Original Article

Transfusion Transmitted Infections (TTIS) Among Blood Donors of Sukkur

1. Aftab Ahmed Soomro 2. Bahawaluddin Jamro 3. Abdul Khalique Abro

1. Asstt. Prof. of Hematology 2. Asstt. Prof. of Paediatrics 3. Assoc. Prof. of Pathology, Ghulam Muhammad Mahar Medical College @ SMBBM University Sukkur

ABSTRACT

Objective: To estimate an approximate disease burden of HIV, HBV, HCV, and Syphilis in healthy blood donors.

Background: Blood transfusion department not only screen transmitted infections but also give clue about the prevalence of these infections in healthy population. The objective of this study was to estimate an approximate disease burden of HIV, HBV, HCV, and Syphilis in healthy blood donors, so as to determine how well we are doing in fight against these killers. As most of these healthy blood donors are first time donors aged 18-60 years, the results can also be utilized to estimate the prevalence in healthy population of this age group.

Study Design: Retrospective Study.

Place and Duration of Study: This study was conducted in blood Bank of Ghulam Muhammad Mahar Medical College Hospital Sukkur from January 2008 to December 2010.

Materials and Methods: All healthy blood donors reporting to the blood bank in the specified study period were screened for HIV, Hepatitis B, C and Syphilis.

Results: A total of 7085 were screened, out of these 364 donors (5.14%) were seropositive for hepatitis C, 268 (3.78%) were seropositive for hepatitis B, 36 (0.5%) were seropositive for Syphilis and only 4 (0.05%) had shown seropositivity for HIV.

Conclusion: Transfusion transmitted infections are a major threat associated with unscreened blood donations. In Pakistan the prevalence of hepatitis B and C is very high in occult form. Selection of healthy blood donors and public awareness programs targeting local community will be an important measure to stop its transmission through blood transfusion.

Key Words: Hepatitis B, Hepatitis C, Syphilis, HIV, Transfusion transmitted infections.

INTRODUCTION

Blood has been used since 1930 for various indications[1]. Transfusion therapy is a well established treatment in various medical and surgical procedures[2]. After the introduction of the blood banks and better storage techniques it becomes more widely used in patients[3].

Transfusion of blood and its components is life saving as well as it has life threatening hazards. With every unit of blood there is a 1% chance of transfusion associated problems including transfusion transmitted diseases[4]. Blood is one of the major sources of transmission of hepatitis B, C, HIV, Syphilis and many other diseases[5, 6]. The hazards of transfusion can be minimized by proper screening and selection of donors before collection of blood[7] .WHO recommends that, at least, all donated blood should be screened for hepatitis B virus (HBV), hepatitis C virus (HCV), human immunodeficiency virus (HIV) and Syphilis[8]. The prevalence of transfusion transmitted infections, among blood donors allows for assessment of epidemiology of these infections in the community[9]. The screening of blood for TTIs is mandatory for blood safety as lack of blood screening facilities adds to hazards of blood transfusions[10].

The purpose of this study was to determine the prevalence of TTIs in healthy blood donors coming to GMMMC Teaching hospital, Sukkur, with special entity of HIV, hepatitis B, hepatitis C, and Syphilis. By studying this prevalence, attention will be drawn towards the severity of the situation so that effective action can be taken to prevent further transmission of diseases via blood transfusion.

MATERIALS AND METHODS

Study Population: The subjects screened for HBV, HCV, HIV, and Syphilis were all healthy blood donors.

Study location: Blood bank of Ghulam Muhammad Mahar Medical College Hospital Sukkur.

Inclusion Criteria: Inclusion criteria followed were age 18-60 years, weight more than 50 kg and hemoglobin concentration above 12g/dl.

Exclusion Criteria: All individuals less than 18 years or older than 60 years were not bled. Donors with history of jaundice or documented HIV, HBV, HCV infections also refused for blood donations.

Assay: A total of 7085 healthy donors were screened for hepatitis B, C, HIV, and Syphilis. Enzyme linked immunosorbent assay (ELISA) was used for detection of Hepatitis B, C, and HIV and Veneral Disease Research Laboratory test (VDRL) for Syphilis.

RESULTS

All 7085 people under study were voluntary donors and none of them were paid. Among the donors, 672 (9.48%) had TTIs. Hepatitis C was present in 364 (5.14%) donors, 268 (3.78%) were hepatitis B, 36 (0.5%) were positive for Syphilis and only 4 (0.05%) had shown seropositivity for HIV as shown in table 1
The year wise distribution of donors and their status of seropositivity is shown in table 2

Table No.1 HBsAg, Anti-HCV, VDRL and anti-HIV prevalence in blood donors (n= 7085).

