



ISSN (P): 2617-7226
ISSN (E): 2617-7234
www.patholjournal.com
2020; 3(3): 150-152
Received: 26-04-2020
Accepted: 17-06-2020

Dr. Rippal Kumar Bhimani
Assistant Professor,
Department of Pathology,
BMCRI, Palanpur, Gujarat,
India

Priyanka Joshi
M.B.B.S., Currently Preparing
for PG Entrance Exam,
Palanpur, Gujarat, India

Ankita Kamaliya
M.B.B.S., Currently Preparing
for PG Entrance Exam,
Palanpur, Gujarat, India

Mansi Khodifad
M.B.B.S., Currently Preparing
for PG Entrance Exam,
Palanpur, Gujarat, India

Krishna Kachhadiya
M.B.B.S., Currently Preparing
for PG Entrance Exam,
Palanpur, Gujarat, India

Corresponding Author:
Dr. Rippal Kumar Bhimani
Assistant Professor,
Department of Pathology,
BMCRI, Palanpur, Gujarat,
India

Evaluation of blood donor deferral causes in a tertiary care center

Dr. Rippal Kumar Bhimani, Priyanka Joshi, Ankita Kamaliya, Mansi Khodifad and Krishna Kachhadiya

DOI: <https://doi.org/10.33545/pathol.2020.v3.i3c.272>

Abstract

Objective: Blood transfusions save many lives each year globally and henceforth blood is very important for the vitality of humans. In the blood donation, it is very important to maintain safety of the donor and recipient and therefore, donor selection is the most important assessment process of blood donation in addition to the screenings of blood bags for infectious diseases. However, deferrals of blood donors result in loss of precious blood/blood components available for transfusion. For preventing this, it is necessary to have knowledge of causes of deferral and their frequency. This study aims to analyze the blood donor deferral rates, find out various causes of blood donor deferrals and to facilitate proper referral and follow up measure to reduce the rate of temporary deferral.

Materials and Methods: It was a cross sectional two years retrospective study including all the blood donors reporting for blood donation from 1st Jan 2015 to 31st Dec 2016 at Dhiraj Hospital, a constituent hospital of S.B.K.S. Medical Institute and Research Center, Vadodara. The study was conducted by obtaining data from records maintained by blood bank and analyzed.

Results: Total 9180 people registered for blood donation during the defined time period and out of which 230 donors (2.50%) were deferred. Among the deferred blood donors, 153 (66.52%) were temporary and 77 (33.48%) were permanent. Among temporary deferrals, anemia was the most common cause whereas among permanent deferrals, hypertension was found to be the commonest cause.

Conclusion: Analysis and evaluation of blood donor deferral patterns will help medical personnel to emphasize on donor screening. Proper medical examination and explanation to the donor will motivate both selected and deferred donors to self-evaluate their eligibility to donate and return for donation in future.

Keywords: Blood, blood donor, blood donor deferral

Introduction

In 1937, Dr. Bernard Fantus at Chicago's Cook County hospital coined the term "blood bank". Blood is lifesaver for critically ill patients. Blood transfusions save many lives worldwide each year henceforth blood is very important for the vitality of humans. In the blood donation, it is very important to maintain safety of the donor and recipient and therefore, donor selection is the most important assessment process of blood donation. It can be defined as the process of assessing the suitability of an individual to donate the blood against different selection criteria. Blood donor reaction as well as blood transfusion reactions can be avoided by proper donor selection. The safety and availability of blood and blood products for transfusion requires the recruitment and selection of voluntary non-remunerated blood donors. Donor selection is necessary in addition to the screenings of blood bags for infectious diseases. However, deferrals lead to loss of precious blood/components available for transfusion. For preventing this we should be having knowledge of causes of deferral and their frequency. The National AIDS Control Organization's (NACO) statistics show that the annual rate of blood donation in India is about 7.4 million units, against the requirement of 10 million units ^[1]. According to World Health Organization (WHO) figures, over 81 million units of blood are collected annually worldwide but only 39% are collected in developing countries which have 82% of the world's population ^[2]. A blood bank plays an important role in ensuring the supply of safe blood as and when required. While it is important to ensure that there is an adequate supply of blood, it is also essential that the blood collection process does not harm either the donor

