

Frequency Of Blood Donor Deferrals in Urban Population Among Random Voluntary Donors and Evaluation of Gross Differences in Various Study Groups

Irshad Ahmed Syed¹, Suhale A B², Karnan M³

¹Consultant Pathologist and Medical Officer, HHS & HMS Blood Centre, Cubbonpet, Bangalore, Karnataka, India

²Senior Laboratory Technologist and Technical Supervisor, HHS & HMS Blood Centre, Cubbonpet, Bangalore, Karnataka, India

³Senior Laboratory Technologist, HHS & HMS Blood Centre, Cubbonpet, Bangalore, Karnataka, India

ABSTRACT

Introduction: The most important aspect of the blood donor selection criteria is the selection of Healthy donors for donating blood to safeguard the health of the donor as well as the patient. Based on the selection criteria donors are considered either fit or unfit (deferred) to donate blood.

Aim: Primary aim of the study is to analyze and evaluate the various causes of donor deferrals in comparison to different regional studies with special emphasis on temporary donor deferrals, in order to retain them as potential future donors.

Materials & Methods: A retrospective study was conducted with available data of all donors registered between May 2022 and Dec 2023. Donor deferral data was analyzed for various causes of deferral patterns. Results: A total of 2003 donors registered for voluntary blood donation out of which 244(80.79%) were accepted for donation and 302(15.07 %) were deferred for various reasons. Total number of temporary deferrals were 244(80.79%) and permanent deferrals were 58(19.20%).

Discussion: The overall deferral rate in this study was 15.48%. Low Hemoglobin (36.09%) was the commonest cause for temporary deferral and the commonest age group which had maximum deferrals was 18---25 yrs. Hypertension was the main cause of permanent deferral.

Conclusion: The incidence of donor deferral can be reduced by furnishing the appropriate information related to blood donations and educating the general public and blood donors through awareness programs. Follow up of the donors must be encouraged to remove the negative feeling in deferred donors to make them potential future donors.

Keywords: Blood donor, Deferral, Temporary, Permanent.

INTRODUCTION

Blood donor deferral is defined as disallowance (refusal) of most likely blood donors to donate blood due to various well defined reasons. Donors who do not fulfill the selection criteria are deferred on a temporary or permanent basis. The reason for deferring a likely donor is to safeguard the health of the donor as well

as the patient. The annual rate of blood donations in India is 7.4 million units whereas the demand is 10 million ^[1], it is clearly evident there is always a shortage of blood at any given point of time ^[2]. This shortage of demand could be narrowed by strictly following the donor selection criteria and avoiding the unnecessary deferrals. Transfusion medicine technical manual (Director General Health Services, Ministry of Health and Family Welfare, Govt. of India) has clear guidelines to be followed regarding the deferral criteria ^[3]

Individuals willing to donate blood voluntarily were requested to fill the questionnaire and consent form with contact details, followed by a physical examination like pulse rate, Blood pressure, body temperature. Hemoglobin estimation was done by Cuso₄ (copper sulfate method). As per the national guidelines donors not fulfilling the criteria were deferred from donating blood and were labelled as temporary/permanent deferred donors. Further screening of the infectious diseases like HIV, HBsAg, HCV, Malarial parasites and Syphilis was carried out in the blood Centre. Donors reactive to the screening test were permanently deferred.

This study is undertaken with the aim of analyzing the donor deferral pattern over a period of 2 years at our Blood Centre in random urban population and to evaluate the shortcomings if any.

