

Study on Screening tests among the Blood donors in Community Based Medical College Hospital, Mymensingh, Bangladesh

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Abstract

The aim of the study was to find out the prevalence of transfusion transmitted diseases (TTD) in voluntary and Replacement donors. A total of 4,885 donors were analyzed for the prevalence of TTD over a period of 1 year and 9 month from August 2016 to May 2018, Conducted at the Community Based Medical College Hospital, Mymensingh, Bangladesh, of these 38.8% were voluntary donors and 61.2% were replacement donors. Prevalence of Hepatitis B virus (HBv) was highest (.86%) followed by syphilis (.3%), HCV (.14%), Malaria (.06%) and HIV (.04%). Prevalence was more in male replacement donors. Seropositivity of TTD of this study was much lower among blood donors due to proper medical assessment of donors. Pre-donation donor screening procedures is helpful in improving the blood safety and reduces the prevalence of transfusion transmitted diseases.

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Key words: Blood donor, Transfusion transmitted disease, Screening.

Introduction

Transfusion of blood and its components is life saving as well as it has life threatening hazards. With every unit of blood transfusion there is chance of transfusion associated hazards including transfusion transmitted diseases. A majority of known cases of post transfusion disease have been caused by hepatitis B Virus (HBv), *Treponema pallidum*, Hepatitis C virus (HCV) Malarial Parasite and human immunodeficiency virus (HIV). Transfusion transmitted diseases (TTDs) are still a major concern to patients, Physicians and policy makers who wish to see a risk free blood transfusion.

Hepatitis B (HBv) and Hepatitis C (HCV) related diseases are the commonest transfusion transmitted diseases worldwide including Bangladesh. Since the introduction of safe Blood transfusion act in 2002, all institute with transfusion facilities mandatory carry out screening for Hepatitis B and Hepatitis C Viruses besides Syphilis, Malarial parasite and HIV.

Since the introduction of screening program by Government of Bangladesh Various studies have been carried out to estimate prevalence of hepatitis B viruses. Almost all studies have been carried out in Dhaka, either in Tertiary level hospital or voluntary

private blood donor institution. This study is undertaken in Mymensingh area to explore the prevalence of this common health care related problem and to compare the results with other studies.

Material and Methods

The present study was conducted in Community Based Medical College Hospital, Mymensingh, Bangladesh. A total of 4885 donors were analyzed for the prevalence of transfusion transmitted diseases over a period of 1 year 9 month from August 2016 to May 2018. We included replacement donors who donated for ailing Patients, family members, close relatives or friend of the patients. The voluntary donation primarily was obtained from walk in donors, students, doctors and employees of the

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institution and neighboring colleges & university and from sondhani, medicine club of Mymensingh Medical College. Care was taken to eliminate professional donors by taking history and clinical examination, basic information regarding age, sex, occupation, number of previous donations. The donor was rejected whenever predonation blood sample was found positive for any TTD. The age distribution of donor was 18 to 57 years. After fulfilling the Blood donor's medical assessment and informed consent in the donor medical assessment form, other necessary laboratory information was collected after completion of test from the registrar of transfusion medicine department of CBMCHB. Screening test was routinely done on every blood donor and blood unit to rule out HBS Ag, Syphilis, HCV Malaria and HIV. Detection of HBsAg, anti HCV, anti-treponema, Anti-Malaria, Anti-HIV was done by latex agglutination Immunocromatographic test (ICT). All tests were performed in accordance with the instruction of reagent manufacturer. All the reactive samples were tested in second time for qualitative confirmation before labeling them seropositive.

Results

A total of 4885 donors, 1896 (38.8%) were voluntary and 2989 (61.2%) replacement donor (Fig. I). Among 4885 donors 4816 (98.6%) were selected by medical assessment and their screening test was negative, and 69 (1.4%) were rejected as screening test was positive (Fig. II). Male donors were predominate and it was 4739 (97%) while only 146 (3%) donors were females. On analyzing the 69 Rejected donors, 07 (10.2%) were voluntary and 62(89.8%) were replacement donors. Among the 69 Rejected donors HBsAg Positive were 42 (.86%), syphilis 15(.3%), HCV 7(.14%), Malaria 3(.06%) and HIV 2 (.04%) evident. (Fig. III). The concurrent rates for sero reactivity were highest for HBsAg followed by Syphilis, HCV, Malaria, HIV in descending order.

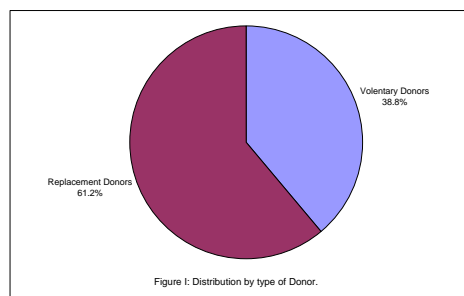


Figure I: Distribution by type of Donor.

