ORIGINAL PROF-1121

HEPATITIS B, C & HIV;
SERO-PREVALENCE OF INFECTION IN BLOOD DONORS

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ABSTRACT... physicianmf@hotmail.com **Objective:** To determine the prevalence of HBV, HCV and HIV in healthy blood donors in Blood Transfusion Services, Bahawal Victoria Hospital, Bahawalpur. **Design:** Prospective observational study. **Setting:** Blood Transfusion Services, Bahawal Victoria Hospital (BVH), affiliated with Quaid-e-Azam medical College Bahawalpur. **Period:** From 1st January to 31st December 2005. **Methods and Materials:** All the persons coming for blood donations , at the BVH facility, were included. Clinically anaemic, ill, past history of jaundice and age of less than 18 or more than 50 years were excluded. All the donors (27938) from various areas of Bahawalpur, Bahawalnagar, Lodhran, Vehari and Rahim Yar Khan districts, were screened for hepatitis B surface antigen (HBs) Antigen, hepatitis C antibody (Anti HCV) & Human Immuno-deficiency Virus Antibody (Anti-HIV)on sera by one Step Test Device. All the positives cases were confirmed by Enzyme Linked Immunosorbant Assay. **Results:** Out of total 27938, 25420(91%) were male. Mean age was 28 years with age range 18-50. No HIV positive case was detected. HBV was 2.69%, slightly more than HCV, 2.52%. Males were significantly ($p<0.02$) more infected than females. **Conclusion:** Risk of transmission of viral hepatitis is a major problem of blood transfusion. Frequency of viral hepatitis in blood donors is higher in our area as compared to rest of the world. HIV infection is very low. Preventive strategies include good blood transfusion services along with safe sex and other measures.

INTRODUCTION

Blood transfusion is a life saving in many situations. Over 1.5 million pints of blood are collected & transfused in Pakistan each year[1], but the danger of transfusion is transmission of viral hepatitis like B, C and AIDS[2].

Viral hepatitis is a global health problem. Hepatitis B as well as C is major cause of chronic hepatitis[3]. Worldwide

HBV (hepatitis B virus) carriers are about 400 millions of which 250 million reside in Asia[4]. Pakistan stands in intermediate prevalent area with carrier rate of 3-4%[5]. HCV (hepatitis C virus) prevalence is 3% world wide[6] whereas in Pakistan it is almost 6%[7] in general public.

AIDS (Acquired Immuno-deficiency Syndrome) is another devastating disease spread by contaminated blood transfusion. At the end of 2005, the joint United Nations Program on HIV/AIDS (UNAIDS), estimated that globally there were 40.3 million people living with HIV/AIDS, 7.4 millions in East and Southeast Asia[8]. HIV/Aids infected persons are estimated to be about 73,000 in Pakistan, contaminated blood being a frequent mode of transmission, second only to unsafe sex in Pakistan[9].

Blood transfusion services are poor in our country well below WHO standards[10]. Many facilities (up to 50%) utilize paid blood donors, who are anti HCV positive in high number up to 20%[11] which HCV sero-positivity in volunteer blood donors is between 3 to 4%[12]. Because of the above mentioned fact, blood recipients like thalassaemics have high percentage of HBV; 8.4% and HCV; 56.8%[13].

The incidence of hepatitis decrease if blood is screened properly and paid blood donors are excluded[14]. So it becomes imperative to the know prevalence of these viruses in various of the country so that preventive strategy can be made.

MATERIAL AND METHODS

This study was conducted on blood donors at Blood Transfusion Services, Bahawal Victoria Hospital (BVH), affiliated with Quaid-e-Azam Medical College Bahawalpur from 1st January 2005 to 31st December 2005.

Inclusion Criteria

All the persons coming for blood donation at the BVH facility were included.

Exclusion Criteria

Clinically ill, anaemic past history of jaundice and age less than 18 or more than 50 years were excluded.

