ASSOCIATION BETWEEN LICHEN PLANUS AND HEPATITIS B AND C VIRUS INFECTION

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ABSTRACTS

Objective: The objective of this study was to determine association between lichen planus and hepatitis B and C virus infection in patients of our population.

Study design: Cross sectional comparative

Place and duration of study: At Medicine department, Jinnah Teaching hospital (JTH), Peshawar from June 2017 to October 2018

Methodology: Hundred participants (50 lichen planus and 50 control) were included in this study. The exclusion criteria were; patients with a probable lichenoid eruptions induced by drugs, with chronic hepatitis B and C infections and chronic alcohol consumption. All of the 50 cases (31 female and 19 male) were advised screening for the serological evidence of Hepatitis C virus (HCV) using the ELISA kit (3rd generation) for detection of antibodies to human HCV, and for hepatitis B infection using a detection kit for hepatitis B surface antigen (HBsAg). A total of 50 healthy Pakistani blood donors from both genders (33 female and 17 male) were selected from the records of blood bank of our hospital (JTH) and were used as a control group. Chi-square test was used to test the significance of association between lichen planus, HCV and HBV. P-value of ≤ 0.05 was considered significant.

Results: The mean age was 39.46±12.90 years. The frequency of Hepatitis C was higher in lichen planus cases (n=7, 14%) than control group (n=2, 4%). But these differences were not statistically significant (P=0.160). Similarly the frequency of Hepatitis B was higher in lichen planus cases (n=2, 4%) than control group (n=1, 2%). But these differences were also not statistically significant (P=1.00).

Conclusion: Although the prevalence of Hepatitis B and C is higher in cases with lichen planus than control but the association was not significant.

Keywords: Hepatitis C, Hepatitis B, Lichen planus, association

INTRODUCTION

Patrick in 1989 discovered the hepatitis C virus (HCV) which belongs to the family Flaviviridae and has a single stranded RNA genome.[1] This virus has infected almost 170 million people worldwide. According to an estimation about 3% population in the world are carriers of this virus and 3 to 4 million new infections happens each year.[2] This make this infection a warm global issue.[3] Among infected patients about 70% to 80% lead to chronic state of the disease, more than half of which are symptomless.[4] The major leading cause of hepatocellular carcinoma and chronic hepatic diseases is the hepatitis B & C virus. Nevertheless, the disorders induced by these viruses are not limited to hepatic diseases; in about 15% of patients manifest extrahepatic disorders including glomerulonephritis, leukemia, lymphoma, Sjogren's syndrome and lichen planus.[4] It is shown by the epidemiological studies that in hepatitis C carriers there is a high incidence rate of extrahepatic manifestations induced due to immune reaction to the virus.[4]

Lichen planus (LP) is having unknown etiology and a common chronic inflammatory disease of the stratified squamous epithelium mediated by T-cells. Lichen planus can affect the skin, oral mucosa, hair follicles, genitalia, nails, esophagus, urinary tract, larynx nasal mucosa and even the eyes.[5] Local conditions having increasing the exposure like poor oral hygiene and cigarette smoking might raise the chance of the immune trigger. Women more affected than men by Oral LP (OLP) and prevailed primarily in adulthood, though young individuals and children may also be affected.[6] On clinical ground the oral lichen planus has six variants which are atrophic, papular, reticular, plaque-like, erosive and bullous. The clinical features of lichen planus may occur independently or in combination.[7] There is

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a great concern that oral lichen planus may lead to a malignant condition.[8] While skin lesions occur in 20% of cases with oral lichen planus, in 70%–77% of cases the cutaneous lesions are associated with oral lesions.[9]

The etiology of lichen planus is still not known, but many investigators consider genetic and environmental factors for example medicines that cause this disease.[10] Rebora and Rongioletti[11] and Rebora et al.[12] published the primary reports on the association of oral lichen planus and chronic liver disease in a few Asian regions such as Turkey and Thailand. Some previous investigators have found a relationship between hepatitis C virus and oral lichen planus, showing something more than just a coincidental occurrence.[13,14] The conclusion of another study was that lichen planus has an association with hepatitis C virus but not with hepatitis B virus. They suggested that the clinicians who treating the patients with lichen planus should consider screening the cases with lichen planus for hepatitis C virus.[15] There is lack of research on association of lichen planus and hepatitis B and C virus infection in our population. So the objective of this study was to determine association between lichen planus and hepatitis B and C virus infection in patients of our population.

METHODOLOGY

This cross-sectional study was carried out at the medicine department of Jinnah Teaching Hospital (JTH), Peshawar, on 100 consecutive patients (50 lichen planus and 50 control). Sampling was done using convenient sampling technique. Approval was taken from ethical review committee of the hospital. After detailed explanation to the participants regarding the purpose of the study a verbal informed consent was taken. From June 2017 to October 2018, a total of 50 patients with lichen planus were enrolled in this study.

The demographic data like age of patient, gender and type of lesion were recorded using a proforma. The exclusion criteria were; patients with a probable lichenoid eruptions induced by drugs, with chronic hepatitis B and C infection and chronic alcohol consumption. All of the 50 cases (31 female and 19 male) were advised screening for the serological evidence of Hepatitis C virus using the ELISA kit (3rd generation) for detection of antibodies to HCV, and for hepatitis B infection using a detection kit for hepatitis B surface antigen (HBsAg)- (Abbott corporation).

