

The association between lichen planus and hepatitis C virus infection: A case control study

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ABSTRACT

Background: The incidence of Hepatitis C virus (HCV) infection among patients with Lichen planus (LP) varies considerably. There is also lack of data in Indian population. Due to these variation, this study is to assessing the prevalence of HCV infection among patients with CLP in Hassan Karnataka. **Methods:** 135 clinically diagnosed cases of Lichen planus more than 18 years of age will be included as cases. 147 patients having skin diseases other than lichen planus will be included as controls. Details of the patients personal history and family history, medical history and blood transfusion history will be collected. Detection of antibodies against HCV (anti-HCV) by enzyme-linked immunosorbent assay (ELISA). **Results:** Anti-HCV antibodies were found in 3 (2.2%) patients of the case group and 1 (0.7%) in control group. P value is 0.274, not statistically significant. **Conclusion:** Currently, there is no evidence confirming the relationship between HCV infection and CLP in Hassan Karnataka. However, there is a need for further research on larger groups of

Key words: CLP; Cutaneous lichen planus; HCV; Hepatitis C Virus.

INTRODUCTION

Lichen Planus (LP) is a chronic inflammatory disorder with involvement of skin, oral and genital mucosa, scalp, and nail appendages [1]. Lichen planus, a papulosquamous disease that has derived its nomenclature from the Greek word “Leichen” as it resembled Lichens moss growing on the rock and Planus that stands for flat¹. It was first described by Dr. Wilson in 1869. He explained it to be an inflammatory disorder involving stratified squamous epithelium of unknown etiology [2].

The etiology and pathogenesis of LP remains unclear. An autoimmune reaction in which CD8+T lymphocytes attack basal keratinocytes leading to apoptosis of the cells has been favoured. Various potential triggers, e.g. viral or bacterial antigens, metal ions, drugs or physical factors, could initiate the autoimmune process [3,4].

The prevalence of LP was found to be between 0.22% and 1.2% of the adult population worldwide, depending on the geographic region studied [5,6]. The prevalence of cutaneous LP in Indian population is 2.5%-4%. The prevalence of OLP is 1-2% in the general population while its prevalence in Indian population is 2.6%. It is predominantly seen in females [7-10].

Lichen Planus classically presents as flat topped, purplish, polygonal, intensely pruritic, papules and plaques affecting flexor aspect of forearm, shins and extremities [11]. According to Lesional morphology Lichen Planus classified into Hypertrophic, Atrophic, Guttate (eruptive), Annular, Linear, Vesiculo bullous, Follicular, Ulcerative (erosive) and Lichen Planus pigmentosus. According to site of involvement it is classified as Mucosal (oral, genital), Palmoplantar, Nail, Scalp and Inverse. Other Special forms are Actinic and Lichen Planus Pemphigoides OLP may occur in six clinical variants as reticular, papular,

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plaquelike, erosive, atrophic and bullous as classified by Andreassen [12,13].

The diagnosis of LP is mainly clinical. The presence of characteristic violaceous, flat-topped, polygonal papules associated with pruritus does not pose any diagnostic difficulty. However, histopathological confirmation is necessary where the clinical picture is not so classical, and in some clinical variants [1,12].

LP is morphologically related to Psoriasis and chronic inflammation in the skin is a hallmark of both these conditions. Recent studies have found an association of LP with abnormal carbohydrate metabolism, Dyslipidemia, and hypothyroidism [14-16]. An epidemiological association of LP with Hepatitis C Virus (HCV) infection has also been reported in many European countries and Japan [17,18]. Many previous studies have observed an association of LP with one or two of the above mentioned comorbidities [14-18].

The diagnosis of Hepatitis C viral infection is based on detection of antibodies against HCV (anti-HCV). The third-generation enzyme-linked immunosorbent assay (ELISA) has 99% sensitivity in detecting total antibodies with 94% specificity and can be confirmed by direct detection using HCV RNA.

