ORIGINAL RESEARCH PAPER

Pathology

ASSESSMENT OF DONOR DEFERRAL RATES AND REASONS AT GMERS MEDICAL COLLEGE GANDHINAGAR,GUJARAT

KEY WORDS: Anemia, Blood transfusion, Donor deferral, Donor retention

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ABSTRACT

Aim of the study was to know how donor procurement strategies can be improved for providing safe and adequate supply of blood and to assess donor deferral rates and reasons among donors at GMERS Medical collage attached hospital, Gandhinagar From January 2014 to February 2017. The deferral of donors creates negative impact on donor retention. Studying the profile of deferred donors revealed that anemia is a major contributing factor and it is more in females. It is important to address the issue of anemia by educating the donor population regarding maintaining normal Haemoglobin level for regular blood donation.

Summary: The provision of safe and efficacious blood and its components for transfusion involves a number of processes from selection of appropriate donor population to issue of compatible blood and its administration to patient. Donors' safety is managed in a way that it ensures high standards of care. The present study evaluated the donor deferral rate and reasons of donor deferral. The deferral rate was found to be 4.2% and the most common cause of deferral reason is low haemoglobin (41.05%). There are differences in deferral rates from country to country and this could be due to different donor selection criteria used by each national guideline policy in each country. Studying the profile of blood donors could help to identify sections of the population which could be targeted to increase the pool of voluntary blood donors and also to guide and provide the necessary essential database for the policy design and programmed implementation.

INTRODUCTION

Blood transfusion is a life-saving procedure that has an essential role in patient management within health care systems.[1] Most blood establishments only collect blood from voluntary non remunerated blood donors (VNRBDs) who are at low risk for transfusion transmissible Infections (TTIs).[2] A large number of blood donors are not able to donate blood successfully as they are prohibited from donating blood due to some reasons. Donor deferral is initiated either by the donation centre based on information disclosed by prospective donors or by the donor through self-deferral. These deferrals occur because of the belief that a donor's behavior, exposures or history may represent an increased risk to safety of blood supply and as well as to the health of the donors.[3] The provision of safe and efficacious blood involves a number of processes from the selection of appropriate donor population, screening of presenting donors and testing of donated blood units[1]. This retrospective study was conducted by reviewing records of the donors those were deferred from donating blood from January 2014 to February 2017.The study included data of 10404 blood donors that were registered during the period under study. These blood donors were all voluntary donors that were mainly selected based on the selection criteria according to standard for the practice of blood transfusion.

Material and Method

The study included data of 10404 blood donors that were registered during the period under study. These blood donors were all voluntary donors that were mainly selected based on the selection criteria according to standard for the practice of blood transfusion. A total number of 10,404 donors presented for blood donation at Gandhinagar, out of which 419 (4.2%) were deferred from donation.

Table 1: Frequency of whole blood donors during study period

Gender	Donors registered	Donors selected	Donors deferrals	Deferrals rate (%)
Males	9701	9450	251(59%)	2.58%
Female	703	535	168(41%)	23.89%
Total	10404	9985	419	4.02%

Of the deferred donors 59% were males and 41.0% were females aged from 18 to 65 years.

Table 2 gives the distribution of deferral donors based on gender and it is evident that the majority of deferred donors were males. Male deferral rate decreased gradually from 2015 (63.12%) to 2016 (59.77%) while female deferral rates decreased for 2014 (44.22%) to 2015 (36.88%).

Table 2: Frequency of deferral donors based on gender

Year	Male	Female	Total
2014	58(55.76%)	46(44.22%)	104
2015	89(63.12%)	52(36.88%)	141
2016	104(59.77%)	70(40.23%)	174
Total	251(59.90%)	168(40.10%)	419

New donors were found to have a high proportion of deferrals as indicated in Table 3. For the donors who were deferred, 96.9 % were new donors, and 3.10% were repeat donors.

Table 3: Deferral frequency per donor category

Donor category	Frequency of deferrals	%
New donors	406	96.90
Repeat donors	13	3.10
Total	419	100

The least deferral rate was for the repeat donors. In an attempt to clarify why the donors were deferred, it became apparent that anemia was the main cause for donor deferral. Table 4 indicates the deferral reasons and it shows that almost half of the deferrals were due to low haemoglobin. The most common cause for deferral was low Haemoglobin (41.05%), followed by donors medication (28.40%). In female, before and within 7 days of menstrual cycle (9.78%).

Table 4: Frequency of donor deferral reasons

Reasons	Deferred donors	%
Low hemoglobin	172	41.05
Menstrual cycle	41	9.78
On medication	119	28.40
Others	87	20.76
Total	419	100

Of the four leading causes of deferrals by gender, Table 5 gives idea that anemia and having medication were the most common reasons for deferrals in females and males respectively.

