

Original Research Article

Diabetes mellitus and hepatitis c in generalised lichen planus: a case control study

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ABSTRACT

Background: Prevalence of lichen planus (LP) and generalised lichen planus (GLP) is about 2.6% and 1% respectively. Various studies have shown higher prevalence of Diabetes Mellitus (DM) and stronger association between Hepatitis-C virus (HCV) and LP. The main objective of this study was to predict the prevalence of DM and HCV in patients with GLP before starting steroids.

Methods: A case-control study was conducted with 33 patients in each group for one year period. Case group included patients with GLP excluding oral LP and drug induced lichenoid dermatitis. Control group included patients with other skin conditions and not on steroids. Preliminary details and history of DM and HCV were collected. Random blood sugar and Anti-HCV were done.

Results: The proportion of patients with GLP was higher in women compared to men (63.6% vs. 36.3%). Highest prevalence was observed in the age group 35-45 years for both genders. On stratification by sex, odds of having GLP in women are 0.76 times lower among diabetics compared to non-diabetics whereas no association in males. There was no association between GLP and HCV in both sexes.

Conclusions: There is no significant association between Diabetes mellitus and Hepatitis-C infection with GLP. Future study is planned with larger sample size for a definite conclusion.

Keywords: Diabetes mellitus, Hepatitis-C, Generalised lichen planus

INTRODUCTION

Lichen planus (LP) is a chronic, autoimmune and inflammatory disease that affects the skin, oral mucosa, genital mucosa, scalp and nails with an overall prevalence of 2.6% in India.¹ It is characterized by pruritic purple papules or plaques affecting flexor aspects predominantly with a lacy, reticular white lines on surface called as Wickham striae.² It is a complex inflammatory disease that shares immunological background with other disorders like cardiovascular disease, obesity, diabetes, dyslipidemia and depression. It has been observed that nearly half of Lichen planus

patients aged over 65 years have at least three comorbidities and two-thirds have two or more comorbidities.³

Generalised lichen planus (GLP) can affect skin, oral mucosa, genital mucosa, scalp, nails or all these sites with an overall prevalence of 1% in a general population.³ An alternate definition suggests that it can also be described as cutaneous lesions involving at least 20% of the body surface area.⁴ Generalised LP patients are usually resistant to or inappropriate candidates for topical treatments, and the lesions show a chronic course with a rare tendency for spontaneous resolution.

Some studies have shown higher prevalence of diabetes mellitus (DM) among patients with LP compared to normal population.⁵ It has been reported that the prevalence of DM among patients with LP was 42% in 1976, 28% in 1984 and 3% in 1993.⁶⁻⁸ In Turkey, it was established that the prevalence of DM in LP patients was 15.7% and 26.7% in 2004 and 2007 respectively.⁹ They also pointed out that there was a significant difference between the concentration of HbA1c, Fasting blood glucose (FBS) and insulin resistance in LP patients compared to control group. A study done in 2017 has suggested to do FBS in patients with LP to prevent complications of DM.³ Romero et al established that 17.7% of the study population showed impaired fasting glucose in patients with LP.¹⁰

The link between LP and hepatitis C virus (HCV) has also been subject of interest for research scholars in view of varied reports on the same. It has been reported that epitopic similarities between HCV and keratinocytes could probably explain this association, although there are not enough evidences to demonstrate it.¹¹ HCV infection is a global disease with an overall burden of more than 170 billion patients infected. It causes both hepatic and extra-hepatic manifestations with a chronic course compared to Hepatitis-B.¹² Few studies have suggested that presence of oral LP is a sign of asymptomatic HCV infection. Multiple studies done in various countries showed geographical variation in correlation between HCV and LP, of which some showed weak or no correlation.

Lack of Indian studies on GLP and its disease associations prompted us to select this study. The main objective of this study was to predict the association of DM and Hepatitis C in patients diagnosed to have GLP.

METHODS

A descriptive case-control study was done at Govt. Stanley Medical College Hospital, Chennai for a period of one year from July 2017 to July 2018. Case group included 33 patients diagnosed to have GLP clinically. Diagnosis was confirmed by biopsy in suspicious cases. Patients who were already on treatment for lichen planus, patients with only oral lichen planus and those with drug induced lichenoid dermatitis were excluded from the study. Age and sex matched control group included patients with skin conditions except lichen planus and those patients who are not on steroids or any other immunosuppressant.

After obtaining consent from all the patients in both the group, blood investigations such as HbsAg, Anti-HCV and Random Blood sugar (RBS) were done. Fasting and Post-prandial blood glucose were done for known diabetic patients and for those with RBS ≥ 200 mg/dl in presence of hyperglycaemic symptoms following American Diabetes Association criteria, 2017 guidelines.

This study was a descriptive analysis study. Chi-square test was used to understand the association between type-2 DM and HCV with GLP.

RESULTS

The proportion of patients with GLP was higher in women compared to men (63.6% vs. 36.3%). It was observed that the prevalence of GLP was highest in the age group 35-45 for both the sexes (Figure 1). On stratification by sex, we found that the odds of having GLP in women are 0.76 times lower among the diabetic patients compared to non-diabetic patients, whereas there was no association in men. Among 33 patients in case group, 4 patients were already known diabetic and only 1 patient was found to be positive for HCV (Figure 2 and 3). The mean duration of type-2 DM was found to be higher than the duration of GLP (60 vs. 49.2 months) in patients with both GLP and type-2 DM. There was no association between HCV and GLP in both the sexes.

