



STUDY OF WHOLE BLOOD DONOR DEFERRAL PATTERN AT TERTIARY CARE HOSPITAL BASED BLOOD TRANSFUSION CENTRE.

Pathology

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ABSTRACT

Context: This study was undertaken to evaluate and analyze the blood donor deferral pattern and causes for deferral of blood donors in a tertiary care hospital based blood bank center. **Aims and objectives:** To study the incidence and pattern of donor deferral. To implement better recruitment & retention strategy which help in reducing the incidence of same in the institute. **Materials and Methods:** Study was conducted after approval by IEC meeting held on 15/03/2021 **Type of study:** Retrospective study **Study population:** Whole Blood donor deferred due to various reasons. **Period of study:** 4 years **Method:** Data was collected from deferred donor register from the 01/01/2017 to 31/12/2020, maintained in the Dept. of IHBT, Shri M. P. Shah Govt. Medical College, Jamnagar, Gujarat, India. Data was analyzed using Microsoft Excel, 2019 version. **Inclusion criteria:** Whole blood donor defer due to various reasons. **Exclusion criteria:** Single Donor Platelet donor and Plasma donor defer due to various reasons. **Results:** A total of 92866 potential blood donors were studied in this study, out of which 2148 were deferred. Total donor deferral rate was 2.31%. The most common cause of deferral amongst blood donors was anaemia (Hb<12.5 gm/dl) comprising 65.18%. **Conclusions:** Knowledge of donor deferral reasons and incidence in a particular region is very important in developing better strategies to minimize the loss of precious blood donors.

KEYWORDS

Temporary Deferral, Permanent Deferral, High Risk Behaviour.

INTRODUCTION:

Blood transfusion services (BTS) are an integral part of any healthcare services. Patients suffering from thalassemia major, sickle cell disease, chronic kidney disease patient on dialysis require blood transfusions on regular basis. Blood transfusion is lifesaving in conditions like Post-partum hemorrhage, Polytrauma, Cancer patients, Patients undergoing surgeries if blood available at right time for those patients.

Blood donor selection is a cornerstone for blood transfusion to safeguard the health of both donors and recipients.[1]

Deferred donor:

During the stringent process of donor selection, the donors who are disqualified for donating blood are called deferred donors.

Donors may get deferred due to temporary or permanent causes. The rates and reasons of donor deferral vary from region to region.[2] This study was carried out to know the reasons of donor deferral and deferral rates in our blood bank.

Materials and Methods:

This retrospective study was conducted in a tertiary care hospital-based blood transfusion centre, for a period of 4 year between January 2017 to December 2020.

All blood donors were screened as per guide lines of the National AIDS Control Organisation (NACO) provided in Standards for Blood Banks and Blood Transfusion Services under the Drugs and Cosmetic Act 1940.[3]

Each donor was evaluated by the questionnaire, medical examination, body weight, age, blood pressure(BP), pulse, temperature, haemoglobin(Hb) estimation. Cut-off value for Hb was 12.5 gm/dl, body weight not <45 kg, systolic BP 100-140 mmHg, diastolic BP 60-90 mmHg, and age 18-65 years. Haemoglobin estimation was done by Hemocue. The relevant data and information of the deferred donors were retrieved and analysed from the donor deferral register. Deferred donors were categorized as temporary & permanent according to the causes. It was done to help in counselling and making temporarily deferred donor to become a healthy donor in future.

RESULT:

A total of 92866 potential blood donors were registered for donation of blood during the study period. Out of which, 90718(97.68%) were accepted for blood donation and 2148(2.31%) were deferred for various reasons. There were 89235 male registered donors of which

1811(2.02%) were deferred. Out of 3631 female donors, 337(9.28%) were deferred.

