

## Is the Frequency of Hepatitis B Virus and Hepatitis C Virus Infection Increased in Patients with Lichen Planus?

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### Abstract

**Introduction:** Lichen planus (LP) is a rare inflammatory disease involving the skin and mucous membranes. It has been reported that is reported to be 1% in the general population, can be seen as an extrahepatic finding in Hepatitis B, especially Hepatitis C, and its frequency may have increased compared to the healthy population. Although there are many studies on this subject, either the number of patients is small or there is no control group in these studies. The aim of this study is to present the comparison of the frequency of viral hepatitis in patients diagnosed with lichen planus with the control group.

**Materials and Methods:** The demographic characteristics and ELISA results of LP patients who applied to the dermatology outpatient clinic between January 2017 and December 2019 were recorded. As the control group, who would have been evaluated by endoscopic examination and performed ELISA included the study and ELISA results and demographic characteristics of patients were recorded. The demographic characteristics of the two groups and the presence of viral hepatitis were compared.

**Results:** The mean age of the patient group was  $49.3 \pm 17.9$  years, the mean age of the control group was  $49.1 \pm 15.8$  years, and there was no difference ( $p = 0.9$ ). While the female-to-male distribution was 225:126 in the patient group, it was 71:46 in the control group ( $p = 0.5$ ).

Hepatitis B was positive in 3% of patients in the LP group, while it was positive in 1.7% of the patients in the control group ( $p = 0.41$ ).

In the LP group, 1.4% of patients were Hepatitis C positive, while 2.5% of patients in the control group were positive ( $p = 0.5$ ).

**Conclusion:** Before the discovery of the Hepatitis C Virus, it was known that liver disease may be associated with LP. With the discovery of the Hepatitis C Virus, there have been many publications showing that the frequency of Hepatitis C in LP has increased, and this has been a widely accepted view. Although studies that support this continue to be published, since 2016, there have been studies involving a small number of patients showing that there is actually no association. This study, which included 350 patients, showed that the frequency of Hepatitis C in LP does not increase. Hepatitis B frequency in LP was not found to be increased similar to the literature.

**Keywords:** Lichen Planus; Hepatitis C Virus; Hepatitis B Virus; Chronic Liver Disease

### Introduction

Lichen Planus (LP) is an inflammatory disease of uncertain etiology characterized by peculiar lesions and affecting the skin and mucous membranes [1]. The prevalence of this disease, which is slightly more common in women, in the society is between 0.9% and 1.2% [2]. It is characterized by itchy, purple-colored, regular or irregularly demarcated, papule or plaque-like lesions. Lesions can be seen mostly on the skin of the extremities, nails, face, and mostly oral, nasal, genital mucosa. Although its etiology is not clear, it is thought that autoimmune mechanisms play a major role in its pathogenesis.

As it is associated with some diseases such as lichen planus, ulcerative colitis, diabetes mellitus, lupus erythematosus, its association with chronic hepatitis has been an interesting subject in recent years [3]. Dermatological involvements are well-known extrahepatic involvement in patients with chronic liver diseases such as arthritis, nephropathy and eye involvement Lichen planus is one of the most common skin involvement [4-6]. Chronic liver disease association with LP was first described in a patient with French LP in 1978 [7,8]. Although many studies have been done on this subject after this publication, its relationship with Hepatitis C Virus (HCV) infection and Hepatitis B Virus (HBV) infection is still controversial. While the first studies conducted on this subject stated that the incidence of LP was increased in patients with HCV infection, the results of recent studies are different. On the other hand, the results of the studies on the frequency of HCV and HBV infection in LP also differ. While some of the studies showed increased association between LP and HCV infection [9-19], others showed that there was no increased association between the two diseases [20-27].

Coexistence of Hepatitis B virus infection with LP has been a less researched subject because either a weak link has been established between the two diseases or has been found to be unrelated [28-32]. The study, which established a relationship between LP and HBV infection, commented that there may be a condition associated with Hepatitis B surface antigen (HBsAg). However, some subsequent studies have shown that lichenoid lesions develop in those with hepatitis B vaccine [33]. Since the results of the studies investigating the relationship between Hepatitis B Virus and HCV infection and LP are different from each other, we aimed to investigate the frequency of HBV and HCV in LP patients in Turkey with this study.