Table 5: Four leading causes of deferral according to gender

Male(n=251)		Female(n=168)	
Reasons	Frequency%	Reasons	Frequency%
On medication	107(68.63%)	On medication	12(7.14%)
Low hemoglobin	76(30.28)	Low hemoglobin	96(57.14%)
Menstrual cycle	NA	Menstrual cycle	41(24.4%)
Others	68(27%)	Others	19(11.30%)

CASE STUDY

Across the world, previous studies have reported deferral rates ranging from 5.6–35.6%.6 The deferral rate in this study was comparable to the study done in India by Girish CJ[6] found the deferral rate of 5.19% and Rabeya et al[4] have 5.6% deferral rate.In Africa, a study done by Ekwere et al.[2] found (16%) deferral rate and it is higher compared to the deferral rate found in this study.

Variations in deferral rates are caused by multiple factors such as different donor selection criteria used by every national guideline policy in each country like weight, age, hemoglobin levels and blood donation interval. Anemia has been reported as the main cause of deferral in studies by Bahadur et al.[5], Gajja et al.[12] and Ekwere et al.[2].Some studies have found high blood pressure as the most common deferral reason[6,7].The deferral rate has been decreasing from 2015 (63.12%) to 2016 (59.77%) by 3.35% as this could be due to an improvement in education system on blood donation that guide and stimulate potential blood donors. However, even in this study, the deferral rates were more or less the same between each specific year studied. Among the deferral population, male represent deferral cases of 251 (59.0%) and female represent 168 (41.0%).

Variations in deferral rate based on the gender between countries could reflect the total gender population presented for donation. Some countries have more males than females who presented for donation or vice versa. Other cases that could contribute to the high deferral rates in females could be chronic blood loss due to menstruation which has a direct effect on iron bioavailability. Findings in this study show that new deferred donors accounted for 96.9% compared to repeat donors (3.1%) of deferral population. This is in agreement to the results found by Birjiandi et al.[7] in Iran were first time deferred donors represented 76.5% of the total deferral populations compared to 17.5% in regular donors. A high percent in first time deferral donors and a low percentage of deferral in regular and repeat donors confirms the importance of retaining and managing donors as well as the need to educate new donors. Studies have also shown that the level of knowledge and awareness among donors and non-donors differs. Donors tend to know more about blood donation and its importance than non-donors, thus triggering the need to raise awareness among the populations[9].From this study, low haemoglobin (41.05%) which leads to anemia has been reported as the main cause of deferral at GMERS Medical college attached general hospital,Gandhinagar. This finding is agreeable to the outcome (40.9%) from the research conducted by Pisudde et al[10]. in East India.However, in the case of pre-donation deferral reasons haemoglobin (39.0%) was the highest cause of donor deferral 2which correlates with our study. Low haemoglobin is a curable condition and donors are expected to return for blood donation after a specified period of time provided that they take iron supplements so that haemoglobin level could be above 12.5 g/dl of which is the minimum requirement. The second most reason causing donor deferral was medication mostly blood pressure(28.40%).Findings from this study, however, do not agree with those that were found at district transfusion centre in India as high blood pressure (39.9%) was the leading cause of the donor deferra[6]. Similarly, results from another study done in Iran found abnormal blood pressure (36.5%) to be the highest deferral cause[7,11]. Female on menstrual cycle is the third cause of deferral(9.75%) Other reasons included hypertension, tattoos, diagnostic procedures, body piercing, dental procedures, underweight,, hepatitis, cancer,diabetes, hypotension, tuberculosis, heart disease, animal bite, malaria and blood transfusion. Finding for this study are lower than for those that were found in Iran (23.3%) by Birjiandi et al[7].In this study, the highest leading cause of deferral in males was taking medication (42.63%) while low hemoglobin (57.14%) was found to be causing majority of deferrals in females.The largest cause of deferrals in males in this study does not agree to the study conducted in Delhi,India as low haemoglobin (28.7%) was found as the largest cause of male deferrals[5]. The largest cause of deferral in females was low hemoglobin (74.1%) in the same study and that is agreeable to the results of this current study. Study done by Awasthi S[8]found that the main cause of deferral in males (30.3%) and females (51.0%) was low haemoglobin.

CONCLUSIONS

The provision of safe and efficacious blood and blood components for transfusion involves a number of processes from the selection of appropriate donor population to the issue of compatible blood and its administration to the patient. Donors' safety is managed in a way that ensures high standards of care and assures them of the concern of the blood transfusion services for their health and well-being. The present study evaluated the donor deferral rate and reasons of donor deferral at GMERS Medical college and hospital, Gandhinagar. The deferral rate was found to be 4.2% and the most common cause of deferral reason is low haemoglobin (41.05%). There are differences in deferral rates from country to country and this could be due to different donor selection criteria used by each national guideline policy in each country or setting. Studying the profile of blood donors could help to identify sections of the population which could be targeted to increase the pool of voluntary blood donors and also to guide and provide the necessary essential database for the policy design and programmed implementation.

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