

Analysis of Blood Donor Deferral Causes in a Tertiary Care Teaching Hospital: A Key to Recruit Blood Donors

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ABSTRACT

Background: Blood donors are rejected for various reasons. Deferred donors generally have a negative feeling about themselves as well as the blood donation process and in future, these donors are less likely to return for blood donation. Retention and re-entry of these temporarily deferred donors can be achieved by analyzing the reasons of their deferrals and ameliorating the causes wherever possible.

Aim of the study : The aim of this study was to know the profile of donors who come for blood donation at a tertiary care hospital, Hyderabad and also the reasons for blood donation deferral among them.

Materials & Methods : The study was conducted at tertiary care teaching hospital in Hyderabad. All those who attended for donation between 1st January 2013 and 31st December 2016 were included in the study.

Results: Out of 75,167 donors, 70,173 donors have donated the blood and a total of 4994 (6.64%) donors were deferred. Out of 4,994 donors deferred, 4,670 (93.51%) were males and 324 (6.49%) were females; 4,804 (96.19) were replacement and 190 (3.81%) were voluntary donors respectively. Predominant age group deferred was in the range of 18-30 years. Temporary and permanent deferrals were 76.37% and 23.63% respectively. Most common reason for deferral was low haemoglobin (49.09%) followed by alcohol consumption (1.5%) and drug intake (1.47%).

Conclusion: Most of the studies in literature indicate high percentage of donor deferrals due to temporary causes. These temporarily deferred donors can be treated and can be brought back into the donor program.

Keywords: Blood, Donor deferral, Causes, Anaemia.

INTRODUCTION

Blood transfusion is a life saving procedure in many medical and surgical practices. According to National AIDS Control Organization's (NACO) statistics the annual rate of blood donation in India is about 7.4 million units, against the

requirement of 10 million units¹. According to World Health Organization (WHO) figures, over 81 million units of blood are collected annually but only 39% are collected in developing countries which have 82% of the world's population². A blood bank plays a key role in providing the safe blood to the recipients as and when required. Donor recruitment and retention is tough task faced even today by every blood bank inspite of the ever changing socio-economic environment and education of the people. Blood donors are rejected for various reasons. Individuals rejected for donating blood are known as "deferred" donors³. Blood transfusion community undertakes many measures to ensure availability of adequate and safe blood and also ensures safety of recipients and donors by following stringent donor selection criteria^{3,4,5}. Deferred donors generally have a negative feeling about themselves as well as the blood donation process and in future, these donors are less likely to return for blood donation. Retention and re-entry of these temporarily deferred donors can be achieved by analyzing the reasons of their deferrals and ameliorating the causes wherever possible⁶.

Aim of the Study: The aim of this study was to know the profile of donors who come for blood donation at a tertiary care hospital, Hyderabad and also the reasons for blood donation deferral among them.

MATERIALS AND METHODS

The study was conducted at Nizam's Institute of Medical Sciences, a tertiary care teaching hospital in Hyderabad. All those who attended for donation between 1st January 2013 and 31st December 2016 (4 years) were included in the study. Data was collected retrospectively from the records in the Department of Transfusion Medicine. All the donors were examined physically and a detailed history was recorded as per the criteria laid down by the Drugs and Cosmetic Act 1940 (and rules there under) supplemented by the Technical Manual (Directorate General of Health Services, Ministry of Health and Family Welfare, Govt. of India)⁷ and the departmental Standard Operating Procedures (SOPs). All the information of the deferred donors recorded includes the age, sex, cause of

deferral whether temporary or permanent. The volume of blood collected was 350ml from donors who weighed > 50 kg and 450 ml from donors who weighed >60 kg.

RESULTS

Out of 75,167 donors (Table 1), 70,173 donors have donated the blood and a total of 4994 (6.64%) donors were deferred. Out of 4,994 donors deferred, 4,670 (93.51%) were males and 324 (6.49%) were females; 4,804 (96.19) were replacement and 190 (3.81%) were voluntary donors respectively (Table 2). Predominant age group deferred was in the range of 18-30 years (Table 3). Temporary and permanent deferrals were 76.37% and 23.63% respectively (Table 2). Most common reason for deferral was low haemoglobin (49.09%) followed by alcohol consumption (17.02%) and drug intake (14.91%). (Table 4)

Table 1. Basic Demographic profile of donors

Donor category	Male (%)	Female (%)	Total (%)
Related donors	49,843 (81.21%)	180 (0.40%)	50,023 (81.61%)
Voluntary donors	19,337 (17.39 %)	813 (1.00 %)	20,150 (18.39 %)
Total	69,180 (98.60 %)	993 (1.40 %)	70,173 (100 %)

Table 2. Profile of deferred donors

Deferred Donors	Male (%)	Female (%)	Total (%)
Related donors	4660	144	4804 (96.19)
Voluntary donors	10	180	190 (3.81)
Total	4670 (93.51%)	324 (6.49%)	4994 (100%)

