DOI: https://doi.org/10.53350/pjmhs2023175352

ORIGINAL ARTICLE

Frequency of Donor Deferrals in Blood Bank

AHSAN ZAFAR[1], SIDRA KHALID[2], MUHAMMAD USMAN JAVED[3]
[1]*Consultant, Hematologist, Hameed Latif Hospital, Lahore*
[2]*Medical Officer, Hameed Latif Hospital, Lahore*
[3]*Consultant Pathologist, Medicare International Hospital Gujranwala*
Correspondence to: Ahsan Zafar, Email: ahsanzafar85@gmail.com

ABSTRACT

Objective: To determine the frequency of donor deferrals in blood bank on the basis of questionnaire

Methodology: This cross sectional study conducted at Blood Bank, Jinnah hospital, Lahore during 2020-21. All donors were given a questionnaire to fill in. More than 20 questions were given the questionnaire regarding health of the donor before donation. Filled questionnaire was evaluated by researcher herself in order to identify a cause for deferral of blood donation. The donor deferral was then labelled (as per operational definition).

Results: Mean age of the participants was 34.15±7.64 years, 147(73.50%) males and 53 (26.50%) females in this study. 18(9%) participants were deferred as donors and 182(91%) participants were not deferred as donors P-0.58.

Conclusion: It is concluded that the frequency of donor deferrals in blood bank on the basis of questionnaire is not very high and very much similar to studies conducted in other populations, the reasons fordeferral differ, reflecting difference in socioeconomic status.

Keywords: Donor Deferrals, blood bank, questionnaire

INTRODUCTION

The statistics from World Health Organization show that annually there are over 81 million units of blood collected and developing nations that constitute 82% of the world's population contribute only 39% of these blood units.[1]

In 2013, the Ministry of National Health Services in Islamabad established blood transfusion authority. Blood banks operating within the boundaries of Islamabad are required to register with and get licences from the Islamabad Blood Transfusion Authority. The collecting and analysis of data relating to blood transfusion services is a fundamental role of the authority.[2]

Blood banks collect low-risk blood. A complex procedure to examine prospective donors is required to ensure the safety and adequacy of the blood supply without delaying acceptable donors. Blood donors may be temporarily or permanently barred from giving. Permanent deferrals are caused by transfusion-transmitted illnesses such hepatitis C and B, HIV, syphilis, and malaria. The Safe Blood Transfusion Programme, Government of Pakistan, set criteria for selecting and deferring blood donors. [3]

A lack of awareness about the criteria for deferring blood donors may explain the paucity of published works on the topic in Pakistan. The collecting of fundamental blood safety data, such as the amount and kind of donations and screening processes, is prioritised above the gathering of information on donor deferrals in the yearly data collection practises.

At this time, efforts are focused on enrolling new contributors while ignoring the retention of individuals who were previously registered but postponed their contributions due to a variety of reasons. If you know the reasons why donors stop giving, you may create more successful recruiting and retention programmes with the goal of increasing the number of people willing to provide blood who are safe to donate. However, there have been a few studies with a single institution that have been carried out in Pakistan over the course of the last few years. These studies have shed light on the factors that contribute to donor deferral patterns.[4]

We really need more people to give blood, but some of them must be postponed to protect both themselves and the others who will receive their donations. The study of deferrals by donors may help in the development of better donor solicitation tactics. The worldwide shortage of safe and sufficient blood products is a critical problem in public health.[5]

Transfusion is an irreversible occurrence that may have both hazards and advantages for the receiver. As a result, one of the most crucial processes in assuring the safety of blood and blood products is donor selection prior to blood donation.[6] The discovered pattern of donor deferral is an essential tool for blood safety and also gives significant areas for regional or national policy design for donor selection and donor safety.[7]

According to one research, 3.9% of donors were postponed solely based on a questionnaire.[8] Another research found that 2.1% of donors were deferred based on a questionnaire before drawing blood from the donor.[9] However, another research found that 12.4% of blood donors were deferred based on a questionnaire.[10] Another research found that 14.87% of blood donors were deferred based on a questionnaire.[11]

This research uses a questionnaire to estimate blood bank donor deferral rates. In blood banks, questionnaire-based donor deferral is rare. Questionnaire indicates if a person can donate the blood. If this questionnaire is used before blood donation, many applicants may be stopped from donating low-quality blood or life-threatening blood. Due to a lack of literature, this regulation isn't enforced locally. This research will help us identify local reasons of deferrals based on initial history so we can design blood donation management alternatives and apply a questionnaire to enhance blood donation quality without sacrificing patient and donor health.

