International Journal of Community Medicine and Public Health
Singh S et al. Int J Community Med Public Health. 2018 Jun;5(6):2572-2574
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20182196

Original Research Article

Prevalence of anemia in blood donors: a retrospective study in rural tertiary care centre (Chamba, Himachal Pradesh, India)

Shairoly Singh[1], Ishan Arora[2]*, Shireen Singh[3]

[1]Department of Pathology, [2]Department of Community Medicine, Pt JLNGMCH, Chamba, Himachal Pradesh, India
[3]SGT Dental College, Gurugram, Haryana, India

Received: 31 March 2018
Revised: 06 May 2018
Accepted: 08 May 2018

***Correspondence:**
Dr. Ishan Arora,
E-mail: ishanarora13@gmail.com

ABSTRACT

Background: In India, a large majority of blood donors are deferred due to anemia. Anemia is a temporary cause of deferral which can be easily treated. Deferrals due to anemia can be easily identified in blood bank and can be treated and managed effectively.
Methods: A retrospective study was carried out in Department of Blood Bank of Pt. Jawahar Lal Nehru Govt. Medical College, Chamba (H.P) over a time period of one year from 1st Jan 2017 to 31st Dec 2017.
Results: We observed that the total number of deferrals was 90 out of all blood donors forming 9%. Out of all deferrals, those due to anemia were 23 (25.5%). Prevalence of anemia in female donors is much higher, constituting 26.31% and anemia in male donors in our study is lower forming 1.8%.
Conclusions: Our study concluded that percentage of anemia is much higher in females than males. Educating and counseling females about prevention and treatment of anemia would help in lowering the percentage of anemia in females in our community.

Keywords: Anemia, Blood donors, Deferrals, Anemia in females, Anemia in males

INTRODUCTION

In India, a large majority of blood donors are deferred due to anemia. Anemia is a temporary cause of deferral which can be easily treated. Anemia can be due to various reasons. Nutritional anemia is most common in India, particularly in females. Anemia due to blood loss also occurs, again more common in females, followed by anemia due to chronic diseases and disorders.

Nutritional anemia can be due to iron deficiency as well as vit.b12/ folic acid deficiency. Iron deficiency occurs due to inadequate dietary intake, poor iron absorption and excessive loss of blood from body (menstruating females, hookworm infestation).

Deferrals due to anemia can be easily identified in blood bank and can be treated and managed effectively. Deferral due to anemia can have a negative impact on blood donor pool and subsequent blood donations.[1] The World Health Organization has also recommended collection rate of 10-20 whole blood units per 1000 inhabitants to meet the transfusion requirements.[2] As medicine continues to develop blood demand is also increasing rapidly.[3] However, donors with relatively low hemoglobin (Hb) levels are not allowed to donate to prevent them from developing iron deficiency anemia (IDA). Deferral of these donors ensures that blood units for transfusion meet the required standards for Hb content.[4] So, these deferral cases can be counseled to return to blood bank for blood donation after proper treatment, and thus help in increasing blood reserve.

In this study, we aim to study the prevalence of anemia in blood donors in Chamba region, by estimating the percentage of donor deferrals due to anemia in our blood bank.

METHODS

A retrospective study was carried out in Department of Blood Bank of Pt. Jawahar Lal Nehru Govt. Medical College, Chamba (H.P) over a time period of one year from 1st January 2017 to 31st December 2017.

The donors were required to fill up registration form which carried all the information like personal details, demographic details, occupational and medical history. The donors were then screened by medical officer according to blood donor selection criteria. Individuals with good health, mentally alert, physically fit were selected as blood donors. Donors found unfit were deferred by medical officer. Hemoglobin estimation was performed in blood bank laboratory by simple procedure of Sahli's method and donors with Hb <12.5 gm were deferred. A record file was maintained for all donor deferrals. For the study, we referred to the deferrals record and statistically analysed the data in records with the help of appropriate statistical softwares eg. EPI-INFO, MS-EXCEL and SPSS.

RESULTS

There were total of 992 blood donors in our study period. There were 973 male donors and 19 female donors.