Serological marker	Seropositive	Percentage
HBsAg	268	3.78%
Anti-HCV	364	5.14%
VDRL	36	0.5%
Anti-HIV	04	0.05%

Table No.2: Prevalence of HBsAg, anti-HCV, VDRL, and anti- HIV among blood donors for studied years.

Year	Total number of blood donors	HBsAg	HBsAg
		Number	Percentage
2008	2117	97	4.58%
2009	2208	79	3.58%
2010	2760	92	3.33%
Total	7085	268	3.78%

HCV No.	HCV %age	VDRL No.	VDRL %age	HIV No.	HIV %age
(2008) 117	5.53%	10	0.47%	01	0.047%
(2009) 124	5.61%	12	0.54%	01	0.047%
(2010) 123	4.46%	14	0.50%	02	0.072%
364	5.14%	36	0.5%	04	0.05%

DISCUSSION

Blood transfusion is a life saving intervention and millions of lives are saved each year globally through this procedure[11]. However blood transfusions are associated with the risk of the transmission of infection[12] Globally, more than 81 million units of blood are donated each year3. More than 18 millions units of blood are not screened for transfusion-transmissible infections[12]
In Pakistan more than 1.5 million points of blood are collected each year[3] UNAIDS has estimated that only 50% of the 1.5 million blood bags are screened in Pakistan[13]. The lack of blood screening facilities adds to the risk of transfusion transmitted infections (TTIs) which can be overcome by proper selection of donors[10].
Results of our study shows that seropositivity of hepatitis C in healthy donors is high (5.14%) followed by seroprevalence of hepatitis B (3.78%). The seroprevalence of Syphilis is 0.5% and seropositivity of HIV is 0.05%. HCV was found to be the most common transfusion transmitted infection as compared with HBV, HIV and Syphilis. Our results are similar to study conducted by Asif et al (5.14%) from Islamabad3. For hepatitis B, our results are closer to the study conducted by Ujjan ID et al (3.65%) from Hyderabad[14].
For HIV and Syphilis, our findings are similar to study done by Manzoor I et al (0.05% and 0.5%) respectively from Lahore[15]. A similar study was conducted in other areas of Pakistan like Rawalpindi which showed that HCV was found to be most common (6.21%) whereas HBV was next in prevalence (5.86%) [16]. In another two years study done at blood transfusion center Tehsil Headquarter Hospital Liaquatpur the prevalence of HIV, HBV, and HCV was zero, 5.96% and 0.07% respectively[17], while in Combined Military Hospital Peshawar, HBsAg was positive in 1.75% and anti-HCV was positive in 2.60% of donors[18]. A study done at blood transfusion center Nishtar Hospital Multan and Fatimid Blood transfusion center Multan showed the prevalence of HIV, HBV, and HCV in healthy donors to be zero, 3.37% and 0.27% respectively[19].
In an International study done in India showed prevalence rate of TTIs were 0.35%, 0.35%, 1.66% and 0.8% for HIV, HCV, HBV, and Syphilis respectively[9]. It was noted that in Ethopia that prevalence rates of TTIs in blood donors were 4.5% for HIV, 8.2% for HBV and 5.8% for HCV[20]. In Iranian blood donors these rates were 0.003%, 0.487%, 0.093% and 0.005% for HIV, HBV, HCV and Syphilis respectively[21]. It was estimated that in Malawi HIV prevalence is 10.7%, HBV prevalence is 8.1% and HCV prevalence is 6.8%[22]. Tanzania showed prevalence of HIV, HBV and HCV in blood donors to be 3.8%, 8.8% and 1.5% respectively[23].

CONCLUSION

In conclusion blood is one of the main sources of transmission for hepatitis B, hepatitis C, HIV and Syphilis. The majority of donors are either voluntary, relatives or friends, who are apparently healthy but this study showed that these diseases are prevalent among healthy donors. Pakistan is still in a state of war with these killers.

