



RESEARCH ARTICLE

THE NEED FOR COMPUTERIZED INTER BLOOD BANK, BLOOD DONOR DEFERRAL REGISTRY –
AN EVALUATION

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ARTICLE INFO

Article History:

Received 17th March, 2012
Received in revised form
15th April, 2012
Accepted 17th May, 2012
Published online 30th June, 2012

Key words:

Donors, Computer, Deferral Registry

ABSTRACT

Blood donor suitability criteria are based on science, informed medical opinion, and regulatory rules³. Blood donors are deferred for various reasons. Individuals disqualified from donating blood are known as “deferred” donors. To make blood transfusion safe for the patients many safety measures are undertaken by the blood transfusion community. Of the many safety measures, the most important is selection of blood donors. The rate and reasons of deferral differs from region to region and one center to the other⁹.

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INTRODUCTION

Blood donor suitability criteria are based on science, informed medical opinion, and regulatory rules³. Blood donors are deferred for various reasons. Individuals disqualified from donating blood are known as “deferred” donors. To make blood transfusion safe for the patients many safety measures are undertaken by the blood transfusion community. Of the many safety measures, the most important is selection of blood donors. The rate and reasons of deferral differs from region to region and one center to the other⁹. To protect blood donors and recipients,

- 1) Stringent donor screening criteria are necessary^{2,8}.
- 2) Shared donor deferral registries may be valuable at the local or regional level to prevent deferred blood donors from donating at other blood collection facilities¹.

Donor deferral registries(DDR) is a file containing information which helps in identifying disqualified donors either because of a positive test or due to a transmissible disease, it also can be due to an unsatisfying answer in the donor questionnaire. The DDR is one of the several measures used in blood banks by The American Red cross society USA to prevent the transfusion of unsafe blood. The DDR plays a critical role in protecting the safety of blood supply in India the blood banking systems do not have a mechanism for sharing the names of deferred donors, most often a deferred donor from one blood bank will walk across the street or come to the blood banks during the other technical staffs duty hours and the chances of getting accepted by the other is more.

If there are cross linkages between the different donor deferral registries, it will make it ultimately effective⁷. Here in our present scenario we would like to highlight on having at least a regional deferral registry.

Review of literature

Bahadur S Pujani states that blood donor suitability criteria are based on science, informed medical opinion, and regulatory rules. Blood donors re deferred for various reasons. Individuals disqualified from donating blood are known as “deferred” donors. To make blood transfusion safe for the patients, many safety measures are undertaken by the blood transfusion community. Of the many safety measures, the most important is selection of blood donors. The rate and reasons of the deferral differs from region to region and from one centre to the other. To protect blood donors and recipients, stringent donor screening criteria are necessary². The minimum hemoglobin cutoff for blood donation in India is 12.5 gm% for both male and female donors and the minimum donation interval is 3 months. Donation of one unit of blood results in decrease in hemoglobin by 1 gm% and loss of 200-250 mg of iron. Donor deferral due to anemia is one of the major reasons of temporary rejection of blood donors. In the absence of further workup or advice, it results in loss of valuable donor base⁴. Naveen agnihotri in his study has stated that deferrals lead to loss of precious whole blood donors (WBD) and blood units available for transfusion purposes. Knowledge of rate and causes of donor deferral can guide the recruitment strategy for WBD³. Halperin suggests that most blood donor deferrals are temporary and short-term. The effect of short-term temporary deferral (STTD) on blood donor return rates and subsequent blood donations is an important issue⁵. In their study it showed that STTD have a very

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negative impact on blood donor return rates and subsequent blood donations. Actions to alleviate these negative effects have been indicated. The Cleveland Clinic Foundation Ohio, Cleveland, USA. In their study, they have examined the frequency with which allogeneic, volunteer blood donors who had been deferred from donation at one blood collection facility donated, or attempted to donate, at a second blood collection facility. Here the blood donor computer files of two local blood collection facilities were combined and matched donors on the donor deferral registry of each blood collection facility were identified. They have stated that shared donor deferral registries may be valuable at the local or regional level to prevent deferred blood donors from donating at other blood collection facilities and whether or not a national donor deferral registry would be efficacious remains to be proven and deserves further study¹.

From the American Red Cross Blood Services, Penn Jersey Region, Philadelphia, PA 19103. has explained that in the last half of this century, donor deferral registries have grown in size, scope, and importance for blood collection organizations and regulatory agencies. This has occurred despite the lack of direct evidence that, when used with all other methods, they contribute meaningfully to the safety of the blood supply. Although computers have become a mainstay in the management of deferral registries, accurate and consistent donor identification, good manual systems, and quality control of data bases are key features to their successful management. As with the other subjective methods used in maintaining blood supply safety, techniques must be developed to determine the value of the many features of donor deferral registries. Efforts must be made to simplify these processes and focus on those elements that provide important contributions to blood supply safety. Today, donor deferral registries are major activities in most blood centers and are believed to play a significant role in blood supply safety. It is time for their role to be carefully reexamined⁶.

Aims and objective

1. Shared donor deferral registries may be valuable at the local or regional level to prevent deferred blood donors from donating at other blood collection facilities.
2. Overcome this problem such that they move out from the category of Non-donors to permanent donors.

