

HEPATITIS B VIRUS POSITIVE (HBSAG POSITIVE) AMONG THE BLOOD DONORS ATTENDED AT TRANSFUSION MEDICINE DEPARTMENT, DHAKA MEDICAL COLLEGE HOSPITAL, BANGLADESH: A ONE YEAR STUDY

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Abstract

Context: The possibility of hepatitis transmission through blood and blood products is very high and pretransfusion screening is mandatory by law in our country. The present study was carried out to find out the prevalence of Hepatitis B virus positive (HBsAg positive) among the blood donors attended the Department of Transfusion Medicine, Dhaka Medical College Hospital, Dhaka, in 2012.

Method: This cross sectional study was carried out in the Department of Transfusion Medicine, Dhaka Medical College Hospital, Dhaka, between January and December 2012. Total blood donors were 27,560. Blood donors of 18-60 years of both sexes were included in this study.

Results: Among 27,560 blood donors, relative blood donors were 21,081 (76.49%) and voluntary blood donors were 6,479 (23.50%). Among total blood donors male and female were 23,776 (86.26%) and 3784 (13.73%) respectively. 25,906 (93.99%) were in 18-40 years age group and 1,654 (6%) were in 41-60 years age group. A total of 453 were detected as HBsAg seropositive. Among them, relatives of the patients were 363 (1.7%) and voluntary donors were 90 (1.4%).

Key words: HBsAg , Blood donors, Seropositive.

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Introduction:

The possibility of hepatitis transmission through blood and blood products were known since 1950.¹⁻⁴ Researches show as that world prevalence of HBsAg carriers is from 0.1% till 20% with high percentage in tropical countries.^{5,6} Hepatitis B virus (HBV) infection with its associated sequel is a disease of major public health importance, being the 10th leading cause of death globally.^{7,8} Approximately 15-40% of infected patients will develop cirrhosis, liver failure or hepatocellular

carcinoma (HCC).^{9,10} The first serological marker to appear in the blood is the HBV DNA, followed by HBsAg, the DNA polymerase and HBeAg. Thereafter, the antibodies to the hepatitis B antigens (HBcAb, HBeAb and HBsAb) can be detected. Screening of donated blood by enzyme-linked immunosorbent assay (ELISA) for HBsAg is the common method for detecting hepatitis B infection¹¹ Screening of blood for the detection of this viral marker, however, does not rule out the risk of transmission of hepatitis B totally, because there is a phase

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during which the HBsAg cannot be detected in the blood although hepatitis B infection is present. This phase is known as the 'window period'. It represents a carrier state of the disease. Findings indicate that testing done for HBsAg alone is not sufficient to eliminate HBV infection through blood transfusion.¹¹⁻¹⁴ The present study was carried out to find out the prevalence of Hepatitis B virus positive (HBsAg positive) among the blood donors attended the Department of Transfusion Medicine, Dhaka Medical College Hospital, Dhaka, in 2012.

Methods:

This study was carried out on 27,560 blood donors in the Department of Transfusion Medicine, Dhaka Medical College Hospital, Dhaka, from 1st January to 31st December of 2012. Among the 27,560 blood donors 21,081 were relatives of the patients and remaining 6,479 were voluntary donors. The age distribution of donor was 18 -60 years. Blood donors were selected after proper history taking and physical examination of donor which includes pulse, blood pressure, weight and estimation of hemoglobin. Prepared questionnaire in mother tongue were used for selection of donor. Those who were illiterate were assisted by the donor registration staff. Consent obtained in writing form from the donor after explaining the procedure, potential adverse reactions as well as the tests carried out on the donated blood. Some donors were rejected by self exclusion during conversation. Finally reviewed donors' health condition and performing physical examination, estimation of hemoglobin with Scala matching method. After fulfilling the criteria of donor selection, with all aseptic precaution, 5 ml of blood was collected in prelabeled tube. Centrifuged the blood and separated the serum from cell. Detection of HBsAg was done by Latex agglutination immuno-chromatographic test with the instruction of reagent manufacturer. The test was reconfirmed by using ELISA method. The results were analyzed by using SPSS version 13.0.

Results:

In this study among 27,560 blood donors, relative blood donors were 21,081 (76.49%) and

voluntary blood donors were 6,479 (23.50%). Among total blood donors male and female were 23,776 (86.26%) and 3784 (13.73%) respectively. 25,906 (93.99%) were in 18-40 years age group and 1,654 (6%) were in 41-60 years age group. A total of 453 were detected as HBsAg seropositive. Among them, relatives of the patients were 363 (1.7%) and voluntary donors were 90 (1.4%). The Results are shown in the following tables:

Table-I

Distribution of types of blood donors

Types of donor	Number	Percentage	P
		%	Value
Relative	21081	76.49	0.001
Voluntary	6479	23.5	

Table-II

Distribution of age of blood donors

Age	Number	Percentage	P
		%	Value
18-40 years	25906	93.99%	0.001
41-60 years	1654	6%	

Table-III

Distribution of sex of blood donor

Sex	Number	Percentage	P
		%	Value
Male	23776	86.26%	0.001
Female	3784	14%	

Table-IV

Frequency of HBsAg Sero positive among relative and voluntary donor.

HBsAg	Relative (n=21081)		Voluntary (n =6479)		P value
	No	%	No	%	
Positive	363	1.7	90	1.4	0.065
Negative	20718	98.3	6389	98.6	

Discussion:

The prevalence of HBsAg positive among healthy donor is apparently high and hepatitis infected blood donors may not be aware of their

condition and therefore, have the chance to infect the patient.¹² In this study among 27,560 blood donors, relatives of the patients were 21,081 (76.49%) and voluntary blood donors were 6479 (23.50%). The total number of HBsAg seropositive was found 453 (1.6436%). Infection with HBV and HCV are worldwide significant problem in public health¹⁵⁻²⁰. About 5% (300 millions), of world population has chronic infection HBV, which is major factor for developing of chronic liver cirrhosis and carcinoma hepatocellular²¹⁻²⁵. The HBV prevalence among the blood donors of Kosovo is 4.2%. Another study showed that among the blood donors in Kosovo, the prevalence of HBV was 12.05%. With a population of more than 160 million, Bangladesh has a high HBsAg positivity in adults (7.3-7.5%).^{26,27}

In this study, the prevalence of Hepatitis B infection obtained was 1.640.%. This is lower compared to the 7.2%–7.5% HBsAg positivity in healthy adult population in Bangladesh.^{26,27} There is decreasing trend of hepatitis B prevalence resulting from behavioral changes that have led to decrease d transmission of infection. Due to public awareness of HBV hepatitis known infected person did not participate in the donation programmed. In Bangladesh most HBV infection occurs in childhood and younger populations with a high rate of inter familial HBV Infection and the low rate of history of acute hepatitis.²⁸ We may conclude that after proper donor selection and donor blood screening for HBsAg will decrease the possibility of posttransfusion hepatitis significantly.

Conclusion:

There is a decreasing trend of posttransfusion hepatitis B prevalence resulting from donor selection and for blood screening and also vaccination. HBsAg seropositive donors should be informed about their disease, counseled and sent for confirmation to referral laboratory. After confirmation of the disease they should be referred to the hepatologist.

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