Pre-Donation And Post-Donation Deferral Of Whole Blood Donors In Khmbhat Taluka, Anand, Gujarat, India

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Abstract

Background: Blood transfusion is an indispensable component of health care. In current medical and surgical practice, a blood transfusion can be a vital, life-saving procedure. Donor selection is necessary in addition to the screenings of blood bags for infectious diseases. Hence the proper pre-screening of the blood donors is essential to ensure quality of donors. However, deferrals lead to loss of precious blood/components available for transfusion.

Aims: To evaluate the chances of pre-donation and post- donation deferral of whole blood donors.

Material and method: Data of Whole Blood Donors (WBD) Of Lions Voluntary Blood Bank, Khambhat, from August-2010 to July-2021 were analyzed retrospectively. National Guideline was used for selection and deferral of WBD.

Result: A total of 7721 participants were studies out of that 4278(55.40%) voluntary donors and 3443(44.49%) replacement donors. Out of 7721,Pre-donation deferral of WBD was7461(96.63%) were selected and 260(3.37%) were differed before blood donation. Total 7387 male donors 7149(96.78%) were selected and 238(3.22%) male donors were differed. Total 334 female donors 312(93.41%) were selected and 22(6.59%) female donors were differed. Out of total 260 pre-donation deferral of blood donors from August-2010 to July2021 236(90.77%) blood donors were temporary pre-donation deferred and24(9.23%) blood donors were permanent pre-donation deferred. Out of total 236 temporary pre-donation deferral from August-2010 to July-2021 215(91.10%) males were temporary pre-donation deferral and 21(08.90%) females were temporary pre-donation deferral. From August -2010 to July-2021, 23 males were permanent Pre-Donation Deferral and 01 females was permanent Pre-Donation Deferral. Out of total 143 post-donation deferral of blood donors from August2010 to July-2021 98(68.53%) blood donors were temporary post-donation deferred and 45(31.46%) blood donors were permanent post-donation deferred. From August-2010 to July2021 98 temporary post-donation deferral were occur, all 98 were male. From August-2010 to July-2021,45 Permanent post-donation deferral were occur, out of which 43 were male and 02 were female.

Conclusion: Ratio of male donors was far higher than female donors. Maximum cases of temporary pre-donation deferral were observed due to low hemoglobin value which demands to increase the public awareness about anemia and its prevention and treatment, which ultimately increase blood donor pool. Maximum cases of permanent pre-donation deferral were observed due to high B.P. which indicate overall health status of community and need the counselling about hypertension, cardiac problem and other risks related to it.

Keyword: Donor, Pre donation, Post donation, Deferral,Transfusion.

1. INTRODUCTION

Blood transfusion is an indispensable component of health care. In current medical and surgical practice, a blood transfusion can be a vital, life-saving procedure. Blood banking is one of the pillars of modern medicine. 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. But it requires an adequate supply of safe blood from a healthy donor. For this, donor selection is necessary in addition to the screenings of blood bags for infectious diseases. Hence the proper pre-screening of the blood donors is essential to ensure quality of donors. However, deferrals lead to loss of precious blood/components available for transfusion. For preventing this we should be having knowledge of causes of deferral and their frequency. Blood donor counseling is a confidential dialogue between a blood donor and a trained counselor about issues related to the donor's health and the donation process; it may be provided before, during and after blood donation. There are benefits for both the BTS and the wider health system in implementing blood donor counseling. It minimizes the unnecessary loss

of suitable donors while maximizing the retention of donors, including those who are temporarily deferred. (BDC guideline).

2.AIMS AND OBJECTIVES

Aims

To evaluate the chances of pre-donation and post- donation deferral of whole blood donors.

Objectives

- To analyze cases of Pre-donation & Post-donation deferral of whole blood donors.
- To compare ratio of male & female blood donors & their chances of deferral.
- To evaluate deferral rate of the temporary and permanent deferral of blood donors.
- To study highest cause of deferral in blood donors and to find its Prevention to minimize blood loss.

3.MATERIALS AND METHODS

After taking ethical clearance the Data of Whole Blood Donors (WBD) Of Lions Voluntary Blood Bank, Khambhat, from August-2010 to July-2021 was analyzed retrospectively. National Guideline was used for selection and deferral of WBD.

For that first of all, all the blood donors are registered and the process of donor selection is carried out.

