

ORIGINAL ARTICLE

Awareness About Hazards of Blood Transfusion Among the Recipients in a Selected Hospital in Dhaka City

Abdul Mazid¹, Md. Shahadat Hossain Khan², AH M Omer Farooque³, Md. Humayun Kabir⁴, Asma Rubyat⁵

Abstract:

This cross sectional descriptive study was conducted in Holy Family Red Crescent Medical College Hospital from September 2007 to December 2007 among the admitted patients, who received blood at that time, to assess the extent of awareness about hazards of blood transfusion among the blood recipients to find out the knowledge about blood grouping, cross matching, screening, quality of blood, fitness of blood donors, hazards due to blood transfusion and socio demographic condition of the blood recipients. A total of 202 blood recipients were selected purposively, of them 75 were male and 127 were female. The mean age of the respondents were 41.6 years, of them mean age of the male was 46.3 years and the mean age of the female was 39.3 years. More than 93% of the respondents had some level of education and 6.9% were illiterate; 41.6% of the respondents were house wife, 31.2% were service holder, 8.9% were business man and only 2.5% were of lower income group. About the type of blood examination needed before transfusion, 82.2% were aware about blood grouping, 51.5% about cross matching, 6.4% about Rh typing, 5.4% about screening and 17.8% had no idea. Regarding blood transfusion related diseases, 80.2% were aware about hepatitis B, 60.9% about AIDS, 32.7% about syphilis, 22.3% about malaria and 20.8% of the respondents were totally unaware about the transfusion related diseases. About reaction due to blood transfusion, 174 (86.1%) had some idea but 28 (13.9%) were totally unaware about any reaction. Of the respondents, 196 (97%) preferred blood from unpaid voluntary donors, friends and relatives, and only six (3%) preferred professional donors. Only 4.5% of the respondents had idea about screening of blood before transfusion.

1. Assistant Professor, Department of Community Medicine, Holy Family Red Crescent Medical College, Dhaka.
2. Professor and Head, Department of Community Medicine, Holy Family Red Crescent Medical College, Dhaka.
3. Associate Professor, Department of Pathology, Holy Family Red Crescent Medical College, Dhaka.
4. Associate Professor and Head, Department of Forensic Medicine, Holy Family Red Crescent Medical College, Dhaka.
5. Assistant Professor, Department of Community Medicine, Ibn Sina Medical College, Dhaka.

Introduction:

Blood is defined as the most valuable drug by the World Health Organization which is substituted only with blood. An adult body contains about five liters of blood in the circulation. It is the only source of blood even at this advance stage of scientific era. Blood transfusion is the taking of blood or blood based products from one individual and inserting them into the circulatory system of

another¹. Blood transfusion may treat medical conditions such as massive blood loss due to trauma, surgery, obstetric cause, burn, shock, and where the red cell producing mechanism fails.

Transfusion of one unit of blood may add at an average of 350-400 ml of blood. The transfusion of one unit of red cells generally raises the haemoglobin by 10 gm/L². Blood transfusions usually are given to increase oxygen carrying capacity of blood and intravascular volume. The need for transfusion is based on the estimation of lost circulatory volume, rate of blood loss and the previous haemoglobin concentration. Up to 15% loss of blood volume needs no transfusion unless it is super imposed with pre-existing anaemia, 15-30% loss of blood volume in an adult needs to transfuse crystalloid or synthetic colloid, 30-40% loss of blood volume in an adult needs rapid volume replacement with crystalloid or synthetic colloid and red cell transfusion may be required; 40% loss of blood volume in an adult needs rapid volume replacement including red cell transfusion. Red cell transfusion is indicated when the hemoglobin concentration is less than 7 gm/L³.

In Bangladesh, about 2-2.5 lac units of blood is required yearly. Paid donors who share the major portion (70%) of collected blood in the country significantly suffer from hepatitis-B (29%), hepatitis C (6%) and syphilis (22%)⁴. In 1993, almost 90% of transfused blood came from professional blood donors (PBDS) and was not scanned for transmissible diseases⁵. Up to 2000, only grouping and cross matching were done and screening for transmissible diseases was not mandatory, and 70% of blood for transfusion was collected from the PBDS. In 2007, only 9.74% of blood was collected from PBDS⁶.