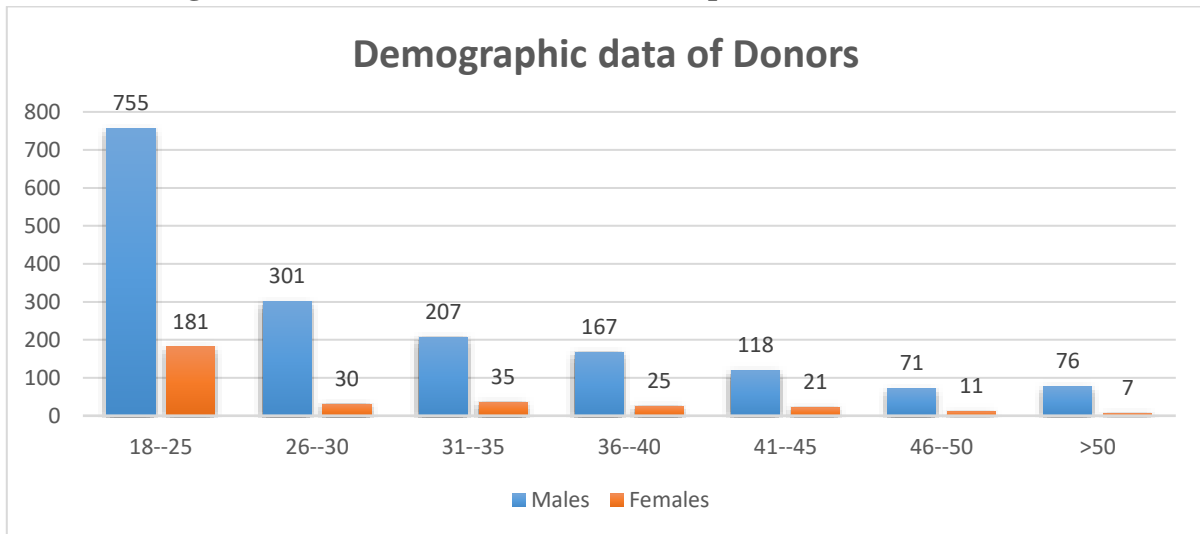
MATERIALS AND METHODS

A retrospective study was conducted at HHS & HMS (RA) Blood Centre, a stand-alone, blood Centre in Bangalore city between 25/05/2022 to 31/12/2023. 2003 donors were registered during this period. All the donors were voluntary donors enrolled in Blood donation Camps. All the donors were requested to fill the registration form with questionnaire and consent, which included all the required details like identification, age, sex, weight, blood group, history of previous blood donations, related medical history such as hypertension, diabetes, allergy, asthma, epilepsy, heart problems, TB, Chronic kidney disease, chronic liver disease. Recent history of any infections, jaundice, drugs/medicine intake, h/o blood transfusion, alcohol consumption in past 24 hours, previous major surgeries etc. Donors were examined for icterus, pedal edema, and lymphadenopathy with vital signs like pulse, BP, temperature and respiratory rate. Hemoglobin estimation was done by specific gravity method using Copper sulfate solution. Donors with Hemoglobin values of less than 12.5 gm/dl were deferred from donating blood. All the deferrals were registered in Donor Deferral Register. The data from Donor deferral register was evaluated for the causes of deferral, demographic distribution pattern of the deferrals and descriptive statistical methods were utilized to present the data.

RESULTS

2003 donors were registered during the study period. 1693 (84.53%) were males and 310 (15.48%) were females. Donors were divided into 7 age groups. Majority of the donors fall in 18—25 yrs. age group. As the age advances the incidence of voluntary blood donors decreases constantly. The demographic data of the donors is shown in Figure 1.

Figure 1: Gender distribution of all accepted and deferred donors



Total deferrals were 302 accounting for 15.07%. Temporary deferrals were 244(80.79%) and permanent deferrals were 58(19.20%). 64.56% of the overall deferrals were females and 35.43% were males. The deferral rate among male donors was 6.32% whereas the deferral rate among female donors was 62.90%. Table 1 shows gender distribution of donor deferrals.

Table 1. Gender distribution of donor deferrals

	Males	Females	Total
No. of Donors	1693	310	2003
No. of Deferrals	107	195	302
Deferred %	6.32	62.90	15.07

The major cause of deferrals was low Hemoglobin, 109/302(36.09%), followed by underweight, 44/302(14.56%), hypertension 43/302(14.23%). The transfusion transmissible diseases were 15/302 accounting for 4.96% of the total deferrals. The major deferral reasons encountered were Low Hemoglobin, Hypertension, underweight, Menstruation, hypotension and Transfusion Transmissible diseases.

Figure 2. Causes of donor deferral distribution (temporary / permanent)

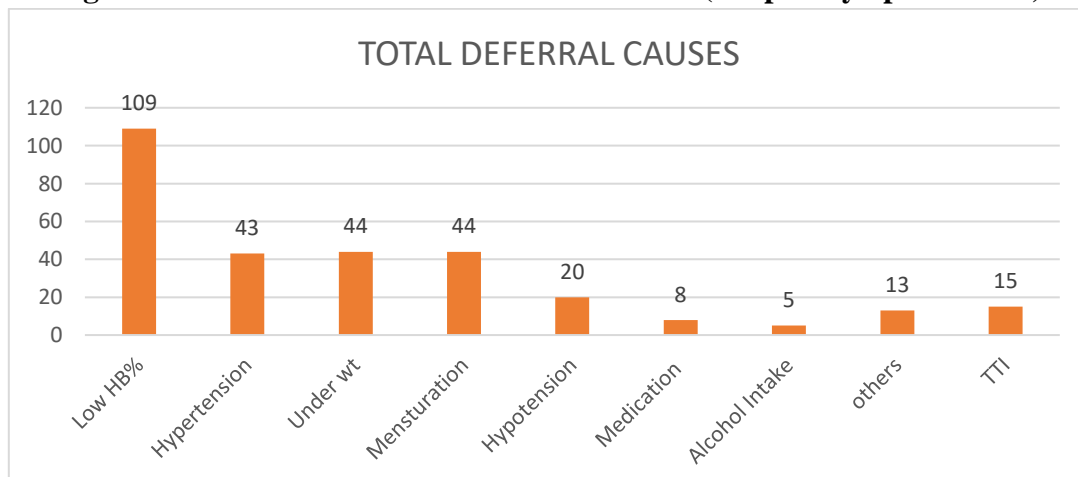


Table 2. Causes of temporary and permanent deferral

Sl no	Causes	Nos
1	Anemia	109
2	Underweight	44
3	Menstruation	44
4	Hypertension	43
5	hypotension	20
6	TTD	15
7	On Medication	8
8	Alcohol intake	5
9	Others	14
	Total	302

Donors who were temporary deferred were 244/302(80.79%) and the causes for temporary deferral were Anemia, underweight, menstruation, alcohol intake, on short term medications and others like fasting, feeling unwell, fever etc. Permanent deferred donors were 58/302 (19.20%) and the causes for permanent deferral encountered were hypertension, hypotension, Bronchial asthma and epilepsy as shown in Figure 2 and Table 2.

