

SERO-PREVALENCE OF HELICOBACTER PYLORI INFECTION IN PATIENTS INFECTED WITH HEPATITIS C VIRUS WITH AND WITHOUT LIVER CIRRHOSIS.

Shakir Hussain¹, Muhammad Akram Bajwa², Prem Kumar³, Kamran Ahmed Almani⁴, Safdar Ali Pervez Tunio⁵, Jeando Khan Daidano⁶.

ABSTRACT

Objective: To determine the sero-prevalence of helicobacter pylori infection in patients infected with hepatitis c virus infection with and without liver cirrhosis. **Study Design:** Descriptive analytical study **Setting:** The department of Gastroenterology unit, Isra University hospital, Hyderabad. **Duration:** From 4th March 2016 to 3rd September 2016. **Material and Methods:** All the hepatitis C infected patients with and without liver cirrhosis, irrespective of treatment and either of gender was included in the study. Severity of liver cirrhosis was assessed by child Pugh classification. Blood samples were taken from all study subjects and were sent to the Hospital diagnostic laboratory to assess the pylori infection serologically. All the data was recorded via study proforma. Data was analyzed by using SPSS version 20. **Results:** Total 385 patients were studied their mean age was 55.45±12.19 years. Out of all 223 were males and 162 were females. Liver cirrhosis was found 69.4% out of all study subjects. The H. Pylori infection was found to be 89.1%. The H. pylori infection was significantly associated to patients having cirrhosis of liver (p=0.011). **Conclusion:** H. Pylori infection was significantly more prevalent among HCV cirrhotic patients as compared HCV non-cirrhotic patients.

Keywords: Helicobacter Pylori Infection, Hepatitis C Virus Infection, Liver Cirrhosis.

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1. Senior Registrar, Gastroenterology department, LUMHS
2. Assistant Professor, Gastroenterology, LUMHS
3. Assistant Professor, Gastroenterology, ISRA University Hospital, Hyderabad
4. Resident, Gastroenterology, ISRA University Hospital, Hyderabad
5. Assistant professor, medicine, KMC Khairpur.
6. Assistant professor, medicine, PUMHSW, SBA.

Corresponding author Dr. Shakir Hussain, Senior Registrar, Gastroenterology department, LUMHS Email: urs_liaquatian@yahoo.com

INTRODUCTION

Hepatitis C virus (HCV), a hepatotropic RNA virus, is some over the leading reasons regarding chronic hepatic illness. Hepatocellular carcinoma (HCC) is the main complication linked to hepatitis V viral infection together with substantial morbidities and mortality rates.¹ Additionally with liver disease, HCV infection is suspected to be linked with many extra liver hepatic manifestations.² Chronic hepatitis C yet its sequelae are related with elevated cause-specific and mortality overall. Approximations indicated the that there is 3 to 4 million peoples newly infected per years, 170 million individuals chronically contaminated and at chance on rising hepatic adverse outcome consisting of cirrhosis or hepatic carcinoma, and about 350,000 deaths manifest each 12 months, due to whole HCV-related reasons.^{3,4} Helicobacter pylori infect about 50% of the world's population.⁵ It is generally agreed that infection by this organism inevitably results in the development of gastritis. H. pylori infection is highly prevalent among low socioeconomic

societies, consequently the antibody to H. pylori incidence higher in developing nations in contrast to the developed countries, according to reported rate as 15.5% for the developed and 93.6% for the developing countries.⁵ Most of the H. pylori infected persons acquired the infection probably from childhood when standards of the sanitation like public water system, living lifestyle were not correctively developed.⁶ It is demonstrated that cases having cirrhosis of liver are frequently facing several problems of the gastric mucosa and the gastro-duodenal mucosal peptic lesion observed in higher rates in patients of cirrhosis as compared to normal population (controls).⁷ Though according to some studies there is a link in H. pylori and gastro-duodenal lesions among individuals having chronic hepatitis C infection. There are very few reports regarding H. pylori eradication rates for the patients having HCV infection. Chronic hepatitis is an inflammatory process and as with any other chronic inflammation, it too is characterized by a rise in pro-inflammatory cytokines. HCV is capable of inducing limited inflammation,