Procedure

All the blood donors (27938) from various areas of Bahawalpur, Bahawalnagar, Lodhran, Vehari, and Rahim Yar Khan districts, were screened for hepatitis B surface antigen (HBs) Antigen, hepatitis C antibody (anti HCV) & human deficiency virus antibody (Anti-HIV) on sera by One Step Test Device. These test devices are qualitative, membrane based immuno-chromatographic assay for the detection of antibody or antigen in the serum or plasma. All the positive cases were confirmed by Enzyme Linked Immunosorbant Assay (ELISA-3) based on Micropartical Enzyme Immunoassay (MEIA) technology (relative sensitivity; 100% and relative specifity 99.8%).

Demographic variables applied were age and sex. As all the variables were qualitative in nature so Chi-square test was used to calculate statistical significance if any between the calculated variables. The level of confidence fixed was 95%. All information collected was fed and analyzed through computer software SPSS version 12.

RESULTS

Out of total 27938, 25420 (91%) were male. Mean age was 28 years with age range 18-50. No HIV positive case was detected. HBV was slightly more than HCV. The salient features are given in (Table I). Males were significantly more infected than females. The effect of variable is shown in (Table II).

DISCUSSION

World Health Organization (WHO) declares blood as safe for transfusion if free from infections after screening for HBV, HCV, HIV, malaria and syphilis. Blood is not properly screened according to WHO standards in our country, so multi-transfused persons like thalassaemia patients have high prevalence of hepatitis infection than others, so blood transfusion is a high risk matter in our setting.

HBV in our study was 2.69%, almost comparable to other studies in the country, 2% in Karachi[15] 1.8% in Peshawar[16] and 2.51% in Islamabad[17]. It is also comparable to rural Indian prevalence (2.8%)[18] but much higher than that of Iran (1.07%)[19], Greece (0.35%)[20], and Mexico (0.16%)[21].

Hepatitis C in blood donors was 2.25% which is intermediate to the studies in the country from 1.8% to 4.1%[16,17,22,23] whereas worldwide prevalence is low, ranging from 0.4% (USA) to 1.6%[20,24-29]. No HIV case was detected in our study, the same was the result in an Islamabad study[30]. In a Peshawar study only two cases were positive out of 23279[31]. In a study of Balochistan 0.22% was positivity[32]. Global HIV prevalence in blood donors is 0.01%-0.54%[21,27,33-35]but the prevalence in rural India is alarmingly high 1.5-2.1%[18]. Although HIV prevalence is very low at present in our area, our people are likely to be at risk with mix-up to Indians so need proper education for prevention.

Table-I. Salient Feature of Screening of Blood Donors (T = 27938)

Salient Features	Total	% Age
Males	25420	91
Females	2518	09
T.HEP.SEROPOS	1459	5.21
HBsAg	753	2.69
Anti HCV	706	2.52
HIV antibody	NIL	NIL

T.HEP.SEROPOS = Total No. Of HbsAg+Anti HCV Positive Cases

Table-II. Effects of Variables on Screening of Donors (T = 27938).

Variable	No. Of Cases		Hbs Ag +ve			Anti HCv +ve		
	Total	% Age	Total	% Age	P Value	Total	% Age	P Value
Age								
18-35	16762	60	436	2.6	>0.10	402	2.4	>0.10
36-50	11176	40	316	2.83		304	2.7	
Sex								
Males	25420	91	700	2.7	<0.02	660	2.5	<0.01
Females	2518	09	53	2.1		46	1.8	

HBV as well as HCV was more prevalent in males, which was statistically significant, same observation has been reported by other workers as well [36-37]. Although in older age group, prevalence was more but it was not statistically significant. An Iranian study[36] revealed te highest rate in 50-56 years but lowest in 2-9 years, the age in our study group was 18-50 so no significant difference was recorded.

CONCLUSION

Risk of transmission of viral hepatitis is a major problem of blood transfusion. Frequency of viral hepatitis in blood donors is higher in our area as compared to rest of the world. HIV infection is very low. Preventive strategies include good blood transfusion services along with safe sex and other measures.

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