

Evaluation of Pre-donation Deferral Reason among the Blood Donors Visiting ESIC Hospital in Eastern India

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Abstract

Blood transfusion is an indispensable component of health care. It contributes to saving millions of lives each year in both routine and emergency situations, permits increasingly complex medical and surgical interventions and dramatically improves the life expectancy and quality of life of patients with a variety of acute and chronic conditions. to analyze and evaluate the reasons for donor deferral at ESIC hospital blood bank which has been recently opened up, so that temporarily deferred donors with corrective reasons can be identified, properly informed and guided to improve their quality of blood for future donation. Out of all the donors 1600 (90.3%) were eligible for donation and 171 (9.7%) blood donors were deferred. Temporary deferrals (77.8%) were more common than permanent deferral (22.2%). The most reasons for deferral in blood donors were Anaemia (40.9%), Hypertension (52.6%), Antibiotic therapy (10.5%), Previous donation (5.3%) and Malaria (4.5%). Thus, it is important to evaluate the reasons of whole blood donor deferral to guide the recruitment and retention efforts in newly started blood bank.

Keywords: Pre-donation deferral; Blood donation; Eastern India

Introduction

Blood transfusion is an indispensable component of health care. It contributes to saving millions of lives each year in both routine and emergency situations, permits increasingly complex medical and surgical interventions and dramatically improves the life expectancy and quality of life of patients with a variety of acute and chronic conditions. Patients who require transfusion as part of their clinical management have the right to expect that sufficient blood will be available to meet their needs and to receive the safest blood possible. However, many patients still die or suffer unnecessarily because they do not have access to safe blood transfusion. The timely availability of safe blood and blood products is essential in all health facilities in which transfusion is performed, but in many developing and transitional countries there is a widespread shortfall between blood requirements and blood supplies [1]. As per WHO, minimum need to meet a nation's basic requirement for blood is approximately about 1% of the population (10 per 1000 population); these requirements are directly proportional to the type of advanced health-care systems in any country [2].

In India, according to NACO's (National AIDS control organization) statistics the annual requirement of blood for the country was estimated at 12 million units, of which DAC (Department of AIDS control) had a target of collecting 55 lakh units through the network of DAC supported blood banks in 2013-2014. The endeavour was to meet the blood needs of the country with voluntary non-remunerated donations, through a well-coordinated Blood Banking Programme. In 2013-2014, a total of 57 lakh units were collected and 84% of this was through voluntary blood donation [3]. The achievement seems to be nice but still there is huge gap of approximately 60 lakh units as compared to required target set by

WHO. Onto that paucity of healthy, safe blood donors has always been a serious problem for blood banks, across all health sectors in India. Blood donor deferral is an uncomfortable and sad experience for the blood donor as well as the blood bank where screening is done. Moreover, a deferred prospective donor often leaves them with negative feelings about themselves as well as the blood donation process [4]. These blood donors are less likely to return in future for any blood donation and have pronounced effect on them for future donation [5]. In most of the blood banks, focus is more at recruiting new blood donors while retention and re-entry of recruited but deferred due to various causes are ignored. Pre donation donor selection is usually performed for the safety of not only the blood donor but also for the recipient. Monthly statistics sent to the higher authorities exclusively includes transfusion transmitted diseases data and excludes other causes [6]. It is also very important to study and analyze various causes for donor deferral, in order to categorize them under temporary and permanent deferrals and to increase influx of the donors to donate blood without deferral. Hence, the present study was taken to analyze and evaluate the reasons for donor deferral at ESIC hospital blood bank which has been recently opened up, so that temporarily deferred donors with corrective reasons can be identified, properly informed and guided to improve their quality of blood for future donation.

Methodology

The present cross sectional study was carried out among all whole blood voluntary as well replacement donors who arrived for blood donation in the blood bank of ESIC Hospital, blood bank, Joka, Kolkata. Data was collected from 1st September 2013 to 31st December 2014. Blood bank in ESIC hospital Joka is functional since August 2014. The donors were evaluated on the basis of pre-screening criteria involving questionnaire having person details, clinical details,

physical examination, Haemoglobin [Hb] estimation, blood pressure and temperature. Haemoglobin estimation is done by automated haematology analyzer [HemoCue Hb 201⁺]. The West Bengal State AIDS Control Society [WBSACS] guidelines were used for deferral of blood donors. Deferred donors data was analysed using Epi Info 7 with respect to age, sex, type of donor and causes for deferral were categorised into temporary and permanent, based on the curability of the condition.

Results

During the study period total of 1771 whole blood donors who arrived for blood donation at ESIC hospital blood bank, Joka, 1600 (90.3%) were eligible for donation and 171 (9.7%) blood donors were deferred. Female population were found to have higher deferral than the male population (41.7% vs 8.1%) (Table 1).