Contrary to bacteria like *H. pylori*, which are potent inducers of the inflammatory cascade. *H. pylori* is all around perceived as a basic factor in most of the cases with peptic ulcer illness and effective treatment outcome in the cure of sickness. However it is stated that, *H. pylori* infection is linked to many extra-intestinal illness like hepatic encephalopathy.^{8,9} DNA of the *H. pylori* have been observed in the livers of human and has been implicated in the chronic hepatic illness and hepatic carcinoma.^{8,10} Hepatic diseases caused by chronic hepatitis C infection are the presently leading reason of morbidities and mortality throughout the world. However individuals having hepatitis C infection and co-infections leads to progression in the end stage of hepatic disease over the course of 20 to 30 years. DNA of the *H. Pylori* have been detected in human livers and may linked to cause liver cirrhosis and hepatocellular carcinoma.⁸ This is especially because some studies have demonstrated that there is increasing link of *H. pylori* infection with increasing Child-Pugh classification and Model for End Stage Liver Disease (MELD) scores in Chronic Liver Disease (CLD).¹¹ Due controversial data at international level and inadequate data at local level, this study aimed to determine the sero-prevalence of helicobacter pylori infection in patients infected with hepatitis c virus infection with or without liver cirrhosis.

MATERIAL & METHODS

This descriptive analytical study has been carried out at the Department of Gastroenterology Unit, Isra University, Hyderabad. Study was conducted from March 2016 to September 2016. All HCV positive cirrhotic and non-cirrhotic patients irrespective of treatment of both

gender and age 30 to 80 years were included. Patients having HBsAg positive on ELISA, previously received therapy for *H. Pylori* on the basis of history and those who did not consent to participate were excluded. Informed and written consent was taken from all patients. Severity of the cirrhosis of the liver was evaluated according to child-Pugh classification. Blood sample was taken from each patient and was sent to the Hospital diagnostic laboratory to assess the *H. pylori* infection. The findings such as age, sex, education level, socioeconomic status, and presence or absence of cirrhosis including *H. pylori* infection were assessed. Data was recorded via study proforma. Data analysis was done via SPSS version 20. Frequency and percentage were analyzed for categorical variables. Numerical data was analyzed in form of mean and standard deviation. The effect modifiers were controlled through stratification. Chi-square test was applied. P value of ≤ 0.05 was taken as statistically significant.

RESULTS

Total 385 HCV positive with or without liver cirrhosis were studied. There were 223 male and 162 were females. The mean age was 55.45 ± 12.19 years. The mean duration of disease was 8.30 ± 1.38 months. Table-1 According to the liver disease severity in terms of child Pugh classification, 18.7% patients had class A, 25.2% had class B, and 56.1% had class C. Table-2. As per study objective the *H. Pylori* infection was found positive in 89.1% patient. Table-3. On the comparison of *H. Pylori* infection with or without liver cirrhosis, the rate of *H. Pylori* infection was significantly higher in patients of cirrhosis ($p=0.011$). Table-4.

TABLE: 1. Age and gender analysis of study subjects.(n=385)

Variables	Statistics
Age	
<50 years	190(49.4%)
>50 years	195(50.6%)
Total	385(100.0%)
Gender	
Male	223(57.9%)
Female	162(42.1%)
Total	385(100.0%)
Age (mean±SD)	55.45±12.19 years
Disease duration (mean±SD)	8.30±1.38 years

TABLE: 2. Child Pugh classification of the patients (n=385)

Child Pugh class	Frequency	%
Class-A	72	18.7%
Class-B	97	25.2%
Class-C	216	56.1%
TOTAL	385	100.0%

TABLE: 3. Patients distribution according to H. pylori infection and cirrhosis of liver (n=385)

Variables	Frequency	%
H.pylori		
YES	343	89.1%
NO	42	10.9%
TOTAL	385	100.0%
Liver cirrhosis		
YES	267	69.4%
NO	118	30.6%
TOTAL	385	100.0%

TABLE: 4. Association of H. Pylori infection with Cirrhosis(n=385)

Liver Cirrhosis	H. Pylori Infection			P-VALUE
	YES	NO	TOTAL	
YES	245	22	267	0.011*
NO	98	20	118	
TOTAL	343	42	385	

Chi Square Test Was Applied To Check Association.

P-Value ≤0.05 Considered As Significant.

