International Journal of Clinical and Diagnostic Pathology

ISSN (P): 2617-7226
ISSN (E): 2617-7234
www.patholjournal.com
2019; 2(2): 38-41
Received: 25-05-2019
Accepted: 28-06-2019

Dr. Sumedha P Shinde,
Assistant Professor, Dr. DY Patil Medical College, Nerul, Navi Mumbai, Maharashtra, India

Dr. Anita Sharan
Associate Professor, Dr. DY Patil Medical College, Nerul, Navi Mumbai, Maharashtra, India

Dr. Rajiv Rao
Professor, Dr. DY Patil Medical College, Nerul, Navi Mumbai, Maharashtra, India

Dr. P Roplekar
Professor, Dr. DY Patil Medical College, Nerul, Navi Mumbai, Maharashtra, India

Correspondence
Dr. Anita Sharan
Associate Professor, Dr. DY Patil Medical College, Nerul, Navi Mumbai, Maharashtra, India

Study of pattern of blood donor deferral at a Tertiary Health care centre over 10 years in Navi Mumbai, India

Dr. Sumedha P Shinde, Dr. Anita Sharan, Dr. Rajiv Rao and Dr. P Roplekar

DOI: https://doi.org/10.33545/pathol.2019.v2.i2a.78

Abstract
Introduction: Donor and recipient safety are of paramount importance in Blood bank. Recent advances in science and regulatory authorities guide to formulate donor selection criteria.
The aim of our study was to evaluate the blood donor referral patterns at our institute and formulate methods to decrease temporary deferral rates.
Material and Methods: This was a retrospective observational study. It was carried out on all donors who came willingly for allogeneic blood donation. The duration of study was 10 years from December, 2009, until December 2018, in Blood Bank of Dr. D Y Patil medical College and Hospital, Navi Mumbai. The license is approved by the FDA, Thane. The donation and deferral data were analyzed to determine the causes of temporary and permanent deferral and demographic variations in the same.
Results: The blood donor deferral rate was 13%, we had segregated the deferrals in category A- Permanent Deferrals Category B- Temporary Deferrals. The majority of deferrals were temporary deferrals (63.4%) of young donors. The maximum number of donors deferred (30.7%) due to Low hemoglobin (Anaemia) (temporary), closely followed by 29.6% due past history of diseases like heart disease and Jaundice. History of malaria, intake of medicines, infections, underweight, last blood donation within 3 months (temporary deferral), and history of heart and lung diseases, diabetes, and with suspicious identity (permanent deferral) were other major causes identified.
Conclusion: The pattern of donor deferral is important to formulate blood donation policies and provide guidelines for donor safety at regional and national levels. We conclude that patient education about blood donation criteria can help to decrease the rate of temporary blood donation deferrals.

Keywords: Blood donation, donor criteria, deferral, patient safety

Introduction
Blood safety has got a paramount importance in Transfusion medicine which has caused a drastic decrease in transfusion transmitted diseases. These same blood safety norms have helped in ensuring donor and recipient safety. Social messaging and adequate donor safety has increased the rates of voluntary non-remunerated repeat blood donations [1, 2]. This has been a boon to the medical field, due to which complex high risk surgeries of Cancer and spine with high blood loss were possible. The blood banks have to adhere to strict blood donor selection criteria. The process consists of a questionnaire, physical examination and haemoglobin testing. In January 1992, National Blood Transfusion Council (NBTC) at the federal level and State Blood Transfusion Councils (SBTC) for all the states were established, to review the status of blood transfusion services in the country and conduct annual monitoring visits to blood banks. NACO (National AIDS Control Organisation) and NBTC (National Blood Transfusion Council) are the main technical bodies that frame guidelines for the practice of transfusion medicine. The Government in India, in 2002 published the National Blood Policy (NBP) to reemphasize the commitment to safe blood and blood components [3]. The donor patterns of a specific area represent the social, political, ethical, religious and educational background of that area. Donor selection and rejection criteria need to be sensitive to these underlying factors. In order to understand these factors and demographics, our study was undertaken.

Material and Methods
The study conducted was a retrospective observational study. The duration of records used

for study are from February 2009 to February 2019 (11 years). The records were accessed from Blood bank department of Dr. D Y Patil Medical College and Hospital, Nerul, Navi Mumbai. The potential blood donors who presented to blood bank or outdoor camps were included in the study. Blood donor deferrals were studied in detail. These were divided into Category A-Permanent Deferral and Category B- Temporary Deferrals.

