

Patterns of Donor Deferral among Blood Donors: Study at a Tertiary Care Hospital

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Abstract

Background: Blood transfusion is a critical and life-saving procedure as even a unit of blood can save a patient in need [1]. Safe and adequate supply of blood and blood products is a major public health issue faced globally. One of the important step to warrant blood safety is by properly following the guidelines of criteria for blood donor selection. A large number of donors are deferred from donating blood for several reasons either temporarily or permanently. Hence it is important to understand the various causes of donor deferral so that preventive measures can be undertaken to reduce the deferral rate in future. The aim of this study is to provide safe blood to patients and to understand pattern of donor deferral in our demographic area. *Materials and Methods:* A retrospective study was conducted to evaluate the profile of deferred blood donors for a period of 3 years from January 2014 to December 2016. Data of different deferral patterns were obtained from donor deferral register. Every donor was thoroughly evaluated by physical examination, hemoglobin estimation, weight, age, blood pressure, pulse rate, temperature. Donors who did not meet the required criteria were deferred and recorded in the donor deferral register. The deferred donors were analysed based on the causes of deferral. *Results:* A total of 11831 people came to donate blood during the period of study, out of whom 11675 (98.6%) were males and the rest 156 (1.3%) were females. Common causes of donor deferral included low hemoglobin (43%), hypertension (16.5%), alcohol consumption (13.7%), vaccinations (5.2%), Tattooing (4.4%), underweight (2.8%) and medications (2.2%). *Conclusion:* Deferral is a form of rejection and it could represent loss of time for both blood donors and blood bank and the importance of explaining the status of deferral cannot be ignored. Efforts must be taken to increase awareness among deferred donors and encouraging them for future donation by donor education helps to reduce much of the loss of precious units of blood.

Keywords: Deferral; Donor; Low Hemoglobin.

Introduction

Blood transfusion is a critical and life-saving procedure as even a unit of blood can save a patient in need. Safe and adequate supply of blood and blood products is a major public health issue faced globally. One of the important step to warrant blood safety is by properly following the guidelines of criteria for blood donor selection [1,2].

The criteria for prospective blood donor selection and deferral in India are provided by the Drugs and

Cosmetic Act 1940 (and rules thereunder) supplemented by the Standards for Blood Banks and Blood Transfusion Services [3,4].

A large number of donors are deferred from donating blood for several reasons either temporarily or permanently. Such donor deferrals can create a negative impact on donors and can reduce return rate ultimately affecting the donor pool [5,6].

Hence it is important to understand the various causes of donor deferral so that preventive measures can be undertaken to reduce the deferral rate in future. In case of temporarily deferred donors appropriate management can be done so that they are not deferred in future for blood donation. The aim of this study is to provide safe blood to patients and to understand pattern of donor deferral in our demographic area.

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(Received on 18.08.2017, Accepted on 01.09.2017)

Material and Methods

We conducted a retrospective study to evaluate the profile of deferred blood donors in our institution which is a tertiary care centre in rural Andhra Pradesh, for a period of 3 years from January 2014 to December 2016. Data of different deferral patterns were obtained from donor deferral register. Every donor who attended pre-donation examination were provided with a donor questionnaire and donors are screened according to the criteria laid down by Director General Of Health services and Drug Controller Of India. Every donor was thoroughly evaluated by physical examination, hemoglobin estimation, weight, age, blood pressure, pulse rate, temperature.

Donors who didnot meet the required criteria were deferred and recorded in the donor deferral register. The deferred donors were analysed based on the causes of deferral. Chi-square test was used to compare

deferral rates within sociodemographic variables and donor status by using SPSS software (SPSS, Inc., Chicago, IL, USA).

Results

A total of 11831 people came to donate blood during the period of study, out of whom 11675 (98.6%) were males and the rest 156 (1.3%) were females as shown in Table 1.

Among these a total of 496 donors were deferred. As per the records the reasons for deferral were many and the most common cause for deferral was anemia (43%) as shown in Table 2. The next most common causes included hypertension (16.5%), alcohol consumption (13.7%), vaccinations (5.2%), Tatiooing (4.4%), underweight (2.8%) and medications (2.2%). Other causes included hypotension, major and minor

Table 1: Donor Deferral Pattern among Males and Females

Year	Total no of registered donors	Total no of deferred donors	No of male donors	No of female donors	% of total male donors	% of total female donors	Percentage of deferred donors
2014	3508	180	3459	49	98.6%	1.3%	5.1%
2015	3984	184	3934	50	98.7%	1.2%	4.6%
2016	4339	132	4282	57	98.6%	1.3%	3.0%
Total	11831	496	11675	156	98.6%	1.3%	