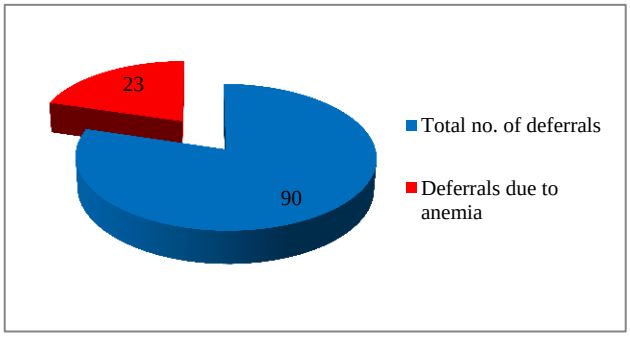

Figure 1: Deferral due to anemia.

Table 1: Distribution of blood donors.

Year	Total donors	Male donors	Female donors	Voluntary donors	Replacement donors
2017	992	973	19	259	733

Table 2: Distribution of donor deferrals.

Total donors	Total no. of deferrals	Deferrals due to anemia	Male donor deferrals due to anemia	Female donor deferrals
992	90 (9%)	23 (25.5%)	18 (72%)	5 (21.73%)

Table 3: Prevalence of anemia in blood donors.

Total donors	Prevalence of anemia in blood donors	Prevalence of anemia in male donors	Prevalence of anemia in female donors
992	2.3 %	1.84 %	26.31 %

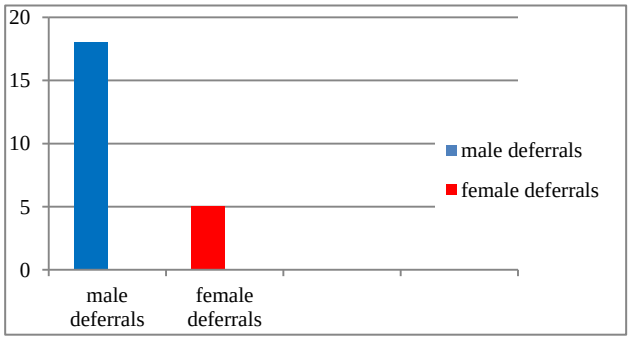

Figure 2: Male female distribution of donor deferrrals.

As shown in Figure 1, we observed that the total number of deferrals were 90 out of all blood donors forming 9%. Out of all deferrals, those due to anemia were 23 (25.5%). Out of these 23 deferrals, 18 were male and 5 female donors. Prevalence of anemia in total blood donors was found to be 2.3%. Prevalence of anemia in male donors was 1.84 % and prevalence of anemia in female blood donors was 26.31%.

DISCUSSION

Majority of blood donors were male (973). There were few female donors (19) out of total blood donors (992). This is in accordance with many other studies done in past. Pahuja et al in Delhi, Singh et al in Karnataka, Arora et al in Haryana also showed predominance of male donors in their studies.[5-7]

We found out in present study that replacement donors were much higher than voluntary donors, similar to study by Singh et al, Kakkar et al, Pahuja et al. There were a total of 90 deferrals (9%) out of all blood donors. These

deferrals were due to many reasons. Yadav et al also had a similar deferral rate of donors (12%) in their study.[5,8-10]

Out of total deferrals, 23 were due to anemia constituting 25.5% (Table 2), which is comparable to study by Mangwana (25.68%), Chauhan et al (24.11%). Out of these 23 deferrals due to anemia, no. of male deferrals were much higher (72%) than female donors (21.73%).[11,12]

It was observed in our study that prevalence of anemia is 2.3% in total blood donors (Table 3). Similar findings were shown by Bahadur et al and Kumari et al, who reported 1.8 % and 1.7% anemia, respectively in their studies.[1,13]

Prevalence of anemia in female donors is much higher, constituting 26.31% and anemia in male donors in our study is lower forming 1.8% (Table 3). Our study matches with study by Bahadur et al, who also reported higher prevalence of anemia in females (34.2%), than in males (1.2%). Thus, there is the need of educating females about importance of healthy diet, rich sources of green leafy vegetables, iron and folic acid supplements, Hb testing, and follow up. All these measures can help us in lowering prevalence of anemia in females in community.

