

# FREQUENCY OF HEPATITIS B AND C VIRAL MARKERS IN PATIENTS OF CIRRHOSIS LIVER IN THE NORTH WEST FRONTIER PROVINCE

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## ABSTRACT

**Objective:** To assess the frequency of hepatitis B & C viral markers in patients with cirrhosis liver.

**Material and Methods:** This descriptive case series was conducted in the Medical units of District Headquarter Hospital Daggar and Lady Reading Hospital Peshawar from January 2006 to December 2006 on 280 cirrhotic patients. All these patients were studied for hepatitis B & C viral markers.

**Results:** Out of 280 patients, 156 (55.7%) were males and 124 (44.3%) were female with age ranging from 14 to 75 years and mean age of 56.3 + 16.4 years. Out of 280 patients, 129 (46.07%) were positive for hepatitis C virus (HCV) antibodies. Seventy nine patients (28.21%) were positive for hepatitis B surface antigen (HBsAg). Sixteen patients (5.71%) were positive for both HBsAg and anti HCV. Fifty six patients (20%) were negative for seromarkers of both hepatitis B & C viruses.

**Conclusion:** It is evident from this study that Hepatitis C is a leading cause of cirrhosis in the North West Frontier Province of Pakistan, followed by HBV. Both the viruses account for at least three fourths of the patients with liver cirrhosis.

**Key words:** Liver cirrhosis, Hepatitis B, Hepatitis C.

## INTRODUCTION

Cirrhosis by definition is a diffuse process characterised by fibrosis and conversion of normal liver architecture into structurally abnormal nodules.<sup>1</sup> Cirrhosis is the end result of hepatocellular injury that leads to both fibrosis and nodular regeneration throughout the liver. The clinical features of cirrhosis result from hepatic cell dysfunction, portosystemic shunting, and portal hypertension. Cirrhosis is a serious and generally irreversible disease and is the tenth leading cause of death in the United States.<sup>2</sup> Liver cirrhosis with its complications results in high morbidity and mortality.<sup>1,2</sup>

The discovery of HBV by Blumberg<sup>3</sup> and HCV by Choo<sup>4</sup> was a major break through in the diagnosis, treatment and prevention of viral liver disease. Viral hepatitis B and C affects millions of people worldwide and has serious economical and social implications for the individuals, families and

the national exchequer. Hepatitis B, C Viruses and alcohol are associated with clinically significant chronic active hepatitis that may lead to cirrhosis liver and hepatocellular carcinoma. HBV and HCV infection are preventable and to some extent curable.<sup>5,6</sup>

The pattern of HBV and HCV infection differs from country to country. It is highly endemic in developing countries including Pakistan. A study conducted in our area shows the prevalence rate for hepatitis HBsAg, and HCV antibodies in the healthy blood donor to be 1.9% and 2.2% respectively.<sup>7</sup> In the general population the prevalence of HBs Ag is estimated between 2.6-18.66% while anti HCV ranges from 4.25-13.5%<sup>8,9</sup>

The frequency of these two infections in cirrhosis also varies from region to region in Pakistan. Our study was designed to look for frequency of HBsAg and Anti HCV in cirrhotic patients in North West Frontier Province of

### AGE DISTRIBUTION OF PATIENTS

Age Group	Number	Percent
14-30	13	4.6
31-45	57	20.35
46-60	156	55.7
61-75	54	19.3
Total	280	100

Table 1

Pakistan.

### MATERIAL AND METHODS

This study was conducted in the Medical units of District Headquarter Hospital Daggar and Lady Reading Hospital Peshawar from January 2006 to December 2006. Two hundred and eighty cirrhotic Patients, 156 Male and 124 Female with age ranging from 15 to 75 years were included in this study. All adult patients (over the age of 14 years) diagnosed as having liver cirrhosis were included in the study. The diagnosis of cirrhosis was made on the basis of history, examination, laboratory data and abdominal ultrasound.

The sera of all the patients with cirrhosis liver were tested for HBsAg and anti-HCV by Micro particle Enzyme Immune Assay (MEIA), a 3<sup>rd</sup> generation Enzyme Linked Immuno sorbent Assay (ELISA) kit in the laboratory.

### RESULTS

Out of 280 patients, there were 156 (56.42%) males and 124 (43.57%) females.