METHODOLOGY

A total of 200 cases with age 18-60 years of either gender presenting for donation of blood were included in the study whereas those who were uneducated / illiterate candidates, do not want to take part in study, directed donors, pregnant females were excluded from the study. Demographic information (name, age, sex, body mass index) was obtained. Then all donors were given a questionnaire to fill in. More than 20 questions were given in questionnaire regarding health of the donor before donation. Filled questionnaire was evaluated by researcher herself in order to identify the cause for deferral of blood donation. If any cause of deferral was found in questionnaire, the donor deferral was labeled (if hematologist refused to take blood from a donor due to certain reason(s)which include pre-existing medical problems, drug/ medication intake and/or contact with a person that should be deferred from blood donation due to high-risk behavior,marked by donor on a specified questionnaire). All this information was collected through a pre-designed proforma (attached). Quantitative variables like age and body mass index were calculated as mean and Standard Deviation. Qualitative variables like gender and donor deferrals were calculated as frequency and percentage.

RESULTS

- In our study, 34.15±7.64 was mean age. There were 147(73.50%) males and 53(26.50%) females in this study. There were 82(41%) participants with normal body mass index, 61(30.5%) were overweight and 57(28.5%) were obese. In this study 30(16%) participants were illiterate, 61(30.50%) were middle

pass and 109(54.50%) participants had matric or above education. There were 25(12.50%) participants from lower class, 56(28%) were from middle class and 119(59.50%) were from high class.

- Eighteen (nine percent) of the participants were donor deferrals, while 182 (ninety-one percent) of the participants were not donor deferrals. Figure-1
- No statistically significant link was discovered between deferral and age groups (p value >.05). (P-value=0.58). Deferral did not correlate with either gender in a statistically meaningful way (p-value =.06). There was a statistically significant correlation between delaying and BMI (P=0.212). There was no statistically significant correlation between the individuals' educational background and their likelihood of deferring (P=0.000). The p-value for the correlation between deferral and participants' socioeconomic position was not statistically significant (p=0.880). (p-value=0.868). (Table 1)

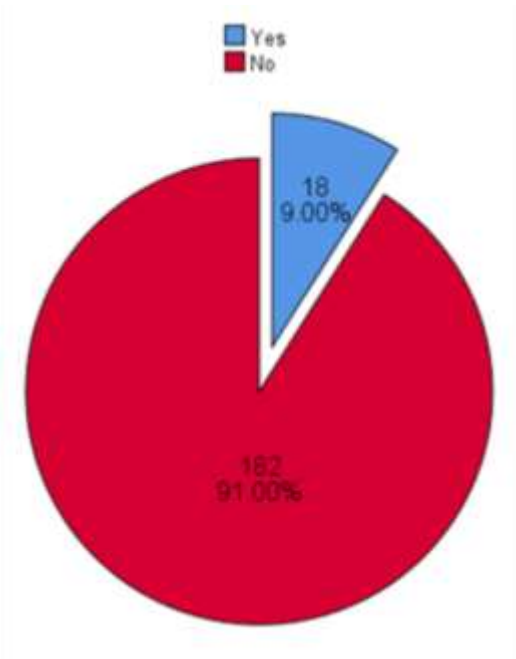

Figure-1: Frequency of Donor deferrals

Table-1: Deferral in relation to various variables of study Participants (n=200)

Variables		Deferral		P value
		Yes	No	
Age(in years)	20-30	5(27.8%)	63(34.6%)	0.582
	31-40	10(55.6%)	78(42.9%)	
	41-50	3(16.7%)	41(22.5%)	
Gender	Male	11(61.1%)	136(74.7%)	0.212
	Female	7(38.9%)	46(25.3%)	
BMI	Normal	16(88.9%)	66(36.3%)	0.000
	Overweight	2(11.1%)	59(32.4%)	
	Obese	0(0%)	57(31.3%)	
Education	Illiterate	2(11.1%)	28(15.4%)	0.880
	Middle	6(33.3%)	55(30.2%)	
	Matric & Above	10(55.6%)	99(54.4%)	
Socioeconomic status	Low	2(11.1%)	23(12.6%)	0.868
	Middle	6(33.3%)	50(27.5%)	
	Upper	10(55.6%)	109(59.9%)	

