Retrospective Analysis Of Blood Donor Deferral Pattern In A Tertiary Care Hospital In Puducherry

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Abstract

Blood donation is a vital part of worldwide healthcare. Voluntary donors, many times have been deferred due to numerous reasons, temporarily or permanently. The reasons for deferral vary in different regions. Knowledge of the relative prevalence and identification of pattern and trend in donor deferral can be used as tools for developing policies and taking further initiatives in donor education and encouragement **Aim:** To determine the prevalence of deferral and assess the pattern of donor deferrals with regard to age, sex, type and cause of deferral. **Materials and Methods:** This retrospective cross sectional study was conducted in Blood bank, Department of Pathology, Sri Venkateshwaraa Medical College And Research Centre using data of all donor deferrals which has been reported from January 2018 to April 2022. **Results:** Total no of donors deferred in our study was 300. Among them 261 were Male and 39 were female. The mean years of age of the deferral group were 28.7 +/- 8.46. There were about

267 (89%) deferred due to temporary reasons and 33 (11%) deferred due to permanent reasons. In the temporary deferral group the most common cause for deferral was found to be anemia (29%) followed by tattoo (20%) and Alcohol intake(14%).Out of the 33 permanent deferrals 14 were deferred due to diabetes, 7 due to asthma and 6 each were deferred due to hypertension and medication. **Conclusion:** It is necessary that every blood bank analyze the health status, rates and patterns of donor deferral in their own region, so that unnecessary deferral especially due to temporary reasons can be avoided by conducting awareness programmes and mass screening programs before blood donation camps can be organized.
Key words: Blood bank, donor deferral, blood donation

Introduction

Blood donation is a vital part of worldwide healthcare. The process of safe blood transfusion is through many factors such as appropriate selection of donor population, testing of collected blood, post donation treatment of blood, maintenance of donor deferral registry and safe blood transfusion practices. According to national AIDS control organization's statistics, the annual rate of blood donation is about 7.4 million units against the requirement of 10 million units in India.[1] The increasing awareness among people regarding blood transfusion has increased the number of voluntary donors over time. These voluntary donors who donate without any rewards or compulsion, many times have been deferred temporarily or permanently due to numerous reasons.[2] The reasons for deferral vary in different regions. Knowledge of the relative prevalence and identification of pattern and trend in donor deferral can be used as tools for developing policies and taking future initiatives in donor education and encouragement

Aim: To determine the prevalence of deferral and assess the pattern of donor deferrals with regard to age, sex, type and cause of deferral.

Materials and Methods

This retrospective cross sectional study was conducted in Blood bank, Department of Pathology, Sri Venkateshwaraa Medical College and Research Centre using data of all donor deferrals which has been reported from January 2018 to April

2022. Inclusion criteria: All deferrals irrespective of permanent/ temporary, Voluntary/ Replacement were included. Exclusion criteria: Cause of deferral not mentioned clearly in the register will not be included in the study. The study was conducted after the approval from Institutional Ethical Committee and Scientific Review Committee. The data was entered in Microsoft Excel sheet and analyzed using SPSS software version 23.0. Descriptive tests were used to evaluate the pattern of donor deferrals with regard to age, sex, type and cause of deferral.

Results

During our study period from 2018 to 2022, 4297 volunteers registered for the year 2018 and out of them 4201 were accepted and 96 were deferred. In 2019, out of 3699, 3604 were accepted and 96 were deferred.About 1482 donors registered in the year 2020, 1445 were accepted and 37 were deferred. For the year 2021, about 2803 registered, 2650 were accepted and 53 were deferred. And in the year 2022, around 1112 were registered, in that 1094 were accepted and 18 were deferred. (Table 1)

Table 1: Year wise deferrals from 2018 - 2022

Donors	**2018**	**2019**	**2020**	**2021**	**2022**
Registered	4297	3699	1482	2703	1112
Accepted	4201	3604	1445	2650	1094
Deferred	96	96	37	53	18

Table 2: Age Wise Distribution of Deferral group

Least age of the participant	**18 years**
Maximum age of the participant	60 years
The mean years of age	28.7 $\pm$ 8.46
Gender Distribution	
Male	261
Female	39

From the above table the age wise distribution of the deferral group was represented. The least age of the participant was 18 years of age and the maximum age of the participant was 60 years of age. The mean years of age was 28.7 $\pm$ 8.46 of the study participants. Regarding the Gender Distribution 261 were Male and 39 were female. (Table 2).

Table 3: Types of deferral

Types of deferral	**Total**	**Deferral Rate**

Permanent	33	11%
Temporary	267	89%

Total no of donors deferred in our study was 300. Deferred donors were further classified as deferral due to temporary and permanent reasons. There were about 267 (89%) deferred due to temporary reasons and 33 (11%) deferred due to permanent reasons (Table 3)

Table 4: Deferral profile of Donors

Cause	**Total**	**Temporary**	**Permanent**
Alcohol	38	38	
Allergy	15	15	
Asthma	7		7
Anaemia	78	78	
Consumed Medicine	15	9	6
Dengue	3	3	
Diabetes Mellitus	24	10	14
Hypertension	14	8	6
Hypotension	2	2	
Hepatitis	5		5
Lactation	1	1	
Nonspecific (Scorpion bite with malaise)	1	1	
Surgery (Minor)	6	6	
Tattoo	54	54	
Underweight	10	10	
Vaccination	22 (TT-15 Covid-2 Anti rabies-5	22	
Ischemic heart disease	5		5

The deferral profiles of the donors, 38 donors were deferred temporarily due to Alcohol, 15 donors were deferred temporarily due to Allergy. There were 7 permanently deferred due to Asthma. 75 were temporarily deferred due anemia. Out of 15 Consumed Medicine, 9 were temporarily deferred and 6 were permanently deferred. 3 donors temporarily deferred

due to dengue. There were 24deferred due to diabetes. Among them10 were temporary and 14 were Permanent deferrals. 2 were temporarily deferred due to Hypotension. About 5 were deferred permanently due to hepatitis. One each was deferred due to Lactation and Non specific cause (Scorpion bite).

