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Blood Donor Deferral Due to Anemia

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ABSTRACT

Background: The Blood safety is a major issue all over worldwide in transfusion medicine. For this reason, blood donor selection is vital for the safety of donors and recipients as well as for maintaining an adequate blood supply. Detailed evaluation of various causes for the deferral of blood donors may be helpful for medical personnel to limit the barriers that disrupt blood donation. This study aimed to analyze the rate of deferral donors due to anemia and evaluate the various causes of deferral in blood donors to achieve 100% acceptance.
Methods: This is an Observational descriptive record-based study over 1 year. Donor selection criteria were followed according to the National guidelines of blood donation. The donors' data was collected from the Donor deferral registry concerning age and Gender. The results are demonstrated as frequency and percentage in the form of tables and graphs.
Result: A total of 9059 donors presented to the blood bank during the study period, 7713 (85.14%) were accepted, and 1346 (14.86%) were deferred. 268 donors were deferred due to Anemia with low hemoglobin, that is 250 (93.29%) were females and 18 (6.71%) were males. All these anemic deferred donors were categorized as moderate 3.35% and 96.65% were mild anemia.

Keywords: Blood donation, Donor deferral, Low Haemoglobin, Anemia.

INTRODUCTION

Write In contemporary medical and surgical practice, blood transfusion is considered an important life-saving measure in medicine, especially in medical emergencies. [1] Blood transfusion services (BTS) are tasked with collecting blood only from donors who are at low risk for infectious diseases that could be transmitted by transfusion and who would be unlikely to jeopardize their own health by donating blood. A careful process for evaluating the suitability of potential donors is therefore essential to ensure the safety and sufficiency of the blood supply and to protect the health of transfusion recipients and blood donors themselves. At the same time, it must be ensured that suitable donors are not unnecessarily deferred. [2]

Reports from the National AIDS Control Organization (NACO) indicate that only 7.4 million people donate blood annually in India, while the annual requirement is 10 million units. World Health Organization statistics (WHO) indicate that over 81 million units of blood are collected annually, but developing countries, which contain about 82% of the world's population, contribute only 39% of this figure. [3]

The blood transfusion service plays an important role in ensuring a supply of safe blood when needed. Therefore, it is important to ensure that an adequate supply of safe blood is available. It is also important to ensure that blood collection does not harm either the donor or the recipient. [4] Blood safety is ensured through selection of an appropriate donor population, screening of donors, testing of

donated blood units, and efficient blood transfusion practices in accordance with the Drugs and Cosmetic Act of 1940. [5] However, donor selection can have a concomitant negative impact on the blood supply, as many deferred donors may not be willing to donate again. Therefore, an evidence-based donor selection process is needed to avoid unnecessary deferral of donors, especially volunteer donors. [6-8]
Since the reasons for donor rejection as well as the rate of rejection change in different parts of the world, this study aims to analyze donor deferral due to anemia and other reasons in our centre and to compare these reasons and rates in different parts of the nation and the world. It also seeks to uncover the factors that hinder the achievement of the goal of 100% blood donor acceptance

MATERIALS & METHODS

This retrospective study over 1 year, included all the donors reporting for blood donation in the blood bank of tertiary care hospital. The blood donors were selected in our Blood bank based on the Drugs and Cosmetic Act 1940 which is supplemented by Guidelines of Directorate General of Health Services guidelines, the Ministry of Health & Family Welfare (2003), and NACO. The pre-donation screening was done using a medical history questionnaire followed by a physical examination & Haemoglobin estimation. Data were collected from the Donor deferral registry concerning age and Gender. The causes of donor deferral were categorized as temporary and permanent, and data were recorded and presented in the form of tables.

RESULT

A total of 9059 registered donors were screened during the study period of one year. Out of them, 7713 (85.14%) were selected for blood donation, and 1346 (14.86%) (Table 1) were deferred.

Table 1: Gender distribution of registered, selected, and deferral donors

Donors	Male	Female	Total
Registered	8133 (89.77%)	926 (10.23%)	**9059**
Selected	7235 (93.80%)	478 (6.20%)	**7713 (85.14%)**
Deferred	898 (66.71%)	448 (32.29%)	**1346 (14.86%)**

Regarding the gender distribution among the donors who donated blood, 7235 (93.80%) were males and 478 (6.20%) were females. Overall men 898 (66.71%) were deferred more than women 448 (32.29%). But women had a high deferral rate (48.38%) compared to Men (11.04%). Most of the overall deferral in the age group of 18 – 30 in both males (52.38%) and females (77.68%) (Table 2).