Recommendations

It is important to follow the WHO guidelines to screen every donor for HBV, HCV, HIV and Syphilis to decrease the transmission of TTIs. Voluntary donors should be promoted and extensive donor selection and screening procedures should be made mandatory at each health care facility. Record keeping should be promoted. The Government of Pakistan should also

encourage blood banks at all levels to follow the National Blood Safety Regulations and to work together for its implementation

REFERENCES

1. Zafar N. A survey of blood transfusion practices. J Coll Physicians Surg Pak 2000; 10(3):90-2.
2. Isbister JP. Risk management in transfusion medicine. Transfuse Med 1996; 10:183-202.
3. Asif N, Kokher 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.
4. Widman FK, editor. Technical manual. American Association of Blood Banks: Arlington; 1985.p. 325-344.
5. Grgicevic D, Balija M, Pirc-Tiljak D, et al. Decreasing risk of viral transfusion-transmitted diseases in Croatia. Public Health 2000; 41(2): 191-6.
6. Chaudhary I, Samiulla, Khan S, et al. Seroprevalence of HBV and C among health donors at Fauji Foundation Hospital, Rawalpindi. Pak Med J 2007; 23(1):64-67.
7. Mujeeb SA, Kausar A, Khalid M. Seroprevalence of HBV, HCV, and HIV infection among college going voluntary donors. J Pak Med Assoc 2000; 50:269-70.
8. WHO fact sheet on Blood safety and donation, 2008.
9. Bhattacharya P, Chandra PK, Datta S, Banerjee A, ChakravartyR. Significant increase in HBV, HCV, HIV and syphilis infections among blood donors in West Bengal, Eastern India 2004-2005: Exploratory screening reveals high frequency of HBV infection. World J Gastroenterol 2007; 13(27): 3730-3.
10. Al-Kamil EA, Al-Yassin AK. Transfusion transmitted diseases among blood donors of Basrah blood bank. J Arab Board of Health Specializations 2011; 12(1):35-40.
11. WHO guidelines of Blood Transfusion Safety Appia, CH-1211 Geneva 27, Switzerland.
12. Standards for Blood Banks and transfusion Services. 18th ed. American Association of Blood Banks: Bethesda; 1997.p.41: K2.000.
13. National AIDS control program, Ministry of health, Pakistan.
14. Ujjan ID, Memon RA, Butt AR, Sheikh IA, Khokar GN, Yousafani GM, et al. Seroprevalence of HBsAg and anti-HCV in healthy blood donors. Pak J Gastroenterl 2006; 20(1):75-7.
15. Manzoor I, Hashmi N, Daud S, Ajmal S, Fatima H, Rasheed Z, et al. Seroprevalence of transfusion transmissible infections (TITs) in blood donors. Biomedica 2009; 25: 154-158.
16. Mumtaz S, Rehman M, Muzaffar M, Hassan M, Iqbal W. Frequency of seropositive blood donors for hepatitis B, C and HIV viruses in railway hospital Rawalpindi Pak J Med Res 2002;41(2): 51-3.
17. Khan MA, Rehman A, Ashraf M, Ali A, Ditta A. Prevalence of HBV, HCV and HIV in blood donors at Liaquetpur. Professional Med J 2006;13(1):23-6.
18. Zaidi A, Tariq WZ, Haider KA, Ali L, Sattar A, Faqeer F, et al. Seroprevalence of hepatitis B, C and HIV in healthy blood donors in Northwest of Pakistan Pak J Pathol 2004; 15(1):11-6.
19. 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.
20. Diro E, Alemu S, G/Yohannes A. Blood safety and prevalence of transfusion transmissible viral infections among donors at Red Cross Blood Bank in Gondar University Hospital. Ethiop Med J 2008; 46(1):7-13.
21. Khedmat H, Fallahian F, Abolghasemei H, Alavian SM, Hajibeigi B, Miri SM, et al. Seroepidemiological study of Hepatitis B virus, Hepatitis C virus, Human immunodeficiency virus and syphilis infection in Iranian blood donors. Pak J Biol Sci. 2007;10(240): 4461-6.
22. Candotti D, Mundy C, Kadewele G, Nkhoma W, Bates I, Allain JP. Serological and molecular screening for viruses in blood donors from Ntcheu, Malawi: High prevalence of HIV-1 subtype C and of markers of Hepatitis B and C viruses. Jour Med Viro 2001; 65(1):1-5.
23. Mecky IN Matee, Pius M Magesa, Eligius F Lyamuya. Seroprevalence of human immunodeficiency virus, hepatitis B and C viruses and syphilis infections among blood donors at the Muhimbili National Hospital in Dar Es Salaam, Tanzania. BMC Public Health 2006; 6:21.

Address for Corresponding Author:
Dr. Aftab Ahmed Soomro,
Asstt. Prof. of Hematology,
Ghulam Muhammad Mahar Medical College
@ SMBBM University Sukkur