A total of 50 healthy looking Pakistani blood donors from both genders (33 female and 17 male) were selected from the record of the blood bank of the hospital (JTH) and were used as a control group. Selection of control group was carried out by systemic random sampling method. These controls previously been screened for HCV antibodies and HBsAg using the same technique that was employed in study cases. The LP cases (50) came to the medical OPD of JTH during the mentioned study period for seeking treatment for their medical problems e.g. chest, gastrointestinal, musculoskeletal ailments etc. After detailed history and examination 10 patients (20%) were found to be already diagnosed cases of LP, 40 cases were referred to a dermatologist for confirmation who confirmed 30 cases (60%) clinically to have LP. In case of doubt in 10 patients (20%), the confirmation of diagnosis was done by skin biopsy. Same histopathologist examined all of the specimens. The histological confirmation was based on the presence of degeneration of the basal layer with band like lymphocytic infiltration of the papillary dermis as by Strak et al.[16] All these 50 cases also underwent a detailed examination by an ENT specialist for oropharyngeal and laryngeal LP lesions. Female cases (n=31, 62%) were examined for genital LP by an expert lady doctor.

The collected data were analyzed using Statistical Package for the Social Sciences version 20.0 (SPSS 20.0) software. Mean and standard deviation were calculated for quantitative variables like age. Frequency and percentages were computed for qualitative variables like sex, type of lichen planus, HCV and HBV. Chi-square test was used to test the significance of association between lichen planus, HCV and HBV. For the comparison between cases and controls, P-value ≤ 0.05 was considered as significant.

RESULTS

The mean age was 39.46±12.90 years. The age ranged from 20 to 70 years. The females (n=64, 64%) were more than males (n=36, 36%). In whole sample the hepatitis C positive cases were n=9(9%) and hepatitis B positive cases were n=(3%). Cutaneous lichen planus was found in n=40(80%) cases and cutaneous plus mucosal (oral) lichen planus was recorded in 10(20%) cases (Table 1).

The frequency of Hepatitis C was higher in lichen planus cases (n=7, 14%) than control group (n=2, 4%). But these differences were not statistically significant (P=0.160). So there is no significant association between Hepatitis C and lichen planus. The details are given in table 2.

Similarly the frequency of Hepatitis B was higher in lichen planus cases (n=2, 4%) than control group (n=1, 2%). But these differences were also not statistically significant (P=1.00). The details are given in table 3.

DISCUSSION

Lichen planus is a pruritic, purplish, plane, polygonal papular eruption. Flexor surface of the legs and wrists, genital organs and mucous membranes are most commonly affected. The cutaneous lesions resolve within 6 months in more than 50% cases and within 18 months 85% of cases recover. However, mean duration of oral lesions is 5 years.[17] Recently it become

Table 1: Frequency of gender, hepatitis B virus, hepatitis C virus and type of lichen planus

		Frequency	Percent
Gender	Male	36	36
	Female	64	64
	Total	100	100
HCV	Yes	9	9
	No	91	91
	Total	100	100
HBV	Yes	3	3
	No	97	97
	Total	100	100
Type of Lichen Planus	Cutaneous	40	80
	Cutaneous + Mucosal(oral)	10	20
	Total	50	100

Table 2: Comparison Hepatitis C virus cases with Lichen Planus and control group

			Group		P-Value
			Cases with Lichen Planus	Control	
Hepatitis C virus	Yes	n	7	2	0.160
		%	14.00	4.00	
	No	n	43	48	
		%	86.00	96.00	
Total		n	50	50	
		%	100.00	100.00	

*Chi-Square value=3.053; df=1

Table 3: Comparison Hepatitis B virus cases with Lichen Planus and control group

			Group		
			Case with Lichen Planus	Control	
Hepatitis B Virus	Yes	n	2	1	1.000
		%	4	2	
	No	n	48	49	
		%	96	98	
Total		n	50	50	
		%	100	100	

*Chi-Square value=0.344; df=1

evident that hepatitis C virus can have broad spectrum of extrahepatic manifestations including lichen planus (LP).[18]

An important association may be there between hepatitis B, hepatitis C and LP, particularly in those regions where hepatitis B and C infection rates are high. In patients with lichen planus the liver disorder are often reported.[19] Hepatitis C virus induced chronic active hepatitis is supposed to be a contributing factor. In a case-controlled study the significant association was shown for erosive lichen planus with chronic hepatitis.[20] From Iran a similar study of high incidence was reported.[21] A statistically significant association between erosive lichen planus and HCV infection was reported by another study conducted in Spain. They suggested that a high prevalence of hepatitis C viral RNA in lichen planus give some clue that hepatitis C virus might play a role in the pathogenesis of lichen planus.[22]

Our findings showed that the frequency of Hepatitis C was higher in lichen planus cases than control group. But these differences were not statistically significant (P=0.160). So there is no significant association between Hepatitis C and lichen planus. Similarly no significant association was found between Hepatitis B and lichen planus.

Investigations carried out in western region of Europe, having low frequency of hepatitis infection, have not found an association between lichen planus and hepatitis.[23] A research on 180 English individuals affected by oral lichen planus showed no significant association with liver abnormalities.[24] Likewise, an investigation conducted in Turkey found no relation between hepatitis C infection and lichen planus.[25] Birkenfeld et al.[15] concluded that there is no association between lichan planus and hepatitis B. All these studies are in consistent to our findings.

CONCLUSION AND RECOMMENDATIONS

Although the prevalence of Hepatitis B and C virus infection is higher in cases with lichen planus than control but the association was not significant. Further large sample and prospective longitudinal design studies are needed to explore this area more.

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