

Original Research Article

Pattern and outcome of donor deferral -? need of hour

Chitra Chauhan*, Rashmi Chauhan, Seema Awasthi, S. Dutta, Himanshu Joshi

Department of Pathology, Teerthanker Mahaveer Medical College and Research Centre, Moradabad, Uttar Pradesh, India

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***Correspondence:**

Dr. Chitra Chauhan,

E-mail: chitrachauhan92@gmail.com

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ABSTRACT

Background: To analyze various reasons for blood donor deferral and to study its long term impact on potential prospective blood donors.

Methods: A total of 26029, otherwise healthy, prospective blood donors were studied retrospectively over a period of 5 years. WHO blood donor selection criteria and counseling guidelines were used for donor selection. Donor deferral data was evaluated with respect to age, sex and cause of deferral which was further analyzed as temporary or permanent deferral.

Results: 1448 (5.56%) blood donors were deferred for various reasons. 1232 (4.89%) of total male donors and 216 (26.83%) of total female blood donors were deferred. 1378 (95.16%) donors were deferred on temporary basis and only 70 (4.84%) donors were permanently deferred. Anemia (42.26%) was observed to be the most common cause of temporary donor deferral while hypertension with cardiac disorder (1.93%) was the most common cause of permanent deferral. All the temporary deferred donors (1378) were called after the period of deferment. Out of total 1378 temporarily deferred donors, only 129 donors returned later for voluntary donation.

Conclusions: Establishment of effective measures is needed in regard to consider the effect of donor deferrals on future availability of donor and donor return and to monitor necessity and effectiveness of deferrals and their reasons. As percentage of temporary deferral is higher, they should be efficiently managed, counseled, educated and encouraged for future donation which can compensate the increasing demand of blood donors.

Keywords: Donor selection, Donor deferral, Deferral reasons

INTRODUCTION

The main goal of blood transfusion services (BTS) is to ensure the availability of adequate and safe supply of blood and blood products globally. Voluntary non-remunerated blood donations are recommended to achieve this goal as these are at low risk for transfusion transmitted infections.¹

Donor selection is a stringent process which assesses the suitability of prospective donors. It safeguards the health of both the recipient and the donor. It also ensures the

safety of blood and maintain sufficient blood supply by preventing the unnecessary loss of suitable donors.²

As per World Health Organization (WHO) statistics, approximately 81 million units of blood are collected globally in a year but only 39% of these are collected in developing countries which have 82% of world's population.³ The National AIDS Control Organization's (NACO) figures show that the annual rate of blood donation is approximately 7.4 million units in India, in contrast to the requirement of 10 million units per annum.⁴

Generally, blood donors are perceived to be healthy. But some donors may be unsuitable or unfit for blood donation. Such donors should be identified and deferred as either temporarily or permanently.⁵ However, unnecessary and frequent donor deferral especially temporary leads to potential blood donor's loss, and many are reluctant to return in future for donation because of negative psychological impact.⁶

Also, there is a change in trend of deferral rate and deferral causes in different parts of the country as well as around the globe which has to be implemented and modified according to the local trends.⁷

Hence, the present study aims to analyze the various reasons for donor deferral at our centre and to study its long-term impact on potential prospective blood donors.

METHODS

A 5 years retrospective study was conducted at a blood bank in tertiary teaching hospital from January 2012-December 2016 on otherwise healthy prospective blood donors in North India (U.P.). Total 26029 donors were screened on the basis of medical history and brief physical examination which included weight, temperature, blood pressure and pulse rate. Hemoglobin estimation was done using specific gravity method. World Health Organization (WHO) blood donor selection and counseling guidelines were used as donor selection criteria. Donor deferral data was evaluated with respect to age, sex and cause of deferral which was further analyzed as temporary or permanent deferral. All the donors deferred temporarily were counseled and guided properly and a proper record of their address and contact along with period of deferral was maintained. These donors were contacted after the period of deferral for the blood donation.