Results

Table 1: Master chart of donor deferral pattern in 10 years. Permanent Deferral- High BP and Diseases. Rest all are Temporary Deferrals

Year	High BP	Diseases	High BP	Low BP	Low Weight	Under Age	On Meds	Alcoholic smoker	Surgery	Sleep	Tattoo piercing	Total deferrals	total donors	Percentage of deferrals
2009	26	142	128	32	13	8	34	43	11	26	6	469	3261	14.38
2010	35	171	173	28	25	13	45	26	6	12	12	546	3345	16.32
2011	32	112	152	24	19	14	32	28	12	22	11	458	3245	14.11
2012	34	114	133	32	21	12	42	34	9	17	16	464	2971	15.62
2013	31	172	143	14	12	7	36	14	2	6	10	447	3121	14.32
2014	25	124	131	11	11	5	32	7	0	9	4	359	3667	9.79
2015	22	134	129	22	2	4	25	22	3	6	5	374	3782	9.89
2016	34	141	152	38	32	17	36	49	12	23	17	551	3876	14.22
2017	32	84	128	15	19	4	43	22	10	17	8	382	3762	10.15
2018	45	152	133	22	11	8	41	41	8	30	9	500	3892	12.85
2019	36	148	147	32	16	7	39	35	11	12	15	498	3923	12.69
Total	352	1494	1549	270	181	99	405	321	84	180	113	5048	38845	13.00
Average	35.2	149.4	154.9	27	18.1	9.9	40.5	32.1	8.4	18	11.3	504.8	3884.5	
Maximum	45	172	173	38	32	17	45	49	12	30	17	551	3923	
Minimum	22	84	128	11	2	4	25	7	0	6	4	359	2971	
Ranking	4th	2nd	1st	6th	7th	10th	3rd	5th	11th	8th	9th			
Percentage of Deferral	7.0	29.6	30.7	5.3	3.6	2.0	8.0	6.4	1.7	3.6	2.2	13.0		

Chart 1: Master chart of donor deferral pattern in 10 years.
Note Permanent Deferral- High BP and Diseases. Rest all are Temporary Deferrals.

The total number of potential donors in the past 10 years was 38845. In those donors the number of donors deferred were 5048. The top two reasons of blood donor deferrals was low haemoglobin (Temporary deferral) and previous disease history (permanent deferral). The total blood donor deferral rate on the higher side upto 13%. The majority of deferrals were of temporary type (63.4%). High BP and patients on medicines constitute about 7% and 8% of the total deferrals. The maximum number of donors deferred (30.7%) due to Low hemoglobin (Anaemia) (temporary), closely followed by 29.6% due past history of diseases like heart disease and Jaundice. History of malaria, intake of medicines, infections, underweight, last blood donation within 3 months (temporary deferral), and history of heart and lung diseases, diabetes, and with suspicious identity (permanent deferral) were other major causes identified. The data also shows a dip in deferral rates to approximately 9% in 2014 and 2015. There has been an increase in the total number of donors by about 600 to 800 donors from the year of 2014.

