Prevalence of Hepatitis C Virus Antigen Among Patients with Lichen Planus in Alkhalis City

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Abstract

Background: Lichen planus is an idiopathic inflammatory disease with characteristic clinical and pathologic features affecting the skin, mucous membranes, nails, and hair. It is likely that both endogenous (genetic) and exogenous (environmental) factors such as some drugs or some infection(s) may interact to elicit the disease.

Objectives: To determine the prevalence of hepatitis C virus antigen among the patients with lichen planus and comparison with healthy control group.

Materials and methods: Twenty patients with lichen planus were included in this study (12 males and 8 females) and (40) healthy control (28 males and 12 females), their ages ranged from (15-60) years, obtained from Alkhalis hospital during the period from 1st February to 30th September 2013, using enzyme linked immunosorbent assay (ELISA) technique to detect anti HCV antibody in patients serum and control group.

Results: Two (10 %) had positive results for hepatitis C virus antigen (2) out of (20) patients suffering from lichen planus, while none of the within healthy control group had positive result. Statistically significant relationship was observed between both of them.

Conclusion: The frequent study showed a difference in prevalence of hepatitis C virus in patients with lichen planus and healthy control.

Key word: lichen planus, hepatitis C virus.

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Introduction

Lichen planus is a chronic mucocutaneous disease that affects the skin,hair,nail, tongue and oral mucosa. The disease presents itself in the form of papular, lesions, or rashes. Lichen planus does not involve lichens, the fungus/algae symbionts that often grow on tree trunks; the name refers to the dry and undulating, "lichen-like" appearance of affected skin. It is sometimes associated with oxidative stress, certain medications and diseases, however the underlying pathology is currently unknown [1, 2].

Lichen planus affects 0.5-2.0% of the population with a predilection for women and a mean age of onset in the fourth to fifth decade [3].The hall-mark of cutaneous lichen planus is the presence of itchy, flat-topped, polygonal, glistering papules with a violaceous hue. Lichen planus may present in varying forms, and these include linear, annular, atrophic, hypertrophic,vesiculo-bullous, erosive, follicular, and actinic lichen planus.

Lichen planus is not contagious and does not involve any known pathogen. Some lichen planus-type rashes (known as lichenoid reactions) occur as allergic reactions to medications used for high blood pressure, heart disease and arthritis, in such cases termed drug-induced lichenoid reactions. These lichenoid reactions are

referred to as lichenoid mucositis (of the mucosa) or dermatitis (of the skin). Lichen planus has been reported as a complication of chronic hepatitis C virus infection and can be a sign of chronic graft-versus-host disease of the skin (Lichenoid reaction of graft-versus-host disease) [4].It has been suggested that true lichen planus may respond to stress, where lesions may present on the mucosa or skin during times of stress in those with the disease. The involvement of the mucous membranes is seen frequently and usually is asymptomatic, but occasionally, lichen planus can be complicated by extensive painful erosions [5].Lichen planus in children is rare.So this study goal to investigate it.

Materials and Methods

Samples collection: A total of 20 patients were screened for significant lichen plannus and randomly selected from Alkhalis hospital during the period from 1st February to 30th September 2013.The patients included 12(60%) males and 8(40%) females their mean age was 42.5 year with age range from 15 to 60 year.

All the subjects were clinically identified under standarlized conditions; the oral cavity was examined in an artificial light by using a mouth mirror.

In addition 40 apparently healthy of both gender used as control group.

Blood test: Seven to eight ml of blood was collected into small plastic polyethylene tube then centrifuged at 1500 RPM for 10 minutes, the supernatant was used for hepatitis C virus analysis.The patients and control group were screened for the presence of anti- hepatitis C virus antibodies and hepatitis C virus antigen by the third generation of enzyme-linked imuno-sorbent assay (ELISA) kit (plasmatec laboratory products UK cat no.(LOT:2013081002).

Statistical analysis:

Chi-square test:

Used to determine whether there is a significant difference between the expected frequencies and the observed frequencies in one or more categories.

Chi-Square Test Requirements

1. Quantitative data.
2. One or more categories.
3. Independent observations.
4. Adequate sample size (at least 10).
5. Simple random sample.
6. Data in frequency form.
7. All observations must be used.

Results

The studied patients had an age ranged of 15-60 years. The majority of participants were male (60%) as showen in table (1).

The percentage of hepatitis C virus antigen in patients with lichen planus as shown in (table 2) was (10%), 2 out of 20 patients suffering from lichen planus (10%) had positive result for hepatitis C virus antigen ,while positive result recorded within healthy control group any. Statistically significant relationship was observed by using chi square test. As shown in (table 3).

Figure (1) show prevalence of lichen planus in oral cavity,while figure (2) on skin area.

Table (1): Age and sex distribution of the samples in patients with lichen planus.