Type of Deferral	Number	Percent (%)
Temporary	3814	76.37
Permanent	1180	23.63
Total	4994	100

Table 3. Deferred Donors- According to Age (years)

Type of Age	Percentage (%)
>18	14 (0.28%)
18-25	1705 (34.14%)
26-30	1587 (31.77%)
31-35	420 (8.41%)
36-40	604 (12.09%)
41-45	402 (8.04%)
46-50	163 (3.26%)
51-55	99 (1.98%)
Total	4994 (100%)

Table 4. Reasons for donor deferral

Reason	Number	Percent (%)
Low haemoglobin	2452	49.09
Alcohol consumption	850	17.02
Drug intake	745	14.91
Abnormal blood pressure (high/ low)	694	13.90
High haemoglobin	56	1.12
Skin diseases	46	0.92
Fever history (last 5 days)	28	0.56
Under weight	22	0.44
Fasting	17	0.34
High risk sexual behaviour	16	0.32
Thyroid dysfunction	13	0.26
No prominent veins	12	0.24
Epilepsy history	11	0.22
Recent jaundice history	5	0.10
Under-Age	5	0.1
Recent history of Surgery	5	0.1
Diabetes on insulin treatment	5	0.1
Tattooing	5	0.1
Menstruation	4	0.08
Tuberculosis	3	0.06
Total	4994	100%

Table 5: Comparison from studies in literature

Study	Deferral (%)
Rabeya et al ¹¹ (2008)	5.6%
Sundar et al ³ (2010)	6.0%
Charles et al ¹⁴ (2010)	35.6%
Unnikrishnan et al ² (2011)	5.20%
Sadhana Mangwana ¹² (2013)	17.88%
Kasraian ¹⁶ (2014)	30.9%
5. Present study	6.64%

DISCUSSION

The most important step in improving the safety of blood and blood products is donor selection. It is important to know the reasons for donor deferral in view of scarcity of blood units in our country so that the temporarily deferred donors can be brought back again into the pool of blood donation. In this study, we have evaluated the various reasons for donor deferral. The donor deferral rate in our study was 6.64% which was in agreement with most Indian studies that varied from 4.0% to 17.88%⁷⁻¹³ whereas in studies from other countries show much higher deferral rate up to 35.6%.¹⁴⁻¹⁷ Table 5 shows comparison of our study with those in literature.

In our study, the deferral rate for females was very high (30.64%) compared to males (6.75%). This main cause for this was anaemia prevalent in Indian females. Similar findings were reported by Kumari et al¹⁸.

In our study, majority of the donors were replacement donors accounting 81.61% similar to the study conducted by Mangwana et al¹² whereas the studies in literature shows predominantly voluntary donors¹⁹. Our study found that the deferral rate was high (96.19%) in related donors than voluntary donors which is quite opposite when compared to the study conducted Agnihotri et al¹⁹.

In the present study 65.91% of donors deferred were in the age group of 18-30 years (Table 2). This could be explained by the fact that this age group is the only predominant group among the total donor pool in every blood donation centre.

In our study, temporary deferral rate was 76.37% a little higher than the studies conducted by Custer et al and Shaz et al who have reported a deferral rate of 68.5% and 68% respectively²⁰. However, in a study by Lawson Ayayi et al, the temporary deferral rate was unusually very high as 91.3 % of all deferrals²⁰. A recent article from south India reported temporary deferral rate of 83.11%²¹.

The major cause for donor deferral was anaemia (49.09%), followed by alcohol consumption (17.02%) and medication (14.91%) in our study. In a study by Halperin et al. the three most common deferral causes are low haemoglobin level, colds and/or sore throats, and elevated temperature; whereas that by Ranveet et al. is under-weight, under-age, and low haemoglobin levels²⁰⁻²². Thus, the reasons for donor deferral vary from region to region. In the present study, 23.63% of donors were deferred for permanent reasons and abnormal blood pressure accounted for most of them which was in agreement with the studies in literature^{18,19}.

High risk sexual behaviour was found in 0.32% in our study which is comparable to 0.4% in a study by Kumari et al⁶. This may be due to tendency of donors to hide such a history also. In a study from Trinidad and Tobago, the most common

cause of donor deferral was a history of high-risk sexual activity (27.6%).²³

The effect of temporary deferral on returning of blood donor and subsequent blood donation is an important issue. Temporary deferral has a very negative impact on blood donor return rates and subsequent donations²⁰. Hence the temporarily deferred donors should be properly counselled and guided by the blood bank team so that they can be retained in donor pool for future blood donations.

CONCLUSION

Donor deferral rate was 6.64% in the present study. Most of the donors coming for blood donation are aware of donation program nowadays. Most of the studies in literature indicate high percentage of donor deferrals due to temporary causes. Also most common reason for deferral was anaemia in majority of studies. These temporarily deferred donors can be treated and can be brought back in to the donor program. These temporarily deferred donors need proper guidance and counselling as they are already motivated for blood donation and far better than un-sensitized people.

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