	Donors registered	No. of Deferral	Deferral rate (%)
Males	1687	136	8.1
Female	84	35	41.7
Total	1771	171	9.7

Table 1: Deferral Rate of whole blood donors at ESIC hospital blood bank, Joka.

	Female (%)	Male (%)	Total (%)
Age Group(years)			
<20	1(2.9)	3(2.1)	4(2.3)
21-30	9(25.7)	58(42.7)	67(39.2)
31-40	14(40.0)	39(28.7)	53(31.0)
41-50	6(17.1)	27(19.9)	33(19.3)
51-60	5(14.3)	9(6.6)	14(8.2)
Blood Group			
A ⁺	14(40.0)	43(31.6)	57(33.3)
B ⁺	12(34.3)	36(26.5)	48(28.1)
AB ⁺	4(11.4)	17(12.5)	21(12.3)
O ⁺	5(14.3)	29(21.3)	34(19.9)
A ⁻	0(0)	4(2.9)	4(2.3)
B ⁻	0(0)	2(1.5)	2(1.2)
AB ⁻	0(0)	2(1.5)	2(1.2)
O ⁻	0(0)	3(2.2)	3(1.8)
Occupation			
Buisness	1(2.9)	20(14.7)	21(12.3)
Farmer	0(0)	8(5.9)	8(4.7)
Home maker	23(65.7)	0(0)	23(13.5)
Service	10(28.6)	102(75.00)	112(65.5)

Student	1(2.9)	5(3.7)	6(3.5)
Unemployed	0(0)	1(0.7)	1(0.6)
Total	35(100)	136(100)	171(100)

Table 2: Age, sex, blood group, occupation distribution of the deferred subjects.

Above Table 2 shows the distribution of the deferred donors. Deferred donor age group ranged from 18 to 60 years with a mean age of 34.7 years. Deferral rate was highest among 21-30 years age group (39.2%) followed by 31-40 years (31%), 41-50 years (19.3%) and 51-60 years (8.2%). Above table also shows that majority 40% females deferred donors were from age group 31-40 years. The distribution of blood group in deferred population was found to be maximum among blood group in A⁺ve (33.3%) followed by B⁺ve (28.1%) and O⁺ve (19.9%). Distribution of occupation showed that majority of the deferred donors were service class (65.5%) followed by home maker (13.5) who were females followed by business class people(12.3%).

Type of Deferral	Female (%)	Male (%)	Total (%)
Permanent	2(5.7)	36(26.5)	38(22.2)
Temporary	33(94.3)	100(73.5)	134(77.8)
Total	35(100)	136(100)	171(100)

Table 3: Frequency of temporary and permanent whole blood donors.

Table 3 shows that distribution of the deferred population as per temporary and permanent deferral. As it can be seen that permanent donor deferral is 22.7% and temporary donor deferral was 77.8%. It can be seen that permanent deferral is very less in females (5.7% Vs 94.3%).

Reasons for Permanent deferral	No. of permanent deferral (%)	% Total Deferral
Hypertension	33(86.8)	19.2
Asthma	2(5.3)	1.2
Renal Disease	2(5.3)	1.2
Epilepsy	1(2.6)	0.6
Total	38(100.0)	22.2

Table 4: Distribution of permanent deferral donors reasons.

The commonest permanent deferral cause was hypertension (86.8%) followed by asthma and renal disease constituting 5.3% of permanent deferred donors. One donor deferred was on epilepsy treatment forming 2.6% of the permanent deferred donor.

Reasons for Temporary deferral	No. of Deferral (%)	% Total Deferral
Anaemia	70(52.6)	40.9
Antibiotic Therapy	14(10.5)	8.2
Previous donation	7(5.3)	4.1
Malaria	6(4.5)	3.4

Hypotension	5(3.8)	2.9
Jaundice	5(3.8)	2.9
Dog Bite	4(3.0)	2.3
Respiratory tract infections(RTI)	3(2.3)	1.8
Alcohol Consumption	2(1.5)	1.2
Medications	2(1.5)	1.2
Menstruation	2(1.5)	1.2
Rare Blood group	2(1.5)	1.2
Tattoo	2(1.5)	1.2
Conjunctivitis	1(0.8)	0.6
Diarrhoea	1(0.8)	0.6
Fever	1(0.8)	0.6
Tachycardia	1(0.8)	0.6
Tooth extraction	1(0.8)	0.6
Under Weight	1(0.8)	0.6
Total	133(100)	77.8

Table 5: Distribution of temporary deferral donors reasons.

