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Various Causes of Donor Deferral amongst Person Reported For Blood Donation at a Tertiary Care Hospital in Bikaner, Rajasthan, India

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Abstract

Background: The aim of this study was to find out various causes of donor deferral among reported blood donors. So we can make strategies to educate, motivate, and treat donors deferred due to anemia/low haemoglobin, so that they can be recruited again.

Subjects and Methods: This study was conducted over a period of 2 months (May- June 2017). Total 5227 reported donors were interviewed during this period. Donor selection criteria laid down by the Drug and Cosmetic Act of India. Criteria laid down by director general Health Services, New Delhi and Drug's Controller of India were strictly followed. Each donor was evaluated based on detailed medical history and brief physical examination of donors with regard to hemoglobin, blood pressure, temperature, and pulse rate.

Results: Total 5227 pre donation screening interviews were conducted at our blood bank unit and various blood donation camps during the study period, of which 5038 were males (96.4%) and 189 (3.6%) were females. Out of 5227 registrations, 4287 were found fit for donation. Total number of deferrals due to various reasons were 940 giving an overall incidence of 18%. The deferral rate among male donors was 15.9% and among female donors was 73%.This shows that females were found to have higher deferral rate among female donors than males. From this study we found that temporary causes of deferral were 856 (91.06%) of the total causes while permanent were only 84 (8.94%). In our study, the most common cause of deferral was anemia both in male and female donors. The next common cause was low body weight.

Conclusion: Rationalize and revalidate of strategies should be made to educate, motivate, and treat donors deferred due to Anemia/low haemoglobin, so that they can be recruited again. Strict criteria should be followed while selecting a donor so that proper blood free of all pathogens is available for recipient.

Keywords: Blood donor, Deferral, Anemia

Introduction

Blood transfusion requires an adequate supply of safe blood from a healthy donor. For this, proper healthy and safe donor selection is necessary in addition to the laboratory screenings of blood bags for transfusion

transmissible infections. However deferrals of fit donors lead to loss of precious blood components available for transfusion. For preventing this we should have knowledge of causes of permanent and temporary deferral and it should be practically implemented for safe donor selection.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 and stringent screening of collected blood for possible Transfusion Transmissible Infections.1Blood donors are deferred due to several reasons, either temporarily or permanently. The key to recruiting and retaining safe blood donors is good epidemiological data on the prevalence and incidence, where possible, of infectious markers in the population which help to identify low risk donor populations. Also, a satisfying experience during blood donation, good donor care and effective communication between blood donation centre staff and blood donors are all essential factors for the retention of safe blood donors. The deferral of blood donors is a painful and sad experience for the blood donors as well as the blood donation centers. Moreover, deferring prospective donors often leaves them with negative feelings about themselves as well as the blood donation process.2 Additionally these donors are less likely to return for blood donation in the future.3A large majority of the donor population in a developing country, like India, is deferred due to temporary but easily correctable cause. A proper track of temporarily deferred donors regarding their management should be made in blood bank so that these donors can be recruited back in donor's pool.1A large majority of the donor population in a developing country, like India, is deferred due to Anaemia.4 Nutritional anaemia is a worldwide problem with the highest prevalence in developing countries like India.5 All donors should be screened for anaemia prior to donation.6 The minimal haemoglobin cut-off for donor selection was set at 12.5gm % for both male and female donors.7 Each unit of transfused whole blood or packed red cells is expected to increase haemoglobin by about 1 gm/dl in a patient of 70 kg weight and who is not having active blood loss.8The short-term temporary deferral due to anaemia can have a very negative impact on blood donor return rate and subsequent blood donation. These donors should be appropriately counseled and managed to improve the efficiency of the voluntary blood donation program under National Blood policy of India.

Subjects and methods

The present prospective study was conducted at Department of Immunohaematology and Transfusion Medicine, Sardar Patel Medical College and Associated Group of Hospitals, Bikaner (Rajasthan), at Blood Bank and out-door voluntary blood donation camps during the period of May 2017 to June 2017 among reported blood donors which caters patients from Western Rajasthan, Punjab, Haryana, U.P, M.P. & Bihar. Donors were carefully screened and counseled (pretest) by trained personnel after complete medical examination and satisfactorily answering the donor questionnaire. The study was based on the donor selection criteria laid down by the Drug and Cosmetic Act of India. Criteria laid down by director general Health Services, New Delhi and Drug's Controller of India were strictly followed. Each donor was evaluated based on detailed medical history and brief physical examination of donors with regard to hemoglobin, blood pressure, temperature, and pulse rate. Detailed information on the donor deferral including the cause of deferral was recorded in deferral register.

Deferred donors were analyzed according to gender, type of donor (voluntary or replacement) and whether deferral was on temporary or permanent basis.