The incidence of Hepatitis C virus (HCV) infection among patients with Lichen planus (LP) varies considerably. Currently, there is more evidence for the association between Hepatitis C and Oral LP (OLP) than cutaneous LP (CLP). There is also lack of data on the Indian population. In India, studies conducted in Calicut [16], Kolkata [10], New Delhi [10] have failed to demonstrate a statistically significant association between HCV and LP, whereas studies conducted in Hyderabad and Bangalore [10] have shown a significant association. Due to these variations, this study is to assess the prevalence of HCV infection among patients with CLP in Hassan Karnataka.

To study the association between Lichen planus and Hepatitis C

MATERIALS AND METHODS

135 clinically diagnosed cases of Lichen planus more than 18 years of age will be included as cases. 147 patients having skin diseases other than lichen

planus will be included as controls. Details of the patients personal history and family history, medical history and blood transfusion history was collected. Detection of antibodies against HCV (anti-HCV) by enzyme-linked immunosorbent assay (ELISA)

Ethics Statement

Study was conducted after taking ethical committee clearance.

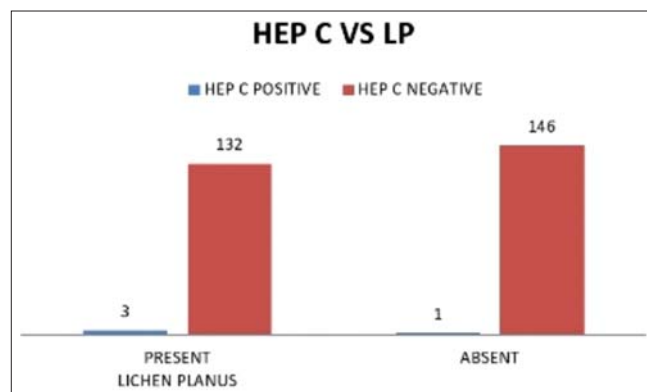
RESULTS

Among a total of 282 patients, 135 patients in the case group, 3 (2.2%) were HCV positive. Among 147 patients in the control group, 1 (0.74%) patient was positive for HCV. This does not show any statistical significance ($P=0.27$); (Table 1, Graph 1).

Out of total 4 Hepatitis C Positive patients no one was having history of blood transfusion. In a total of 278 negative Hepatitis C patients, 4 were having history of blood transfusion. P value is 0.809 which is statistically not significant (Table 2, Graph 2).

Table 1: Comparison of Hepatitis C positive and negative in LP group and control group

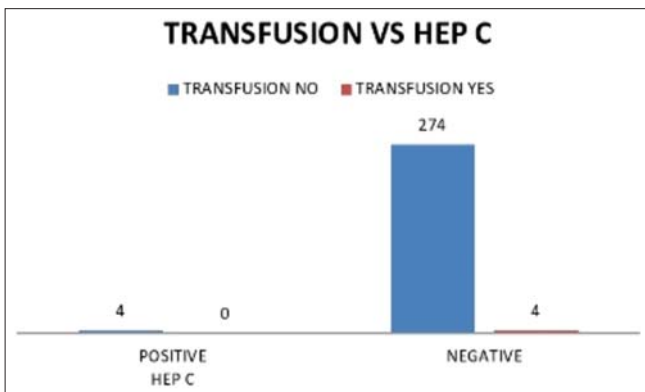
	LICHEN PLICHEN		Total
	PRESENT	ABSENT	
HEP C			
POSITIVE			
Count	3	1	4
% within group	2.2%	0.7%	1.4%
NEGATIVE			
Count	132	146	
% within group	97.8%	99.3%	
ASSOCIATION			
	Value	P	
Nominal by Nominal			
Phi	0.065	0.274	



Graph 1: Graph comparing presence of Hepatitis C in LP group and control group.