DISCUSSION

The motivation behind the blood donor criterion is to make certain that the act of donating blood does not in any way put the donor at risk and to stop patients who are receiving blood components from being put in danger due to the donor.[12]

Thus, blood donor education is crucial because it may keep inappropriate people from becoming blood donors and registered donors from going to the blood bank when they are unable to give due to a temporary deferral.[12] Low haemoglobin concentrations and/or depleted iron reserves in the donor are the most common grounds for temporary delay. Donor education, on the other hand, is no assurance of a better donor.[13] Donor education, on the other hand, must be exact in order to decrease dangers for patients.[14]

Overall, the 3.9% rejection rate reported by Reikvam et al[15] may seem to be reasonable and consistent with statistics from previous publications. The deferral rate in the previous research[16] was but in ours it was 9%, a significant increase over the previous figure. Infections in the upper respiratory tract and wounds were the most common causes of rejections described by Reikvam et al. However, there is only a small chance that bacteraemia is caused by a donor wound.[17] Also, it's hard to get a handle on how significant other sources of low-grade bacteraemia are to blood transfusions. Our results are consistent with those of Chauhan et al.[18], who found that males constituted the vast majority of donors (98%) while women made up a very small proportion (2%).

In Chauhan et al's research, women donors (63.15%) were postponed more often than men donors (3.41%), perhaps owing to the incidence of anaemia in women. In our analysis, 38.9% of women donors and 61.1% of male donors were deferred. Another research found that donor deferral (4.6%) was comparable to American, European, and Asian studies; ours was 9%.[19]

Deferral rates among American Red Cross blood donors were 12.8% according to a 6-year research by Zou et al.[20], and 13.6% according to a study by Custer et al.[21]. Lawson-Ayayi and Salmi found that [22].10 percent of donors in Europe had delayed their donations. Arslan[16] found that 14.6% of Turkish donors ended up deferring their donation. Deferral rates have been recorded at 14% by Lim et al.[23] in Singapore (Asia) and at 9% by Bahadur et al.[24] in Delhi (India).

In their research, Rabeya et al[25] observed a relatively low deferral rate of 5.6%, which may be the result of differing donor selection criteria. Compared to the research by Halperin et al[26], which identified low haemoglobin as the most prevalent reason for temporary postponement in 46% of cases, anaemia was the most common reason for temporary postponement in our investigation.

In addition, Arslan's[16] research of Turkish donors revealed that low haemoglobin was the leading reason of deferral in 20.7% of all cases. The results of this research closely resembled those of these investigations. Custer et al.[21] and Arslan[16] found a permanent deferral rate of 10.6% and 10%, respectively. Compared to Bahadur et al.[24], this research identified HBsAg positivity as the most prevalent reason of permanent deferral. Bahadur et al.[24] identified hypertension as the most common cause.

CONCLUSION

The reasons for deferral vary, reflecting differences in socioeconomic level, and the incidence of deferrals in the blood bank is not particularly high, as determined by the questionnaire. Different deferral rates were seen among trials, which may be attributable to variations in donor selection methods.

REFERENCES

1. Chauhan D, Desai K, Trivedi H, Agnihotri A. Evaluation of blood donor deferral causes: a tertiary care center-based study. Int J Med Sci Public Health 2015;1.
2. Zaheer H, Waheed U. Impact of regulation of blood transfusion services in Islamabad, Pakistan. Global Journal of Transfusion Medicine 2016;1(1):29-31.
3. Safe Blood Transfusion Programme, Government of Pakistan. National Standards and Guidelines. 2012 [cited 2018]; Available from: http://www.sbtp.gov.pk/wp-content/uploads/2016/01/5-Standards-and-Guidelines-for-Blood-Banks-and-Transfusion-Services1.pdf.
4. Tufail S, Babar F, Ikram N, Raza M, Abdul-Shakoor H. Blood donors deferral- causes. J Rawalpindi Med Coll 2013;17:119-21.

