

## Study of Pattern of Donor Deferral in Tertiary Hospital Blood Bank of India

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### Abstract :

**Background:** Blood transfusion saves millions of life all over the world every year. Shortage of blood donors has always been a problem throughout the world. In blood transfusion services many potential blood donors are deferred for several reasons. The rate and reasons of donor deferral differs from region to region and center to center. **Materials and Methods:** Record based study was carried out in 1961 donors attending blood bank. **Results:** Total 582 donors were deferred out of 1961 registered donors because of various reasons anemia was found most common cause of deferring the donors followed by hypertension, incidence of deferral of females was more as compared to males. **Conclusion:** It was found that deferral rate in present study was 29.67% and leading cause was anemia followed by hypertension for deferring donors. Therefore it is time to modify recruitment strategy with regular follow up of temporarily deferred donors.

**Key words:** Donor deferral, Hemoglobin, Hypertension.

### History:

It was in 17<sup>th</sup> century 1628, when first donation of blood was done; from that time on words blood transfusion services are improving time to time till today. With further development anti-coagulants were first used for long term use of blood in 1914. In 1940, blood was separated into different components so that more patients can be benefitted by single unit of blood. Blood donations in India are conducted by several organizations and hospitals by organizing blood donation camps. Donors can also visit blood banks in hospitals to donate blood. The number of voluntary blood donors increased from 54.4% in 2006-2007 to 83.1% in 2011-2012, with the number of blood units increasing from 4.4 million units in 2006-2007 to 9.3 million units in 2012-2013.<sup>(1)</sup>

### Introduction:

Blood transfusion is indispensable component of health care system and saves millions of lives every year in casualties, in surgical procedures and in medical emergencies. One of the most important step used to ensure blood safety is blood donor selection.<sup>(2-7)</sup> Blood donor eligibility is determined by medical interview, based on national guidelines for donor selection criteria.

A large numbers of blood donors are deferred from donating blood for several reasons either temporarily or permanently which makes a sad experience for blood banks and create shortage of blood donors who are safe to donate blood.<sup>(8-15)</sup> Hence it is important to understand the causes of deferral of potential donors, more over temporary deferred donors can be treated if possible for cause e.g. low hemoglobin can be corrected by haematinics, fever and hypertension can be treated with drugs, so that these donors are not deferred for blood donation in future. Present study was carried out with the aim to provide safe blood to the patients and to understand various causes of donor deferral in this demographic area.

### Materials and Methods:

Record based study of donors was carried out in a tertiary hospital blood bank of India retrospectively on donors attending blood bank during the period of 1<sup>st</sup> January 2014 to 31<sup>st</sup> December 2014. Each and every donor was evaluated on the basis of age, weight, general appearance; medical history, blood pressure, pulse rate, and temperature, female donors were also questioned for history of any menstrual irregularities or miscarriage. Donor questionnaire was followed by physical examination & hemoglobin estimation by Sysmex three part differential cell counter method with cut off value of 12.5 gm/dl. Donors with systolic blood pressure between 100 & 180 mm of Hg and diastolic blood pressure between 50 and 100 mm of Hg, pulse

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**Table 1: Donor deferral profile according to Gender**

Gender	No. of registered Donors(%)	No. of deferred donors	% of deferred donors
Male	1900(96.88%)	542 (93.1%)	28.52% (n=1900)
Female	61(3.12%)	40 (6.9%)	65.57%(n=61)
Total	1961	582	29.67%

**Table 2: Causes of Temporary Deferral**

Sr. No.	Cause of deferral	No. of cases deferred	% of deferral
1	Low haemoglobin	211	36.25%
2	Medicines	53	9.10%
3	Fever	30	5.15%
4	Hyper/Hypotension	75	12.88%
5	Surgery	10	1.71%
6	Low weight	6	1.03%
7	Vaccination	1	0.17%
8	Diabetes	3	0.51%
9	Alcohol	45	7.73%
10	Typhoid	11	1.89%
11	Tattoo	10	1.71%
12	Jaundice	17	2.92%
13	Malaria	8	1.37%
14	Open wound	1	0.17%
15	High/Low pulse	24	4.12%
16	Skin diseases and Allergic reactions	13	2.23%
17	Under age/overage	4	0.68%
18	Others	60	10.30%

rate between 80-100/minute were accepted for blood donation. Weight of donors was not less than 45kg, and age limit was between 18-60 years, the skin site was examined for any lesion. First time and repeat donors were not segregated for the sake of simplicity of analysis. Deferred donor data was analyzed with respect to gender and causes of deferral (temporary and permanent).

### Results:

A total of 1961 people came to donate blood during the period of study, out of whom 1900 (96.88%) were males and the rest 61 (3.12%) were females. Of the total 1961 donors registered, 582 (29.67%) donors were deferred due to various reasons. Among the deferred donors 542 (93.10%) were males and 40 (6.90%) were females. Percentage of deferral among total 1961 of registered males and females were 28.52% and 65.57%, respectively.

Any donor fulfilling the criteria of permanent deferral was not found during this period.

In others category we included persons in fasting state, history of blood donation in previous three months, persons suffering from thalassaemia minor with low hemoglobin, non-availability of particular group for that particular patient, and patients of chikungunya etc.

### Discussion:

Present study of pattern of donor deferral in the blood bank of GCS hospital was carried out with an aim to provide safe blood to patients in GCS hospital and it was found that out of 1961 registered donors 582 donors were deferred for various reasons which constituted 29.67% of total registered donors, male donors deferred were 28.52%. Total 28 (4.8%) deferred donors attended the blood bank for repeat blood donation; most of these donors were deferred previously due to history of alcohol ingestion, fever and medication. Incidence of female donors deferred was more as compared to males it was 65.57%. High incidence in females was due to anaemia which is more common in females in reproductive age group, and of thought that blood donation is primarily responsibility of males. Females may therefore be encouraged for blood donation and measures should be taken for correction of anaemia.

Most common reason found for temporary deferral was anaemia which constituted 36.25% of total deferral followed by hypertension which constituted 12.88%. In our study deferral rate due to anaemia is less as compared to Halperin et al.<sup>(16)</sup> in which low hemoglobin is the most common cause and constituted 46% of the total temporary deferred donors, but is more as compared to study done by Arslan et al.<sup>(17)</sup> in Turkish donors where low hemoglobin is the most common cause of deferral but constituted only 20.7% of overall deferral percentage. Donor deferral rate in previous studies in India as well as across the world varies from 5.19 to 35.60 %.<sup>(9, 14, 18, 19)</sup> In our study, it was 29.67% this may be because of various reasons like weight, age, number of donations, and interval between donations and unwillingness for blood donation due to psychological or religious reasons. Anaemia can be cured if proper treatment is given to these donors with follow-up so that these donors can be recruited back to blood bank for future donation, to

prevent loss of blood donation and to increase pool of voluntary blood donors to the blood bank.

### Conclusion:

To conclude it was found that rate of donor deferral in our blood bank is 29.67%. Most common reason for rejection was anemia followed by hypertension and history of medication. Incidence of deferral is more in females as compared to males. As deferral leads to loss of blood units it is right time to modify recruitment strategy with regular follow up of temporarily deferred donors.

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