Table 2 : Table showing history of transfusion in Hepatitis C positive and negative individuals

	HEP C	
	POSITIVE	NEGATIVE
TRANSFUSION		
NO		
Count	4	274
% within TRANSFUSION	1.4%	98.6%
YES		
Count	0	4
% within TRANSFUSION	0.0%	100.0%
ASSOCIATION		
	Value	P
Nominal by Nominal		
Phi	0.014	0.809



Graph 2 : Graph comparing history of transfusion among those with and without Hepatitis C.

Total of 135 patients in case group, 4 have had history of blood transfusion and, out of 147 control patients, no one has got history of blood transfusion. P value is 0.015 which is significant (Table 3, Graph 3).

DISCUSSION

In this study a total of 286 patients were included, 135 were cases and 147 were control.

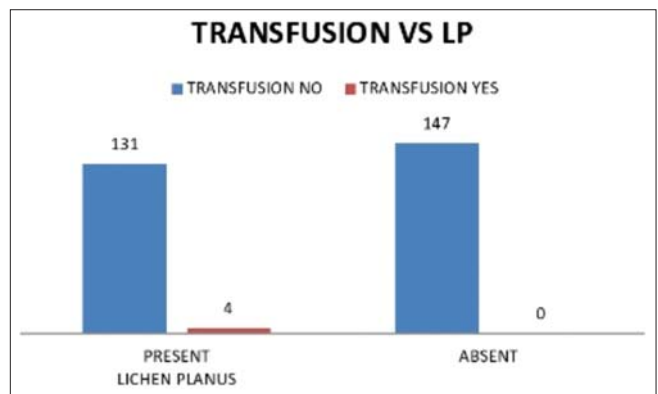
Mokni et al [20] published the first report of LP associated with HCV infection. Subsequently, a number of studies claimed a causal association between HCV infection and LP [19-21].

A number of studies, on the other hand, failed to show any association between HCV and LP [19-26]. Nagao et al [3] demonstrated the existence and replication (by RT-PCR) of HCV within oral LP lesions.

Erkek et al [19] found that the detection rate of HCV-RNA was higher in the lesional skin compared

Table 3 : History of transfusion in LP group and control group

	Chi-Square Tests		P
	LICHEN PLANUS		
	PRESENT	ABSENT	
TRANSFUSION			0.015
NO			
Count	131	147	
% within group	97.0%	100.0%	
YES			
Count	4	0	
% within group	3.0%	0.0%	
Total			
Count	135	147	
% within group	100.0%	100.0%	



Graph 3 : Graph showing history of transfusion among LP group and control group.

to non-lesional skin in HCV-infected LP patients. The prevalence of HCV in LP patients shows wide geographic variations – 0% in England, [29] 3.8-28.6% in France, 0-55% in USA, 37.8-62% in Japan and 4-65% in Italy [3]. The reason for such variability is not clear, but may be because of geographic variations or genetic susceptibility.

Studies conducted in Japan, Italy and Spain showed a strong association of LP with HCV, these studies have been conducted mostly in, all areas with a high HCV endemicity.

Campisi et al [27] found a weak association between oral LP and HCV infection in areas where HCV is endemic.

In previous studies Das et al 2006 [25] and Prabhu et al 2002 [22], showed association between LP and HCV was not statistically significant in Kolkata (0.8%) and Calicut (0.33%) [25,28] respectively.

Whereas, the study done by Mahboob et al in Bangalor (0.1%) showed statistical significance [25]. In our study

among case group 2.2% and 0.75% in control group were HCV positive, but it is statistically not significant.

CONCLUSION

Currently, there is no evidence confirming the relationship between HCV infection and CLP in Hassan Karnataka. However, there is a need for further research on larger groups of patients.

Statement of Human and Animal Rights

All the procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the 2008 revision of the Declaration of Helsinki of 1975.

Statement of Informed Consent

Informed consent for participation in this study was obtained from all patients.

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