

# Hepatitis B and C, two silent killers: Age and gender based prevalence - A one year study in a tertiary care hospital, Lahore

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## ABSTRACT

**Background:** Hepatitis B and C infections are two major public health problems with a prevalence of 2.4% and 3% worldwide respectively. The epidemiology and burden of HBV and HCV infection varies throughout the world, with country-specific prevalence ranging from <1% to >10%. Hepatitis B virus (HBV) and hepatitis C virus (HCV) are among the principal causes of severe liver disease; including hepatocellular carcinoma and cirrhosis-related end stage liver disease. Hepatitis B is estimated to result in 563,000 deaths and hepatitis C in 366,000 deaths annually. Pakistan is among the worst afflicted nations.

**Aim:** To assess the age and gender based prevalence of hepatitis B and C in a tertiary care hospital during last one year i.e., from April 2015 to April 2016.

**Design:** Descriptive study.

**Place and duration of study:** This study was conducted in Fatima Memorial Hospital, Shadman, Lahore, from April 2015 to April 2016.

**Methods:** A total of 6863 patients of all age groups and both genders, were included in this study who were screened for anti-HCV antibodies and HBsAg by 3rd generation ELISA.

**Results:** Out of 6863 patients, 483 patients were positive for both Hepatitis B and C infection with 15 patients having border-line positivity. 366 (5.33%) were found positive for anti-HCV antibodies and one was border-line positive. Out of 6863 patients, 117 (1.70 %) patients were HBV positive whereas 14 patients were border-line. The mean age of the patients was 37.04 years. The youngest was 02 years while the oldest was 84 years. The age group (21-30 years) has the highest prevalence of 44.2% (n=162/366) and 40.1% (n=47/117) for both HCV and HBV infections, respectively. The frequency of hepatitis C and hepatitis B was higher among the females, 196/366 (53.55%) and 64/118 (54.23%) as compared to male, 170/366 (46.44%) and 53/118 (45.91%) respectively.

**Conclusion:** Prevalence of both Hepatitis B and C is quite high in our population. Rate is higher in young adults and in females.

**Keywords:** Hepatitis B, Hepatitis C, Prevalence.

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## INTRODUCTION

Hepatitis B and C infections are two major public health problems and are among the principal causes of severe liver disease, including hepatocellular carcinoma and cirrhosis-related end-stage liver disease<sup>1,2</sup>. According to WHO, 350 million people are infected with HBV infection and 170 million people are infected with HCV infection worldwide, resulting in 563 000 deaths due to HBV infection and 366 000 deaths due to hepatitis C infection.<sup>3,4</sup> Pakistan is among the worst afflicted nations that has the second highest prevalence rate of hepatitis C ranging from 4.5% to 8<sup>5,6</sup>.

The prevalence of hepatitis B and C in the high-risk groups such as blood donors, health professionals, drug abusers and chronic liver disease patients, is very high<sup>7</sup>.

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Most common modes of transmission include injection drug use, blood/blood product transfusion, organ transplantation, chronic hemodialysis, occupational exposure among health care workers, therapeutic injections, major/minor surgeries, dental treatment, shaving at barber shops, unprotected sexual contact and vertical transmission<sup>8,9</sup>.

Hepatitis B and Hepatitis C infection begin as an acute infection, but in some people, the virus remains in the body, resulting in chronic disease. About 15%–25% of people with chronic Hepatitis B develop serious liver conditions, such as cirrhosis or hepatocellular carcinoma. There is a vaccine to prevent Hepatitis B; however, there is no vaccine for Hepatitis C<sup>10</sup>. If a person has had one type of viral hepatitis in the past, it is still possible to get the other types. Symptoms of acute Hepatitis B, include: fever, fatigue, loss of appetite, nausea, vomiting, abdominal pain, dark urine, clay-colored bowel movements, joint pain and jaundice<sup>10,11</sup>.

**Materials and methods:** This study was conducted in Fatima Memorial Hospital, Shadman, Lahore, from April 2015 to April 2016. A total of 6863 patients of all age groups of both genders, were included in this study. All of them were screened for anti-HCV antibodies and HBs Ag by 3rd generation ELISA.

## RESULTS

Six thousand, eight hundred and sixty three patients of both genders were included in this study. The mean age of the patients was 37.04 years. The youngest was 02 years while the oldest was 84 years old (Table.1). The age group 21-40 years has the highest prevalence of 44.2% (n=162/366) and 40.1% (n=47/117) for both HCV and HBV infections, respectively (Table.1). The frequency of hepatitis C and hepatitis B was higher among the females, 196/366 (53.55%) and 64/118 (54.23%) as compared to male, 170/366 (46.44%) and 53/118 (45.91%) respectively (Table.2). Out of 6863 patients, 484 patients were positive for both Hepatitis B and C infection with 15 patients having border-line positivity (Table.3 & 4). A total of 117 patients were found positive for HBV infection and 366 for HCV infection. Among HBV positive patients, 53 (45.91%) were males and 64 (54.23%) were females, whereas, among HCV positive patients, 196 (53.55%) were females and 170 (46.44%) were males (Table.5). The prevalence of HBV calculated was 1.70%, whereas that of HCV was 5.33% (Table.6). The study was then compared with other national and international studies and it was found that our study was in concordance with all of them except China (Table.7).

## DISCUSSION

Viral hepatitis is one of the most serious infectious diseases worldwide. Recent studies and data have shown that the hepatitis B virus (HBV) and hepatitis C virus (HCV) infection rates have decreased in many developed countries throughout the world but in contrast, the developing and particularly under-developed countries the rate has either increased or there is no change in the incidence and prevalence of new cases. We have observed the same situation in our study which was conducted from April 2015 to April 2016 and a total number of 6863 patients of all age groups were included in this study. The data showed that majority of the patients visited were between 21-40 years of age (50.99%) and 38% were children and teenagers (1-20 years of age). More than half were of female gender (54.8%). In our study, we found out that the prevalence of HCV is higher than that of HBV infection. In this study, 117 individuals tested were HBV positive and 366 were

HCV positive. Among the HCV and HBV positive patients, most were young aged 21-40 years, with 44.26% and 40.17%, respectively. The second most common age group positive for HCV and HBV were between one to twenty years of age with 23.77% and 27.35%, respectively. Several studies conducted at both national and international levels showed similar trend of both HBV and HCV infection in children and young adults (Table.7)<sup>14,15,16,17</sup>.

Sarwar Jet al reported the prevalence of HBV and HCV as 2.4% and 3.2%, respectively. Majid Ali reported the prevalence of HBV and HCV as 1.3% and 3.27%, respectively. Gull-e-Atif et al reported the prevalence of HBV and HCV as 2.7% and 10.4%, respectively. Khattak MF et al reported the prevalence of HBV and HCV as 3.3% and 4.0%, respectively<sup>18,19,20</sup>. Aggarwal et al. from India, reported the prevalence of HBV and HCV as 3.3% and 4.0%, respectively. Zhang Q et al. from China, reported the prevalence of HBV and HCV as 3.3% and 4.0%, respectively and Schweitzer A, Het I. from America, reported the prevalence of HBV and HCV as 3.3% and 4.0%, respectively. The above statistics showed that our data is in concordance with all of the studies except China.

## CONCLUSION

The prevalence of both HCV (**5.33%**) and HBV (**1.70%**) is high in our setup, but it is comparable with most of other national and international studies. There is an urgent need of an action to be taken by the government sector for the awareness, mass vaccination and treatment.

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