Table 2: Age group of Deferred donors and their percentage

	Male	Female		Male
Age in years	**Number of donors**	**Percentage of deferrals**	**Age in years**	**Number of donors**
< 18	2	0.22	**< 18**	2
18-30	470	52.34	**18-30**	470
31-40	241	26.84	**31-40**	241
41-50	155	17.26	**41-50**	155
51-60	30	3.34	**51-60**	30
Total	**898**	**100**	**Total**	**898**

Out of 1346 deferred donor, 268 were deferred due to Anemia with low haemoglobin, that is 250 (93.29%) were females and 18 (6.71%) were males (table 3). The anemia is identified as the most common cause of temporary deferral in female donors. All donors deferred due to anemia categorized as moderate 3.35% and 96.65% were mild anemia.

Table 3: Donor deferrals due to anemia and other cause

Causes	Male	Female
Anemia (Low hemoglobin)	18 (6.71%)	250 (93.29%)
Other causes	880 (81.63%)	198(18.37%)
Total	**898**	**448**

DISCUSSION

Donor selection has vital importance in blood banking and transfusion medicine. Judicious selection of accurate donors plays an important role in the success of safe transfusion practices and it will help to avoid preventable wastage of blood and its products.
Most of the donors were males (93.80%); women accounted for only (6.20%) of the donors. The present study showed that

female donors (32.29%) were deferred more frequently than male donors (10.23%) which might be due to the wide prevalence of anemia in female donors. The overall deferral rate (14.86%) of donors in this study is similar to that of similar studies from India and other countries.

Donor deferral (14.86%) in the study was very much similar to Vimal et al, were reported a deferral rate of 14.8% in their 4 years study, [3] and Lim et al, a study showed a deferral rate of 14.4%, [15] and Iqbal et al, reported deferral rate is 12.9%. [10] Our study shows temporary deferral (71.48%) was more common than permanent deferral (28.52%). This finding is similar to that of other studies by Custer et al (68.5%) [18] and Rehman S et al (63.70%). [4]

Anemia with low haemoglobin (27.82%) was the commonest cause of temporary deferral in our study which is very much similar to Jashnani K et al 27.5%. [20] The probable causes of anemia could be poor nutrition, hookworm infestation, low socioeconomic status, repeated pregnancies, and ignorance. [23] Besides these causes, many studies have proved that regular blood donation can significantly contribute to the depletion of iron stores leading to iron deficiency anemia (24). Studies conducted by Bahadur S et al, [25] Khan S et al, [21] and Chaudhary RK et al. [8] All had a deferral rate much less than ours whereas Sareen R et al, [19] Awasthi S et al, [11] Radhiga ST et al, [27] Rabeya Y et al [14] had a much higher deferral rate (Table 4).

Table :4 Shows comparisons with various studies

Studies conducted	Place	Percentage Deferrel due to anemia
Chaudhary RK et al [8]	Lucknow	18.60%
Khan S et al [21]	Pakistan	13.33%
Bahadur S et al [25]	New Delhi	15.50%
Awasthi S et al [11]	Moradabad	33.50%
Rabeya Y et al [14]	Malaysia	40.70%
Sareen R et al [19]	Jaipur	39.42%
Radhiga ST et al [27]	Chennai	30.97%
Present Study	**Mangalore**	**27.82%**

In our study, most of the deferred donors (52.34%) were of the age group 18-30. Many similar studies, like Sareen R N et al, reported 60.5%, [22] and Arundhathi S et al, reported 57.82%. [23]

The other causes of temporary deferral noted in our study are under medications (11.49%), menstruation (11.2%), alcohol intake (8.89%), and lack of sleep (6.54%). A study by Kapse V et al, reported under medication was 10.89%, [16] Vimal et al, reported 9.2%, [3] and Purohit A et al, 9.10%. [9] Arundhathi S et al, reported menstruation was 10.56%, [23] and Rajendra et al, show 4.6%. [22] Sahni N et al, reported alcohol intake was 5.48%, [6] John F et al, reported 8.84%, [17] and Awasthi s et al, reported 13%. [11] Lack of sleep reported by AINouri et al 5.8%. [1]

Hypertension (97.12%) was the predominant cause of permanent deferral but accounted for 27.56% of total deferrals. Our results correlated with a study by Bahadur S et.al reported 29.4 %. (25) The most common cause of permanent deferral in our study was hypertension, followed by diabetes. This is correlated with the study done by Malini KP et al (26).

The follow-up of temporarily deferred donors regarding their management should be made by the blood bank so that these donors can be recruited back to donation.

The deferral of donors due to any reason has a negative impact and many donors do not return to donate in the future. The deferred anemic donors should be informed and referred to a doctor for a further workup to identify the cause so they can be appropriately treated. This shall be a major contribution toward improving the public health of regular donors. [20,25,27]

CONCLUSION

This study showed that the incidence of donor deferral due to anemia was 27.82% and most of the donors were young with the majority being female voluntary donors. The deferral of donors due to any reason has a negative impact and many donors do not return to donate in the future. The deferred anemic donors should be informed and referred to a doctor for a further workup to

identify the cause so they can be appropriately treated. This shall be a major contribution toward improving the public health of regular donors.

Declaration by Authors

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