



CODEN [USA]: IAJPBB

ISSN: 2349-7750

INDO AMERICAN JOURNAL OF PHARMACEUTICAL SCIENCES

<http://doi.org/10.5281/zenodo.3628106>

Available online at: <http://www.iajps.com>

Research Article

PREVALENCE OF HEPATITIS B & C VIRUSES IN PATIENTS OF LIVER CIRRHOSIS

¹Dr. Muhammad Moeed Akram, ²Dr. Haniya Talib, ³Muhammad Talha Butt

¹PGR Gastroenterology, CMH Lahore

²House Officer, Mayo Hospital Lahore

³Queen Elizabeth Hospital Birmingham

Article Received: November 2019 Accepted: December 2019 Published: January 2020

Abstract:

Objective: To find out frequency of hepatitis B & C viruses in cases of liver cirrhosis. **Material and methods:** This cross sectional study was conducted at Department of Medicine Combined Military Hospital, Lahore from March 2018 to September 2019 over the period of 6 months. Total 100 cases of liver cirrhosis were selected and hepatitis B & C viruses was assessed. **Results:** Out of 100 patients, 59 (59%) were male and 41 (41%) were female, with male to female ratio of 1.44:1.00. The age ranged from 15 years to above 70 years. Majority of the patients (80%) were 20 to 59 years old while only 05% were less than 20 years and 15% were older than 59 years. The patients were divided into 8 groups according to age. Out of all the 100 patients, 28 (28%) were HBsAg positive, 43 (43%) were positive for HCV RNA, both were positive in 06 (06%) and both were negative in 23 (23%) cases. Most of the patients were in grade "B" of Modified Child Pugh's classifications i.e., 46 patients (46%). Among them 20 were HCV RNA positive and 15 HBsAg positive. While 20 patients (20%) were in grade "A" and 34 patients (34%) in grade "C" according to Child Pugh's classifications. The risk factors for transmission of HBV and HCV infection were identified in 43% of cases. 57% patients were illiterate. Only 08 patients were vaccinated against HBV and all of them were negative for HBsAg. **Conclusion:** Chronic HCV is a leading cause of cirrhosis in Bahawalpur, followed by chronic HBV infection. Both the viruses in combination account for about three fourth of the total cirrhotics. As there is no vaccine yet available against hepatitis C virus and it is the commonest cause of cirrhosis in this part of world hence needs more meticulous approach to prevent its transmission, through avoidance of risk factors. Even if the cirrhosis develops, early detection and prompt treatment of these viral infections improve the overall outcome of the patients and prevent from development of hepatocellular carcinoma.

Key words: Hepatitis, Hepatitis B, Hepatitis C, Cirrhosis.

Corresponding author:

Dr. Muhammad Moeed Akram,

Family Medicine Specialist, Ministry of Health, Saudi Arabia

QR code



Please cite this article in press Muhammad Moeed Akram et al., *Prevalence Of Hepatitis B & C Viruses In Patients Of Liver Cirrhosis.*, Indo Am. J. P. Sci, 2020; 07(01).

INTRODUCTION:

Cirrhosis is the result of chronic injury to hepatic parenchyma and is characterized by hepatocyte necrosis, extensive fibrosis and nodular regeneration. This is the outcome of chronic liver injury caused by chronic viral hepatitis, alcohol, primary biliary cirrhosis, primary sclerosing cholangitis, haemochromatosis, wilson's disease, cystic fibrosis and alpha-1 antitrypsin deficiency.