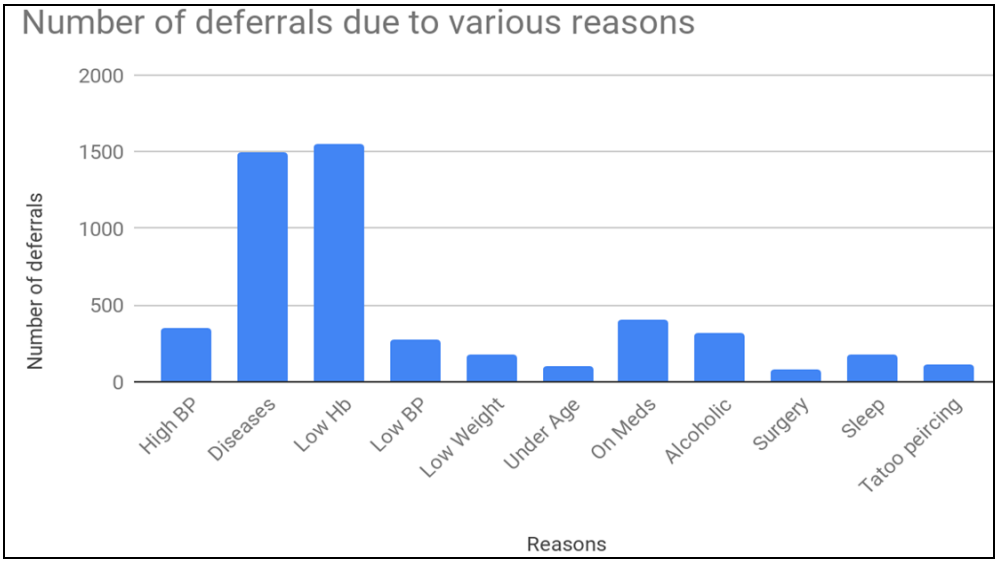

Fig 1: Total number of deferrals due to various reasons

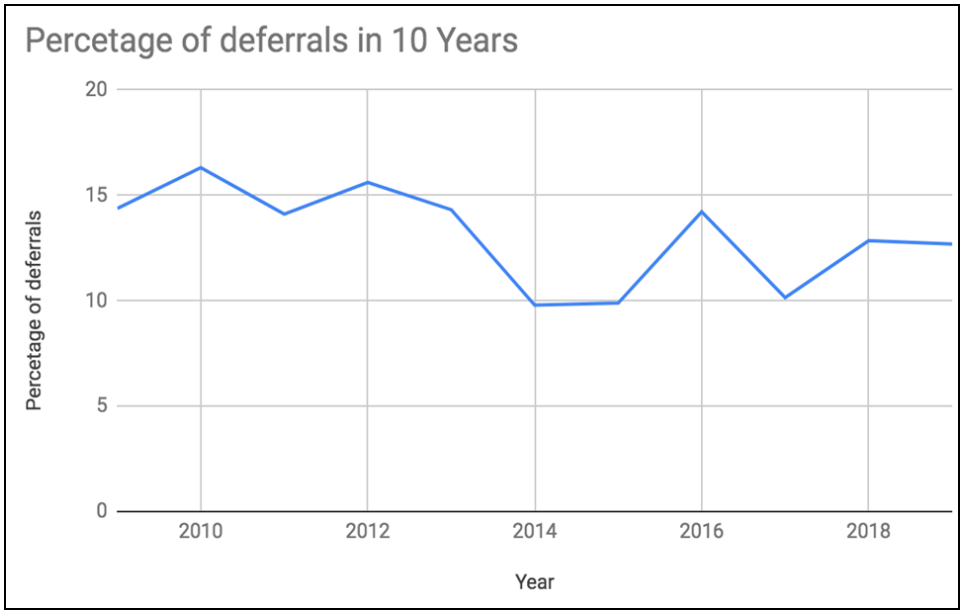

Fig 2: Total percentage of deferrals over the past 10 years.

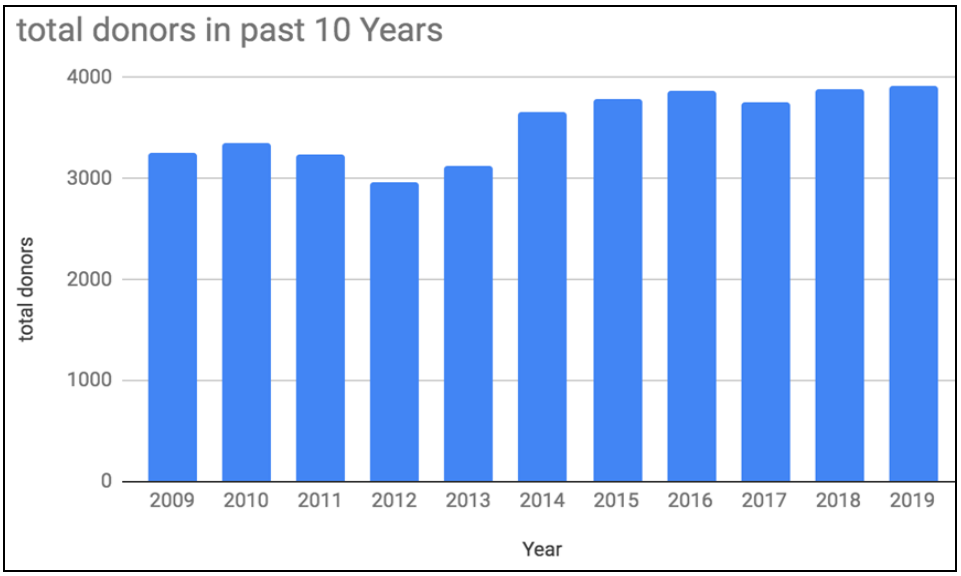

Fig 3: Total number of Donors over the past 10 years.