Table 2: Causes of temporary deferral of registered donors

S. No.	Causes of Deferral	No of Cases	Percentage of Deferral In %
1	Low haemoglobin	215	43
2	Rabies vaccination	26	5.2
3	Tattoo	22	4.4
4	Alcohol	68	13.7
5	Typhoid	10	2
6	Diarrhoea	3	0.6
7	Aspirin	1	0.2
8	Frequent donation	5	1
9	Hepatitis vaccine	6	1.2
10	underweight	14	2.8
11	underage	2	0.4
12	Medications	11	2.2
13	Low BP	7	1.4
14	Human bite	2	0.4
15	chickenpox	2	0.4
16	surgery	9	1.8
17	smoking	4	0.8
18	cold	2	0.4
19	Blood transfusion	1	0.2
20	hypertension	82	16.5
21	seizure	2	0.4
22	asthma	1	0.2
23	tuberculosis	1	0.2
		496	

surgeries, diabetes on insulin, history of recent blood donation, asthma, seizures, skin problems, tuberculosis, chronic allergic diseases. There was no cases of unsuccessful phlebotomy.

Discussion

Blood safety is the most important aspect of blood bank services. Hence Donor screening through questionnaire before blood donation is the most important procedure done in blood banks to ensure safety blood transfusion [7]. Donor deferral rate in previous studies in India varies from 5.19 to 30.6% [5,6]. In the present study, a total of 11831 donors who came forward for blood donation, of which about 496 cases 4.1% were deferred due various reasons. This is due to various reasons like low hemoglobin, weight, age, frequent number of donations, interval between donations and unwillingness for blood donation due to psychological or religious reasons and medications.

Several studies have reported higher deferral rate of (5.20%) by Unnikrishnan et al [7], (6%) by Sundar et al [8], (16.4%) Chaudhary et al [9], (35.6%) Charles et al [10]. Though the deferral rates were found to be higher in these studies, the major reasons for deferral were reflecting the disparity in socioeconomic status as well as it differed from region to region and center to center [9,10].

The demographic profile of present study showed that Male constituted around 98.6% of the donors. Which shows that the number of females volunteering for the donation were very few constituting only 1.3% which was similar to the studies reported by Rehman et al, Bhawani Y et al (10.52%), Pahuja A et al (2.76%) and Agrawal VK et al (8.5%) study [11-14]. This is due to various social and financial factors in developing countries like India where the majority of females have less awareness about proper nutrition, lower literacy rate among females, misconceptions about blood donation and higher frequency of vasovagal reactions etc. Although, due to physiological factors, women may be more prone to conditions such as anemia, but a pre-donation counseling will help decide whether one should or shouldn't donate. Age group deferral did not give significant useful information. There were no studies which attempted to classify donors based on their age group in relation to deferral pattern. In India donors above 60 years are not allowed or encouraged to donate blood. That's the reason, there are very few donors above 50 years constituting less than 1% in our study.

The major cause of deferral in the present study were low hemoglobin (43%), followed by hypertension (16.5%), alcohol consumption (13.7%), vaccinations (5.2%), Tattooing (4.4%), underweight (2.8%) and medications (2.2%) The major cause among temporary deferral was anemia 43%, a similar rate of 46% has been reported by Halperin et al [15], while a much lower rate of (17.9 %) has been reported by Rehman et al [11]. Those with anemia have to be referred of further evaluation and treatment. By lowering hemoglobin standard levels and offering iron treatment for pre-menopausal woman, female eligibility could be increased for blood donation [16]. The reason behind hypertension being the second leading cause was due to an incidental finding while screening and at the same time hypertension could be due to fears of phlebotomy, white-coat hypertension, exercise, stress, etc [11].

Other most common reasons in the present included history of alcohol intake, vaccinations and Tattooing. Educating the people in the community a week prior to blood donation through camps can reduce unnecessary deferrals like alcohol intake, smoking and menstruation. Tattooing has been found associated with serological evidence of hepatitis B and C viruses and it was found common among drug addicts and prisoners when having two or more tattoos when applied unprofessionally [17]. In the present study, tattooing constituted less than 5% of deferral.

Conclusion

Most common reason for rejection was low hemoglobin followed by hypertension. As deferral leads to loss of blood units it is right time to modify recruitment strategy with regular follow up of temporarily deferred donors. Deferral is a form of rejection and it could represent loss of time for both blood donors and blood bank and the importance of explaining the status of deferral cannot be ignored. Efforts must be taken to increase awareness among deferred donors and encouraging them for future donation by donor education helps to reduce much of the loss of precious units of blood.

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