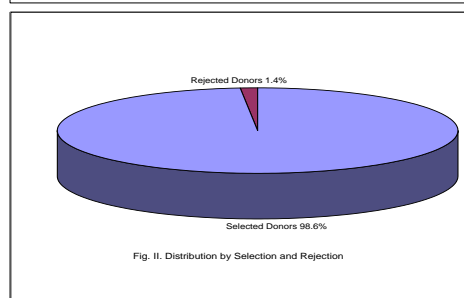


Fig. II. Distribution by Selection and Rejection

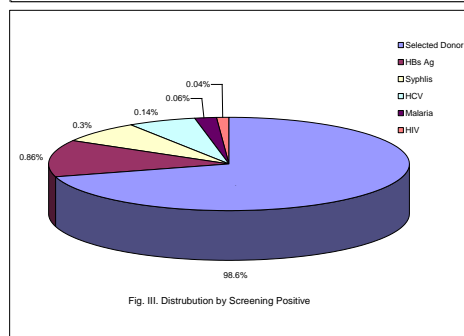


Fig. III. Distribution by Screening Positive

Discussion

Blood transfusion is a significant route of transmission of infectious diseases. Seropositivity for Hbs Ag, Syphilis, HCV, Malaria, HIV was found more in replacement donors constituted 38.8% as compared to 61.2% of replacement donors. This findings in similar to the study done by Gupta *et al.*¹ The increase in voluntary donors may be attributed to the increasing public awareness. Majority of the donor were aged between 18 and 30 years. These age group donors are similar age group donors of study carried out in Pakistan.² 97% donation were from male a finding similar to the studies conducted in India.^{3,4}

This could be explained on the basis that our female donor have a very high incidence of anemia, underweight and hence likely to face disqualification during medical assessment and screening. Based on the result we feel that to reduce the risk of TTD non remunerated voluntary donor's service need to be instituted. Proper donor selection and screening can improve the blood safety. The emphasis must also be laid on voluntary risk reduction, which will require increased awareness and change in the attitude of People. Voluntary blood donation has to be made a part of healthy life style, enlighten the public about the benefits of voluntary blood donation. HBsAg positivity Result of this study is much lower than the result of Bobay study⁵ and the results of seropositivity of this study regarding HBsAg, Syphilis, HCV, HIV also less than the study conducted by safe blood transfusion center.⁶

In comparison to HBsAg, HCV, HIV positivity, this study revealed that we are in better position (HBsAg 0.86%, HCV 0.14%, HIV 0.04% positive) than the study conducted in KMCH (HBsAg 1.39%, HCV 0.624%, HIV 0.38% positive).⁷ The result of this study also revealed that we are in fur better position than the Canadian study (HBsAg 12.24%, HCV 16.83% positive)⁸, Italian study⁹ (HBsAg 4.86%) and even study conducted in Turkey¹⁰ (HBsAg positive 1.38%). These betterness possibly due to less sharing of common needle, monogamy sexuality and ritual precept of the people in this locality. In this study, seropositivity of Syphilis and Malaria were evident which was not found in Canadian, Italian and study conducted in Turkey. This is due to men's behaviour and environmental determinants of this locality. Low seropositivity of HBv (.86%), Syphilis (.3%), HCV (.14%), Malaria (.06%) and HIV (.04%) in this study is greatly attributed to proper counseling, Medical assessment of donors and screening of blood donor routinely, followed by rational use of blood.

Conclusion

We should educate People, create awareness about voluntary donation as seropositivity for HBs Ag, Syphilis, HCV, Malaria, HIV was found more in replacement donors. Proper predonation screening of blood donors and post donation testing of Blood bag should be done to minimize transfusion transmitted diseases. So as to provide safe blood as much as and to reduce transmitted disease to patients.

References:

1. Gupta PK, Kumar H, Basannar Dr, Jaiprakash M. *Transfusion transmitted infections in armed forces: Prevalence and trends MJAFI*. 2006; 62:348-350.
2. Asif N, Kokhar N, Ilahi F. *Seroprevalence of HBv, HCV and HIV infection among Voluntary nonremunerated and replacement donors in northan Pakistan, Pak J, Medical Science*. 2004;1:24-28.
3. Kokhar N, Kamr R, Dhanoa J. *Voluntary donors-need for a second look. Indian J Pathol Microbiol*. 2004; 47:381-383.
4. Garg S, Mathur DR, Garg DK. *Comparison of Seropositivity of HIV, HBv, HCV and syphilis in replacement and voluntary blood donors in western India. Indian J Pathol Microbial*. 2001; 44: 409-412.
5. Rahman K, Khan AA, Huda Z et al. *Prevalence of Seromarker of HBv, and HCV in health care personal and apparently healthy blood donors. J Pak, Md. Associate*. 46: 152-4.
6. *Safe Blood transfusion Center. Annual reports on donor Screening, DMCH, Dhaka-2009*.
7. Ahmed Mu, Begum HA, Hossain T. *Incidence of Common Transfusion transmitted disease among blood donors. JAFMC, Bangladesh*. 2009; 5(1).
8. Chiavetta JA, Escobar M et al. *Incidence and estimated rates of residual risk for HIV, hepatitis C, hepatitis B and human T-cell lymphotropic viruses in blood donors in Canada, 1990-2000. CMAJ*. 2003 Oct 14;169(8):767-73.

9. *Manjinni P, Guurotto M et al. Italian Blood donors with anti-HBC and occult HBv infection. Hematological. 2007; 92(12)*
10. *The Prevalance of HBV, HCV and HIV infection among donor in Ijmer, Turkey, Indian J Medical Micro viol.26(3).*