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Original Research Article

Donor blood wastage: a study from blood bank Chamba (H.P)

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ABSTRACT

Background: Blood and its components are very important for human life as there is no substitute for human blood. No major surgical procedure can be performed without the use of blood in any hospital or clinic. Ideally in a good set up, wastage of blood and blood products should never occur. The aim of this study was to assess the burden of blood wastage in our blood bank, reasons for the wastage, and to cut down blood wastage to a minimal amount by adopting new methods and techniques.
Methods: A retrospective study was carried out in Department of Blood Bank of Pt. Jawaharlal Nehru Govt. Medical College, Chamba (H.P) over a time period of one year from 1st January 2017 to 31st December 2017.
Results: In our study period, there were 35 discarded blood units due to various reasons forming 3.52% of total discard. Majority of units were discarded due to expiry (51.4%).
Conclusions: Our study found expiry/outdated units to be most common reason for discard (51.4%). This kind of wastage may be reduced by better management of blood bag collection, storage and utilization. TTI was another significant reason for blood discard in our blood bank (14.28%). We can bring down the number of discard units by proper training and educating our blood bank staff. Strict adherence to donor selection criteria and proper past medical history should be obtained from blood donors.

Keywords: Blood donors, Blood wastage, Blood discard, Blood bank

INTRODUCTION

Blood and its components are very important for human life as there is no substitute for human blood. No major surgical procedure can be performed without the use of blood in any hospital or clinic.

There are various factors that can lead to scarcity of blood including poor blood donation, poor stock management and transportation. The demand for blood demand outweighs the blood supply in many countries. Many studies in developing countries have shown that the limited blood resources are used mainly for complications of pregnancy and childbirth, and trauma cases.[1-3] Blood is a valuable resource and blood wastage in a govt. rural care centre can have negative impact on blood transfusion services. This study therefore analyzes the usage and wastage of blood in our blood bank.

Ideally in a good set up, wastage of blood and blood products should never occur. Due to the inherent need to have adequate and satisfactory blood stocks all the time, a very small but inevitable amount of blood wasting in blood bank does exist.[4] Studies show that by adhering to strict guidelines, a major decline in the wastage of blood could be achieved and followed.[5-7] Worldwide, only

around 100 countries possess national guidelines for clinical use of blood and blood products.[8]

The aim of this study was to assess the burden of blood wastage in our blood bank, reasons for the wastage, and to cut down blood wastage to a minimal amount by adopting new methods and techniques.

METHODS

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

Registration forms are filled by blood donors who carried important information like personal details, demographic details, occupational and medical history. The donors are then examined by medical officer. Only the individuals found to be physically fit according to blood donor selection criteria are selected as blood donors. Donors found unfit are deferred by medical officer.

Inclusion criteria

Clinically healthy individuals between 18 and 65 years of age with a body weight of above 45 kg and hemoglobin more than 12.5 g/dl with no significant medical or surgical history were qualified for the donation process.

Exclusion criteria

Persons belonging to high-risk groups such as patients with chronic diseases, professional blood donors, drug abusers, dialysis patients, pregnant women, patients treated in thalassemia clinics, sexually transmitted disease clinics, and sex workers were excluded from the donation process.

Blood units are then stored and labeled in blood storage refrigerator between temperature 2 -8 C after testing for blood grouping and mandatory TTI testing. Blood bags are issued to needy patients after proper cross match as and when required. Blood units are stored for a maximum of 35 days in the refrigerator after which outdated units are discarded. All units to be discarded due to various reasons are subjected to autoclave treatment. A proper discard register is maintained for discarded units which has all relevant information like donor no., reason for discard, blood group, method of discard and then total discarded units at the end of the year.

Collected data was analyzed using EPI-Info and SPSS statistical software.

RESULTS

We had a total of 992 blood donors in our blood bank in the study period. Majority of donors were male (973). There were 19 female donors. Out of total blood donors, there were 733 replacement donors and 259 voluntary donors (Figure 1).

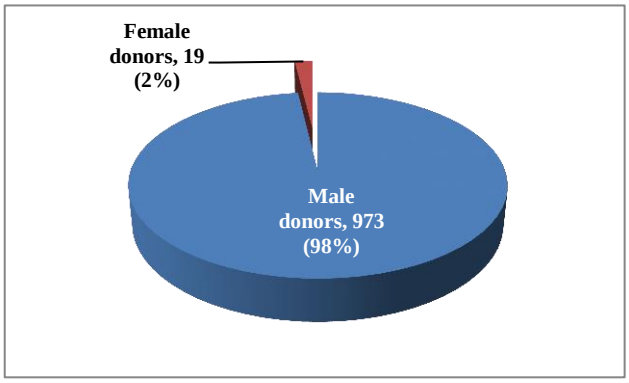

Figure 1: Sex based distribution of blood donors.