WHO recommend that blood donors should be between 18 and 57 years with haemoglobin not less than 75% of the normal value, and males can donate at every three months interval and females at four months interval. Blood donors should be free from diseases, such as syphilis, malaria, AIDS, anaemia, blood diseases, tuberculosis, epilepsy, heart diseases, diabetes mellitus, gonorrhoea, cancer, hepatitis B and C, and intravenous drug use⁷. Blood cannot be donated if the donor has given blood in the last 3-4 month. In Bangladesh, this criteria are never followed for either professional blood donor or voluntary donors although it is present in the blood bank guideline document^{8,9}.

At present there are five types of blood donation in Bangladesh:

1. Paid donors (professional donation)
2. Party, relative or family donation
3. Voluntary donation (unpaid)
4. Prisoner donation
5. Donation in exchange of blood

Of them the professional blood donation is most injurious to health because the donors suffer from many infectious diseases¹⁰. The recipient of the blood and the relatives should be aware of the source of blood and of proper screening of blood to avoid the hazards of transfusion. The HIV/AIDS pandemic has focused particular attention on the importance of prevention of transfusion transmitted infections (TTIS). Between five and 10% of HIV infection worldwide are transmitted through the transmission of contaminated blood or blood products. Many more recipients of blood are infected by hepatitis B and C virus, syphilis and other infectious agents such as Chagas disease¹¹.

This study was conducted with a view to evaluate the current status of the recipients regarding awareness about blood grouping, forensic immunology, compatibility test, and hazards associated with blood transfusion. The study may reveal actual weakest point responsible for occurrence of different hazards due to blood transfusion. Considering the findings in the study necessary interventions may be taken to avoid unwanted situation associated with blood transfusion and improve the blood transfusion services in the country as well.

Materials and method:

This cross sectional descriptive study was done in Holy Family Red Crescent Medical College Hospital after taking permission from hospital authority during September 2007 to December 2007 by a pre-tested questionnaire with the help of the on-duty nurses of the

hospital from the admitted patients who had received blood or those who were receiving blood at that time. The critical or non-operative patients were not considered. The sample size was selected purposively which was 202, of them 75 were male and 127 were female. The data were compiled and analyzed by using scientific calculator and also with the help of SPSS programme in computer.

Results:

Table-I shows that among the 202 blood recipient 75 (37.13%) were male and 127 (62.87%) were female, the mean age of the respondents were 41.6 years, of them mean age of the male was 46.3 years and that of the female was 39.3 years. Of the male 48 (64%) were in the age group of 26-55 years and of the female 91(71%) were in the same age group.

Table-I: Distribution of the respondents by age and sex

Age in years	Male	Percentage	Female	Percentage	Total	Percentage
16-25	07	3.46	19	09.40	26	12.87
26-35	13	6.43	32	15.84	45	22.28
36-45	19	9.40	37	18.32	56	27.72
46-55	16	7.92	22	10.89	38	18.81
56-65	08	3.96	12	05.94	20	09.90
>65	12	5.94	05	02.48	17	08.42
Total	75	37.13	127	62.87	202	100
Mean age		46.30		39.29		