Results

Total 5227 pre donation screening interviews were conducted at our blood bank unit and various blood donation camps during the study period, of which 5038 were males (96.4%) and 189 (3.6%) were females. Here, females contributed a small proportion of 3.6% only. 4851 (92.8%) were voluntary and 376 (7.2%) replacement. Out of 5227 registrations, 4287 were found fit for donation. Total number of deferrals due to various reasons were 940 giving an overall incidence of 18%. Out of 940 deferrals, 802 were males and 138 were females. The deferral rate among male donors was 15.9% and among female donors was 73%.This shows that females were found to have higher deferral rate among female donors than males. From this study we found that temporary causes of deferral were 856 (91.06%) of the total causes while permanent were only 84 (8.94%).. In our study, the most common cause of deferral was anemia both in male and female donors. The next common cause was low body weight. It is observed that the leading reason for rejecting donors was low Haemoglobin levels.

Table 1: **Persons, who reported for blood donation**

	No. of total registrations	**Percentage of total registration**
Male	5038	96.4%
Female	189	3.6%
Total	5227	100%

Table 2: Distribution of deferrals according to gender

	No. of total registrations	**No. of deferrals**	**Percentage deferrals**
Male	5038	802	15.9%
Female	189	138	73%
Total	5227	940	18%

Table 3: Causes of Deferral with their Relative Proportion

S. No	**Causes**	**Number**	**% of total deferrals**
	Temporary		
1.	Anemia	526	55.96 %
2.	Weight <45 kg	97	10.32 %
3.	Age< 18 years	21	2.23%
4.	Previous donation in last 3 months	48	5.11%
5.	Medical	84	8.94%
6.	Alcohol in last 24 hrs	53	5.64%
7.	Surgical	8	0.85%
8.	Other Causes	19	2.02%
	Sub total	856	91.06%
	Permanent		
9.	**Medical**	79	8.40%
10.	**Surgical**	5	0.54%
	Sub total	84	8.94%
	Grand total	940	100%

Table 4: Prevalence of Anemia among Deferred Donors

	Total Deferral	**Deferral due to anemia**	**Prevalence of anemia among deferred donors**
Males	802	442	55%
Females	138	84	61%
Total	940	526	56%

Discussion

Out of 5227 reported blood donors (96.4%) were males while females accounted for only 3.6%. This shows that even in today's era awareness about blood donation is much less in females as compared to males and there is grave need to motivate them, to come forward and give their contribution in this noble cause. Out of 5227 reported blood donors, 4851 (92.8%) were voluntary and 376 (7.2%) replacement. Replacement reported blood donors were very less as compare to voluntary.

Studies	Year	Deferral Rate
Bahadur et al[9]	2009	9%
S Awasthi et al[10]	2009	10.4%
Naveen et al[11]	2009	11.6%
Rehman et al[1]	2012	12.4%
Present Study	2017	18%

The rate of deferral differs from region to region and sometimes in the same region and one centre to another. In our study the Deferral Rate was 18% which was higher than the previous studies such as reported in Bahadur *et al*[9](9%), S Awasthi *et al*[10](10.4%), Naveen *et al*[11](11.6%), Rehman *et al*[1] (12.4%).

Studies	Year	Deferral Rate as per Gender	
		Male	Female
Naveen et al[11]	2009	6.9%	53.5%
Rehman et al[1]	2012	11.98%	20.41%
Krishna et al[12]	2015	6.69%	50%
Present Study	2017	15.9%	73%

The deferral rate among the females and males were (138, 73%) and (802, 15.9%) respectively, in which female deferral rate about five times higher than males. The donors were deferred due to either temporary or permanent causes. In our study, 91.06% were deferred due to temporary causes and 8.94% were deferred due to permanent causes which was comparable to Bahadur et al,9 (temporary – 90.9%; permanent – 9.1%); Krishna et al,12 (temporary – 93%; permanent – 7%). This shows that temporary causes are more common than permanent causes. Temporary causes are easily curable.

Studies	Year	Most Common Cause Of Deferral
Bahadur et al[9]	2009	Anaemia
S Awasthi et al[10]	2009	Anaemia
Naveen et al[11]	2009	Anaemia
Sareen R et al[13]	2012	Anaemia
Sadhana Mangwana et al[14]	2013	Anaemia
Ramesh Patil et al[15]	2014	Anaemia
Krishna et al[12]	2015	Anaemia
Dhaval et al[16]	2015	Anaemia
Present Study	2017	Anaemia

Like most other studies done in past Krishna et al 12, Bahadur et al9, S Awasthi et al10, Naveen et al11, Dhaval R et al16, Sadhana Mangwana14, Ramesh Patil et al15, Sareen et al13 the most common reason for deferral was low haemoglobin and 55.96% of deferral was due to haemoglobin in our study. The effect of short-term, temporary deferral on blood donor returns and subsequent blood donation is an important issue. Short term temporary deferrals have a very negative impact on blood donor return rates and subsequent donations. All the potential donors deferred due to temporary reasons should be informed at the time of deferral about the temporary cause and the time period of deferral. . Health authorities should also implement policies for the preventive measures to decrease the incidences of common deferral causes as this reflects the health status of the society.