5. Gonzo M, Shuuveni A, Mukesi M, Chipare I, Moyo S. Assessment of donor deferral rates and deferral reasons at the Namibia blood transfusion services. Int J Blood Transfus Immunohematol 2016;5:37-43.
6. Khurram S, Borhany M, Anwar N, Naseer I, Boota S, Mirza I, et al. Frequency and reasons of donor deferral prior to blood donation process: a single centre experience. Transfusion medicine (Oxford, England) 2017;27(1):10-5.
7. Shrivastava M, Shah N, Navaid S, Agarwal K, Sharma G. Blood donor selection and deferral pattern as an important tool for blood safety in a tertiary care hospital. Asian journal of transfusion science 2016;10(2):122-6.
8. Reikvam H, Svendheim K, Røsvik AS, Hervig T. Questionnaire-Related Deferrals in Regular Blood Donors in Norway. Journal of Blood Transfusion 2012;2012:4.
9. Balaji PM, Santhi TA, Baskaran B. A Study on Blood Donor Rejection Rate and Analysis of the Causes. Int J Sci Res Rev 2017;6(3):96-104.
10. Rehman S, Arif SH, Mehdi G, Mirza S, Saeed N, Yusuf F. The Evaluation of Blood Donor Deferral Causes: A Tertiary Care CentrebasedStudy. J Blood Disorders Transf 2013;3(5):1000131.
11. Vimal M, Sowmya S, Nishanthi A, Ramya G. Evaluation of Blood Donor Deferral Causes: A Retrospective Study From South India. Ann Pathol Lab Med 2016;3(6):A605-11.
12. Van der Bij AK, Coutinho RA, Van der Poel CL. Surveillance of risk profiles among new and repeat blood donors with transfusion-transmissible infections from 1995 through 2003 in the Netherlands. Transfusion 2006;46(10):1729-36.
13. Goncalez TT, Sabino EC, Salles NA, De Almeida-Neto C, Mendrone-Jr A, Dorlhiac-Laccer PE, et al. The impact of simple donor education on donor behavioral deferral and infectious disease rates in São Paulo, Brazil. Transfusion 2010;50(4):909-17.
14. Goldman M, Yi QL, Ye X, Tessier L, O'Brien SF. Donor understanding and attitudes about current and potential deferral criteria for high-risk sexual behavior. Transfusion 2011;51(8):1829-34.
15. Reikvam H, Svendheim K, Røsvik AS, Hervig T. Questionnaire-related deferrals in regular blood donors in Norway. Journal of blood transfusion 2012;2012.
16. Arslan Ö. Whole blood donor deferral rate and characteristics of the Turkish population. Transfusion Medicine 2007;17(5):379-83.
17. Jacobsson G, Dashti S, Wahlberg T, Andersson R. The epidemiology of and risk factors for invasive Staphylococcus aureus infections in western Sweden. Scandinavian journal of infectious diseases 2007;39(1):6-13.
18. Chauhan DN, Desai KN, Trivedi HJ, Agnihotri AS. Evaluation of blood donor deferral causes: a tertiary-care center-based study. Int J Med Sci Public Health 2015;4(3):389-92.
19. Rehman S, Arif SH, Mehdi G, Mirza S, Saeed N, Yusuf F. The evaluation of blood donor deferral causes: a tertiary care Centre-based study. J Blood Disorders Transf 2012;3(5):131.
20. Zou S, Musavi F, Notari 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(12):2531-9.
21. Custer B, Johnson ES, Sullivan SD, Hazlet TK, Ramsey SD, Hirschler NV, et al. Quantifying losses to the donated blood supply due to donor deferral and miscollection. Transfusion 2004;44(10):1417-26.
22. Lawson-Ayayi S, Salmi L. Epidemiology of blood collection in France. European journal of epidemiology 1999;15(3):285-92.
23. Lim J, Tien S, Ong Y. Main causes of pre-donation deferral of prospective blood donors in the Singapore Blood Transfusion Service. Annals of the Academy of Medicine, Singapore 1993;22(3):326-31.
24. Bahadur S, Jain S, Goel RK, Pahuja S, Jain M. Analysis of blood donor deferral characteristics in Delhi, India. Southeast Asian journal of tropical medicine and public health 2009;40(5):1087.
25. Rabeya Y, Rapiaah M, Rosline H, Ahmed S, Zaidah W, Roshan T. Blood pre-donation deferrals-a teaching hospital experience. Southeast Asian journal of tropical medicine and public health 2008;39(3):571.
26. Halperin D, Baetens J, Newman B. The effect of short-term, temporary deferral on future blood donation. Transfusion 1998;38(2):181-3.