ANALYSIS OF DONOR DEFERRAL IN BLOOD DONORS

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ABSTRACT: INTRODUCTION: A large number of blood donors are not able to donate blood successfully for several reasons, either temporarily or permanently. **AIM:** The present study was conducted to analyse the incidence and various reasons for deferrals. **MATERIALS AND METHODS:** The study was conducted at Medical College Hospital, Blood Bank during the period from January 2011 to December 2011. The study involved donors who have donated blood at outdoor voluntary blood donation camps and at the blood bank. Donors were selected by Medical officer. Information regarding the donor deferral was recorded. **RESULTS:** Three hundred (4.27%) donors were deferred. Among them 236 (78.66%) were VD and 64 (21.34%) were RD. In the present study majority (46%) of the donors deferred were between 18-28 years. Donor deferrals were tabulated into temporary and permanent. Temporary deferrals were 204 (68%) and permanent deferrals were 96 (32%). Among 204 (68%) temporary deferrals, the most common cause was anemia (34.31%), underweight (27.45%). Among 96 (32%) permanent deferrals, the most common cause was hypertension (48.96%). **CONCLUSION:** The donor deferrals can be reduced by creating awareness and educating the donors.

KEY WORDS: donor deferral, temporary, permanent, anemia, under weight

INTRODUCTION: A blood transfusion is a life-saving procedure in many instances and it requires an adequate supply of safe blood. Many measures have been taken to make the blood transfusion safe by the blood transfusion committee. The most important is the selection of blood donors by donor selection criteria.^[1] A large number of blood donors are not able to donate blood successfully for several reasons, either temporarily or permanently. Individuals disqualified from donating blood are known as 'deferred' donors. Blood donor deferral is a painful and sad experience for the blood donor as well as the blood center screening the donor. Deferring donors often leaves them with negative feelings, about themselves as well as the blood donation process. Additionally these donors are less likely to return for blood donation in future.^[2] A few studies in India in the past have provided different common reasons for deferral of whole blood donation highlighting differing demographic profile in different parts of the country.^[3]

AIM: The present study was conducted to analyze the incidence and various reasons for deferrals.

MATERIALS AND METHODS: The study was conducted at Medical College Hospital, Blood Bank during the period from January 2011 to December 2011. The study involved donors who have donated blood at outdoor voluntary blood donation camps and at the blood bank. Deferral by

self and repeat donors were not included in the study. Each donor was examined by Medical Officer based on detailed medical history and brief physical examination as per the criteria laid down by Director General Health Services and Drug's Controller of India.^[4] Detailed information on the donor deferred including the age, sex, cause of deferral whether temporary or permanent were recorded. The quantity of blood collected was 350ml from donors weighed > 45 kgs and 450 ml from donors who weighed > 60 kgs. All the donors were screened by CuSo₄ method for haemoglobin estimation (Hb%) and the cut-off was 12.5g/dl. The doubtful value for donors were confirmed by Shali's Haemoglobinometer method. Donors with systolic BP between 100 & 180 mm of Hg and diastolic BP between 50-100 mm of Hg were accepted for blood donation. An average of three measurements were taken for those not falling within this range of systolic or diastolic BP.

RESULTS: During the study period the total number of donors accepted for blood donation were 7015 both in the outdoor voluntary blood donation camp and at the blood bank. Voluntary donors (VD) were 5823 (83%) and relative donors (RD) were 1192(17%). Male donors were 6825(97.22%) and female donors were 190 (2.78%).

Of the total donors who were willing for blood donation, 300 (4.27%) donors were deferred. Among them 236 (79%) were VD and 64 (21%) were RD. In the present study majority (46%) of the donors deferred were between 18-28 years followed by 29-38 years (28%). The deferral among males were 196 (65.33%) donors and among females 104 (34.67%) donors as shown in Table-1.

The most common occupation among deferred were students (31%), professional (19.65%), unemployed (14.66%) and services (11%) as shown in Table-2.