Chronic viral hepatitis and alcohol are the common and important causes world wide. Chronic viral hepatitis is more important cause as compared to alcohol because alcohol is not frequently consumed in Pakistan as is consumed in the west. Viral hepatitis is the most important cause of acute and chronic hepatitis caused by six distinct viruses i.e. A, B, C, D, E and G.^{1,2} Apart from the wide spread morbidity caused by acute phase of infection there is predilection to chronic carrier state and chronic hepatitis especially by HBV and HCV.^{2,3}

People with chronic viral hepatitis can develop cirrhosis and hepatocellular carcinoma.² Chronic viral hepatitis due to HBV and HCV are the most important causes of cirrhosis in the developing countries, probably because of poor knowledge of their mode of transmission.⁴ Mode of transmission in both HBV and HCV are almost similar. Both are transmitted through needle pricks, surgical exposure, blood transfusion and sharing razors but in case of HCV there is least sexual and vertical transmission as compared to HBV. The reason for higher percentage of HBV as a causative factor may be the lack of health education regarding vaccination against HBV and one syringe is used to inject many patients in rural areas. One study showed higher prevalence of HCV than HBV in healthy individuals.⁵ In other local studies, HCV is the most common cause.^{6,7} After HBV infection 5-10% cases develop chronic infection and cirrhosis develops in 15-20% of the patients with chronic HBV infection, over 5 to 20 years. HCV infection usually remains asymptomatic and 70-80% patients develop life long chronic infection. Approximately 20% of the patients with chronic HCV infection develop cirrhosis after 20 years.⁸ Once cirrhosis is present, 2-5% patients per year develop hepatocellular carcinoma.⁹

If the presence of HBV and HCV is detected timely then the patient can be treated and cirrhosis can be prevented. Interferon is currently considered to be the only accepted effective treatment for chronic viral hepatitis. A 4-6 month course of interferon-alpha results in improvement of survival in 20%-30% of patients with chronic hepatitis B who have elevated serum ALT levels without hepatic decompensation. Interferon-alpha therapy is associated with HBeAg seroconversion, normalization of ALT levels, reduced hepatic inflammation, and possibly reduced disease progression to cirrhosis and hepatocellular carcinoma.¹⁰

MATERIAL AND METHODS:

This cross sectional study was conducted at Department of Medicine Combined Military Hospital, Lahore from March 2018 to September

2019 over the period of 6 months. Total 100 cases of liver cirrhosis were selected and hepatitis B & C viruses was assessed.

INCLUSION CRITERIA

- Patients of both sex and age 15 years and above
- Patients diagnosed as liver cirrhosis on clinical grounds (history of jaundice, hematemesis, abdominal distension and/or abnormal behavior and on examination having clubbing, splenomegaly and ascites)
- Patients having ultrasonographic evidence of cirrhosis (coarse echo-texture of liver, splenomegaly and portal vein pressure more than 0.2 mmHg)

EXCLUSION CRITERIA

- Patients having age less than 15 years
- Known alcoholics
- Haemochromatosis
- Wilson's disease

DATA COLLECTION PROCEDURE

All cases of liver cirrhosis admitted through emergency or out patient departments in all medical units of Hospital were considered. First hundred cases of liver cirrhosis which fulfill the inclusion criteria were included in the study. Informed consent was taken from the patient and then all the information were collected on pre-designed pro forma, having the clinical features (history and clinical examination) and investigations of liver cirrhosis and its possible cause. The patients were considered HBV positive and anti HCV antibody positive on the basis of BIOTEC Latex Kit method. Then the patients who were having anti-HCV antibodies in their serum were subjected to HVC RNA by polymerase chain reaction (Qualitative).

DATA ANALYSIS

All the information collected on the pro forma were analyzed using statistical package for social sciences (SPSS) version 10.0. No inferential statistical tests were applied since it was an observational study. Descriptive statistics were used to calculate the frequency.

RESULTS:

One hundred patients were included in this study. Out of 100 patients, 59 (59%) were male and 41 (41%) were female, with male to female ratio of 1.44:1.00 (Fig.1). The age ranged from 15 years to above 70 years. Majority of the patients (80%) were 20 to 59 years old while only 05% were less than 20 years and 15% were older than 59 years. The patients were divided into 8 groups according to age (Table No. 1).