The donors and deferral data was analyzed to estimate the demographic characteristics. Diverse substantial data is presented as %. Independent t test was used to compare different age groups. SPSS Statistics was used to conduct the Analysis.

LIMITATIONS OF THE STUDY

Since this is a retrospective analysis, donor deferral follow-up for temporary deferrals was not documented.

EXCLUSION CRITERIA

Voluntary donors below 18 years of age and above 60 years of age were excluded in the study and were not registered in view of the donor selection criteria laid down by the Drug Controller Authority and NBTC (NATIONAL Blood Transfusion Council- Ministry of health and family welfare).

DISCUSSIONS

Blood Transfusion has become an essential supportive service of the Health Care system. As the demand for the blood and its products are increasing every year and there is always a deficiency in achieving the target, branding the willing voluntary donors as unfit (temporary/permanent) is a very bitter and distressing situation to both the blood bank and the donors. This creates a negative a negative feeling among themselves and the blood donation process^[1]. The manner in which the donor is conveyed about his/her incapability to donate blood plays an important role in retention and follow up of the temporary deferred donors. Fine mending measures has to be impacted while deferring a donor so that he/she donates blood in future^[2].

2003 potential donors came forward for whole blood donation. Out of which 1693 were males (84.53%) and 310 were females (15.48%).The study correlates well with the study of Deepa Narayanan et al, at Kerala, that majority of the voluntary blood donors are males^[3] and also with the study in North India reported by Surabhi Jain et.al^[4].

Total Deferral rate in the present study was 15.07%. The deferral rates varied in various studies. In Unnikrishnan et.al the deferral rate was as high as 22.80% [5], whereas the study in rural medical college in Gujrat, India, the deferral rate was as low as 4.11% [6]. The wide range of deferral rates from region to region and from Centre to Centre in same region is well documented by Galea G et.al. [7]

Most of the deferrals (80.79%) were temporary in nature and permanent accounted for 19.20%. Custor B et.al. reported 68.5% temporary and 31.5% permanent deferrals in his study. [8]. The difference in the present study could be due to the fact that majority of our donors belong to the age group 18-25 years. Underage deferrals are very common in various study groups according to Krishna MC et.al. [9]. Some studies have included underage group and some have excluded. In our study underage donors were excluded from registering as donors as per the Donor definition criteria which clearly states that any person above the legal age of 18 years is considered as blood donor.

The deferrals were divided into two categories based on the cause of deferrals as temporary deferrals and permanent deferrals. In the present study temporary deferrals were 80.19% while permanent deferrals were 19.26%. The prevalence of temporary/permanent deferrals correlates well with the study of Nagarekha Kulkarni [10]. The commonest cause of temporary deferrals was low hemoglobin levels (36.09%) and hypertension was the commonest cause of permanent deferral (14.23%) corresponding with the findings of Arundathi S et.al [11]. Some of the commonest cause of deferral among females was low hemoglobin and underweight. The study of Halperin shows low hemoglobin, cold and sore throat as most common cause [12].

Different studies at different regions have shown differing causes, but the commonest cause is anemia even in western countries. In Canada 2% of all blood donors do not fulfill the hemoglobin requirement whereas in developing countries the incidence of anemia is as high as 21% [13]. Hypertension was the commonest cause of permanent deferral in present study, but a different study in Maharashtra has shown Jaundice to be the second most common cause next to Anemia [14]. Whereas in our study Jaundice accounted for less than 0.5% and the reason could be that donors are presently well aware of the fact that people with jaundice cannot donate blood.

Domen et.al indicate that shared Donor Deferral registers at local and regional levels to prevent deferred donors from donating at other Blood donation facilities [15]. Since the follow-up of the donor deferrals is a difficult task the deferred donors are with a negative feedback. A thorough counselling is to be carried out to the temporary donors so that the blood donation facilities should not lose them as permanent deferrals.

CONCLUSIONS

The present retrospective study showed that the overall deferral rate was 15% among the voluntary donors. Majority of the causes of donor deferral was temporary like low hemoglobin and underweight. Hypertension and hypotension was the major cause of permanent deferral. The incidence of donor deferral can be reduced by furnishing the appropriate information related to blood donations and educating the general public and blood donors through awareness programs. Donor deferral registers should be maintained at regional level and Follow up of the deferred donors must be encouraged to remove the negative feeling in deferred donors to make them potential future donors.

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