TABLE-1 :DONOR DEFERRAL PATTERN IN MALE AND FEMALE

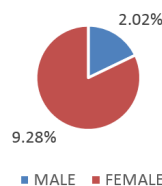
DONOR	MALE		FEMALE		TOTAL	
	NUMBER	%	NUMBER	%	NUMBER	%
REGISTERED	89235	96.09	3631	3.9	92866	100
DONATED	87424	97.97	3294	90.71	90718	97.68
DEFERRED	1811	2.02	337	9.28	2148	2.31

In this study, total donor deferral rate was 2.31%. Deferral rate of male donor was 2.02% and female donor deferral rate was 9.28% [Table 1, Graph-1].

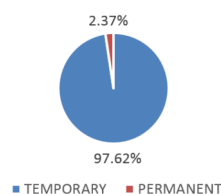
TABLE-2: DONOR DEFERRAL PATTERN

TYPE OF DEFERRAL	TOTAL NUMBER	DEFERRAL %	DEFERRAL RATE ON TOTAL REGISTRATION
TEMPORARY	2097	97.62%	2.25%
PERMANENT	51	2.37%	0.06%
TOTAL	2148	100%	2.31%

GRAPH-1 DONOR DEFERRAL PATTERN IN MALE AND FEMALE



GRAPH-2 DONOR DEFERRAL PATTERN



A total number of 2097 (97.62%) donors were deferred for temporary causes and 51(2.37%) were deferred for permanent causes [Table 2, Graph-2.]

TEMPORARY DEFER DONOR:

Out of total 2148 deferred donors, 1367(65.18%) were deferred temporarily because of anemia (Hb<12.5mg), and among female

temporary defer donor 82.37% were due to anemia. And 18% of female were deferred due to ongoing menstruation [Table 3].

TABLE-3: REASONS FOR TEMPORARY DEFERRAL

REASON	TOTAL		MALE		FEMALE	
	NUMBER	%	MALE	% OUT OF TEMPORARY MALE DEFER	FEMALE	% OUT OF TEMPORARY FEMALE DEFER
HB <12.5 GM/DL	1367	65.18%	1107	62.61%	271	82.37%
SKIN RASHES	157	7.48%	149	8.42%	8	2.43%
ANTIBIOTIC	115	5.48%	111	6.27%	4	1.21%
TATOOING IN 12 MONTH	99	4.72%	95	4.72%	4	1.21%
SLEEPLESS NIGHT	74	3.52%	72	3.52%	2	0.60%
DONATION WITHIN 3 MONTH	48	2.28%	46	2.60%	2	0.60%
VACCINATION	38	1.81%	34	1.92%	4	1.21%
TYPHOID FEVER	30	1.43%	26	1.47%	4	1.21%
WEIGHT <45 KG	21	1.00%	19	1.07%	2	0.61%
UNDER EFFECT OF ALCOHOL	21	1.00%	20	1.13%	1	0.30%
MENSTRUATION	18	0.85%	0	0%	18	18%
HYPERTENSION	15	0.71%	14	0.78%	1	0.30%
FASTING	12	0.57%	11	0.62%	1	0.30%
MAJOR SURGERY	11	0.52%	10	0.56%	1	0.30%
ON STEROID THERAPY	8	0.38%	8	0.45%	0	0%
RABIES VACCINATION	8	0.38%	8	0.45%	0	0%
AGE <18 YEAR	8	0.38%	7	0.39%	1	0.30%
JAUNDICE	6	0.28%	6	0.33%	0	0%
OPEN WOUND	5	0.23%	5	0.28%	0	0%
MALARIA WITHIN 3 MONTH	5	0.23%	5	0.28%	0	0%
ASPIRIN WITHIN 72 HOURS	3	0.14%	3	0.16%	0	0%
DENTAL EXTRACTION	3	0.14%	2	0.11%	1	0.30%
BLOOD TRANSFUSION	3	0.14%	3	0.16%	0	0%
HYPOTENSION	3	0.14%	2	0.11%	1	0.30%
DIABETES	2	0.09%	2	0.11%	0	0%
EAR PIERCING	1	0.04%	1	0.05%	0	0%
HEPATITIS IN FAMILY	1	0.04%	1	0.05%	0	0%
PREGNANCY	1	0.04%	0	0%	1	0.30%
ABORTION	1	0.04%	0	0%	1	0.30%
BREAST FEEDING	1	0.04%	0	0%	1	0.30%
DONOR IS APREHENSIVE	1	0.04%	1	0.05%	0	0%
TOTAL	2097	100%	1768	100%	329	100%