Out of all the 100 patients, 28 (28%) were HBsAg positive, 43 (43%) were positive for HCV RNA, both

were positive in 06 (06%) and both were negative in 23 (23%) cases (Table No.02). Most of the patients were in grade "B" of Child Pugh's classifications i.e., 46 patients (46%). Among them 20 were HCV RNA positive and 15 HBsAg positive. While 20 patients (20%) were in grade "A" and 34 patients (34%) in grade "C" according to Child Pugh's classifications, details are given in (Table No. 03). The risk factors for transmission of HBV and HCV infection were identified in 43% of cases (Table No. 04). 57% patients were illiterate (Table No. 05). Only 08 patients were vaccinated against HBV and all of them were HBsAg negative.

Fig. 1
Gender Distribution

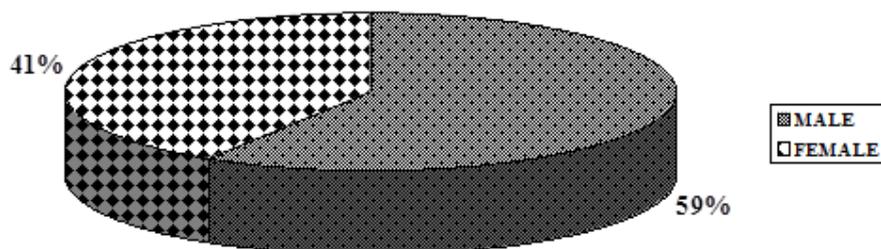


Table No. 1: AGE DISTRIBUTION

Age in years	Frequency %age
15-19	5
20-29	20
30-39	21
40-49	24
50-59	15
60-69	10
70 and above	5
Total	100

Table No. 02: VIRAL STATUS OF THE PATIENTS

VIRAL STATUS	MALE	FEMALE	TOTAL
HBV	17	11	28
HCV	25	18	43
BOTH	4	2	6
NONE	13	10	23
GRAND TOTAL	59	41	100

Table No. 03: CHILD PUGH'S GRADE OF PATIENTS

CHILD PUGH GRADE	HBV	HCV	BOTH	NONE	TOTAL
A	4	7	0	9	20
B	15	20	1	10	46
C	9	16	5	4	34
Total	28	43	6	23	100

Table No. 04: FREQUENCY OF RISK FACTORS FOR TRANSMISSION OF HBV & HCV

VIRAL STATUS	RISK FACTOR PRESENT	NO RISK FACTOR IDENTIFIED
HBV	12	16
HCV	19	24
BOTH	5	1
NONE	7	16
TOTAL	43	57

Table No. 05: EDUCATIONAL STATUS OF THE PATIENTS

EDUCATION LEVEL	TOTAL
Illiterate	57
Primary school	17
Middle school	11
High School	06
Higher secondary	03
Graduate	04
Post-graduate	02
Total	100%

DISCUSSION:

Hepatitis C virus infection is one of the commonest chronic viral infections in the world, with about 300 million people chronically infected worldwide. Up to 170 million people have chronic hepatitis B infection worldwide.¹¹ Both of these infections lead to cirrhosis of liver if not treated properly. Physicians know hepatic cirrhosis and its complication since the time of Hippocrates. W.H.O. has estimated that cirrhosis is responsible for 1.1% of all deaths worldwide. About 175 million people in the world have cirrhosis of liver. Cirrhosis comprises 10th most common cause of death in USA. About 30% patients of cirrhosis die in hepatic coma.

Cirrhosis of liver is very common in Pakistan. Evaluation of the etiologic factors and the diagnosis of this disease was the subject of many studies in the past, internationally as well as in Pakistan, which also has been addressed in this study.