or the recipient. This is achieved by having donor deferral criteria [3] and stringent screening of collected blood for possible Transfusion Transmissible Infections (TTIs) [4]. Deferrals are divided into permanent and temporary. Few studies done in India in the past have provided different common reasons for deferral of whole blood donors, highlighting differing demographic profile in different parts of the country. Blood donor deferral is a painful and sad experience for the blood donor as well as the blood center screening the donor. These deferrals “bleed” the donor-recruiting efforts of a blood center, necessitating more efforts diverted to new recruitments. Moreover, deferring prospective donors often leaves them with negative feelings about themselves as well as the blood donation process. Additionally, these donors are less likely to return for blood donation in future. Nonetheless, criteria for these deferrals and their implementation strongly influence the quality of blood supply in a population. Thus, every blood center has to balance the fulcrum between acceptable quality and desired quantity. Nodal agencies like the National AIDS Control Organization (NACO) and the State Blood Transfusion Councils (SBTCs) do not actively collect data on donor deferrals. Their formats for data collection are more inclined toward “quantity” of supply and deferrals due solely to infectious marker positivity in donated units. As a result, most of the efforts at government, community, and individual level are focused at recruiting more and more new donors while ignoring the retention and re-entry of those recruited but deferred due to various causes. This can be achieved by analyzing the reason of these deferrals amongst blood donors, addressing the issue and ameliorating the cause if possible.

Aims and Objectives

- To analyze the blood donor deferral rates.
- To find out various causes of blood donor deferrals.
- To facilitate proper referral and follow up measure to reduce the rate of temporary deferral.

Materials and Methods

- **Study design** – It is a cross sectional two years retrospective study.
- **Target population** – All the blood donor reporting for blood donation.
- **Study site** – Blood bank, Dhiraj Hospital, a tertiary care center and constituent hospital for S.B.K.S. Medical Institute and Research Center, Vadodara.
- **Selection criteria** – Donor selection done according to

the Drugs and Cosmetic Act 1940.

- **Inclusion Criteria:** All the donors reporting for blood donation in Dhiraj General Hospital coming from 1st Jan 2015 to 31st Dec 2016
- **Exclusion criteria:** As the study includes all the donors reporting for blood donation, there is no exclusion criteria
- **Subjects planned:** – All the donors reporting for blood donation from 1st January 2015 to 31st December 2016.
- **Different activities planned** – Data collected from record maintained by blood bank and analyzed.

Result

Total 9180 people registered for blood donation during the defined time period out of which 8948 (97.47%) were males and 232 (2.53%) were females (Table 1). 230 donors (2.50%) deferred out of which 153 (66.52%) were temporary and 77 (33.48%) were permanent (Table 2). Overall males (184; 2%) were deferred more than females (46; 0.5%) whereas females (46; 19.82%) were found to have higher deferral rates among the female donors than males (184; 2.05%) among the male donors (Table 3). Obtained result showed that the temporary (153; 66.52%) deferral was more common than the permanent (77; 33.48%) deferral. Among temporary deferrals, anemia was the most common (Table 4) and among permanent deferral, hypertension was found to be the commonest (Table 5).

Table 1: Demographics of the donor

Male/Female	Registered for donation	No. of deferral	% deferral of total registration
Male	8948	184	2.00%
Female	232	46	0.50%
Total	9180	230	2.50%

Table 2: Frequency of temporary and permanent deferrals

Type of Deferral	Deferrals	% of deferral	% deferral of total registration
Temporary	153	66.52%	1.66%
Permanent	77	33.48%	0.84%
Total deferral	230	100%	2.50%

Table 3: Frequency of deferral among male and female donors

Donors	No. of donor	Deferral	% of deferral among male and female donor
Male	8948	184	2.05%
Female	232	46	19.83%

Table 4: Temporary deferral

Cause of Deferral	Numbers	% of temporary deferral	% of total deferral
Anemia	82	53.59%	35.65%
Infection [URTI/UTI]	17	11.11%	7.39%
Menstruation	10	6.53%	4.35%
Tattoo within 1 year	8	5.23%	3.48%
Low weight	8	5.23%	3.48%
Alcohol intake within last 3 days	7	4.57%	3.04%
On medication	5	3.27%	2.17%
Recent donation within 3 months	4	2.62%	1.74%
Recent surgery	4	2.62%	1.74%
Breast feeding	5	3.27%	2.17%
Fever	3	1.96%	1.31%
Total	153	100%	66.52%

Table 5: Permanent deferral

	Number	% of permanent deferral	% of total deferral
Hypertension	38	49.35%	16.52%
Uncontrolled diabetes mellitus	19	24.70%	8.26%
COPD/Asthma	8	10.38%	3.48%
Cardiac problem	5	6.48%	2.18%
Hepatitis	4	5.19%	1.74%
Epilepsy	3	3.90%	1.30%
Total	77	100%	33.48%