Analysis of donor deferral pattern indicates the impact of knowledge of deferral criteria in blood donors. The deferral rate can be reduced by providing information and education of selection criteria. Hence analysis of rejection pattern will not only help in donor and recipient safety but also in maintaining a healthy donor pool in the long term.

Conclusion

In this study temporary causes are more predominant in the deferral cases. Most common cause for deferral was low Haemoglobin, second most cause was low body weight. The prevalence of anemia is higher among females than males in western Rajasthan. The data of the present study shows that there is a need to understand the problem and to educate the regular donors regarding iron deficiency and iron supplementation. This is our responsibility towards these very important persons of society who give gift of life to needy patients in morbid situations.

Refernces

1. Suhailur Rehman, Sayeedul Hasan Arif1, Ghazala Mehdi, Sadaf Mirza, Noora Saeed and Faraz Yusu. The Evaluation of Blood Donor Deferral Causes: A Tertiary Care Centre-based Study, J Blood Disorders Transfusion 2012, 3:5.
2. Samuel Antwi Baffour, David Kwasie Annor, Jonathan Kofi Adjei, Ransford Kyeremeh, George Kpentey and Foster Kyei. Anemia in prospective blood donors deferred by the copper sulphate technique of hemoglobin estimation. BMC Hematology201515:15.
3. Custer B, Chinn A, Hirschler NV, Busch MP, Murphy EL. The consequences of temporary deferral on future whole blood donation. Transfusion. 2007; 47(8):1514–23.
4. Shalini Bahadur, Meenu Pujani, and Manjula Jain .Donor deferral due to anaemia: A tertiary care centre-based study. Asian J Transfusion Sci. 2011 Jan; 5(1): 53–55.
5. Fauci, Braunwald, Kasper, Hauser, Longo, Jameson, Loscalzo. Harrison's Principles of Internal Medicine. Vol. 1, p – 630.
6. Parasappa Joteppa Yaranal, Harish S G. Evaluation of Iron Stores in Blood Donors by Estimation of Serum Ferritin level. Int. J Med Health Sci. July 2013, 2 (3): 275-281.
7. R.K. Saran. Transfusion Medicine Technical Manual. 2nd Edition Directorate General of Health Services, Ministry of Health and Family Welfare Government of India, New Delhi: Mehta offset Pvt. Ltd. 2003, p15.
8. R.K. Saran. Transfusion Medicine Technical Manual. 2nd Edition Directorate General of Health Services, Ministry of Health and Family Welfare Government of India, New Delhi: Mehta offset Pvt. Ltd. 2003, p 212.
9. Bahadur S, Jain S, Goel RK, Pahuja S, Jain M. Analysis of donor deferral characteristics in Delhi, India. Southeast Asian J Trop Med Public Health. 2009; 40: 1087–91.
10. S Awasthi, S Dutta, A Haritwal, M Ansari, N Arathi, D Agarwal. Evaluation Of The Reasons For Pre-Donation Deferral Of Prospective Blood Donors In A Tertiary Teaching Hospital In North India. The Internet Journal of Public Health. 2009;1:1.
11. Naveen Agnihotri. Whole blood donor deferral analysis at a centre in Western India. Asian Journal of Transfusion Science.2010; 4 (2): 116-22.
12. Krishna M C, Sharada M S, Harish S G., Raman M Hulinaykar. An Analysis Of Pre-Donation Deferral Of Blood Donors In A Teritiary Care Teaching Hospital

Blood Bank Unit, Tumakur, Karnataka,India International Journal of Healthcare Sciences October 2014;2(2):258-62.

13. Rateesh Sareen, Gajendra N Gupta, Akanksha Dutt. Donor awareness: key to successful voluntary blood donation. F1000Research 2012, 1:29.
14. Sadhana Mangwana. Analysis of blood donor deferral pattern: Scenario in a Tertiary Health Care Hospital in India. Asian J Transfus Sci. 2013 Jul-Dec; 7(2): 160–161.
15. Ramesh S Patil, Sagar Mhetre, Madhavi Rayate, A. Gafoor Karache. Analysis of Blood Donor Deferral causes in Solapur district. Int. J Biol Med Res. 2014; 5(3): 4227-4230.
16. Dhaval N Chauhan, Killol N Desai, Harikrishna J Trivedi, Ashok S Agnihotri. Evaluation of blood donor deferral causes: a tertiary-care center-based study. Int J Med Sci Public Health. 2015; 4(3): 389-392.