* Significant At 0.05 Levels

DISCUSSION

Liver cirrhosis leads to several complications including hepatic encephalopathy and fatal one if not treated timely. In present study, 223 patients were male and 162 were females. The mean age was 55.45±12.19 years. The mean duration of disease was 8.30±1.38 months. The results about child pugh class showed that 18.7% patients had class A, 25.2% had class B, and 56.1% had class C. In comparison to our results, study conducted by Maheshwari BK et al¹² reported that out of all study subjects 66.7% patients were males and 33.3% were females, with age range of 20 to 80 years. Another study conducted by Joanna Pogorzelska et al¹³ reported that out of 147 patients of liver cirrhosis, there were 44 women and 103 men aged 58 years. Similarly, Ahmed M et al¹⁴ reported that 15.5% patients had age group of 18-40 years, 60.9% patients were 41-60 years old and 23.6% were seen with age group of 61-70 years and their mean age was 52.14±9.61 years, and out of all study subjects 57.3% of the patients were males and 42.7% of the patients were females. In this study according to child Pugh classification, 18.7% patients had class A, 25.2% had class B, and 56.1% had class C. Similarly Bhatti HW et al¹⁵ showed in their results child Pugh class A was 26% and child Pugh class B&C were 74%. However Pogorzelska et al¹³ stated that 27% cases were categorized as Child-Pugh class A, 47% had

Child-Pugh class B, and 26% patients had Child-Pugh class C. In this study H. Pylori infection was found positive in 89.1% patient out of all study cases, while in this study H. pylori infection was more prevalent among cases of cirrhosis. When comparison of H. Pylori infection with or without liver cirrhosis was evaluated, it was found that the association was found significant (p=0.011). Similarly Al-Jiffri OH et al¹⁶ investigated the H. pylori prevalence via IgG and IgA as the indicators to assess the infection in hepatitis C positive patients either with cirrhosis of liver or without the cirrhosis and they observed significant frequency of H. pylori IgG&IgA among patients of cirrhosis and non-cirrhosis. Such as Pellicano Ret al¹¹ observed that there was very high frequency of H. pylori infection among cases of liver cirrhosis and may prognosis in those who having also infection of hepatitis C virus. In another study of Queiroz et al¹⁷ also reported that there was a link in HCV infection and H. pylori infection among patients having cirrhosis of liver. Kim DJ et al¹⁸ reported that the infection of H. pylori more prevalent among cases of hepatitis virus-related cirrhosis of liver in contrast to those having alcoholic liver cirrhosis. Similarly, study conducted by Sethar GH et al¹⁹ reported that rate of H. pylori antibody was higher in patients having increased grade of hepatic encephalopathy (p<0.001). However Villalan Ret al²⁰ inconsistently reported that eradication

rates of *H. pylori* were non-significant in patients of cirrhosis versus non-cirrhotic, while healing rate of ulcer was lesser among cirrhotic cases. In a Meta-analysis contains 21 research studies assessing the infection of *H. pylori* in the cases having cirrhosis of liver did not observed high prevalence of infection in patients of cirrhosis versus those who were without liver cirrhosis.²¹ Effects of the *H. pylori* infection on progression of the hepatitis C infection associated hepatic disease has also been studied. Positivity of the anti-*H. Pylori* antibody was independently linked to the live cirrhosis among cases having chronic hepatitis caused by HCV.²² Such as Rocha M et al²³ reported that there was a link between positive *Helicobacter* species DNA in liver & cirrhosis of liver caused by hepatitis, with or without HCC. Concerning the gastric acidity in the liver cirrhosis, there is the marked hypogastric acidity over the entire circadian cycle which was evaluated from 24-h gastric acidity. Nevertheless, the actual mechanism of hypoacidity is poorly understood. Even though, the real hypoacidity process is poorly known. In order to validate its correlation with pathogenesis of *H. pylori* in cases with chronic hepatic disease, the acidity level and modulators of gastric mucosal response requires further study to minimize the unfavorable effects regarding severity of cirrhosis and hepatic cancer.

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CONCLUSION

H. Pylori infection was significantly more prevalent among cirrhotic patients as compared non-cirrhotic patients of HCV. HCV infected patients with *H. pylori* are on high risk of cirrhosis. *H. pylori* should be screened out among HCV patients to decrease the adverse outcome in terms of cirrhosis and hepatic cancer. Further studies should be done to explore the significant impact of *H. pylori* on cirrhosis among HCV patients by taking duration of *H. Pylori* infection and viral load in terms of early cirrhosis.

ETHICS APPROVAL: The ERC gave ethical review approval

CONSENT TO PARTICIPATE: written and verbal consent was taken from subjects and next of kin

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