RESULTS

A total of 26029 donors were screened during the study period. Out of them, 24581 (94.44 %) donors were found fit for donation and 1448 (5.56 %) were deferred as they were found unfit for donation for various reasons. (Figure 1).

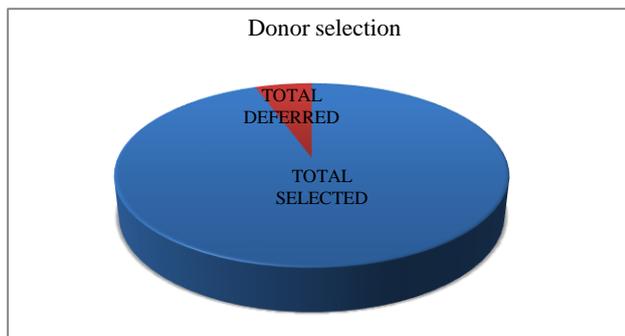


Figure 1: Rate of selected and deferred blood donors.

- Total registered donors-26029
- Total selected donors-24581 (94.44 %)
- Total deferred donors-1448
- Deferral rate-5.56 %

Out of total 26029 donors, 25224 (96.90 %) were males and 805 (3.10 %) were females. 1232 (4.89%) of the total male donors and 216 (26.83%) of the total female blood donors were deferred. Deferral rate in females was therefore higher than that in males (Table 1).

Table 1: Donor deferral rate in males and females.

Gender	Total registered	Total deferred	Deferral rate %
Males	25224 (96.90%)	1232	4.89 %
Females	805 (3.10%)	216	26.83 %
Total	26029	1448	

Majority of deferral, 1378 (95.16 %) were on temporary basis and, only 70 (4.84 %) donors were permanently deferred (Table 2).

Table 2: Rate of temporary and permanent deferral.

Type	Deferral donors	Deferral rate %
Temporary	1378	95.16
Permanent	70	4.84
Total	1448	100

Overall, anemia (42.26%) was observed to be the most common cause of temporary donor deferral followed by alcohol intake in last 24 hours (17.68 %) and jaundice (11.80 %) (Table 3).

Table 3: Causes of temporary deferral.

Cause	Number	Deferral %
Anemia	612	42.26
Alcohol intake	256	17.68
Jaundice	171	11.80
Previous donation (<3 months)	84	5.80
Antibiotics (3 days)	74	5.11
Underweight	65	4.49
Fever	24	1.66
Typhoid	20	1.38
Fungal infection	20	1.38
Tuberculosis	12	0.84
Underage	10	0.69
Malaria	08	0.55
Immunization	08	0.55
Recent blood transfusion	06	0.41
Sleep deprivation	02	0.14
Chicken pox	02	0.14
Drug addiction	02	0.14
Apprehensive donor	02	0.14
Total	1378	95.16

Only 70 (4.84%) donors were permanent deferred, out of which hypertension with cardiac disorder was the most common cause (1.93%), followed by severe allergic disorders (0.82%) and hepatitis B (0.69%) (Table 4).

Anemia was the most common cause of deferral in both males (412/1232) as well as in females (200/216) (Table 5).

Table 4: Causes of Permanent deferral.

Cause	Number	Deferral %
Hypertension with cardiac disorders	28	1.93
Severe allergic disorders	12	0.82
Hepatitis B	10	0.69
Hepatitis C	04	0.28
Cardio-thoracic surgery	04	0.28
Over age	05	0.35
Uncontrolled diabetes mellitus	05	0.35
COPD	02	0.14
Total	70	4.84

Table 5: Common causes of blood donor deferral.

Females	Males
Anemia (200)	Anemia (412)
Jaundice (10)	Alcohol (256)
Underweight (3)	Jaundice (171)

All the temporary deferred donors (1378) were called after the period of deferment. Out of total 1378 temporarily deferred donors, only 129 donors returned later for voluntary donation.

DISCUSSION

Blood donors form the pillars of blood bank, so the selection of healthy, non-remunerated donor is the most important step in blood transfusion services. Donor deferral is still a stigma in the society which leads to loss of potential blood donors, especially in cases of temporary donor deferral.