Nearly 6 were deferred temporarily due to Minor Surgeries, Around 54 deferred temporarily due to Tattoo, 10 were deferred temporarily due to Underweight, 22 were deferred temporarily due to Vaccination (the vaccines include Tetanus toxoid, Covid vaccine and Anti-rabies vaccine) and 5 were deferred permanently due to Ischemic Heart Disease

Discussion

Blood donors are essential to safe transfusion procedures. Every blood donor must first go through a rigorous selection process in order to assure the safety and purity of the blood and its components. It is conceivable that donors will be declined during this process for temporary or long-term reasons.

Rejection in the form of donor deferral also contributes to the growing blood shortage in blood banks. In great part, it is just a waste of time and labour. Regional differences can be seen in the frequency and causes of donor deferral. Understanding the different causes of donor deferral is crucial for both temporarily and permanently deferred donors, since doing so will allow for effective follow-up in the case of temporarily deferred donors and the reintroduction of donors to the donor pool. Donors who have been permanently postponed can get the appropriate notification and counselling.

In our study, men outnumbered women in the population of blood donors overall. According to other research in the literature, the overall population of registered donors is composed primarily of men (97.5%) and women (2.5%).[6,7] Similar to earlier literary studies, the delay rate for females in the current study was significantly greater than for males.[8,9]Increased female deferral rates and poor participation may be caused by anemia, health issues, societal taboos, cultural customs, a lack of enthusiasm, false beliefs, reluctance to give blood, and fear[10]. Programs and education might be directed at the younger population. Future research can evaluate female population knowledge, practices, and beliefs towards blood donation.

In our study, additional deferral causes were divided into permanent and temporary causes. A total of 300 donors were postponed, 267 (89%) of them were for temporary reasons, and 33 (11%) were for permanent ones. According to studies published in the literature, the number of donors who were deferred for temporary reasons was substantially higher than for permanent ones.[11,12,13]

The most common cause for temporary deferral in our study was due to Anemia (78 donors) with 29%. The findings were found to be similar with studies done by Henshaw et al., Khalid et al.and Taneja et al.[7,10,13] The implication of this finding could be due to high prevalence of anemia in the studied population as a result of inadequate consumption of iron containing diet, concurrent tropical disease like hook worm infestation or previous blood donations. Similar to our study, other studies in literature also show that deferrals due to low hemoglobin was found to be more common in female gender than the males.[7,10,13] This could be attributed to the blood loss during menstruation and poor nutrition.

In our study 54 donors (20%) were temporally deferred due to tattoo whereas the studies conducted by Dhaval et al. (0.23%), Taneja et al. (1%) and Kujur P et al. (1.03%) showed much lower prevalence. This could be due to the cultural differences in different demographic locations where these studies were conducted. Deferrals due to alcohol consumption were found to be 14% (32 donors) in our study which is comparable with Chauhan C et al. with a deferral percentage of 17.68%. A much higher prevalence was found by Kujur P et al. (32.8%). Proper education, awareness and counseling of the potential blood donors can significantly reduce the donor deferrals due to alcohol consumption.Nearly 22 donors (7%) were deferred temporarily due to Vaccination in the present study.The vaccines include Tetanus toxoid, Covid vaccine and Anti-rabies vaccine. This result seems to be higher when compared to other studies in the literature.[6,11,3]

Among the permanents deferrals in our study, Diabetes is the major cause for deferral amounting to 42% which differ from other studied in the literature which showed lower percentage.[3,10,11] Percentage of permanent deferral due to hypertension in the present study was 18% which differs from other studies with much less prevalence like – Valerian et al., Taneja etal and Dhaval N et al. with percentages of 3.6%, 6.8% and 3.07% respectively. The difference could be due to fears of

phlebotomy, exercise and white coat hypertension. High blood pressure diagnosed first time prior to donation could reflect anxiety and nervousness of donor. Hence, good pre-donation counseling and reassurance is very critical.

In our study the overall leading cause of temporary deferral in donors was Anemia. Diabetes and Hypertension were the two leading cause for permanent deferral which are found to be similar to earlier literary studies.[11,13] Thus combining anemia prevention and treatment to donor recruitment efforts could help regain the donor and develop a healthy blood pool.

Conclusion

This study will help in evaluating the prevalence of different causes of deferral in the population which can be used as a reference for developing policy and future initiatives in donor education, encouragement and retention. It is necessary that every blood bank analyze the health status, rates and patterns of donor deferral in their own region, so that unnecessary deferrals especially due to temporary reasons can be avoided by conducting awareness programs before blood donation camps can be organized.

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