In the present study total one hundred patients were included. 59 (59%) were male and 41 (41%) were female. The male predominance has been observed in various studies conducted in Pakistan as well as internationally previously, so is the case here in this study. This male to female difference may be due to delayed consultation by female patients and gender inequality in utilization of health care facilities in Pakistan. The other factor may be that, as compared to female, male are relatively more exposed to the risk factor for the transmission of hepatitis B and C viruses i.e., transmission through barbers and

intravenous drug abuse. Fifty seven percent patients were illiterate.

In this study most of the patients were relatively young i.e., 80% of patients were between the ages of 20 to 59. This may be due to the progressive course and lethal nature of the disease that most of the patients die early in the course. Lack of health education, low socio-economic status and delay in start of treatment are the contributing factors as for as Pakistani population is concerned. The literacy rate was very low in most the cases in the study.

Chronic hepatitis C virus infection alone was found to be the major cause of liver cirrhosis in this study i.e., 43% and in another 06% patients along with hepatitis B virus. HBV alone was the cause in 28% of patients while 23% were negative for both HBsAg and HCV RNA. One of the international study concluded that co-infection of hepatitis B and C viruses is much prevalent i.e., 66% of HCV positive patients had occult HBV infection also.¹²

In a local study conducted at King Edward Medical College Lahore, Hussain et al, found that anti HCV was positive in 52% patients and HBsAg was positive in 24%. While 8% were positive for both HBV and HCV markers. In 16% patient no cause could be determined.¹³

In another local study conducted at Khyber Teaching Hospital Peshawar, Farooqi et al, concluded HCV as the major cause of liver cirrhosis. They found that Anti-HCV was found positive in

42.68% patients, HBsAg was positive in 25.60% patients and both were positive in 7.32% patients whereas both the viruses were negative in 24.40% patients.⁶ One local study conducted in Swat has almost similar results i.e., Anti-HCV was positive in 59% patients. HbsAg was positive in 32% patients. Both were positive in 3% patients. Both were negative in 6% patients. Both account for about three-fourth of the total patients of liver cirrhosis.¹⁴ In an international prospective study, conducted on 312 patients, 80% were found positive for anti HCV, 13% for HBV and 07% co-infected with both HBV and HCV.¹⁵

The results in the local studies are comparable with the present study. Higher percentage of patients of liver cirrhosis being affected by hepatitis C virus may be due to the silent and asymptomatic course of infection by HCV. This causes delay in seeking advice for treatment and usually present to the health facility with liver cirrhosis or its complications. Lack of health education and low socio-economic status also contribute in delay for seeking advice. Non availability of vaccine for HCV limits measures for prevention.

In the present study, most of the patients were in grade "B" of Child Pugh's classifications i.e., 46 patients (46%). Among them 20 were HCV positive and 15 HBV positive. While 20 patients (20%) were in grade "A" and 34 patients (34%) in grade "C" according to Modified Child Pugh's classifications, details are given in (Table No. 06). In a local study at Lahore, the frequency of patients in Child Pugh's class are comparable with the present study i.e., 12% were in class A, 46% in Class B and 42% in class C.¹⁶ The risk factors for transmission of HBV and HCV infection were identified in 43% of cases (Table No. 07 and Fig.15). Only 08 patients were vaccinated against HBV and all of them were negative for HBsAg. Important risk factors identified were the occupational exposure to the blood and syringes, history of blood transfusions, taking therapeutic injections and intravenous drips and habit of getting shaved by barbers. Injection drug users are the major bulk at risk, internationally.¹⁷⁻¹⁸

CONCLUSION:

It is concluded that chronic HCV is a leading cause of cirrhosis in Bahawalpur, followed by chronic HBV infection. Both the viruses in combination account for about three fourth of all the patients of cirrhosis. Simple measures such as use of disposable syringes, transfusion of screened blood when necessary, use of disposable razors by the barbers, health education, safe sex and vaccination against HBV etc., can greatly reduce the transmission of these viruses. As there is no vaccine yet available against hepatitis C virus and it is the commonest

cause of cirrhosis in this part of world hence needs more meticulous approach to prevent its transmission, through avoidance of risk factors. Even if the cirrhosis develops, early detection and prompt treatment of these viral infections improve the overall outcome of the patients and prevent from development of hepatocellular carcinoma.

