



Original article

Analysis Of Blood Donor Deferral Causes In Chennai, India

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ABSTRACT

Introduction: Blood donors are deferred from donating blood for several reasons. A shortage of safe blood donors is frequent and it is important to understand the causes of deferral of potential donors. Efforts to ensure donor and recipient safety have reduced the population of eligible voluntary blood donors.

Aims and Objectives: The objective of our study is to evaluate the rate and major reasons of blood donor deferrals in our center.

Material and methods: A retrospective study was done during 2007-2009 on the donors who came forward for donation. Donor eligibility criteria were followed according to the National guidelines for blood donation. Donors who were deferred were analyzed according to their age, sex and reason for deferral.

Results: Of the 10,440 donors, 1180 (11.16%) donors were deferred. Low hemoglobin was the most common cause of donor deferral which was found in 438 (37.11%) donors followed by high blood pressure found in 259 (21.94%) donors. More number of female donors was deferred as compared to males. The deferral rate increases as the age increases.

Conclusion: A deferral study in blood donors may shed light on the health status of the general population which may affect the blood supply. Risk factors and marker rates derived from the donor pool may be useful to gain insights regarding public health issues. Most of temporary deferral donors will return for donation in future. It is important to provide donors with a clear message on their deferral status. Deferrals for whatever reason represent loss of time and effort for both potential donors and blood bank staff.

KEYWORDS: Blood donation, Deferral criteria, Donor deferral, Donor rejection.

INTRODUCTION

Blood safety is ensured through selection of appropriate donor populations, screening of donors, testing of donated blood units as well as blood transfusion practice. Safe donors are

encouraged to donate their blood while at risk donors are encouraged to self defer from blood donation. Initiatives over the past two decades to reduce the risk of transfusion transmitted disease

and to protect donor safety have created a corresponding reduction in the donor population [1]. As the number of safety initiatives grows, concerns have been raised about their impact on the quantity of blood in the nation's supply, the size of the population of potential donors and the implications of temporary donor deferral.

Donor deferral is defined as an individual who presents to a blood collection center and is deferred [2]. Blood donors are deferred either permanently or temporarily. There are many reasons for which a person can be deferred from blood donating and it must be precise, not only to ensure patients with safe, quality blood but also to protect donor's health.

A person's suitability to donate blood depends on the two general considerations: that the donation will not be injurious to the donor and that the donated blood will not be unnecessarily hazardous to the recipient. A donor must be free from any blood transmissible disease, as far as it can be determined by health history and medical examination as per the Drugs and Cosmetics act which governs the blood transfusion services in India. The importance of this study is to find out the major reasons of deferral in our community and to target the safe blood donor group to ensure the safest blood possible. A shortage of safe blood donors is frequent and it is important to understand the causes of deferral of potential donors to improve recruitment campaigns aiming at the quality and availability of donors. A deferral study in blood donor candidates may shed light on the health status of the general population that affect the blood supply.

MATERIALS AND METHODS:

This is a retrospective study carried out in the Department of Transfusion Medicine, The Tamilnadu Dr.MGR Medical University from 2007- 2009. The data taken from the donor registry and questionnaires were compiled and

analyzed. Prior to donation, donors were counseled and asked to fill a medical history questionnaire. Donors were screened for hemoglobin level, blood pressure, weight and all the donors were instructed to undergo thorough medical systemic examination. Donor eligibility criteria were followed as per our National guidelines. Hemoglobin estimation was done with copper sulphate solution method.

Statistical analysis was done with SPSS software. When relating variables to each other, multivariate analysis was done. Chi square test was employed to detect any significant correlation between different variables.

RESULTS

In a total of 10,440 voluntary blood donors [8789 men (84.18%), 1651 women (15.81%)], 1180 (11.16%) donors were finally deferred. Of the 8789 males, 625 male donors (7.11%) were deferred and among the 1651 female donors, 555 donors (33.61%) were deferred. The deferral was temporary in 1150 (97.46%) donors and permanent in 30 (2.54%) donors. Low hemoglobin was found in 438 (37.11%) donors and it was the most common cause of donor deferral (Table: 1). The second most common cause of deferral was high blood pressure found in 259 (21.94%) donors. 292 (52.61%) female donors were deferred due to low hemoglobin followed by 88 (15.85%) female donors who were on medications. High blood pressure found in 220 (35.2%) donors was the most common cause of deferral among males followed by low hemoglobin found in 146 (23.36%) donors.

Significantly more female donors were deferred as compared to male donors (33.61% Vs 7.11%; $P=0.000$). Large number of females were deferred due to low hemoglobin when compared to male donors (52.61% in females Vs 23.36% in males; $P=0.000$). Deferral percentage increased significantly ($P=0.032$) with increase in age of donor.