PERMANENT DEFER DONOR:**TABLE-4 : REASONS FOR PERMANENT DEFERRAL**

REASON	TOTAL		MALE		FEMALE	
	NUMBER	%	MALE	% OUT OF PERMANENT MALE DEFER	FEMALE	% OUT OF PERMANENT FEMALE DEFER
HIGH RISK BEHAVIOR	14	27.45%	14	32.55%	0	0%
HEART DISEASE	9	17.64%	5	11.62%	4	50%
THYROID DISEASE	6	11.76%	2	4.65%	4	50%
HEMOPHOBIA	5	9.80%	5	11.62%	0	0%
UNEXPLAINED WEIGHT LOSS	4	7.84%	4	9.30%	0	0%
REAPATED DIARRHOEA	2	3.92%	2	4.65%	0	0%
ABNORMAL BLEEDING	2	3.92%	2	4.65%	0	0%
SWALLON GLANDS	2	3.92%	2	4.65%	0	0%
LOW IQ	2	3.92%	2	4.65%	0	0%
POLYCYTHEMIA VERA	1	1.96%	1	2.32%	0	0%
ASTHMA	1	1.96%	1	2.32%	0	0%
CHRONIC KIDNEY DISEASE	1	1.96%	1	2.32%	0	0%
ACTIVE TUBERCULOSIS	1	1.96%	1	2.32%	0	0%
EPILEPSY	1	1.96%	1	2.32%	0	0%
TOTAL	51	100%	43	100%	8	100%

There were permanently deferred donors, 14 male donors (32.55%) deferred due to High-risk behavior, while Female donors were deferred due to two main reasons Heart disease (50%) and Thyroid disease (50%).

DISCUSSION:

The blood donor selection is a very important step for safe and healthy blood transfusion. During the proper selection process, some donors get deferred because of various permanent and temporary causes. The rates and reasons of donor deferral vary from region to region. Our

study was carried out to know the reasons of donor deferral and deferral rates.

The donor deferral rate reported in our study was 2.31% which is low as compare to the study of Awasthi S *et al* showing the deferral rate of 10.4%. [4] Our study observed higher number deferral of female donor (9.28%) than male donor (2.02%) similar to other studies done by E. Sabari Priya. [5]

Permanent deferral observed in our study was 2.37% out of total

deferral. History of High risk behaviour(27.45%) and heart disease(17.64%) were the most common cause of permanent deferral, followed by Thyroid disease (11.76%).

The overall most common cause of deferral amongst blood donors in our study was anemia comprising 65.18% which is comparable to the study done by Agnihotri N showing 55.8% deferral due to low haemoglobin.[6] Like our study, most of other studies done in past were shown low haemoglobin as a main reason for deferral of blood donors.[7,8] This indicates a high prevalence of anemia (particularly iron deficiency anemia) in our population. The major causes of anaemia may be nutritional deficiency, worm infestation and frequent blood donation. An adequate temporary deferral system for prospective donor with low haemoglobin is very essential to reduce the burden of anaemia, particularly iron deficiency anaemia in these population

Other less common reasons of deferral in this study were Skin rashes at phlebotomy site(7.48%), Antibiotic therapy(5.48%) and tattoo (4.72%). To reduce the loss of precious donor, regular health check-up, proper management and follow up can be carried out especially for temporarily deferred donors so that they can be reverted back to donor pool. For this, blood bank staffs including medical officer, counsellor and nurse can be trained properly.

CONCLUSION:

Knowledge of the reasons and incidence of donor deferral in a particular region would help greatly in blood donor recruitment efforts especially temporarily deferred young adult donors who can be returned back to donor pool. This will help in developing better strategies to minimize the loss of precious blood donors. It will also ensure safe and quality blood and blood products for the recipients along with safety of blood donors.

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