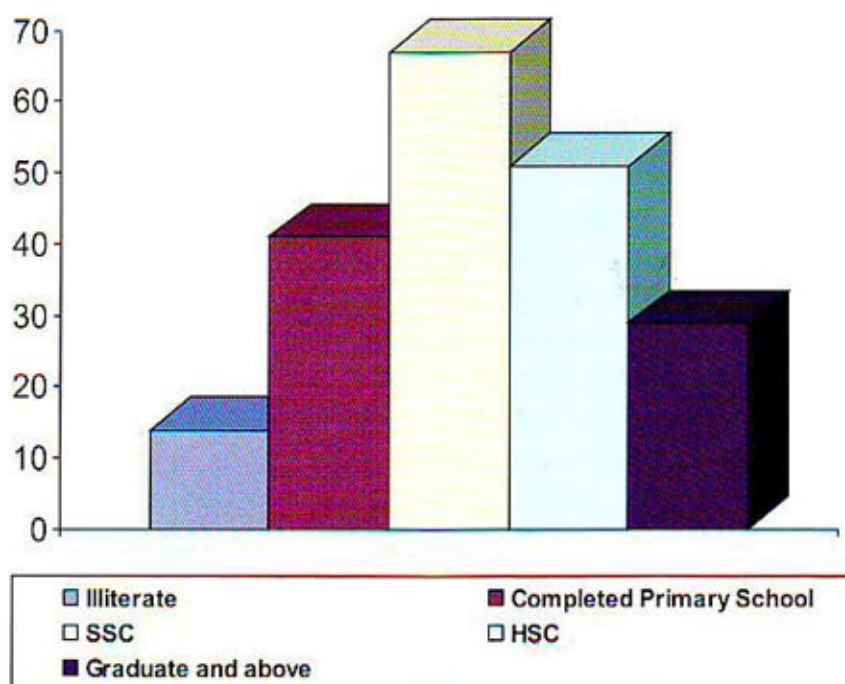


Figure-1: Distribution of the respondents by level of education (n=202)

Of the 202 respondent, 14 (6.93 %) were illiterate, 41 (20.30 %) completed primary school, 67 (33.17 %) completed SSC, 51 (25.25 %) completed HSC and 29 (14.35 %) were graduate and above.

Among the respondents, 84 (41.58 %) were housewives, 63 (31.2%) were service holders, 18 (8.91 %) were businessman, 18 (8.9%) students, 14 (6.39%) retired person, and only five (2.5%) were of lower income groups.

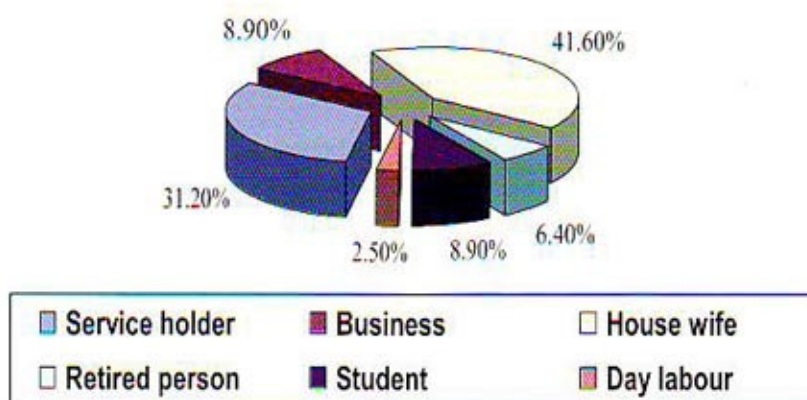


Figure-2: Distribution of the respondents by profession (n=202)

Table-II: Distribution of knowledge of the respondents about type of investigations require before transfusion

Type of examination	Frequency	Percentage
Grouping	166	82.18
Cross-matching	104	51.49
Rh Typing	13	6.44
Screening	11	5.45
No idea	36	17.82

Of the 202 respondents, 166 (82.18%) had idea about need of blood grouping and 104 (51.49%) about cross-matching but only 13 (6.44%) had idea about Rh typing and 11 (5.45%) about screening. Thirty six (17.82 %) had no idea about need of any examination before blood transfusion.

Table-III: Knowledge of the respondents about disease to be screened before transfusion

Disease	Respondents	Percent
Hepatitis B	162	80.20
AIDS	123	60.89
Syphilis	66	32.67
Malaria	45	22.28
No idea	42	20.79

One hundred and sixty two (80.20%) of the respondents were infavour of hepatitis B to be checked before transfusion; 123 (60.89 %), 66 (32.67%), 45 (22.28%) were aware of AIDS, syphilis and malaria respectively; 42(20.79%) of the respondents were totally unaware about the disease to be checked before transfusion.

Table-IV: Knowledge of the respondents about reaction due to blood transfusion

Reaction	Frequency	Percentage
Fever and rigor	119	58.91
Vertigo	84	41.58
Allergic reaction	120	59.41
Anaphylactic reaction	10	04.95
No idea	28	13.86

Among the respondents 120 (59.41%) were aware of some reaction that may occur due to blood transfusion but 28 (13.86%) had no idea about any reaction.