Their ages ranged from 15 to 75 years with mean age of 56.3 years  $\pm$  16.4 Standard Deviation (SD). The male to female ratio was 1.3:1. Most of the patients were in the 4<sup>th</sup> and 5<sup>th</sup> decade of life. Table-1.

One twenty nine patients (46.07%), 68% male and 32% female were positive for anti HCV. Seventy nine patients (28.21%), 62% male and 38% female were positive for HBsAg. Sixteen patients (5.71%), ten male and six female were positive for both HBsAg and anti HCV antibodies. Fifty six patients (20%), 33 male and 23 female were negative for both of these seromarker of hepatitis B & C viruses. Table-2.

### DISCUSSION

Determining the cause of cirrhosis is important both prognostically and therapeutically. The most common causes of cirrhosis are chronic hepatitis C and B in our setup.<sup>10,11</sup> Some cases of cirrhosis are cryptogenic. Other diseases that may lead to cirrhosis includes alcohol abuse, non alcoholic fatty liver disease, primary and

### RELATIVE FREQUENCY OF HBV & HCV MARKERS

Viral Markers	Number	Percent
Anti HCV positive	129	46.1
HBS Ag positive	79	28.2
Both AntiHCV+	16	5.7
HbSAg positive		
Both AntiHCV+	56	20
HbSAg Negative		

Table 2

secondary biliary cirrhosis, Wilson's disease, hemochromatosis and  $\alpha_1$ -antitrypsin deficiency.<sup>2</sup>

The evaluation of etiological factors of liver cirrhosis has been the subject of multiple studies in the past.<sup>12,13</sup> In the present study of 280 patients, viral markers of HBV & HCV were positive in 80% of the patients. This corroborates with the results reported by Shah et al.<sup>14</sup> They reported these viral marker to be positive in 85% of cirrhosis patients. The relative contribution of HBV & HCV differs in different studies. In the latter study, HBV infection was more common i.e. 66% than HCV i.e. 44.71% but they only checked anti-HCV in their HBV negative patients, thus, may have missed cases of dual infection. HBsAg was positive in 28 (70%), and HCV in 18 (45%) of cases from autopsy series in an Indian study.<sup>15</sup> Globally 57% of cirrhosis was attributable to either HBV (30%) or HCV (27%).<sup>16</sup>

HBsAg positivity was observed in 28.21% cases in our study, which is comparable to 22% in the study of Anwaar A et al.<sup>17</sup> A study from northern Pakistan showed HBsAg frequency to be 30.35% in patients having chronic liver disease.<sup>18</sup> In another study from our area HBsAg was found in 46.67%, anti HCV in 13.3% and Non B & C in 40% of cirrhosis patients.<sup>19</sup> This was small study comprising 60 patients and the investigators used one step Immunochromatographic technique for diagnosis which might have led to the discrepancy.

Anti HCV was positive in 46% (64% male & 34% female) in our series. We have noted an increased number of anti-HCV positive cirrhosis patients in our study. This compares well with a study from our area whereby the reported frequency of anti HCV was 41% in patients of chronic liver disease<sup>20</sup> and also with the study of Siddique et al.<sup>21</sup> A study from Lahore has reported the seroprevalence of anti HCV to be 55% in patients of liver cirrhosis.<sup>22</sup>

In our study sixteen patients (5.71%) were positive for both HBsAg and anti HCV antibodies. The reported prevalence of dual infections with

HBV and HCV was 3% in a local study. In the same study Anti-HCV was positive in 59% patients. HbsAg was positive in 32% patients. Both were negative in 6% patients.<sup>23</sup> In a study from India, co infection of HCV with HBV was seen in a substantial number of CLD cases.<sup>24</sup>

Fifty six patients (20%) were negative for the markers of hepatitis B and C viruses. These patients presumably had other causes of cirrhosis though we did not determine the anti hepatitis core antibodies (anti-HBc) and HBV-DNA status of our patient. This might have led to under diagnosis of HBV infection.

## CONCLUSION

Hepatitis C is a leading cause of cirrhosis liver in the North West Frontier Province, followed by HBV infection. There is a dire need to adopt preventive strategies, to forestall HCV and HBV infection and its consequent complications.

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