Discussion

Out of registered 9180 blood donors, 230 donors i.e 2.50% were deferred due to various reasons. Several studies have also reported deferral rate of less than 10%; 5.20% by Unnikrishnan *et al.* [5], 6% by Sundar *et al.* [6], 5.6% by Rabeya *et al.* [7]. Some studies have even reported higher deferral rates of 12.8% by Zou *et al.* [8], 16.4% by Chaudhary *et al.* [9], 35.6% by Charles *et al.* [10], 14.4% by Lim *et al.* [11]. This shows that the deferral rate differs from region to region and center to center. This could be due to differences in donor selection criteria or may be attributed to counseling of donor done before sending him or her to blood collection center. The most common cause of deferral in this study was anemia (35.65%); a similar rate (46%) has been reported by Halperin *et al.* [12]. Anemia was followed by hypertension (16.52%), uncontrolled diabetes (8.26%) and infections (7.39%). The deferred donors were categorized into temporary (66.52%) and permanent (33.48%). A similar rate has been found in a study conducted by Rehman *et al.* [13] with temporary (63.73%) and permanent (36.3%) deferrals.

Conclusion

The present study showed deferral rates similar to some studies while differing from others reflecting difference in socio-economic status, environment and knowledge regarding the blood donation service protocols. Different donor selection criteria also serve for different deferral rates among different studies. Analysis and evaluation of blood donor deferral patterns will help medical personnel to emphasize on donor screening. Proper medical examination and explanation to the donor will motivate both selected and deferred donors to self-evaluate their eligibility to donate and return for donation in future.

References

1. Department of AIDS Control. Ministry of Health and Family Welfare, Government of India. Annual report. New Delhi, India: Government of India, 2008–2009, 27.
2. Baxi A. Misconceptions over blood donation causing shortage in India, 2008.
3. *The Economic Times*. February 10, 2008.
4. Newman B. Blood donor suitability and allogeneic whole blood donation. *Transfus Med Rev.* 2001; 15:234-44.
5. Bahadur S, Jain S, Goel RK, Pahuja S, Jain M. Analysis of blood donor deferral characteristics in Delhi, India. *Southeast Asian J Trop Med Public Health.* 2009; 40:1087-91.
6. Unnikrishnan B, Rao P, Kumar N, Ganti S, Prasad R,

Amarnath A, Reshmi B, Kaur V, Kesharwani P, Seetha M, Nautiyal A, Goel P, Aggarwal A. profile of blood donor and reasons for deferral in coastal South India. *AMJ.* 2011; 4(7):379-385.

7. Sundar P, Sangeetha SK, Seema DM, Marimuthu P, Shivanna N. Pre-donation deferral of blood donors in South Indian set-up: Analysis. *Asian J Transfusion Sc.* 2010; 4(2):112-5.
8. Rabeya Y, Rapiaah M, Rosline H, Ahmed SA, Zaidah WA, Roshan TM. Blood pre-donation deferrals-a teaching hospital experience. *Southeast Asian J Trop Med Public Health.* 2008; 39(3):571-4.
9. Zou S, Masavi F, Noyary EP, Rios JA, Trouern-Trend J, Fang CT. Donor deferral and resulting donor loss at the American Red Cross Blood Services, 2001 through 2006. *Transfusion.* 2008; 48:2531-9.
10. Chaudhary RK, Gupta D, Gupta RK. Analysis of donor-deferral pattern in a voluntary blood donor population. *Transfus Med.* 1995; 5:209-12.
11. Charles KS, Hughes P, Gadd R, Bodkyn CJ, Rodriguez M. Evaluation of blood donor deferral causes in the Trinidad and Tobago National Blood Transfusion Service. *Transfus Med.* 2010; 20:11-4.
12. Lim JC, Tien SL, Ong YW. Main causes of pre-donation deferral of prospective blood donors in the Singapore Blood Transfusion Service. *Ann Acad Med Singapore.* 1993; 22:326-331.
13. Halperin D, Baetens J, Newman B. The effect of short-term, temporary deferral on future blood donation. *Transfusion.* 1998; 38:181-183.
14. Rehman S, Arif SH, Mehdi G, Mirza S, Saeed N, *et al.* The Evaluation of Blood Donor Deferral Causes: A Tertiary Care Centre-based Study. *J Blood Disorders Transf.* 2012; 3:131.