

# Prevalence of Hepatitis B and Hepatitis C virus Infection in an Ophthalmology Clinic

MOIZ AHMAD SHAHKA, HAFIZ AHSAN SHEHRYAR, MUHAMMAD UMAR JAVED

## ABSTRACT

**Aim:** To determine the prevalence of hepatitis B and C virus infections in patients presenting in ophthalmology clinic of Benazir Bhutto Hospital, Rawalpindi.

**Methods:** This prospective, observational study consisting of 215 patients was conducted from June-2016 to January-2017. Patients who were planned for any invasive procedure were included in this analysis. A phlebotomist took venous blood samples from all patients and these samples were then processed in hematology lab of the hospital to detect HBV or HCV infection. Fisher's Exact test and Chi-square test (where applicable) was used to compare frequency of HBV and HCV in male and female gender.

**Results:** Mean age of our study participants was  $53.44 \pm 10.61$  (range 19-73) years. There were 113(52.55%) male and 102(47.45%) female patients. Hepatitis was diagnosed in 22(10.23%) patients. There were 16(7.44%) patients who were having HCV and 6(2.79%) patients were having HVB infection. No patient was diagnosed of having combined HBV and HCV infection. On comparison of hepatitis infection between male and female gender, HCV was found in 7(3.25%) males and 9(4.18%) females, While HBV was found in 4(1.86%) males and 2 (0.93%) females

**Conclusion:** Incidence of HCV and HBV is higher in our population. So patients should be screened for HBV and HCV before doing any invasive procedure. The health care workers should adopt preventive measures such as wearing of gloves, face masks and eye protection glasses before attending these patients.

**Keywords:** Ophthalmology, Hepatitis C virus, Hepatitis B virus.

---

## INTRODUCTION

Hepatitis basically is an inflammation of liver that results from infection of the liver. Most commonly hepatitis is caused by viral infections and it is rarely due to alcohol consumption, autoimmune diseases or due to poisons. Among viruses hepatitis B and hepatitis C virus infection are responsible for nearly all cases of hepatitis. Hepatitis can be acute and chronic<sup>1,2</sup>. In chronic forms it can lead to liver cirrhosis and ultimately liver failure and hence death<sup>3,4</sup>. According to literature, about one 2 billion people develop hepatitis infection and fifty millions people are carriers of infection and one million people are died every year due to hepatitis<sup>5,6</sup>. The reported prevalence of HCV infection is 3% and upto 50% of these patients develop chronic infection that ultimately leads to liver cirrhosis or hepatocellular carcinoma.

HCV can be transferred through blood contacts<sup>7</sup> while HVB can be transferred from one to other person through blood contact, sexual contact, vaginal fluids and other body fluids<sup>8</sup>. Blood transfusions and

use of improperly sterilized surgical equipment's are the major sources of transmission of these infections<sup>9</sup>. Vaccinations are available for HVB infection but for HCV infection no vaccination is available so care is only the best way of prevention of HCV infection.

Pakistan is among the few countries where prevalence of HCV and HBV is increasing instead of decreasing with a reported prevalence of 4% to 10% of HCV and about 10% HBV infection.<sup>10-12</sup> Many hospitals of Pakistan are not doing routine screening for HCV and HVB in admitted patients which can put the hospital staff on the risk of these infections. And in some centers even the patients are undergoing invasive procedures without knowing their viral status.

Most of the ophthalmic procedures are performed on OPD basis e.g., tonometry, syringing, or biometry, or in operation theater such as removal of cataract with minimum contact with the blood. However pricks can occur during handling of the blades and other sharp instruments. So there is a risk of transfer of infection in persons working in ophthalmology departments. In this study, we determined the prevalence of hepatitis B and C virus infections in patients presenting in ophthalmology clinic.

---

*Department of Surgery, Holy Family Hospital, Islamabad  
Correspondence to Dr. Hafiz Ahsan Shehryar, Email ID:  
ahsanshehryar@hotmail.com, Cell 0334-0372392, Postal Address:  
House no. 1050/B street no. 29 Allama Iqbal Colony, Rawalpindi  
Cantt.*

## METHODS

This prospective, observational study in nature was conducted in ophthalmology department of Benazir Bhutto Hospital, Rawalpindi. The study period was from June-2016 to January-2017. Two hundred and fifteen (215) patients who presented in ophthalmology clinic and were planned for any invasive procedure were included in this analysis. Informed consent was signed by all patients regarding complications of the procedure and confidentiality of their data.