4. RESULTS

This is a result of retro-specific study of donor registered at Lions Voluntary Blood Bank, Khambhat, from August-2010 to July-2021.

Table:1

Types of blood donor	Male	Female	Total	%
Voluntary Blood Donors	4065	213	4278	55.40
Replacement Blood Donors	3321	121	3442	44.59
Total Blood Donors	7387	334	7721	100

There are total 7,721 blood donors who were registered, in which 4278 (55.40%) were voluntary donors rest of 3443(44.59%) were replacement donor.

Table: 2

Donors	Male	Female	Total	%
Selected	7149	312	7461	96.63
Differed	238	22	260	3.37
Register	7387	334	7721	100

Pre-donation deferral of WBD from the August-2010 to July-2021.

In this periods total 7721 blood donors were registered out of which 7461(96.63%) were selected and 260(3.37%) were differed before blood donation. Total 7387 male donors 7149(96.78%) were selected and 238(3.22%) male donors were differed.

Total 334 female donors 312(93.41%) were selected and 22(6.59%) female donors were differed.

Table:3

Types of pre-donation deferral	Total
Temporary of pre-donation deferral	236(90.77%)
Permanent of pre-donation deferral	24(9.23%)
Total of pre-donation deferral	260(100%)

Out of total 260 pre-donation deferral of blood donors from August-2010 to July-2021 236(90.77%) blood donors were temporary pre-donation deferred and 24(9.23%) blood donors were permanent pre-donation deferred.

Table:4

Temporary Pre-donation Deferral	
Male	215(91.10%)
Female	21(08.90%)
Total	236(100%)

Out of total 236 temporary pre-donation deferral from August-2010 to July-2021 215(91.10%) males were temporary pre-donation deferral and 21(08.90%) females were temporary pre-donation deferral.

Table:5

Permanent Pre-donation Deferral	
Male	23
Female	01
Total	24

From August -2010 to July-2021 23 males were permanent Pre-donation Deferral and 01 females was permanent Pre-Donation Deferral.

Table:6

Types of pre-donation deferral	**Total**
Temporary of post-donation deferral	98(68.53%)
Permanent of post-donation deferral	45(31.46%)
Total of post-donation deferral	143(100%)

Out of total 143 post-donation deferral of blood donors from August-2010 to July-2021 98(68.53%) blood donors were temporary post-donation deferred and 45(31.46%) blood donors were permanent post-donation deferred.

Table:7

Temporary Post-donation Deferral	
Male	98
Female	00
Total	98

From August-2010 to July-2021, 98 temporary post-donation deferral were occur, all 98 were male.

Table:8

Permanent Post-donation Deferral	
Male	43
Female	02
Total	45

From August-2010 to July-2021,45 Permanent post-donation deferral were occur, out of which 43 were male and 02 were female.

Table-9 Cases and contribution of temporary deferral (n=236)

Sr No	**Causes of temporary deferral**	**Number**	**% temporary deferral**
1	Anemia	123	52.11%
2	Alcohol	25	10.59%
3	Low weight	12	5.08%
4	Low age	08	3.38%
5	Tuberculosis	00	00%
6	Jaundice/Hepatitis	09	3.81%
7	Medication	16	6.77%
8	Fever/cold/Dyspnea	06	2.54%
9	Typhoid	10	4.23%
10	Lactation	01	0.42%
11	Tattoo Drawing	02	0.84%
12	Skin Lesion	06	2.54%
13	Dental Extraction	01	0.42%
14	Vaccine	02	0.84%
15	Previous blood donation	04	1.69%
16	Menses	02	0.84%
17	Miscellaneous	09	3.81%
	Total	**236**	**100%**

Table-10 Causes and contribution of permanent deferral (n=24)

Sr no	Causes of permanent Deferral	Number	% of permanent Deferral
1	High BP	08	33.33%
2	Over age	05	20.83%
3	Diabetes mellitus	02	8.33%
4	Heart surgery	03	12.5%
5	High risk behavior	04	16.66%
6	Thyroid	01	4.1%
7	Epilepsy	01	4.1%

Table-11 Gender wise distribution of top five causes for pre donation deferral (n= 187)

Male			Female		
Causes	**Number**	**% of deferral**	**Causes**	**Number**	**% of deferral**
Low Hb	125	44.91%	Low Hb	17	77.27%
Alcohol	25	10.59%	Alcohol	12	9.09%
Medication	16	6.77%	Medication	01	4.54%
Low weight	10	4.23%	Low weight	01	4.54%
Typhoid	09	3.81%	Typhoid	00	0.00%

