

Original Research Article**Evaluation of Reasons for Blood Donor Deferral in A Tertiary Care Teaching Hospital Blood Bank Unit, Tumkur, Karnataka, India****Krishna M.C.¹, Harish S.G.²**

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Abstract

Safety of Blood and Blood components transfusion begins with healthy donors. Deferral of Blood donation is because of both temporary and permanent reasons. Hence personnel who are willing to donate blood are not able to donate blood successfully either permanently or temporarily.

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(Received on 24.03.2018,**Accepted on** 05.04.2018)

Aim: To evaluate the various reasons for blood donor deferral among blood donors in a tertiary care teaching hospital, Blood bank unit.

Material & Methods: A retrospective study from January 2014 to December 2017 was done. An analysis of records of the donors were reviewed in order to find out the rate and causes of pre donation deferral both in male and female in Blood Bank unit.

Results: During this four year period, 7849 donors registered to donate whole blood and blood components and 561 were deferred. The deferral rate was 7.14 %. Among 561 deferral blood donors, 472(84.1%) were male and 89 (15.8%) were female. Female registered donors were less as compared to male. The reasons for deferral were grouped as temporary and permanent. The reasons of temporary and permanent deferral constituted 93.9% and 7.1% respectively. The three most common reasons for temporary deferral were anaemia, under age and low body weight. The permanent reasons were hepatitis, diabetes and respiratory diseases. As per available findings in the literature and findings from our study remain same.

Keywords: Blood Donor; Deferral; Permanent Deferral; Temporary Deferral.

Introduction

Blood donors who wish to donate blood are deferred during blood donation for different reasons. Those personnel who were disqualified from donating blood are known as “deferred” donors. The reasons of donor deferral and the deferral rate differs from region to region and from one blood bank to another. There are donor screening criteria to protect blood donors as well as recipients. These are necessary for the health of recipients. By pre-donation evaluation of donors and

modified physical criteria using proper check list will lower deferral rates. The deferral rate can be further lowered down by increase public awareness among the common causes of deferral and by allowing prospective donors to “pre-screen” themselves [1].

The deferral of blood donation is more painful and very bad experience for the blood donor as well as the blood bank unit who screens the blood donor. The deferral of prospective donors often leaves the blood donor with negative feelings about themselves and also the blood donation process [2].

Temporary deferral either the first-time or repeat donors result in loss of blood units. This type of loss of blood units as well as loss of blood units from improper collection are more common events than losses due to disease markers testing. These losses may be preventable and avoidable. Hence the blood supply can be increased without recruitment of new healthy donors. These deferral donors are less likely to return for blood donation in future [3].

The Drugs and Cosmetic Act 1940 (and rules there under) has laid down the criteria for blood donor selection and deferral in India which are supplemented by the Technical Manual (Directorate General of Health Services, MOH and FW, Govt. of India [4].

Numerous blood donors are currently being deferred based on empirically derived selection criteria. Now it is mandatory to identify and rationalize donor selection criteria and thereby developing strategies so that the blood transfusion services should be able to minimise unnecessary deferrals [5].

The aim of present study is to evaluate various reasons of the pre-donation deferral and pattern among blood donors.

Material and Methods

This is a retrospective study from January 2014 to December 2017. The study involves blood donors who have registered their names for blood donation at this institute as well as outdoor camps involving only voluntary donors. Among 7849 donors registered to donate whole

blood and blood components, 561 (7.14%) were deferred for blood donation. Detailed information about donors collected in the prescribed formats. Selection of donors in the blood bank unit was done as per specific protocols. Proper medical history and Physical examination findings were reviewed. Basic vital parameters like blood pressure, temperature, pulse rate, respiratory rate, haemoglobin estimation were recorded. Out of 7849 registered donors, 7683 were male and 166 female. The deferred donors were further categorised on the basis of gender wise and reason wise for deferral both temporary and permanent. The selection of donor was done as per the criteria prescribed by Director General of Health Services and Drug's Controller of India. Approximately 350 - 450 ml of blood was collected from the donor and screened for blood transfusion related diseases.

Result

The total registered for blood donation was 7849 personnel, out of which 561 were deferred from blood donation and 7288 have donated the blood. In this study of pre donation deferral the deferral rate was 7.14%. Among 7683 male registered for blood donation 472 (6.14%) were deferred and out of 166 registered female blood donors, 89 (53.65 %) were deferred. Female registered donors were less as compared to mals. Female deferral rate was at higher side as compared to male deferrals. The total number of registered donors, deferred male and female donors and percentage of deferral are tabulated in Table 1.