### Materials and Methods

Patients with LP who presented to the dermatology outpatient clinic between January 2017 and December 2019 were evaluated; All patients whose ELISA results were reached were included in the study. Demographic characteristics and ELISA results were recorded. Patients who were matched in age and gender with the study group and undergoing endoscopic examination due to dyspepsia were included in the study as the control group. ELISA results obtained before the procedure and demographic characteristics of these control group patients without any known chronic liver disease were recorded. The demographic characteristics of the two groups and the presence of viral hepatitis were compared.

### Statistical analysis

To compare relative frequencies in cases and controls, the chi-square test was used. Using the SPSS software version 21. For data with normal distribution, independent samples t-test was used to compare mean differences. Corresponding P-values were considered significant at values < 0.05. Other data, such as gender, types and locations of the LP lesions, were expressed as percentages.

### Results

Three hundred and sixty LP patients were being followed up by the dermatology outpatient clinic. The ELISA results of 10 patients could not be reached. Finally, a total of 351 LP patients were included in the study. The patient was taken in the control group at a ratio of 3: 1, and 127 patients were included in the control group. The mean age of the LP group was  $49.3 \pm 17.9$  years, the mean age of the control group was  $49.1 \pm 15.8$  years, and there was no statistically difference ( $p = 0.9$ ).

While the female-to-male distribution in the patient group was 225: 126, it was 71:46 in the control group (p = 0.5).

	Lichen Planus	Control
Age (mean, years)	49.3 ± 17.9	49.1 ± 15.8
Sex (F:M)	225: 126	71:46

**Table 1:** Demographical signs of all groups.

The frequency of hepatitis according to all groups was as in table 1 and there was no statistically significant difference.

		Groups		p
		Lichen Planus n (%)	Control n (%)	
Hepatitis B	Positive	11 (3)	2 (1,7)	0,41
	Negative	340 (97)	115 (98,3)	
Hepatitis C	Negative	5 (1,4)	3 (2,5)	0,5
	Positive	346 (98,6)	114 (97,5)	

**Table 2:** Frequency of hepatitis B and C of all groups.

## Discussion

In this study that conducted in Turkey and included 351 LP patients, no difference was found frequency of HBV and HCV infection between the patient group and the control group in terms of the, in other words, no relationship was found between LP and HBV and HCV.

When the literature is reviewed, the first studies have shown that the frequency of LP in HCV infection has increased, and even these results have become classical information. However, recent results support that HCV and LP are unrelated [9-27]. Considering the studies showing that the two diseases are related, the relationship between LP and HCV seems to show a regional characteristic, while it was found to be related in West and South Asia, South America, Middle East and West Asia, it was found unrelated in North America, Northern Europe and North Africa. This difference can be attributed to genetic factors [34]. Genetic linkage was established through HLA class II DR6. In the study conducted in Italy, LP was found more frequently in those who had this allele and the relationship with HCV was explained in this way [35,36].

Another logical biological explanation for the coexistence might be that systemic inflammation plays an important role in both diseases. HCV infection may cause LP to occur with this inflammatory event [37]. HCV RNA and HCV specific T cells have been shown from samples taken from lesions in the oral mucosa [38].

In this study, no relationship was found between HBV and LP, either. In 1978, the most striking one of these studies conducted after the determination of a possible relationship between LP and chronic liver disease was the multi-center study conducted in Italy. In this study conducted by 27 centers, 577 patients with a diagnosis of LP and 1031 patients with a non-LP dermatological diagnosis were investigated in terms of CHB, and they found that there was a 1.8-fold increased risk compared to the population [29]. However, subsequent studies did not support this data [10,31,32].

Dermatological evaluation can be easily performed to detect liver findings in chronic liver disease. The question to be asked is "Should every patient with LP be investigated in terms of HCV and HBV?". The results of the studies on the subject differ as well as the opinions. According to the results of some studies, the authors recommend [39], while others do not [35,37].

The most important limitation of this study can be said to be retrospective, but there are no conditions such as elevated transaminases, which are known to cause bias, and chronic liver disease, so the results should be considered reliable.

### Conclusion

In our center, all LP patients were investigated in terms of HBV and HCV infection. When the results of our study were evaluated, no relationship was found between LP and HCV and HBV. This can be explained geographical structure of Turkey and genetic characteristics. Perhaps the perception of LP as an extrahepatic manifestation of HCV and HBV infection should change and not every LP patient needs to be investigated in terms of HCV and HBV. Multi-center studies are needed for a definite recommendation on this subject.

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