Table-V: Type of blood donor preferred by the respondents

Type of donor	Frequency	Percentage
Professional donor	06	2.97
Voluntary (unpaid) donor	48	23.76
Friends	92	45.54
Relatives	56	27.73
Others	202	100%

Most of the respondents 196 (97%) preferred blood from friends, relatives or voluntary blood donors and only six (2.97%) preferred professional donor.

Discussion:

Out of 202 respondents 37.1% were male and 62.9% were female. The number of female was more because patients requiring obstetric and gynecological surgery were more in the study. The mean age of the male was 46.3 years and that of female was 39.3 years. There was no significant age difference between male and female. Regarding education, 20.3% completed primary school, 32.3% SSC, 22.5% HSC, 14.34% were graduate and above, and only 6.9% were illiterate. The literacy rate was higher than the national literacy rate, the probable cause may that the study centre is a non-government hospital of metropolitan city that serves mostly the solvent and literate patients. While analyzing knowledge of different tests needed before blood transfusion 82.2% knew about blood grouping, 51.5% about Rh typing and only 5.4% about screening; 17.8% had no idea about diseases to be checked before transfusion. Regarding

transfusion related diseases, 80.2% had idea about hepatitis B, 60.9% about AIDS, 32.7% about syphilis, and only 22.3% about malaria; 20.8% had no idea about any such diseases. In his study Abdul¹² showed that 69% respondent knew about blood grouping, 15.9% about cross matching, 0.8% about Rh typing and screening, and 27% had no idea. Regarding transfusion spread diseases, 50% mentioned about AIDS, 78% about syphilis, 14.1% about hepatitis and 37.5% had no idea. The percentage of blood transfusion related knowledge in the present study was found more probably due to ongoing awareness programme and health education about blood transfusion. Regarding preference of blood donor, 97% preferred unpaid voluntary blood donors, friends and relatives and only about 3% preferred professional blood donors. About the cause of not liking the professional donors, 57% told about poor quality, 40% about possibility of blood borne disease and 3% about high price. In his study Abdul¹³ showed that 96.8% mentioned about poor quality, 39.7% about possibility of blood borne disease and 8.6% mentioned about high price. There was no significant difference in his findings with the present study. Although awareness about hazards of transfusion is increasing, still it is not satisfactory. Only 4.5% of the respondents had idea about screening of blood before transfusion. Blood must be screened against possible transfusion transmitted infections. Radio, television and other mass media should broadcast special programmes to make people aware about the screening of blood, hazards of receiving blood from professional donors and advantage of blood from relatives or unpaid voluntary donors.

References:

1. <http://www.en.wikipedia.org/wiki/bloodtransfusion> on 03/01/2008.
2. Macle MJ, Ludlam CA, Haynes AP. Disease of the blood. In: Das Little Chilers ER, Hunter JAA, Boor NA. Davidson's Principles and Practice of Medicine, 18th edition. Sydney, Toronto: Churchill-Livingstone, 1999. pp-737-800.
3. Murphy MF, Wallington TB, Kensey P, et al. Guidelines for the clinical use of red cell transfusions. Br J Haematol 2001; 113: 24-31.
4. Safe Blood Transfusion Programme (SBTD), Bangladesh.
5. Hossain SM, Bhuiya, Streatfield. Professional blood donors, blood banks and risk of STDs and HIV/AIDS: A study in selected areas in Bangladesh. South & East Asia Regional Working Papers 1996; 6 : 23.
6. The Daily Ittefaq. Reported on blood transfusion activity, Bangladesh; 14 June, 2007.
7. WHO/GPA.CNP/93, 2B, 1993, Safe blood and blood donor products. Module 1. 159-175, pp-1.
8. The Daily Sangbad. Report, 5 December, 1993.
9. The Daily Inqilab. Report, 12 November, 1993.
10. Rahman M. In : Guide to Blood Transfusion, First edition. Dhaka: Meghna Printers, 1978. pp-24-30.
11. Blood donation http://en.wikipedia.org/wiki/blood_donation-1/9/05.
12. Safi AAI. Hazards of blood transfusion Dissertation for MPH (CM), Dhaka. NIPSOM, 2004-2005.