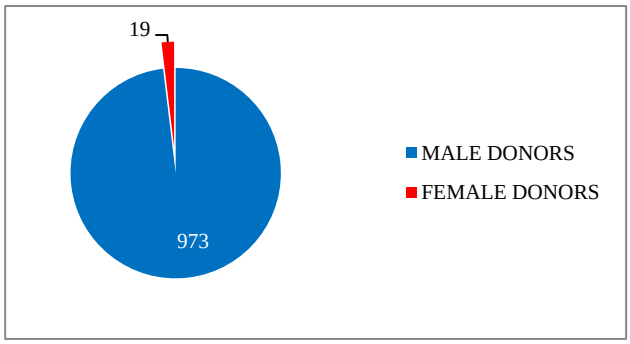

Figure 3: Male female ratio of donors.

CONCLUSION

In our study, 23 donors (2.3%) had Hb lower than 12.5 grams. This study gave us an insight into the prevalence of anemia in our donor population. It concluded that percentage of anemia is much higher in females than males. Educating and counseling females about prevention and treatment of anemia would help in lowering the percentage of anemia in females in our community. In addition to that voluntary blood donation should be encouraged more and more so as to bring replacement donation to minimal. Blood awareness camps should be organized more frequently so as to increase the number of voluntary donors in blood bank. Also, this kind of study is helpful in increasing donor pool in blood bank by motivating anemic deferred donors to donate blood after complete treatment.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Bahadur S, Pujani M, Jain M. Donor deferral due to anemia: A tertiary care centre-based study; Asian J Transfusion Sci. 2011;5(1):53-5.
2. Kouao MD, Dembele B, N'Goran LK, Konate S, Bloch E, Murphy EL, et al. Reasons for blood donation deferral in sub-Saharan Africa: experience in Ivory Coast. Transfusion. 2012;52(7):1602-6.
3. Bonig H, Schmidt M, Hourfar K, Schuttrumpf J, Seifried E. Sufficient blood, safe blood: can we have both? BMC Med. 2012;10:29.
4. Baart AM, de Kort WL, Atsma F, Moons KG, Vergouwe Y. Development and validation of a prediction model for low hemoglobin deferral in a large cohort of whole blood donors. Transfusion. 2012.
5. Pahuja S, Sharma M, Baitha B, Jain M. Prevalence and trends of markers of hepatitis C virus, hepatitis B virus and human immunodeficiency virus in Delhi blood donors. A hospital based study. Jpn J Inf Dis. 2007;60:389–91.
6. Singh K, Bhat S, Shastry S. Trend in seroprevalence of Hepatitis B virus infection among blood donors of coastal Karnataka, India. J Infect Dev Ctries. 2009;3:376–9.
7. Arora D, Arora B, Khetarpal A. Seroprevalence of HIV, HBV, HCV and syphilis in blood donors in Southern Haryana. Indian J Pathol Microbiol. 2010;53:308–9.
8. Singh B, Verma M, Kotru M, Verma K, Batra M Prevalence of HIV and VDRL seropositivity in blood donors of Delhi. Indian J Med Res. 2005;122:234–6.
9. Kakkar N, Kaur R, Dhanoa J. voluntary donors–need for a second look. Indian J Pathol Microbiol. 2004;47:381–3.
10. Yadav B, Singh P, Varma A, Kumar R. Deferral of Blood Donors Due to Anemia; an Experience of Blood Bank from Central India. JMSCR. 2015;3(11):8131-34.
11. Mangwana S. Analysis of blood donor deferral pattern: scenario in a tertiary health care hospital in India. Asian J Transfus Sci. 2013;7(2):160–1.
12. 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.
13. Kumari S, Arya D, Mahawar NL, Bharti A, Sharma L, Das PK, Pachaury R. Prevalence and pattern of anemia among persons reported for blood donation at a tertiary care center in western part of Rajasthan. Int J Med Sci Public Health. 2016;5:1256-9.

Cite this article as: Singh S, Arora I, Singh S. Prevalence of anemia in blood donors: a retrospective study in rural tertiary care centre (Chamba, Himachal Pradesh, India). Int J Community Med Public Health 2018;5:2572-4.