The commonest temporary deferral cause was Anaemia (52.6%), followed by Antibiotic therapy (10.5), Previous donation (5.3%), Malaria (4.5%), Hypotension (3.8%), Jaundice (3.8%), Dog bite (3.0%) and RTI (2.3%). Other reasons such as alcohol consumption, medications, menstruation, rare blood group and tattooing formed 1.5% each. Very rare temporary deferral reasons of 0.8% each were due to conjunctivitis, diarrhoea, fever, tachycardia, tooth extraction, underweight. According to Tables 4 and 5, top most reasons for deferral in blood donors were Anaemia (40.9%), Hypertension (52.6%), Antibiotic therapy (10.5%), Previous donation (5.3%) and Malaria (4.5%).

Discussion

Safe blood donor selection is of vital importance towards safe blood transfusion services. The donor is the life force of any blood bank and hospital in blood donation programme. Hence, insight into the various causes of donor deferral is very important. Most of the donors in our study were males i.e 95.3%, while women accounted for only 4.7%. Among insured population, more males than females approach for blood donation. This may be due socio-cultural factors, ignorance, lack of awareness, lack of motivation, seeing blood donation being primary responsibility of males there is lesser opportunities among women for blood donation. The donor deferral rate ranged from 5.19% - 35.6% across the world in previous studies conducted in India and internationally [5-24], however in present study the deferral rate was 9.7%. These varied differences in various countries in donor deferral rate could be due to different donor selection criteria like weight, age, haemoglobin levels, blood donation interval, endemicity of transmittable diseases, high risk sexual activities and religious restriction on blood donation.

The donor deferral population was categorized into temporary and permanent deferrals for optimizing donor recruitment and retention in the long run. Among the deferrals, temporary causes (77.8%) were more common as compared to permanent causes (22.2%). It was seen also in other studies conducted [6,9-11,14,16,19,20,23,24] that deferral due temporary reasons were more than due to permanent reason but study conducted by Girish et al in India it was seen that deferral reason were equally in temporary and permanent reason. This may be due to the fact that study conducted in district transfusion centre Shimoga. In present study permanent deferral is very less in females (5.7% Vs 94.3%) this may be due higher prevalence of anaemia in women which is constituting the major cause of temporary deferral in the study.

The major temporary deferral cause was anemia (52.6%) in our study which was similar with other previous studies [6-12,15,18,20-25]. As the hospital caters to the insured worker population in industry, high prevalence of anemia could be due to poor nutritional status and ill health. The effect of differences in donor characteristics on low haemoglobin levels should be taken into consideration for donor counseling, recruitment and retention efforts. Information about how to increase the haemoglobin levels should be provided to the donors. For example, food intake with high iron or taking multivitamin containing iron should be encouraged and educate to donate blood at a later date after the cause is rectified. Thus evaluation and management of anemia plays a pivotal role in rural population. Study in Iran by Birjandi et al. [15] stated that medications was the major cause of deferral but in our study it was seen that antibiotic therapy was the second most common cause of temporary deferral. Antibiotic therapy could be due to increased accessibility to the hospital to the insured patients (IP) and availability of free medicines. All the other listed temporary causes in the present study can be treated with appropriate education, counseling and related medications for the cause.

The most common reason for permanent deferral in our study was hypertension (86.8%) same was also found in other studies conducted in different parts of world [6,10-12,14-17,20,22,24,25]. The probable reason could be that all donors are insured persons and get regular health checkup done in the ESIC hospital. The other frequent permanent deferral causes were cardiac asthma and renal disease (5.3%). Most of the insured persons are workers in factories and polluted environment and are exposed to polluted environment and heavy physical work of long duration hence they are prone for asthma and illness.

Donor education about selection and deferral criteria needs to be addressed as on priority basis in the blood banks. Monitoring and evaluation of deferral rates and its reasons could be used as a helpful indicators for increasing the frequency of blood donation in newly formed blood bank such as in ESIC hospital Joka.

Conclusion

The present study evaluates the donor deferral rate and reasons of donor deferral among the blood bank catering the insured population. Awareness about categorization of donor deferral causes into temporary and permanent deferrals is required for all the blood banks and transfusion services. All the potential donors deferred for temporary reason must be informed during the time of deferral about the reasons and time for blood donation. These donors should be counselled, educated and encouraged to improve the efficiency of donor programme. Also, temporary deferred donors require

appropriate follow up and management so as increase the future donors. Thus, evaluating the profile of blood donors will help to identify target population to increase the pool of voluntary donors. However, health officials should provide necessary essential data from time to time to design and implementation of proper education material to decrease the incidences of common deferral reasons. This health education will also help in increasing the health status of the society.

There is scarcity of literature regarding donor deferral causes among different population. Furthermore studies involving larger population, screening methodologies involving more parameters at local, state and national level are required to improve the quality of blood donation.

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