Donor deferrals were tabulated into temporary and permanent as shown in Table-3 & 4. Temporary deferrals were 204(68%) and permanent deferrals were 96(32%). Among 204 (68%) temporary deferrals, males were 55.4% and females were 44.6%. Among males, the most common cause was under weight (30%), anemia (26.55%) and alcohol intake (21.24%). In females, anemia (43.96%), underweight (24.18%) and hypotension(12.09%) were the most common cause for temporary deferral. Among 96 (32%) permanent deferrals, males were 83(86.45%) and females were 13(13.55%). The most common cause among males was hypertension 47(54.22%) followed by unexplained weight loss 16 (1715.66%). In females asthma 12(30.77%) was the common cause for permanent deferral.

DISCUSSION: Adequate supply of blood is more important and it is also essential that the blood collection process does not harm either the donor or the recipient. This is achieved by donor selection criteria.^[5] The criteria is based on scientifically informed medical opinion and regulatory rules. Deferring donors protects both the blood donor and the recipient from harm. The rate and reasons of deferral differs from region to region and from one centre to other. Donor deferral rates in blood canter vary from 5 to 24% leading to huge losses in terms of available units for transfusion in the nation every year.^[6]

In the present study the overall deferred rate was 4.27% and the deferred rate was higher in males (65.33%) compared to females (34.67%). This was similar to that observed by Unnikrishnan B ^[1](5.2%), Sundar P ^[3](6%), Agnihothri N^[5] (11.6%). The higher rate (8-15%) was reported by Chaudhary^[7], Lim^[2], Blumberg^[8], Ranveet.^[9]

In the Unnikrishnan^[1] study the VD deferred was 22.80%, the findings was more in the present study (79%). This was mainly observed in the students (31%) and professionals (19.65%), who by virtue of their education are more aware of the importance of blood donation.

Students were the major donor population as they could be easily motivated and in the course could be retained for repeat VD.

Most of these deferred donors (74.33%) were 18-38 years which was less compared to Shalini Bahadur (89.7%) study.^[10] This highlights the fact that a sizeable proportion of youth in this part of the world are malnourished, reflecting the impact of low-socioeconomic status on the health of Indian youth. Donors above 60 years are not allowed to donate blood. Even otherwise it is rare to have a donor voluntarily coming to donate blood in our region. Where as in other countries there are many healthy voluntary blood donors >60 years of age who successfully donate blood. Garry et al^[11], advice elderly healthy individual to donate but limit donations to less than five per year or donors are advised to take iron supplement regularly to preserve reasonable amount of iron reserve.

Donor deferral was tabulated into temporary and permanent. Custer et al^[12] reported 68.5% temporary and 31.5% permanent deferral which was similar to the present study. The temporary deferrals were more than permanent deferrals. The three most common cause of temporary deferrals in females are anemia, underweight, hypotension. In males underweight, anemia and alcohol intake were the three most common causes. A number of other studies showed anemia as the most common cause like Naveen Agnihothri ^[5]56%, Arslan et al ^[12] 20.7%, Halperin et al 46%.^[13] Nearly two third of these anemic donors were females highlighting the prevalence of anemia in general population among females and it is very prevalent in a developing country like India and this is a significant cause for deferrals among donors who came forward enthusiastically for donation, but were unable to donate. These donors can be recruited back into the donor pool if managed properly. Similarly in another Indian study by Chaudhary^[7] low weight (32.3%) and low haemoglobin (18.6%) were the two most common reason for deferral.

Among permanent deferrals- hypertension was the common cause in males which was similar to Sundar P^[3] study. Two Indian studies report that history of jaundice was the common cause of deferral in Chandigarh and Lucknow.^[9,7]

Unsuccessful phlebotomy due to poor vein, double puncture, collecting less quantity was nil(0%).Whereas Sunder ^[3]reported 0.006% and Farrales^[15] reported higher rate of 0.5%.

In the present study the replacement donors had less deferral rate as compared to voluntary donors. This may be due to knowledge about the possibility of deferral and awareness of deferral criteria may be responsible for lower deferral rate in RD. Similar observation were made by Zou et al.^[16]

Analysis of donor deferral pattern indicates the impact of knowledge of deferral criteria in blood donors. The donor deferral rate can be reduced by educating the donors and providing information about the selection criteria. This results in better acceptability and there by less negative feeling about rejection in blood donation and more chance of future return.