Table-12 Causes and contribution of post-donation deferral (n=143)

Donors come reactive for	Numbers	% of total deferral
HIV 1 & 2 Positive	06	4.19%
HBsAg Positive	35	24.47%
HCV Positive	04	2.79%
VDRL for Syphilis Positive	98	68.53%
Malaria parasite positive	00	0.00%
Total	143	100%

5. Discussion

A deferral rate study of blood donors may shed light on the health status of general population, which may affect the present and future blood supply. Adequate supply of blood is most important and it is also essential that the blood collection procedure does not harm the donors as well as the recipient. Safe donor is the first step towards safe transfusion service. In order to quantify the loss due to deferred donors and to understand the health problem of donor population a retro specific study was conducted. The rate and reason for deferral differs from region to region and from the center to center at different period. Most of the donors in our study were male 95.67% (from August 2010- July 2021) and females accounted only 4.32%. The overall deferral rate of blood donors of our center from August 2012 to July 2021 was 3.36% which is far lower than the values reported by Zou et al [8]which is 12.8% and H.Gajjar et al[20],which is 11.16%. Such low deferral rate could be due to inclusion of more repeated donors in our study. However, studies by other authors have reported the deferral rate very similar to ours (5.6-7.1%) (Rabeya Y et al and Kwa SB et al Study)[10,11]and some authors studies found very high deferral rate of about 20-35.6% (Tomasal et al, Charles KS et al, Madan N et al)[12,13, 14]. Deferral incidences in their population, which probably reflects the regional diversity and marked differentiation in whole blood donor eligibility criteria internationally. In our study of whole blood donor deferral, we have categorized the cases in pre-donation deferral and post-donation deferral.

In Pre-donation deferral, we have categorized two types of separation Temporary Predonation deferral and Permanent Pre-donation deferral. Pre-donationdeferral of blood donors from Augest-2010 to July-2021, out of total 7721 registered donors 236(90.77%) blood donors were deferred due to temporary reasons and 24(9.23%) blood donors were deferred due to permanent reasons. This is similar to the Arsalan et al [7]reported a rate 10.0% and Custer et al [8] reported a rate of 10.6% in their study. In Pre-donation temporary deferral of blood donor's most common reason was low hemoglobin (52.11%) which issimilar to study of H.Gajjar et al.[20] (59.55%) where as some studies have reported very low rate (17.95%) by Rehman et al. [15].

All these can be actively and aggressively managed by calling them back after correction of their cause which can help to retain future donor pool. The most common reason for Permanent deferral in our study was high blood pressure (33.33%).We also categories post donation deferral, in that Temporary Post-donation deferral were 68.53% and Permanent Post-donation deferral were 31.46% which includes donors comes positive for TTIs like HIV1&2, HBsAg, HCV etc.

Categories	Our findings	Other studies	Relevant references

Total deferral rate	3.37%	Near to similar = 4% 12.8% 11.16% 8.8%	Talonu et al.[19] Zou et at. [8] H.Gajjar et al.[20] Hanif22
Deferral due to low hb value	52.11%	59.99% 17.95% 14.8% 2.76% 52.45%	H.Gajjar et al.[20] Rehman et al[15] Elsafi[21] Hanif22 Kandasamy [23]
Male	3.22%	4.06% 11.7% 6.76%	Layla A.M Bashawri.[17] Elsafi[21]Kandasamy [23]
Female	6.59%	19.85% 13.7% 49.88%	Layla A.M Bashawri.[17] Elsafi[21] Kandasamy [23]
Pre donation temporary deferral	91%	84%	P.Sundar et al. [16]
Pre-donation permanent deferral	09%	16%	P.Sundar et al. [16]
Post-donation Temporary deferral	71.01%	26.67%	Rehman et al[15]
Post donation	28.98%	73.20%	Rehman S et al.15
PermanentDeferral			

6. Conclusion

Findings of our study are summarized as follows.

Ratio of male donors were far higher than female donors.

Maximum cases of temporary pre-donation deferral were observed due to low hemoglobin value which demands to increase the public awareness about anemia and its prevention and treatment, which ultimately increase blood donor pool.

Maximum cases of permanent pre-donation deferral were observed due to high B.P. which indicate overall health status of community and need the counselling about hypertension, cardiac problem and other risks related to it.

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