MATERIAL AND METHODS

A prospective analysis of the donors, for 2months, during the period July 2011 and August 2011, was done, in order to find out the rate and causes of deferral in four categories of age Groups, both male and female, at S S Institute of medical sciences and research center's SS blood bank, Davangere, Karnataka, India. During this period, there were 1778 donors who came to donate blood. Of 1778, there were 1769 (99.5%) males and 9 (0.5%) female donors. The study involved donors both voluntary and replacement who donated blood at our center, during the period of 2 months. The donors were from in and around Davangere within a radius of 50 km. Approximately, 88% were voluntary and 12% replacement donors. A representative group of volunteers, from all over Davangere, visiting our center, form a part of this donor base. Each donor was selected by the registered medical officer

based on detailed medical history and brief physical examination of donors with regard to hemoglobin, blood pressure, temperature, pulse regularity and rate. Detailed information on the donor deferral included the cause of deferral which were recorded in deferral register at our center. Donors deferred were differentiated according to sex, age group, and whether deferral is temporary or permanent basis. Criteria laid down by director general Health Services and Drug's Controller of India were strictly followed. Deferral by self was not considered, as it is difficult in our setup. We used statistical method to detect the rate and reason for donor deferral². By developing strategies to identify and rationalize donor selection criteria, the blood transfusion services should be able to decrease unnecessary deferrals¹⁰. Also deferred donors should be helped to overcome their problems such that they move out from the category of Non-donors to permanent donors. Donor deferral registries have grown in size, scope, and importance for blood collection organizations and regulatory agencies in other countries but have not been adapted in India.

OBSERVATIONS AND RESULTS

Of the 1778 donors registered at our blood centre, 1769 were males and 9 females. As the figures reveal, female constituted only 0.5% of donors. The deferral rate among males was 3.84% and among females 11.11%.

Table 1. The total number of donors, number deferred, and percentage deferred both in males and females.

	Male	Female	Total
No. of donors	1769	9	1778
Number deferred	68	1	69
% deferred	3.84	11.11	3.88

As per the records the reasons for deferral are many as listed below. They are broadly differentiated into permanent and temporary.

Table 2. The distribution of permanent deferral by age and sex

Age	18-25		26-35		36-50		51& above		Total		
	M	F	M	F	M	F	M	F	M	F	
Sex											
Hypertensi on & Cardiac problems	1	0	1	0	4	0	1	0	7	0	0
Epilepsy	0	0	1	0	0	0	0	0	1	0	0
Chronic allergic disease	0	0	1	0	0	0	0	0	1	0	0

On assessment, the donors falling under the category of hypertension and cardiac problems were the most deferred comparatively, followed by epilepsy and chronic allergic diseases.

The most common cause for temporary deferral was alcohol consumption (24hrs) in males. The next common causes were antibiotic therapy, anemia, fever, bacterial infections, viral infections, low body weight, jaundice within the past year and history of recent blood donation.

Table 3. Distribution of temporary deferral in different age groups

Age	18-25		26-35		51 & above				Total	
	M	F	M	F	M	F	M	F	M	F
Sex										
Anemia	4	0	2	0	4	0	0	0	10	0
Under weight	3	0	3	0	0	0	0	0	6	0
On antibiotics	2	1	7	0	2	0	0	0	11	1
Alcohol consumption in last 24 hrs	6	0	7	0	3	0	1	0	17	0
Jaundice in last 1 yr	2	0	1	0	1	0	0	0	4	0
Fever with bacterial, viral infection	2	0	3	0	2	0	0	0	7	0
Donated blood in last 3 months	3	0	2	0	0	0	0	0	4	0

DISCUSSION

Rejecting a potential or an enthusiastic donor leaves him in a negative feeling about himself as well as the blood bank. Donating blood always boosts up the morale. The advantage of eliminating donors with possible risk of disease even with the fifth generation test kits available to detect HIV infection is that the risk of testing negative in a positive case is more. Deferring a donor protects the donor from the chance of adverse reactions and also avoids the negative impact of donor motivation. In the present study, the overall deferral rate was 3.88 % and the deferrals in males were more when compared to females. Here in this region, the female donor number is much less when compared to the male donors. Age group deferral is much in the age group of 36-50. Here, in our study, donors above 60 years are not allowed to donate blood. Causes of deferral were many and broadly classified into temporary and permanent. More number of deferred were in the temporary constituting about 86.95% and permanent about 13.04%. Here in the study, our objective was to highlight the use of donor deferral registry which constitutes the:

- Name of the donor
- Age of the donor
- Permanent address with proper address proof issued by Government of India (pan card, driving license, ration card, etc.) and the use of Biometry.

The blood bank should be equipped with computer with biometry along with software & internet facility to connect with other blood banks and computer with photography. Whenever a donor who comes to donate has to register and give the above details and his biometry. Either eye scan or the index finger scan has to be used and in case he/she is deferred donor elsewhere, he /she can be highlighted.

Conclusion

In the above study if he/she tries to donate blood and is rejected in the blood bank, his/her photo as well as his/her biometry print is displayed in the other blood bank computer and thus the deferred donor is deferred again. Despite the lack of direct evidence that, when used with all other methods, the deferral registry will definitely contribute meaningfully to the safety of the blood supply. In the recent past, computers have become a mainstay in the management of blood banks which

helps in accurate and consistent donor identification, good manual systems, and quality control of data bases are key features to their successful management. This not only saves the blood bank from unsafe blood but also saves lot of time and man power. Here in our study, we could not match the deferral donors with other blood banks but an observation of the donors who had been notified of their deferral status, subsequently attempted donation, were penalized. As with the other subjective methods used in maintaining blood supply safety, thus the use of shared donor deferral registry at local or regional level prevents the deferred blood donor from donating at other blood collection facility.

Summary

The present study shows us the common causes of temporal deferral as well as permanent deferrals, loss of units of both first time and repeat donors. But the highlight here is to avoid the donors who are already deferred in one blood bank to be recognized and avoided to further donate and make it safer for the recipient. Computers have become a mainstay in the management of blood banks which helps in accurate and consistent donor identification, good manual systems, and quality control of data bases are key features to the donor deferral registries whether or not a national deferral registry would be efficacious needs to be proved and needs further study.

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