CONCLUSION: This study showed that the incidence of donor deferral was 4.27% and most of the donors were young with the majority being students and voluntary donors than replacement donors. Temporary deferrals were more compared to permanent deferrals. The most common cause among temporary deferrals was anemia, underweight and hypotension. Hypertension was the commonest cause among permanent deferrals. The donor deferrals can be reduced by providing information and educating the donors. This reduces the negative feeling about blood donations and blood donor deferrals.

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Table -1 : Total number of blood donors deferred by age & sex

Age (years)	Male	Female	Total
18-28	67	71	138(46%)
29-38	61	24	85(28.33%)
39-48	33	08	41(13.67%)
49-61	35	01	36(12%)
Total	196(65.33%)	104(34.67 %)	300(100%)

Table-2 Occupation of the blood donors deferred

	Male	Female	Total
Students	41	52	93(31%)
Professional	52	07	59(19.65%)
Agriculture	14	0	14(4.66%)
Labour	20	0	20(6.66%)
Services	33	0	33(11%)
Technical	13	0	13(4.33%)
Unemployed	22	22	44(14.66%)
Housewife	0	23	23(7.38%)
Others	02	0	02(0.66%)
Total	196(65.33%)	104(34.67%)	300(100%)

ORIGINAL ARTICLE

Table-3 Permanent deferral by age & sex

Causes	18-28 yrs		29-38 yrs		39-48yrs		49-60yrs		Total		Grand Total	%
	M	F	M	F	M	F	M	F	M	F		
Hypertensin	-	-	15	02	08	-	22	-	45 (54.22%)	02 (15.38%)	47	48.96%
Asthma	02	03	04	01	02	-	-	-	08 (9.64%)	04 (30.77%)	12	12.50%
Epilepsy	01	-	02	-	01	01	-	01	04 (4.82%)	02 (15.38%)	06	06.25%
Diabetes mellitus on insulin	01	-	02	-	03	01	-	-	06 (7.23%)	01 (7.69%)	07	07.29%
Polycythemia	-	-	01	01	01	-	-	-	02 (2.41%)	01 (7.69%)	03	03.13%
Unexplained weight Loss	-	-	05	03	02	-	06	-	13 (15.66%)	03 (23.08%)	16	16.67%
S/S suggestive of AIDS	02	-	02	-	01	-	-	-	05 (6.02%)	(0.00)-	05	05.21%
Total	06	03	31	7	18	2	28	01	83 (100%)	13 (100.00)	96	100%

Table-4:Temporary deferral by age and sex

ORIGINAL ARTICLE

Causes	18-28 Yrs		29-38 Yrs		39-48 yrs		49-60yrs		Total 204cases		Grand Total
	M	F	M	F	M	F	M	F	M	F	
Anemia	23	38	04	02	03	-	-	-	30 (26.55%)	40 (43.96%)	70(34.31%)
Underweight	18	22	16	-	-	-	-	-	34 (30.00%)	22 (24.18%)	56(27.45%)
Hypotension	-	02	-	09	-	-	-	-	(0.00)	11 (12.09%)	11(5.39%)
Fever due to bacterial viral,fungal infections	-	-	04	01	04	05	01	-	09 (7.96%)	06 (6.59%)	15(7.35%)
Lactation	-	03	-	-	-	-	-	-	(0.00)	03 (3.30%)	03(1.47%)
Menstruations	-	02	-	05	-	01	-	-	(0.00)	08 (8.79%)	08(3.92%)
Abortion	-	01	-	-	-	-	-	-	(0.00)	01 (1.10%)	01(0.49%)
History of icterus	01	-	02	-	-	-	-	-	03 (2.65%)	(0.00)	03(1.47%)
History of blood transfusion	-	-	01	-	01	-	-	-	02 (1.77%)	(0.00)	02(0.98%)
Typhoid fever	-	-	01	-	-	-	-	-	01 (0.88%)	(0.00)	01(0.49%)
Alcohol intake	18	-	02	-	04	-	-	-	24 (21.24%)	(0.00)	24(11.76%)
Drug intake	01	-	-	-	03	-	06	-	10 (8.85%)	(0.00)	10(4.90%)
Total	61	68	30	17	15	06	7	-	113 (100%)	91 (100%)	204 (100%)