A phlebotomist took venous blood samples from all patients and these samples were then processed in hematology lab of the hospital to detect HBV or HCV infection. Rapid chromatography immunoassay techniques was used to detect viral status.

All the collected data regarding patient's demographics and viral status was processed in SPSS v23 computer software. Fisher's Exact test and Chi-square test (where applicable) was used to compare frequency of HBV and HCV in male and female gender by taking p-value  $\leq 0.05$  as significant difference value.

## RESULTS

Mean age of our study participants was  $53.44 \pm 10.61$  (range 19-73) years. There were 113(52.55%) male and 102(47.45%) female patients. Hepatitis was diagnosed in 22(10.23%) patients. There were 16(7.44%) patients who were having HCV and 6(2.79%) patients were having HBV infection. No patient was diagnosed of having combined HBV and HCV infection. On comparison of hepatitis infection between male and female gender, HCV was found in 7 (3.25%) males and 9(4.18%) females, While HBV was found in 4(1.86%) males and 2(0.93%) females (Table 1).

Table 1: Comparison of HCV and HBV Infection between Male and Female Patients.

	Male	Female	P value
<b>HCV</b>			
Present	7 (3.25%)	9 (4.18%)	0.46
Absent	106 (49.30%)	93 (43.25%)	
<b>HBV</b>			
Present	4 (1.86%)	2 (0.93%)	0.48
Absent	109 (50.69%)	100 (46.51%)	

## DISCUSSION

The prevalence of hepatitis virus (HBV and HCV) is increasing drastically in Pakistan<sup>13</sup>. The reported prevalence is under-estimating the true prevalence especially in people living in rural areas because of lack of proper screening facilities in these regions.

Furthermore many conducted studies on prevalence of HBV or HCV were conducted on smaller populations and small sample sizes that cannot represent the true population. Africa, Asia and Latin America are among the higher prevalent regions regarding hepatitis B & C status<sup>14</sup>. While Europe and America have low prevalence (<1%) of these viral infections<sup>15</sup>.

In present study, we evaluated the HBV and HCV prevalence in asymptomatic patients who presented in ophthalmologic clinic and were unaware either they are suffering from hepatitis or not. In our study, hepatitis was found in 22 patients. Prevalence of HCV was 7.44% and prevalence of HBV was 2.80%. Tahir et al<sup>16</sup> conducted a study in Karachi involving 648 patients who were planned to undergo cataract surgery. These authors found HBV infection in 2.62% patients and HCV in 6.17% patients. Ali et al<sup>17</sup> found HCV in 5.1% patients and HBV in 3.6% patients. Another study from Karachi by Naeem et al<sup>8</sup> found HCV in 11.1% patients and HBsAg in 2.1% patients. Huda et al<sup>15</sup> found HCV prevalence in 12.7% patients and HBV prevalence in 4.7% patients. Although some studies have found higher prevalence of these infections. Nangrejoet al<sup>18</sup> found HCV in 20.36% cases and HBV in 4.34% patients in Nawabshah district, Pakistan. Lahano et al<sup>19</sup> conducted a study on 2200 subjects and found HBV in 2.54% patients and HCV in 12.81% patients. Khurramet al.<sup>20</sup> reported 6% prevalence of HCV among health care workers.

In our study, HCV was more common among females. Other studies have also reported female predominance in HCV infected patients in Pakistan. There are discreet limitation in our study, one is that we only included young and older patients and we missed the pediatric population. Recent reports have found an increased prevalence of hepatitis in pediatrics as well<sup>8, 21</sup>. So our study results cannot be implemented to the pediatric population.

## CONCLUSION

Incidence of HCV and HBV is higher in our population. So patients should be screened for HBV and HCV before doing any invasive procedure. The health care workers should adopt preventive measures such as wearing of gloves, face masks and eye protection glasses before attending these patients.