Table 1: Gender wise distribution of registered blood donors, number and percentage of deferral

Parameters	Males	Females	Total
Registered blood donors	7683	166	7849
Pre - donation deferral of donors	472	89	561
Percentage of Deferral	6.14 %	53.65 %	7.14 %

Table 2: Reason wise distribution of pre-donation deferrals number and percentage

Type of Reason	Total number	Percentage
Temporary reasons	527	93.9
Permanent reasons	34	6.1

The pre - donation deferral of blood donors were further categorised under two headings depending on the reasons for deferral and are tabulated as shown in Table 2.

The deferral donors were further grouped as per the age of blood donors into four groups. Age wise distribution is to correlate age related reasons and also

to find out in which age group the deferral rate is high and in which age group the deferral rate is low.

In this study the reasons for pre - donation deferral were broadly differentiated into temporary and permanent deferral reasons. The number of temporary and permanent reasons deferrals were 527 (93.9%) and 34 (6.1%) respectively (Table 3a).

Table 3a: Reasons for Temporary deferral

Sl. No.	Reasons	No of deferrals
1	Age below 18yrs (Under age)	92
2	Weight below 45 Kgs (Under Weight)	54
3	Anaemia	251
4	Tattooing	13
5	On Medication in past 72 hours	22
6	Alcohol intake within 72 hours	48
7	Donated blood in the last three months	17
8	Menstruation	8
9	Upper respiratory tract infections	13
10	Bronchitis	9
	Total	527

Table 3b: Reasons for Permanent deferral

Sl. No.	Reasons	No of deferrals
1	Hepatitis	16
2	Asthma	04
3	Cardiovascular disturbances	03
4	Diabetes	07
5	Cancer	01
6	Major surgery	03
	Total	34

Anaemia is the leading reason for pre- donation deferral both in male and female donors. It is observed by estimating Haemoglobin level in donors. The other common temporary reasons were under age, low body weight, and alcohol intake. The permanent reasons were hepatitis, diabetes and respiratory diseases (Table 3b).

Discussion

Blood and its components transfusion services plays a vital part of the health delivery services. The modern technology in the field of transfusion medicine have made it necessary to ensure good quality of blood and its components. The pre-donation blood deferral is a sad part and most painful to both donor and the staff of Blood bank who screen the donors. There will be a negative feeling and impact on the donor about themselves and on the process of blood donation [6].

The selection criteria of blood donors and their implementation strongly for these deferrals influence on the availability of supply of blood and its components in the population. So usually the deferred donors may not turn back for blood donation in future. Hence the blood bank has to balance the acceptable quality and the subsequent desired quantity of blood and its component [7].

During the process of pre donation selection of donors the deferred and the rejected potential blood donors may not be happy and they will be in the feeling of being rejected. It results in demotivation of blood donors and further leads to decrease in future donations. As we have

nodal agencies such as the National AIDS Control Organization (NACO) and the State Blood Transfusion Councils (SBTCs) which must actively collect the detailed data regarding deferrals, so that they can plan for proper health education regarding blood donation. Existing formats from these agencies are mainly concentrating on the quantity of supply and the infectious diseases in the donated blood units [4].

The government, community and the individual levels are ignoring the retention and the re-entry of those who have been registered for blood donation voluntarily but deferred for various reasons. New donors are recruited more and more rather than retaining the deferrals. These can be corrected by analyzing the pre-donation deferral reasons amongst the blood donors. The reasons has to be further addressed and the causes also [5].

Rejection or pre-donation deferral of potential blood donors often leaves the person with negative feeling about themselves as well as the blood banking system. There are advantages of rejecting the donors with possible risk of infectious diseases as there are availability of sensitive screening tests to detect HIV, HCV and Hepatitis infection [8].

The pre-donation donor criteria for selection are mainly based on the applied science, informed medical opinion, and the regulatory rules and proper protocols. The selection criteria of blood donors will influence the donor demographics. To protect both the donor as well as recipients the designated criteria are to be followed, so that future untoward effects may be minimised [9].