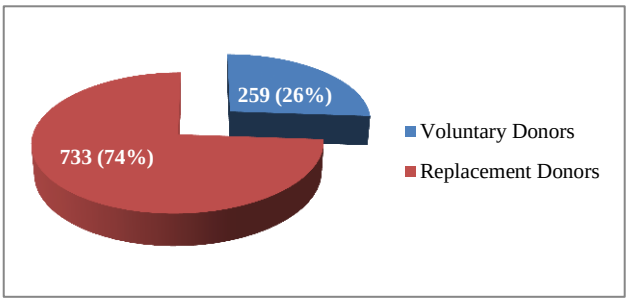

Figure 2: Distribution of voluntary and replacement donors.

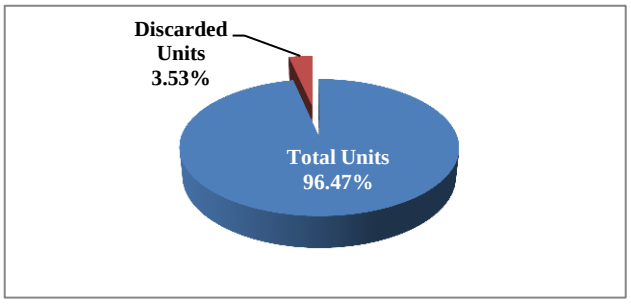

Figure 3: Percentage of discarded units.

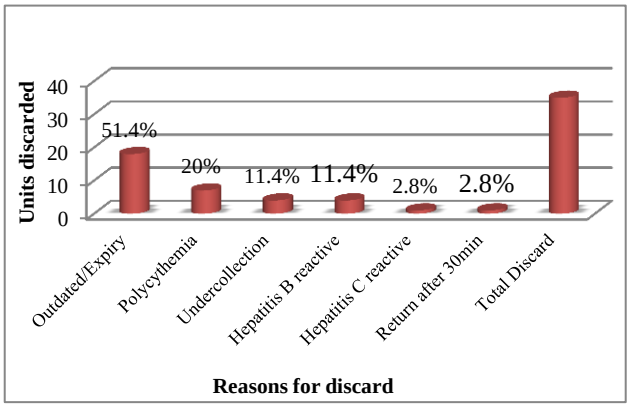

Figure 4: Reasons for discard.

In our study period, there were 35 discarded blood units due to various reasons forming 3.52% of total discard (Figure 3). Majority of units (51.4%) were discarded due to expiry. Polycythemia accounts for 20% of total discard. Under-collected units and hepatitis B reactive units each formed 11.4%. Hepatitis C and return after 30 min both made up 2.8% each (Figure 4).

DISCUSSION

In our study, there were 973 male donors out of total 992 blood donors. There were 733 replacement donors and 259 voluntary donors. Percentage of blood discard in our study period was found to be 3.53%. This matches with study by Thakare et al who showed 3.58% blood discard and Morish et al showed 2.3% discarded units.[9,10]

Our study found expiry/outdated units to be most common reason for discard (51.4%). This is similar to study done by Jariwala et al and Chavan who also showed outdating to be most common cause of discard. This kind of wastage may be reduced by better management of blood bag collection, storage and utilization.[11,12]

Polcythemia accounted for 20% of blood discard in our study. These patients came to blood bank for the purpose of therapeutic phlebotomy and the blood units collected from them were subjected to discard as the same cannot be utilized for blood replacement.

TTI was another significant reason for blood discard in our blood bank (14.28%). Among TTIs, Hepatitis B reactive units accounted for 11.4%, while Hepatitis C formed 2.85% of total wastage. Chitnis et al showed in their study, that 8.9-10% of blood bags were discarded because of seropositivity, which is slightly lower than our study. Study by Lakum showed 39.14% of blood discards due to TTI, which is much higher than our study, as we had fewer TTI reactive donors in our study period.[13,14]

Under collected units formed 11.4% of total blood wastage. Under collection in our study was mainly due to unskilled new personnel involved in phlebotomy and also due to acute donor reactions like uneasiness, vomiting etc. Study done by Bobde et al showed failed tap to be most common cause of discard in their study. Study by Lakum et al showed under collection to be second most common reason of discarding blood units (27.18%). Failed tap reflects phlebotomy failure which can be minimized by proper technique.[14,15]

According to present study, discard due to return after 30 minutes formed 2.85%. This wastage can be minimized by educating and creating awareness among hospital, nursing staff about cold chain maintenance and blood sterility. Kanani et al also showed in their study, a small percentage of discard was due to return after 30 min, which is comparable to our study.[16]

CONCLUSION

Outdated units were predominating reason for discard of blood units. We can bring down the number of discard units by proper training and educating our blood bank staff. Strict adherence to donor selection criteria and proper past medical history should be obtained from blood donors so as to avoid taking hepatitis B, hepatitis C reactive, HIV reactive donor blood. We should encourage voluntary blood donors for blood donation to minimize replacement donors. This would further help in lowering no. of TTI in our blood bank. Discard due to under collection and return after 30 minutes should be minimal as it implies that this valuable blood is wasted due to lack of awareness and proper technical skill of our staff. Sensitization of residents, doctors regarding indications and use of blood should be done. All these measures should be undertaken in order to reduce the burden of blood wastage in our blood bank.

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