The present study was conducted to evaluate the common causes of blood donor deferral and to analyze the effect of deferral on donor psyche, so that adequate measures can be taken to ensure healthy blood supply minimizing the risk of transfusion transmitted infections without losing the potential healthy donor pool.

Donor deferral rates vary from 5-24 % in different blood centers which may be attributed to specific deferral patterns.⁸ In our study, the donor deferral rate was 5.56 % for various reasons. Comparison of deferral rates in different studies is as shown in Table 6. Different deferral rates probably reflect regional diversity and marked variation in donor selection process and criteria. The rate

of donor deferral is almost six times higher in females as compared to males in present study. The same pattern was observed in the study of Vimal et al.⁷ However, Naveen et al found 15 times higher blood donor deferral rate in females as compared to males.⁹

In present study, 95.16 % of the total deferred donors account for temporary deferral and 4.84 % for permanent deferral. Anemia (42.26 %) is the commonest cause of temporary donor deferral in present study. It is also the commonest cause of deferral among males (33.44 %) as well as in females (92.59 %). Vimal et al, Patel et al, Gajjar et al, M C Krishna et al, Chenna et al, Mallhi et al, and Bobati et al, also reported anemia as the most common cause of deferral.⁷⁻¹³ It is suggested to lower the accepted standards for hemoglobin in females to increase their eligibility for the donation.

Table 6: Comparison of deferral rate with other studies.

Author	Year	Place	Rate (%)
Naveen et al ⁹	2010	Maharashtra	11.60
Rehman et al ³	2012	Aligarh	12.40
Gajjar et al ¹⁰	2014	Ahmedabad	11.16
krishna et al ¹¹	2014	Karnataka	7.30
Chenna et al ¹²	2015	Kerala	5.60
Vimal et al ⁷	2016	Puducherry	11.60
Mallhi et al ¹³	2016	Pune	11.00
Bobati et al ¹⁴	2016	Karnataka	8.62
Shariff et al ¹⁵	2016	Mangalore	7.63
Present study	2017	Moradabad	5.56

In contrast, Girish et al, and John et al, report hypertension as the most common cause of deferral whereas studies by Shariff et al, and by Shrivastava et al, report history of antibiotic intake and jaundice as the most common cause of temporary deferral respectively.¹⁵⁻¹⁸ High blood pressure diagnosed first time prior to donation could reflect anxiety and nervousness of donor. Hence, proper donor counseling before donation is very critical.

The second most common cause of temporary deferral remained diverse depending upon the community and demographic factors. In present study, alcohol consumption within last 24hours (17.68%) is the second most common cause of temporary deferral similar to Bobati et al, Bahadur et al, whereas, Vimal et al, Patel et al, Gajjar et al, Chenna et al, and Shah et al reported hypertension as the second common cause of deferral.^{14,19,7,8,10,12,20} Proper information, counseling and education given to potential donors prior to the donation can significantly reduce the donor deferral because of alcohol consumption.

Analysis of permanently deferred donor showed hypertension with cardiac disorder (1.93%) as the most common cause, followed by severe allergic disorders

(0.82%) and hepatitis B (0.69%) as the second and third common cause of permanent deferral in the present study.

Shariff et al, and Krishna et al, also reported hypertension as the most common cause of permanent deferral similar to present study, however hepatitis B and hepatitis C were the second and third common cause of permanent deferral in their studies.^{15,11} The permanent deferral of any donor is a sensitive issue and might leave the donors with a negative feeling or self-worth, so the counseling and appropriate referral of these donors is highly recommended.

CONCLUSION

Establishment of effective measures is needed in regard to consider the effect of donor deferrals on future availability of donor and donor return and to monitor necessity and effectiveness of deferrals and their reasons. As percentage of temporary deferral is higher, they should be efficiently managed, counseled, educated and encouraged for future donation which can compensate the increasing demand of blood donors.

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