SEROPREVALENCE OF HEPATITIS B AND C AMONG THE HEALTHY BLOOD DONORS AT FAUJI FOUNDATION HOSPITAL, RAWALPINDI

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ABSTRACT

Objectives: To find out the seroprevalence of Hepatitis B and C virus among the healthy blood donors at Fauji Foundation Hospital, Rawalpindi.

Study design: A prospective observational study

Place and duration of study: From April 2005 to September 2005 at Fauji Foundation Hospital, Rawalpindi.

Subjects and Methods: All healthy blood donors reporting to blood bank were screened for Hepatitis B and C.

Results: Total number of 1428 donors were screened, among them 97.05% were males. Prevalence of Hepatitis B was 2.45% with a male predominance of 2.38%. Seroprevalence of Hepatitis C was 2.52% with male predominance of 2.52%.

Conclusion: Prevalence of Hepatitis B and C is not uncommon in our country. Transfusion of contaminated blood is one of the important cause of its spread. To control its further spread public awareness and health education programs and selection of healthy blood donors should be done.

KEY WORDS: Hepatitis B & C, Healthy blood donors.

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INTRODUCTION

Blood has been used since 1930 for various indications.¹ After the introduction of blood banks and better storage techniques it becomes more widely used in patients. In Pakistan more than 1.5 million pints of blood are collected each year.^{2,3} Among them about 65% is from replacement donors, 25% from volunteer donors and about 10% from professional donors.^{2,4} Blood is one of the major sources of transmission of Hepatitis B, Hepatitis C, HIV and many other diseases. Discovery of these hazards brought a dramatic change in the attitude of physicians and patients about transfusion of blood. Physicians and patients are becoming more concerned about safe transfusion of blood. The hazards of transfusion can be minimized by proper screening and selection of donors before collection of blood. It has been accepted that prevalence of transfusion transmitted diseases is much lower in healthy,

voluntary blood donors as compared to professional blood donors.⁵ In spite of donor screening with highly specific and sensitive methods, transmission of virus through blood transfusion cannot be avoided because virus remains undetectable due to prolong incubation period so a person can become potentially infective long before sero conversion.⁶ Careful selection of patients by detailed medical history and examination should also be carried out among all patients undergoing blood transfusion.

SUBJECTS AND METHODS

This prospective, observational study was carried out in Fauji Foundation Hospital Rawalpindi from April, 2005 to September, 2005. The Fauji Foundation Hospital, Rawalpindi is a 660 bed, tertiary care hospital, which provides free health care to the ex-servicemen, their families, and also to the private patients. All blood donors reporting in laboratory during study period were included in the study. Selection criteria followed in our hospital laboratory is, age between 18 to 60 years, weight more than 50kg and Hemoglobin more than 12g/dl. Donors are evaluated carefully by medical officer by detailed medical history and examination. Exclusion criteria is, pervious history of viral hepatitis, drug abuse, body tattooing/piercing, previous blood or blood component transfusion in last one year and any evidence of renal, cardiac, pulmonary of hepatic disease. The donors screening for HBsAg, Anti HCV and HIV is done on AxSYM system and methodology used is MEIA (Micro Particle Immunosorbant Assay) which is a quantitave assay. The specificity of this test is more than 99% and sensitivity of this method is 100%.⁷ Computerized record of all patients was maintained and all findings were analyzed statistically at the end of study.

RESULTS

A total number of 1428 donors who were declared physically fit for transfusion were screened for HCV and HBsAg. Among them majority (97.05%) were males. 2.45% among them were seropositive for HBsAg and 2.52% for HCV. Males are predominantly seropositive for HCV and HBsAg i.e. 2.52% and 2.38% respectively (Table-I). Table-II shows prevalence of Hepatitis B and C among blood donors in different studies conducted from different parts of country and published during last five years. A total number of sixteen papers were published during last five years and their review shows that the seroprevalence of Hepatitis C ranges from 0.27% to 6.8% and seroprevalence of Hepatitis B ranges from 1.55% to 7.53% in different parts of the country.

DISCUSSION

Epidemiological studies are necessary for on going preventive strategies regarding prevention of diseases. Main source of blood donation is replacement donors and majority of them are patient's relatives or friends.³ Proper screening of blood and selection of donors is very important to ensure a safe blood supply. Incidence of Hepatitis B, Hepatitis C and HIV is higher in hidden paid or professional donors.² The best way of getting the safest blood for patients is proper donor selection and proper screening of the blood. It is generally believed that safe blood donors are those who had no risk factor in their medical history and examination and whose donations are repeatedly negative on screening.^{4,6}

Seroprevalence of HCV in blood donors is different in varies countries. It is reported as 6% in Africa, 1.5% in Japan, 0.6% in USA, 0.24% in Finland and 0.17% in UK.^{6,8} An