The pre donation deferral rate varies from one part of the country and to another part. The deferral rate also differs from one Blood bank unit to another blood bank unit in the same locality [10]. In this study the pre- donation deferral rate was 7.14%. The deferral rate was more in females as compared to males may be because of myths of blood donation. The lowest reported rate of rejection was 4% as reported by Talonu T in Papua New Guinea [11] and higher deferral rate 8-15% was reported by Chaudhry [5], Lim [1], Blumberg [13], Ranveet [9].

Under age is the commonest reason for deferral when age selection criteria is considered for blood donation. Few blood donors above 50 years constituting less than 1% in our study. Garry *et al*, advice elderly healthy individual to donate but to limit donations to less than five per year or donors are advised to take iron supplement regularly to preserve reasonable amount of iron reserve [14].

The reasons of pre-donation blood deferral were broadly classified under two categories temporary and permanent reasons. Majority of deferral were belong to temporary reasons which aware constituted about 93.9% and permanent reasons 6.1%. Custer *et al*, report 68.5% temporary and 31.5% permanent deferral [13]. In our study permanent deferral constituted only 6.1%; which may be due to more number of young age donors. Temporary deferral donors deferral period will be short-term.

The common reasons of temporary deferral and short-term deferral in female were low haemoglobin level, low body weight, and menstrual related issues and in males low haemoglobin level and alcohol consumption. Halperin *et al* study revealed the three most common short term temporary deferral were low haemoglobin level, cold and/or sore throats, and elevated temperature. Ranveet *et al*. study revealed under-weight, under-age, and low haemoglobin levels are the temporary reasons of deferral [9]. Hence, studies on donor deferral indicate that in each regions there would be unique sets of reasons. Subsequent blood donation in case of short-term temporary deferral is an important issue. The deferred blood donor may or may not return for future blood donation. This will have a very negative impact on blood donor return rates and subsequent donations [15].

As per different studies in India it is observed that the most commonest reason of pre-donation blood deferral is anaemia. The same is also noted in western studies. The required haemoglobin is 12.5 gm/dl both for male and female for blood donation in India. Even in developed countries like Canada, 2% of all blood donors do not meet the minimum haemoglobin standard whereas in developing countries the number of anaemia cases are more as noted in this study [16].

Hepatitis was the most common reason for permanent deferral. Two Indian studies report that history of jaundice was the most common cause of deferral in Chandigarh [17] and Lucknow [4]. A large number of deferrals due to pulse irregularities or histories suggestive of potential cardiovascular problems were reported by Blumberg *et al*. [12], whereas in our study less than 1% of donors had these type of medical problems.

Tattooing has been associated with Hepatitis B, Hepatitis C and HIV infections. These infectious diseases may be transmitted if blood transfused from these donors. As there is a higher association of individuals having two or more tattoos unprofessionally applied and are common among drug addicts and prisoners [17]. In this study tattoo is also one reason of temporary deferral.

Studies from USA quoted that blood centres successfully collected blood was approximately 83% of blood donors, but 13% are rejected because of donor suitability issues. One percent is rejected for the positive test, which is often nonspecific or false positive and 2 to 4% of the phlebotomies are not successful [18]. To prevent deferred blood donors from donating at other blood collection facilities Domen *et al*, indicate that shared donor deferral registries may be valuable at the local or regional level [19]. Evaluation of pre-donation blood donor deferral arrives at the awareness, health education and impact on selection criteria of healthy blood donors. Thereby deferral rate may be reduced.

Conclusion

It is a fact that large number of blood donors are not able to donate blood because of temporary and permanent reasons. Pre- donation blood donor deferral rate was 7.14%. Further the evaluation showed that the deferred reasons are mainly temporary and which are easily correctable. The most commonest temporary deferral reason was anaemia. Other reasons were under age, low birth weight and alcohol consumption. Hepatitis is the commonest among permanent reason. Strategies to be developed to identify the pre-donation blood donors so as to decrease the unnecessary deferrals. At the same time the deferred donor to be counselled and should be helped to overcome the reason of deferral. Proper information and education on blood donor selection criteria through questionnaire before donation is an important process. Regular counselling are to be provided to minimize deferral. Screening ensures blood safety and also helpful in retaining voluntary non-remunerated donors.

Acknowledgement

The author thanks all the registered blood donors, technical staff of Blood bank and all teaching staff of

Department of Pathology, SIMRH for constant support in completing this work.

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