar of the patient was analysed. Minimization of biases was done by proper history, clinical examination and investigations. Inclusion and Exclusion criteria: Inclusion criteria was patients of age 18 years and above and of either sex.(prevalence of childhood LP is less). Presence of lichen planus affecting the skin and/or mucosa. Patient willing to participate in the study. Exclusion criteria was-Patients aged below 18years, patients receiving treatment (6 months or more) for lichen planus such as systemic corticosteroids, retinoid or methotrexate, pregnant and lactating women, patients with lichenoid drug eruption, and the patients not willing to participate in the study.

Results

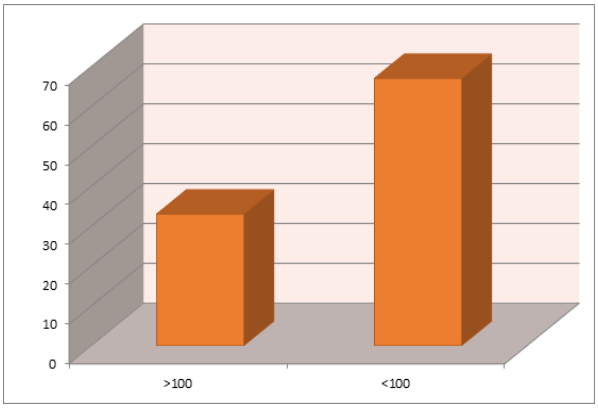
On the basis of evaluation of 100 patients with the confirmed diagnosis of LP we found that, 56 (56%) were female and the rest male. The mean age was 41.16. For the diagnosis of DM we used the criteria that was employed by American Diabetes Society in 2007. As a result, 33 patients (33%) had DM type II and none had a history of DM type I. Out of 33 patients with confirmed diagnosis of DM II, 10 were the known cases of DM type II and others were diagnosed during the study.

The mean age of the LP patients with DM was significantly more than those who were not affected by DM. The sex distribution was not significantly different for both groups.

There was no significant relationship between the pattern of the distribution of lichenoid lesions and the presence of DM.

Considering family history of the patients, 16% had a positive family history for LP. There was no significant relationship between the presence of positive family history for LP and the DM.

FBS (mg/dl)	Cases	Percent	p-value	χ^2 test
>100	33	33	0.04	9.012
<100	67	67		
Total	100	100		



Discussion

Lichen planus is a common complex inflammatory disease that shares many immunological features with other common complex disorders such as cardiovascular disease, obesity, diabetes, depression and dyslipidemia. The diseases that occur concurrently are often thought to be related to common pathogenetic mechanisms. Comorbidities are most likely related to underlying disease pathogenesis and exclude factors such as lifestyle, access to healthcare and patients' associated economic status. Comorbidities tend to increase with age. Nearly half of Lichen planus patients aged over 65 years have at least three comorbidities and two thirds have two or more comorbidities. Comorbidities also have significant impact by increasing the patient's physical limitations. As the number of comorbidities increase, so does the healthcare utilization and healthcare costs. Increased prevalence of diabetes and carbohydrate intolerance has been observed in patients with LP. In this study, we observed a high prevalence of DM in patients with LP. DM is defined as a syndrome in which hyperglycemia occurs because of insulin defects. Skin lesions can be seen in DM according to dysregulation of glucose, insulin, and lipids.[9] Pioneer work on this relation was started by Grinspan in 1966, the prevalence of DM among patients with oral LP was announced 40% by Grinspan et al.[10] Studies about the relationship between DM and LP have been improved recently.[11] Some of them revealed that the prevalence of DM among patients with LP is more than normal population.[12] The prevalence of DM among patients with LP was 42% in 1976,[13] 28% in 1984[14] and 3% in 1993.[15] Guggenheimer et al[16] in the year 2000 reported the incidence rate of 0.5% of oral LP among patients with insulin dependent DM. In 2004, the prevalence of DM in 140 Turkish people with LP was revealed as 15.7%.[8] Moreover, in 2007, the prevalence

of DM in patients with LP was found as 26.7% in that country.[17] In addition, they found a significant difference between the concentration of HbA1C, fasting blood sugar and insulin resistance in patients with LP and the control group.

In the present study there are 33(33%) cases who had FBS >100 which is statistically significant {P=0.04}. This findings corroborates with other studies.

Several epidemiological surveys have been conducted on association of Diabetes with Lichen planus.

Najmosadat Atefi et al(2008) observed a high prevalence of DM with LP.[18]

Romero MA et al (2008) in a study showed high prevalence of DM in patients with LP, 27.4% of OLP cases were associated to type 2 DM (DM2) and 17.7% were related to an impaired fasting glucose (IFG).[19]

Albrecht M et al (2012) showed increased percentage and prevalence of diabetes mellitus in Lichen Planus patients.[20]

Conclusion

In our study we have found that there is increased incidence of impaired fasting glucose(mostly among females)in newly diagnosed Lichen planus patients **(p-0.04).**

We recommended that:

1. In view of prevailing complications and India becoming Diabetic capital of the world patients who are referred for LP, are advised to be checked for FPS.
2. Secondly there is need for more studies to be conducted with specific designs such as cohort and case-control studies, especially with larger sample size and involving other perspectives.

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