REFERENCES:

1. Connor JAO. Acute and chronic viral hepatitis. *Adolesc Med* 2000; 11: 279-92.
2. Gillcrist JA. Hepatitis viruses A, B, C, D, E and G implications for dental personnel. *J Am Dent Assoc* 1999; 130: 509-20.
3. Haider Z, Khan AA. Serodiagnosis for viral hepatitis in 93 patients admitted with acute hepatitis in three different hospitals in Lahore. *J Pak Med Assoc* 1994; 44: 182-84.
4. Mashud I, Khan H, Khattak MA. Relative frequency of hepatitis B and C viruses in patients with hepatic cirrhosis at DHQ Teaching Hospital DI Khan. *J Ayub Med Coll Abbottabad* 2004; 16: 32-34.
5. Lauer GM, Walker BD. Hepatitis C virus infection. *N Engl J Med* 2001; 345: 41-52.
6. Farooqi JI, Farooqi RJ. Relative frequency of hepatitis B virus and hepatitis C virus infections in patients of cirrhosis in NWFP. *J Coll Physicians Surg Pak* 2000; 10: 217-19.
7. Khokhar N, Gill ML, Malik GJ. General seroprevalence of hepatitis C and hepatitis B virus infections in population. *J Coll Physicians Surg Pak* 2004; 14: 534-36.
8. Friedman LS. Treatment and prognosis of chronic hepatitis. In: Tierney LM, McPhee SJ, Papadakis MA. *Current medical diagnosis and treatment*. 44th ed. San Francisco: Mc Graw-Hill, 2006: 686-87.
9. Hayes PC, Simpson KJ, Garden OJ. Prognosis of chronic viral hepatitis. In: Haslett C, Chilvers ER, Boon NA, Colledge NR. *Davidson's principles and practice of medicine*. 19th ed. Edinburgh: Churchill Livingstone, 2002: 860-66.
10. Pramoolsinsup C. Management of viral hepatitis B. *J Gastroenterol Hepatol* 2002; 17: 125-45.
11. Ryder SD, Beckingham IJ. Chronic viral hepatitis. *BMJ* Jan 2001; 322: 219-221.
12. Cacciola I, Pollicino T, Squadrito G, Cerenzia G, Orlando ME, Raimondo G. Occult hepatitis B virus infection in patients with chronic hepatitis C liver disease. *N Engl J Med* Jul 1999; 341: 22-26.
13. Hussain I, Nasrullah M, Shah AA. Prevalence of hepatitis B and C viral infections in liver cirrhosis in Pakistan. *Pakistan J Gastroenterol* Jan 1998; 12: 01-02.

14. Khan PM, Farooqi JI. Viral aetiology of liver cirrhosis patients in Swat. Pakistan J Gastroenterol Oct 2002; 16: 39-42.
15. Benvegnu L, Gios M, Boccato S, Alberti A. Natural history of compensated viral cirrhosis: a prospective study on the incidence and hierarchy of major complications. Gut 2004; 53: 744-49.
16. Qureshi A, Jamshaid, Siddiqui M, Zafar SA. Clinical spectrum of cirrhosis of liver due to HCV in Jinnah Hospital Lahore. Pakistan Postgrad Med J Sep 2001; 12: 104-07.
17. Rosenthal DA, Mallett S, Myers P, Borus MJR. Homeless young people are a vulnerable group for hepatitis C. Aust N Z J Public Health 2003; 27: 464-68.
18. Shaikh MA, Shaikh WM, Solangi AG, Abro H. Frequency and transmission mode of Hepatitis C virus in Northern Sindh. J Coll Physicians Surg Pak Dec 2003; 13: 691-93.