Table 1: Donor distribution according to age group

Age group (years)	Total donors	Deferred donors	% of deferred donors
18-25	3826	270	7.05%
26-35	3123	227	7.26%
36-45	2176	286	13.14%
46-55	1126	337	29.92%
>55	189	60	31.74%
Total	10440	1180 (11.16%)	

Table 2: Deferral causes in blood donors

Cases of deferred donors N(%)	Male N(%)	Female N(%)
Low Hemoglobin 438(37.11%)	146 (23.36%)	292 (52.61%)
High Blood Pressure 259 (21.94%)	220 (35.2%)	39 (7.02%)
On medications 218 (18.47%)	130 (20.8%)	88 (15.85%)
Low weight 97 (8.22%)	25 (4%)	72 (12.97%)
RTI* 88 (7.45%)	57 (9.12%)	31 (5.58%)
Low BP 37 (3.13%)	8 (1.28%)	29 (5.22%)
Surgery 13 (1.1%)	13 (2.08%)	0
CVS abnormality 16 (1.35%)	14 (2.24%)	2 (0.36%)
Asthmatics on steroids 10 (0.84%)	8 (1.28%)	2 (0.36%)
Epileptic 2 (0.16%)	2 (0.32%)	0
Abnormal bleeding tendency 2 (0.16%)	2 (0.32%)	0
Total 1180 (100%)	625	555

*Respiratory Tract Infection

DISCUSSION

The blood donor deferral is a complex process. A significant number of blood donors have been lost after deferral for reasons related to donor safety or recipient safety. Linden et al found that deferrals related to donor safety were more common than those related to recipient safety [3].

In our study, low Hemoglobin (37.11%) was the most prevalent reason for donor deferral followed by high blood pressure (21.94%). Shalini et al found that Anemia was the most frequent cause of donor rejection (32.8%) in Delhi which is similar to our study [4]. In our study, about 52.61% of women were deferred due to low Hemoglobin and it was more prevalent (42.5%) in the age group of 18 to 35 years which sheds light on the health status of our population. Low Hemoglobin level is a very relevant issue in blood bank, since it reduces blood availability. Interventions like nutritional advice, iron supplementation to regular donors in women will be helpful in order to circumvent the problem. Makroo et al reported 6.2% of deferred donors had a hemoglobin level between 12g/dl- 12.5g/dl. It was felt that cut off level for Hemoglobin in blood donors in India needs to be reviewed and is suggested to be 12g% so as to reduce the donor deferrals [5].

The most common deferral reason among men was high blood pressure (35.2%) followed by low hemoglobin (23.36%). Rabeya et al found high blood pressure (45%) followed by medical illness (21.4%) were the main reason of deferral among men [6]. Charles et al reported low hemoglobin (22.2%) followed by high blood pressure (17.5%) was the main causes of temporary deferral in men [7]. In our study, drug use and high BP appeared more frequently in men. On the other hand, low BP and low weight were more common in women than men (Table 2). Naveen from Pune reported that the donor deferral percentage increases as the age of the donor increases [1]. In our study also, there was a significant increase in deferral percentage as the age increases (Table 1).

Jed Gorlin reported that temporary deferrals play greatest havoc with the donors who represent the future of voluntary blood donation [8]. Brian Custer et al found that first time donors had a higher percentage of exclusion in comparison to frequent blood donors which may be due to insufficient knowledge and information [9].

Temporary deferral, no matter how short in duration, represents an indefinite deferral for a sizable percentage of both first time and repeat donors because donors often never attempt to donate again after receiving such a deferral. Pilivian et al reported first time donors receiving a temporary deferral were 25% less likely to return for a donation whereas repeat donors were 15% less likely to return for donation within 6 months [10]. Halperin et al found that donors receiving short term temporary deferrals were 29% less likely to present for donation again [11]. Potential donors simply are not willing to present again because of the experience of the previous deferral and concern that they might be deferred again. A temporary deferral should not discourage donors from coming back. A deferred donor should be given a clear explanation for the reason of deferral. Temporarily deferred donors should be advised to come after a stipulated period of time depending on the reasons for deferral as per the National guidelines. Blood should be accepted only from voluntary, non-remunerated, low risk, safe and healthy donors. Efforts should be directed towards encouraging and retaining adequate numbers of repeat donors. Donors should be appropriately recognized and felicitated for their contribution.

Simple practices such as re-contacting first time deferred donors to reassure them that they are again welcome as potential donors could lead to much improved future blood donation behavior by these donors.

CONCLUSION:

Our results showed that the major causes of deferral were low hemoglobin followed by medications in females and high blood pressure followed by low hemoglobin in males. Perhaps with proper nutritional advice and follow up, we hope to be able to reduce the percentage of deferral due to low hemoglobin. Increased public education, and by giving clear explanation for the reason of deferral, we can decrease unnecessary deferrals. These motivated voluntary blood donors who are temporarily deferred can become regular donors when properly followed, thereby increasing the donor pool as we always need donors.

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