Table-I: Prevalence of Hepatitis B and C in blood bank donors

HBsAg				HCV			Patient Screened		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
No. of	34	1	35	36	0	36	1386	42	1428
patients	(2.38%)	(0.07%)	(2.45%)	(2.52%)		(2.52%)	(97.05%)) (2.94%))

Table-II: Prevalence of Hepatitis B and C among blood donors reported in literature published during last five years in Pakistan

	Author Place of study	Year	Anti HCV	HBsAo
1	Alexand Later III Delever	1001	711111110	1105/18
1	Ahmed J et al ¹¹ Kehman	2004	2 20/	1 00/
C	Medical Institute Pesnawar	2004	2.2%	1.9%
Ζ	Niehter Medical Callege (
	Nishtar Medical College/	2004	0.070/	2 270/
2	$A \operatorname{cif} N$ at a^{12} Shife	2004	0.27%	3.37 %
3	Asii N et al-Siiia			
	International Hospital,	2004	5 1 / 0/	2 515
4	Ali N at al ⁶ Combined	2004	5.14%	2.313
4	Military Hospital Quatta	2002	1 970/	
5	Farmar VM at a ¹²⁰	2003	1.07 %	
5	Ousid-i- Azam Modical			
	Collogo Babawalpur	2002		7 53%
6	Abmod S at all ⁶ Sorvices	2002		7.3370
0	Hospital & Sir Conga Ram			
	Hospital Labore	2002	1 97%	
7	Mumtaz S et al^{12}	2002	4.97 /0	
1	Islamic Int Medical			
	College Rawalpindi	2002	6 21%	5 86%
8	Rahman M et al ⁹ Institute	2002	0.2170	5.0070
0	of Hematology & Blood			
	Transfusion Services			
	Punjab Labore	2002	41%	
9	Khattak ME et al ¹³ AFIT	2002	1.1 /0	
	Rawalpindi	2002	4 0%	3.3%
10	Alam M et al ¹⁰ Combined	_00_	110 / 0	010 / 0
10	Military Hospital, Sialkot	2001	3.26%	
11	Ahmed MU et al ¹⁸ Abbasi			
	Shaheed Hospital, Karachi	2001	6.8%	5.5%
12	Rvas M ¹⁴ Military			
	Hospital, Rawalpindi	2001	4.7%	6.4%
13	Ahmed F et al ¹⁹ Ayub			
	Medical College,			
	Abbottabad	2000		1.55%
14	Lone DS et al ¹⁵ Allama			
	Iqbal Medical College,			
	Lahore	1999		4.3%
15	Hashmi ZY ¹⁵ Blood			
	Bank Nawaz Med Center,			
	Lahore	1999	2.89%	2.06%
16	Bukhari SM et al ¹⁵ Mayo			
	Hospital, Lahore	1999		3.4%

extremely low prevalence (0.1%) has been reported in the UK and Scandinavia, a slightly higher prevalence (0.2–1%) has been reported in other European countries, Australia and North America. An intermediate prevalence (1.1-5%) has been reported in South America, Eastern Europe, Mediterranean countries and the highest prevalence has been reported from Egypt (28%). In Asia the prevalence of HCV in the blood donors has been reported 5.1% from India and 1.5% from Saudi Arabia.^{8,9} In Pakistan seroprevalence varies from 0.7% to 20% in different studies at different centers at different times.^{6,9,10} Exact seroprevalence of Hepatitis B and C virus through out country could not be established due to lack of representative study at national level.

The seroprevalence of Hepatitis C observed in our study is 2.52%. On reviewing the literature published in last five years the seroprevalence of HCV is reported 2.2% from Peshawar,¹¹ 5.14% from Islamabad,² 4% to 6.21% from Rawalpindi,¹²⁻¹⁴ 2.89% to 4.97% from Lahore,^{9,15,16} 3.26% from Sialkot,¹⁰ 0.27% from Multan,¹⁷ 6.8% from Karachi¹⁸ and 1.87% from healthy blood donors from Quetta.⁶So the seroprevalence of HCV varies from 0.27% to 6.8% among healthy blood donors from different parts of country. The highest seroprevalence of HCV is reported from Karachi (6.8%)¹⁸ and Rawalpindi (6.21%).¹²

Similarly the seroprevalence of Hepatitis B is 2.45% in our study. On reviewing the literature published during last five years, the seroprevalence of HBsAg is reported 1.9% from Peshawar,¹¹ 1.55% from Abbottabad,¹⁹ 2.51% from Islamabad,² 3.3% to 6.4% from Rawalpindi,¹²⁻¹⁴ 2.06% to 4.3% from Lahore,¹⁵ 7.53% from Bahawalpur,²⁰ 3.37% from Multan¹⁷ and 5.5% from healthy blood donors from Karachi.¹⁸ So the seroprevalence of HBsAg varies from 1.55% to 7.53% among healthy blood donors from different parts of country. The highest seroprevalence of HBsAg is reported from Bahawalpur (7.53%)²⁰ and Rawalpindi (6.4%).¹⁴

Seroprevalence of Hepatitis B and Hepatitis C is high in Pakistan and nationwide efforts are required to identify the infected peoples. Transmission of Hepatitis B and C through unscreened blood transfusion, reuse of unsterlize syringes and medical equipment is well documented in literature. More over people having ear piercing, tattooing, circumcision and shaving from barbers are also at increased risk due to reuse of equipment. Efforts should be made for the promotion of behavior changes, among the general public and health care workers to use sterilized medical instruments and screened blood.

