

THE DEMOGRAPHIC AND CLINICAL CHARACTERISTICS OF HBV AND HCV POSITIVE BLOOD DONORS

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ABSTRACT

Objective: To find out the demographic and clinical characteristics of HBV and HCV positive blood donors.

Material and Methods: This descriptive study was conducted in blood bank of Naseer Teaching Hospital, Peshawar from June 2012 to June 2014. Total number of HBsAg and anti-HCV positive blood donors included in the study were 203. A detailed history and clinical examination was performed in each case. Serological assessment for hepatitis B and hepatitis C was carried out through ELISA.

Results: Total number of HBsAg and anti-HCV positive blood donors included in the study were 203. Out of 203 patients, 105 (51.72%) were HBsAg positive and 98 (48.27%) were anti-HCV positive. The age of study group ranged from 18-60 years. Among HBsAg positive blood donors, 88.57% gave history of injections. Among anti-HCV positive blood donors 84.69% gave history of injections and 35.71% used to shave by barbers.

Conclusion: Risk factors for the spread of HBV and HCV infections are common in our people and there is a need for health education on a mass level.

Key Words: Hepatitis B, Virus, Hepatitis C, Blood, Donors.

INTRODUCTION

The main cause of severe liver disease, includes end stage liver disease, cirrhosis and hepatocellular carcinoma, is hepatitis B and hepatitis C virus infection. According to World Health Organization there are about 350 million hepatitis B virus (HBV), and 170 million hepatitis C virus (HCV) infected patients in the world. The prevalence of HBV and HCV in Pakistan is 3% to 4% and 5%, respectively¹. According to World Health Organization (WHO) hepatitis C infection is like a "viral time bomb" and about 180 million people (some 3% of the world's population) are suffering from hepatitis C virus (HCV)^{2,3}.

Developing countries do not have proper health system to reduce the risk of infection with hepatitis B and hepatitis C virus by promoting awareness among people about the mode of transmission and thus it is a threat to global health⁴. One of the major world health problem is Hepatitis B virus (HBV) infection specially

in Africa, Asia Latin America and southern Europe. Hepatitis B virus infection is highly endemic in Pakistan. About nine million people are infected with HBV and the rate of infection is still on a rise. Poor economic status, insufficient health facilities and lack of awareness of people about the mode of transmission of these communicable diseases i.e HBV, HCV and HIV are the main reasons^{5,6}. Hepatitis C virus infected people in the world are more than 170 million⁷. HCV infection mostly causes asymptomatic chronic state. This can progress to chronic liver disease, cirrhosis or primary hepatocellular carcinoma^{8,9}. In Pakistan viral hepatitis is one of the serious public health problem and has posed a great burden on health system. Hepatitis B and hepatitis C infections are the major blood born infections in the country⁴.

Major risk factors for the spread of hepatitis B and C include lack of health education and information about the safe surgery and dental procedures¹⁰. Chronic hepatitis and mortality due to liver failure and hepatocellular carcinomas in Pakistan is one of the highest in the world^{11,12}. Due to strict selection criteria of the blood banks, only healthy volunteer blood donors are accepted. Among these healthy individuals, the proportion of donors with hepatitis and risk factors which are associated with the disease may reflect the magnitude of chronic HBV and HCV infection in the

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general population. Spread of HBV and HCV has been reduced by raising awareness of the importance of blood safety to control transmission. It has been proven that public health interventions and strategies are effective methods of preventing such infection. To prevent these infections, strategies should be based on accurate data, which include information about prevalence and risk factors of these infections¹³. Therefore, this study was conducted to determine the prevalence of HBV and HCV and their associated factors among blood donors at Peshawar, Pakistan. Such information may raise awareness regarding the need for urgent action to prevent HBV and HCV transmission in Pakistan.

MATERIAL AND METHODS

This descriptive study was conducted on blood donors attending the blood bank of Naseer Teaching Hospital, Peshawar, Pakistan from June 2013 to June 2014. Peripheral venous blood samples collected aseptically. The skin over selected area first cleaned with 2% iodine and then rubbed with 70% alcohol. The blood allowed to clot, then centrifuged at 3000 rpm for 10 minutes. Serum separated by using Pasteur pipette. The serum tested for anti-HCV by ELISA, the kit used was that of biokit, and for HBsAg by SERODIA. Those blood donors found positive for HBV, HCV or both were further studied using the performa. Following information were collected e.g, name, age, sex, address, blood bank reference no, history of exposure to risk factors like injections, ears/nose piercing, blood transfusion, surgical operations etc and signs of liver disease like Jaundice, spider neavi, palmer erythema, hepatomegaly etc. The data was tabulated and frequencies, percentages, proportions and ratios were found, where necessary.