**Sources of Funding:** None

**Conflict of Interest:** None

## REFERENCES

1. Lauer GM, Walker BD. Hepatitis C virus infection. *N Engl J Med.* 2001;345(1):41-52.

2. Antonelli A, Ferri C, Fallahi P, Pampana A, Ferrari SM, Goglia F, et al. Hepatitis C virus infection. *Diabetes Care*. 2005;28(10):2548-50.
3. Sorrell MF, Belongia EA, Costa J, Gareen IF, Grem JL, Inadomi JM, et al. National Institutes of Health consensus development conference statement: management of hepatitis B. *Hepatology*. 2009;49(S5):S4-14.
4. Liver EAfSo. EASL Clinical Practice Guidelines: management of hepatitis C virus infection. *J Hepatol*. 2014;60(2):392-420.
5. Dubois F, Desenclos J, Mariotte N, Goudeau A. Hepatitis C in a French population-based survey, 1994: Seroprevalence, frequency of viremia, genotype distribution, and risk factors. *Hepatology*. 1997;25(6):1490-6.
6. Sypsa V, Hadjipaschali E, Hatzakis A. Prevalence, risk factors and evaluation of a screening strategy for chronic hepatitis C and B virus infections in healthy company employees. *Eur J Epidemiol*. 2001;17(8):721-8.
7. Maheshwari A, Thuluvath PJ. Management of acute hepatitis C. *Clin Liver Dis*. 2010;14(1):169-76.
8. Naeem SS, Siddiqui EU, Kazi AN, Khan S, Abdullah FE, Adhi I. Prevalence of Hepatitis 'B' and Hepatitis 'C' among preoperative cataract patients in Karachi. *BMC Res Notes*. 2012;5(1):492.
9. Control CfD, Prevention. The ABCs of hepatitis. South Carolina State Documents Depository. 2017.
10. Yousaf A, Mohammad A, Ishaque M, Yousaf M. Can we afford to operate on patients without HBs Ag screening. *J Coll Phys Surg Pak*. 1996;9(2):98-100.
11. Malik I, Kaleem S, Tarique W. Hepatitis C infection inprospective, where do we stand. *J Coll Phy Surg Pak*. 1999;9:234-7.
12. Mohammad U, Atifa S, Asim A, Shah N. Spectrum of chronic liver disease due to hepatitis" C" virus infection. *J Coll Phy Surg Pak*. 2000;10(10):380-3.
13. Khokhar N, Gill ML, Malik GJ. General seroprevalence of hepatitis C and hepatitis B virus infections in population. *J Coll Phy Surg Pak*. 2004;14(9):534-6.
14. Control CfD, Prevention. *Epidemiology and prevention of vaccine-preventable diseases*. Washington DC: Public Health Foundation. 2011;12.
15. Ul Huda W, Jameel N, Fasih U, Rehman A, Shaikh A. Prevalence of Hepatitis B and C in Urban Patients Undergoing Cataract Surgery. *Pak J Ophthalmol*. 2013;29:147-150.
16. Tahir MA, Cheema A, Tareen S. Frequency of Hepatitis-B and C in patients undergoing cataract surgery in a tertiary care Centre. *Pak J Med Sci*. 2015;31(4):895-8.
17. Ali SA, Shah FA, Ahmed K. Prevalence of hepatitis B and C virus in surgical patients. *Pak J Surg*. 2007;23(2):109-12.
18. Nangrejo KM, Qureshi MA, Sahto AA, Siddiqui SJ. Prevalence of Hepatitis B and C in the patients undergoing cataract surgery at eye camps. *Pak J Ophthalmol*. 2011;27(1):27-9.
19. Lohano MK, Su L, Narsani AK, Jawed M, Naveed H. Frequency of Hepatitis B surface antigen (HBsAg) and Hepatitis C antibody (HCVAb) seropositivity among preoperative eye surgery patients. *Br J Med Practit*. 2016;9(2):5-9.
20. Khurum M. Prevalence of anti-HCV antibodies among health care workers of Rawalpindi and Islamabad. *Rawal Med J*. 2003;28(1):7-11.
21. Villar LM, Amado LA, De Almeida AJ, De Paula VS, Lewis-Ximenez LL, Lampe E. Low prevalence of hepatitis B and C virus markers among children and adolescents. *BioMed ResInt*. 2014;(2014): 324638.