CONCLUSION

Blood is one of the main sources of transmission of Hepatitis B and Hepatitis C donor selection is of paramount importance. Majority of blood donors in our country are replacement donors or voluntary donors. They are usually healthy peoples without any apparent illness. Our study and review of literature shows that the seroprevalence of Hepatitis B and C among blood donors is also high in Pakistan. With vigilant donor selection risk of spread of hepatitis could be minimized.

REFERENCES

- 1. Zafar N. A survey of blood transfusion practices. J Coll Physicians Surg Pak 2000;10(3):90-2.
- Asif N, Kokhar N, Ilahi F. Seroprevalence of HBV, HCV and HIV infection among voluntary non remunerated and replacement donors in Northern Pakistan. Pak J Med Sci 2004;20(1):24-8.
- 3. Mujeeb SA. Single unit blood transfusion, a bad clinical practice? Transfusion Today 1997;36:5-7.
- Rahman M, Akhtar G, Qadeer M, Shams T, Usmani A, Lodhi Y. Safe blood begins with safe donors. Pak J Med Sci 2003;19(3):161-8.
- Mujeeb SA, Kausar A, Khalid M. Seroprevalence of HBV, HCV, HIV infection among college going voluntary blood donors. J Pak Med Assoc 2000;50:269-70.
- Ali N, Nadeem M, Qamar A, Qureshi AH, Ejaz A. Frequency of Hepatitis-C virus antibodies in blood donors in Combined Military Hospital, Quetta. Pak J Med Sci 2003; 19(1):41-4.
- US Department of Health and Human Services. Biosafety in Microbiological and Biomedical Laboratories. HHS Publications (NIH). US Government Printing Office. Washington ;1993:93-5.
- 8. Ryan KE, Mclennan S, Barber JA, Hewitt P. Followup of anti-HCV blood donors. BMJ 1994;308:696.

- Rahman M, Akhtar G, Lodhi Y. Seroprevalence of Hepatitis C antibodies in blood donors. Pak J Med Sci 2002;18(3):193-6.
- Alam M, Ahmed D. Prevalence of antibodies to Hepatitis C virus in blood donors in Sialkot. J Coll Physicians Surg Pak 2001;11(12):783.
- 11. Ahmad J, Taj AS, Rahim A, Shah A, Rehman M. Frequency of Hepatitis B and Hepatitis C in healthy blood donors of NWFP: a single center experience. J Postgrad Med Inst 2004;18(3):343-52.
- Mumtaz S, Rehman M, Muzaffar M, Hassam M, Iqbal W. Frequency of seropositive blood donors for Hepatitis B, C and HIV viruses in Railway Hospital Rawalpindi. Pakistan J Med Res 2002;41(2):51-3.
- Khattak MF, Salamat N, Bhatti FA, Qureshi TZ. Seroprevalence of Hepatitis B, C and HIV in blood donors in Northern Pakistan. J Pak Med Assoc 2002;52(9):398-402.
- Ryas M, Hussain T, Bhatti FA, Ahmed A, Tariq WUZ. Epidemiology of Hepatitis C virus infection in blood donors in Northern Pakistan. J Rawal Med Coll 2001;5(2):56-9.
- 15. Shah NH, Shabbier G. A review of published literature on Hepatitis B and C virus in Pakistan. J Coll Physician Surg Pak 2002;12(60):368-71.
- Ahmad S, Gull J, Bano KA, Aftab M, Kokhar MS. Prevalence of anti Hepatitis C antibodies in healthy blood donors at Services Hospital Lahore. Pakistan Postgrad Med J 2002;13(1):18-20.
- 17. Mahmood MA, Khawar S, Anjum AH, Ahmed SM, Rafiq S, Nazir I, et al. Prevalence of Hepatitis B, C and HIV infection in blood donors of Multan region. Ann King Edward Med Coll 2004;10(4):459-61.
- Ahmed MU. Hepatitis B surface antigen study in professional and volunteer blood donors. Ann Abbasi Shaheed Hosp Karachi Med Dent Coll 2001;6:304-6.
- Ahmed F, Shah SH, Tariq M, Khan JA. Prevalence of Hepatitis B carrier and HIV in healthy blood donors at Ayub Teaching Hospital. Pakistan J Med Res 2000;39(2):91-2.
- Fayyaz KM, Ali S, Khan AA, Shafique M, Khan MA, Majeed S, et al. Hepatitis B carrier among volunteer blood donor students at Quid-i-Azam Medical College Bhawalpur. Professional Med J 2002;9(3):186-90.