RESULTS

Total number of HBsAg and anti-HCV positive blood donors included in the study were 203. Of the 203 blood donors included in this study, 105(51.72%) were HBsAg positive and 98 (48.27%) were anti-HCV positive. The age of study group ranged from 18-60 years. The maximum number of positive blood donors for HBsAg were in the age group 18-28 years (35.24%) Table 1, and for anti-HCV were in the age group 29-38 years (34.69%) Table 2. All HBsAg and anti-HCV positive blood donors were male. Among the study group, 39.05% of HBsAg and 51.02% of anti-HCV positive blood donors were from Peshawar. Among HBsAg positive blood donors, 88.57% gave history of injections, 40% gave history of Jaundice in contacts /spouse and 27.61% gave the history of under going surgical operation. Only 8.57% of HBsAg positive blood donors gave history of extra-marital sex. Sixteen percent of HBsAg positive

blood donors used to shave by barbers, 16% gave the history of ears/nose piercing and 7.6% gave history of tattooing. History of blood transfusion was present in 8% of HBsAg positive blood donors Table 3. Among anti-HCV positive blood donors 84.69% gave history of injections, 47.95% gave history of Jaundice in contacts/spouse, 35.71% under went surgical operation

Table 1: Age distribution of HBsAg positive blood donors

Age in years	No. of HBsAg positive blood donors Percentage
18-28	37(35.24)
29-38	32(30.48)
39-48	15(14.28)
49-58	12(11.43)
59-68	9(8.57)
Total	105(100)

Table 2: Age distribution Anti-HCV positive blood donors

Age in years	No. of Anti-HCV positive blood donors Percentage
18-28	32(32.65)
29-38	34(34.69)
39-48	17(17.35)
49-58	10(10.20)
59-68	5(5.20)
Total	98(100)

Table 3: Risk factors for Hepatitis B

Risk factors	Blood donors & its Percentage
Injections	98(88.57)
Shaving by barbers	17(16.19)
Sharing tooth brushes	4(3.8)
Ears/Nose piercing	17(16.19)
Blood transfusion	8(7.6)
Past Hx of Jaundice	9(8.57)
Jaundice in contacts/spouse	42(40)
Surgical operations	29(27.61)
Extra-marital sex	13(12.38)
Addiction	4(3.8)
Intravenous drug addiction	0(0)
Tattooing/Acupuncture	8(7.60)
Any other risk factors	0

Table 4: Risk factors for Hepatitis C

Risk factors	Blood donors percentage
Injections	83(84.69)
Shaving by barbers	35(35.71)
Sharing tooth brushes	0(0)
Ears/Nose piercing	8(8.16)
Blood transfusion	0(0)
Past Hx of Jaundice	24(24.48)
Jaundice in contacts/spouse	47(47.95)
Surgical operations	35(35.71)
Extra-marital sex	16(16.32)
Addiction	8(8.16)
Intravenous drug addiction	0(0)
Tattooing/Acupuncture	7(7.14)
Any other risk factors	0(0)

and 35.71% used to shave by barbers. Twenty four percent of anti-HCV positive blood donors gave history of Jaundice in the past, 16.32% had extra-marital sex, 8.16% gave history of ears/nose piercing and 7.14% under went tattooing Table 4.

DISCUSSION

The results of this study have highlighted most of the expected and interesting demographic and clinical characteristics of HBV and HCV positive blood donors. The maximum number of HBsAg (35.24%) and anti-HCV (34.69%) positive blood donors belonged to young age group i.e., 18-28 years and 29-38 years respectively. This finding in our study is in accordance with some local studies done in different cities of Pakistan^{14,15}, still this finding may lead to a bias as blood donors below 18 years of age were not included in this study. The other aspect of the study is the male predominance with 100% male blood donors which is again in conformity with studies done in different cities of Pakistan^{14,15}. This fact is related to so many social, cultural and religious taboos prevailing at least in this part of the world.

There were no surprises in the pattern of risk factors for HBV and HCV infection. However worth mentioning is the presence of history of injections in 88.57% of HBsAg positive and 84.69% of anti-HCV positive blood donors. The frequent finding of history of injections in our study is in accordance with the studies available from developing countries, like India¹⁶, Turkey¹⁷, Hong Kong¹⁸ Pakistan¹⁴. Forty percent of HBsAg positive blood donors gave history of Jaundice in contacts/spouse which is higher than as reported in United States¹⁹.

The reason for this difference might be lack of education and preventive measures in our country. Another aspect of this study is history of surgical operations in 27.61% of HBsAg positive and 35.71% of anti-HCV positive blood donors which is in accordance with local and international studies^{20,21,22}. Other risk factors for the spread of HBV and HCV infection like extra-marital sex, shaving by barbers, ears/nose piercing, tattooing, blood transfusion respectively are also reported in local and international studies^{14,15}. At the end I must emphasize the fact that this was a small study and cannot be considered for drawing guidelines and firm conclusions. However, this was an important study and highlighted many interesting and practical aspects of the problem and can be taken as a baseline for formulating big studies.

CONCLUSION

Risk factors for the spread of HBV and HCV infections are common in our people and there is a need for health education on a mass level.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

- Arshad M:** Data collection and statistic analysis.
- Naz S:** References collection.
- Din J:** References collection.
- Zeb S:** Helped in writing and typing.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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