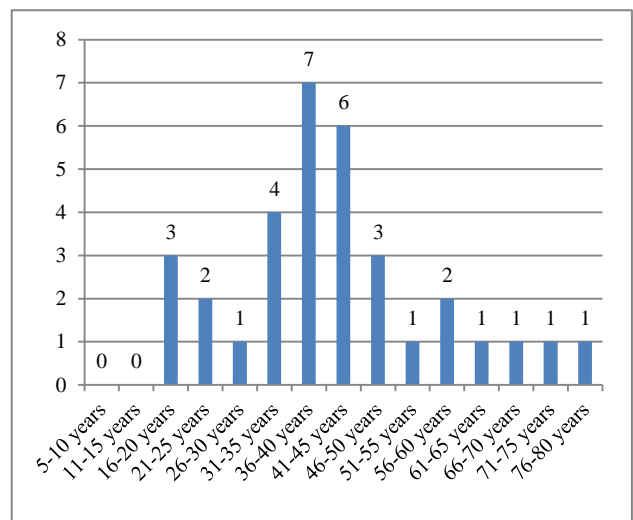


Figure 1: Age wise distribution of GLP cases.

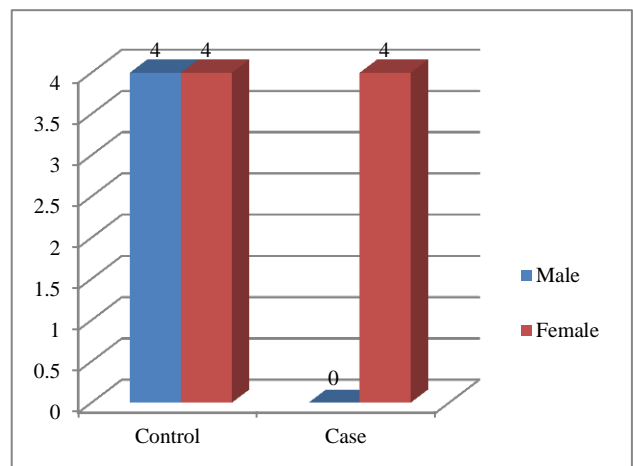


Figure 2: Sex distribution of type-2 DM in control and case group.

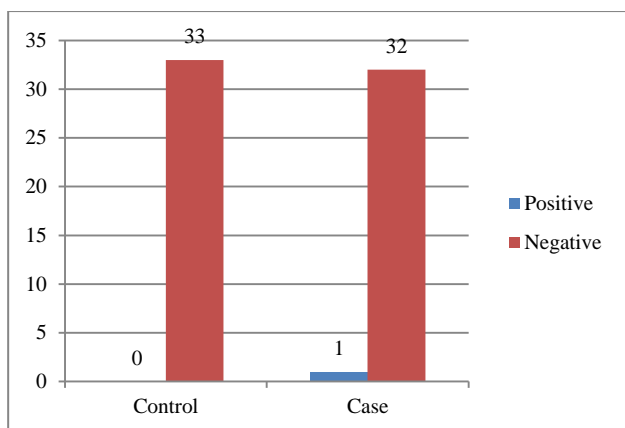


Figure 3: HCV cases in control and case group.

DISCUSSION

There was more number of female patients having GLP compared to men in our study. Patients with GLP were predominantly in the age group of 35-45 years. It was observed that the prevalence of DM in GLP was found to be lesser in females and there was no association in males. Studies have reported that the mean age of LP patients with DM was found to be higher than non-diabetics, whereas such association could not be established in our study.³ These findings could be attributed due to higher number of female patients having GLP, smaller sample size and incidence of type-2 DM being generally high among Indian population. Studies have established that prevalence of OLP was higher in diabetic patients compared to control group.¹³ It has been noted that the mean duration of DM was significantly higher than GLP in diabetic patients establishing that whether DM increases the risk of GLP and not vice-versa. This can be explained that probably the risk of GLP increases in DM which share a common background of endocrinology and immunological dysfunction.¹⁴ Also, the risk of diabetic drugs inducing lichenoid lesions could be ruled out by confirming through skin biopsy.¹⁵ There is a need for future studies to establish the response rate to treatment in GLP among diabetic patients with good and bad glycaemic controls.¹⁶

Unlike literature, in our study there was also no significant association of HCV with GLP in both the sexes. Existence of poor oral hygiene was the only relevant risk factor for our study population. Habits like tobacco and betel nut chewing among south Indian women increase the risk of oral lichen planus, whereas this risk factor was not significant in our GLP study population with only cutaneous lesions.¹⁷ Studies from literature were done in western countries that are exposed to high risk behavioural activities like IV drug use, multiple sexual partners and ill-fitting dentures increasing the risk of oral lichen planus and its association with HCV. Geographical and lifestyle variation with less chances of high-risk behaviour for HCV among southern Indian female population compared to western countries

eliminates this risk factor. Probably, the risk of HCV in GLP would be significant only in presence of other risk factors for HCV which was absent in our study population. Our study seems to be first study on GLP and its associations. Hence, a future study with larger sample size is needed for a definite exclusion of association of DM and HCV with GLP.

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