Age Years	*M*		*F*		*Total*	
	n	*%*	*n*	*%*	*n*	*%*
15-30	6	30%	0	0%	6	30%
31-45	1	5%	3	15%	4	20%
46-60	5	25%	5	25%	10	50%
Total	12	60%	8	40%	20	100%

Table (2): Distribution of hepatitis C virus antigen according to age group and sex in patients with lichen planus.

Age group	**15-30**				**31-45**				**46-60**			
Sex	**M**		**F**		**M**		**F**		**M**		**F**	
	n	**%**	***n***	**%**	***n***	**%**	***n***	**%**	***n***	**%**	***n***	**%**
Hepatitis C virus	0	0%	0	0%	0	0%	0	0%	2	10%	0	0%
Total	0	0%	0	0%	0	0%	0	0%	2	10%	0	0%

Table (3): Correlation ship of groups count with % of negative and positive results of hepatitis C virus in studied group.

Groups	**Count & percentages**	Hepatitis C virus		**Total**	**Relationship**
		Negative	**Positive**		
Control	**Count**	40	0	40	Chi square test X^2 =4.172 Significant relationship between patients and control when calculated value of chi square more than tabular chi square= (3.84).
	% within group	100.0%	0.0%	100.0%	
Patients	**Count**	18	2	20	
	% within group	90%	10%	100.0%	
Total	**Count**	58	2	60	
	% within group	96.7%	3.3%	100.0%	

Figure (1): Female with oral lichen planus of age 35 years old from Alkhalis hospital.

Figure (2): Male with skin lichen planus of age 45 years old from Alkhalis hospital.

Discussion

Lichen planus have been reported to occur in the setting of chronic hepatitis C virus infection [6]. However, there are wide geographical variations in the reported prevalence of hepatitis C virus infection in patients with lichen planus, varying from 0% in England [7] to 63% in Japan [8].

In the present study, among 20 patients with lichen planus, only 2 (10%) had positive result for hepatitis C virus antigen. The present study showed that the prevalence of hepatitis C virus antigen was 10% among patients with lichen planus as compared to healthy control, (0%) with a statistically significant relationship established.

Prevalence of hepatitis C virus in patients with oral lichen planus in the study by *Figueiredo et al.,* [9] in Brazilian patients from São Paulo (8.8%) showed statistical differences in comparison with the general population. This observation may be due to differences in the regional distribution of hepatitis C virus infection.

Two other studies were conducted on Brazilian patients from the state of Rio de Janeiro analyzing the prevalence of oral lichen planus in patients with hepatitis C virus infection,[10,11] but no relationship between the two conditions was observed. According to the findings of *Figueiredo et al.,* [9] the frequency of oral lichen planus in

patients with hepatitis C virus was 4.7% with a statistical significance.

Although the prevalence of hepatitis C virus in patients with lichen planus in our study was (10%), which was statistically significant. We believe that these different results may be due to methodological differences between the studies or may reflect the different geographic prevalence of hepatitis C or coexistence of hepatitis C and lichen planus.

The results of present study disagreement with finding of *Ingafou et al.*,(1998), who found no evidence of hepatitis C virus antigen in British patients with oral lichen plannus[12].Also disagreement with the study done by *Nago et al.*, (1995) in India who show no relationship [13]. But, agreement with another study conducted by *Tanei et al.*, (1995) in Japan show that 37.8% of 45 patients with lichen planus had serological evidence of hepatitis C virus infection [14]. Also,agreement with study done in Nigeria by *Daramola et al.*, (2002), who found that anti hepatitis C virus antibodies 9% in patients with lichen planus[15].

Surprisingly, Italy, Spain and Germany were other countries in which high prevalent of hepatitis C virus antigen had been described among patients with lichen planus[16,17,18] .

Erkek et al., [6],who found that hepatitis C virus antibodies prevalence in Turkish patients with lichen planus (12.9%) was higher than that of the control group (3.7%) but the difference was not statistically significant; whereas *Kirtak et al.*, [19],found a statistically significant difference in Gaziantep region of Turkey.

Daramola et al., [15],who perform study in south west Nigeria and found a 9% prevalence of hepatitis C virus among 57 patients with lichen planus and there was no statistically significant association with hepatitis C virus infection. However, from our study, the prevalence of hepatitis C virus infection in patients with lichen planus in Alkhalis city was (10%). It was statistically significant in relation to control group.

In the present study, the prevalence of the hepatitis C virus antigen in patients with lichen planus increased with age, this may be explained by the fact that the most fundamental change that takes place in the body with aging was impairment immune response. This makes the body less capable to fight infections and diseases or may be related with limited sample size.

Conclusion

The frequent study showed a difference in prevalence of hepatitis C virus in patients with lichen planus and healthy control.

Recommendation

Frequent hepatitis C virus examination of patients with lichen planus was mandatory.

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