Discussion

Donor deferral rates gives a serious insight in the efforts which could improve patient safety. Also these statistics help in recruitment and retaining of voluntary non-remunerated blood donors on a regular basis. On the contrary, donor deferral also causes increase in shortage of blood in blood bank. It consumes manpower and valuable time of blood bank [4]. Geographical variation in these deferral rates emphasizes the fact that the effort to enroll more successful donors needs tailor-made efforts for different regions [5].

IN our study the rate of blood donor deferral is high compared to other regions published earlier. Sundar P *et al.* in their study have shown a low deferral rate of approximately 5%. The most common cause of deferral in their study was jaundice [6]. In our study most common cause was anaemia (28%). One of the main reasons may be due to poor nutrition and high number of diseases (mostly preventable infective like hepatitis) in our population. The varied rates of donor deferral is attributed to different selection criteria, high endemicity of diseases and religious and superstitious beliefs. [7] Agnihotri *et al.* in their studies have shown that most common cause of deferral was low hemoglobin. THeir study also showed related donors have lower deferral rates than voluntary donors [8]. Shah *et al.* had seen that 31.20% of deferred donors came to donate again, in which 27% qualified for donation. This shows that temporary deferred donor need special counselling and guidance, which can help them to successfully qualify for donation in later date [7]. The efforts to explain the reason of deferral is important. This improves the compliance of donors and help to keep the rates of them coming again for donation high [7, 9]. Repeat donors are the main lifeline for successful blood bank. Effort to improve their hemoglobin levels helps to retain repeat donors [10, 11].

Raising general awareness will increase the number of voluntary non-remunerated blood donors. But, due to decrease the rate of deferrals, donor education about the causes of donor deferrals is important. Cases of permanent donor deferrals have to be counselled about their inability of

donating blood on a permanent basis. Notification of such patients also will help to avoid repeat donor screening. Donor deferral education will develop more awareness among donors to avoid activities like smoking, drinking and getting adequate sleep before donation. Low hemoglobin level donors need to be referred to physicians for treatment and counselling of these anaemic patients. This would help to convert and major chunk of deferrals into successful blood donors in future.

There are a few drawbacks of our study. We didnt find sex wise division of donor deferrals. Also, the educational and socio economic data of these donors was not taken into consideration. THe sample size needs to be more to get a better understanding of the deferral causes. There were no study of impact of patient education in donor deferral rates.

References

1. Davey RJ. Recruiting blood donors: challenges and opportunities. Transfusion. 2004; 44:597–600.
2. Domen RE. Paid-versus-volunteer blood donation in the United States: a historical review. Transfus. Med. Rev. 1995; 9:53-59.
3. Chandrashekar S, Kantharaj A. Legal and ethical issues in safe blood transfusion. Indian J. Anaesth. 2014; 58:558–564.
4. Chaudhary RK, Gupta D, Gupta RK. Analysis of donor-deferral pattern in a voluntary blood donor population. Transfusion Medicine. 1995; 5:209–212.
5. Mangwana S. Analysis of blood donor deferral pattern: Scenario in a Tertiary Health Care Hospital in India. Asian Journal of Transfusion Science. 2013; 7:160.
6. Sundar P, Sangeetha SK, Seema DM, Marimuthu P, Shivanna N. Pre-donation deferral of blood donors in South Indian set-up: An analysis. Asian J. Transfus. Sci. 2010; 4:112–115.
7. SPPMS. Evaluation of Pre-donation Deferral Reason among the Blood Donors Visiting ESIC Hospital in Eastern India. Journal of Blood Disorders & Transfusion, 2015, 06.
8. Agnihotri N. Whole blood donor deferral analysis at a center in Western India. Asian Journal of Transfusion Science. 2010: 4:116.
9. Jashnani KD, Patil LN. Blood donor deferrals: Can this be reduced? Asian J. Transfus. Sci. 2011; 5:60.
10. Newman BH. Adjusting our management of female blood donors: The key to an adequate blood supply. Transfusion. 2004; 44:591-596.
11. Rabeya Y *et al.* Blood pre-donation deferrals: A teaching hospital experience. Southeast Asian J. Trop. Med. Public Health. 2008; 39:571–574.