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PROFILE OF POST BLOOD DONATION COMPLICATIONS, A ONE YEAR STUDY

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ABSTRACT

Blood donation is a procedure done daily throughout world. Predominantly it is without any complication provided proper screening is done. This, one year study was done in which 12103 donors were included. Out of these donors (1.2%), got post donation complications. Blood donors who got vasovagal reactions were (1.1%) while as (0.1%) got local reactions. In this study only 2 donors (0.1%) got serious complications, and were managed well.

INTRODUCTION

Blood is the elixir of life. It is essential for human life and has no substitutes. It is a scarce human resource. Word blood is mentioned in the bible. Hindu Vedas state, "blood sustains life." Islamic concept of blood donation is based on Amman declaration which states that

- Spilled blood is impure
- Giving blood from husband to wife does not invalidate marriage
- Donation by a fasting person does not break fast
- Blood should not be sold, sick and needy deserve it

People have always been fascinated by blood. Ancient Egyptians bathed in it, aristocrats drank it, authors and playwrights used it as themes. Modern humanity transfuses it.

Blood donors are vital for a blood-bank [(1)].
Voluntary blood donations should be encouraged, as blood cannot be manufactured. Donor safety is of paramount importance during blood donation and is ensured by meticulous donor selection guidelines, standard operating procedures (SOP'S), adequately trained staff and proper facilities. Despite, this various adverse reactions can occur during blood donation [(2)].
Blood donation involves insertion of a needle into a blood vessel of the arm followed by loss of approximately (10%) of the total blood volume within a few minutes worldwide. This procedure is done daily, thousands of times. More often than not, it is without complications, but for some mild transient discomfort [(3)].Complication do occurs, but relatively low as compared to complication rates of other invasive procedures. Prevention of adverse events is important to minimize number of blood donor injuries and increase voluntary blood donations.

Normal blood donations are tolerated well by the donors. Occasional adverse reactions which occur are divided into:-

(i) Local reactions.
(ii) Systemic reactions [4]

Local reactions are hematoma, arterial puncture, delayed bleeding from venipuncture site, nerve irritation, nerve injury, tendon injury and thrombo phlebitis [5].
Systemic reactions are mostly vasovagal reactions, and give rise mostly to minor symptoms. Few patients may lose consciousness. Hyperventilation may occur in some donors as a result of anxiety [6].

MATERIALS AND METHODS

To study post donation adverse reactions in blood donors, a one year study was conducted from 1st Sep 2011 to 31st Aug 2012, at skims, a tertiary care deemed university medical institute of north India in department of blood transfusion and immunohematology. The study was done to increase safety and confidence of blood donors, decrease the adverse reaction and dispel the myths associated with it.

12103 donors were included in the study. Donors selection criteria, was adopted as per AABB guidelines (American association of blood banking). Donors having age between 18years to 60years and weight 45kg or more were included in the study.

Assessment for hemoglobin estimation was done by autoanalyser. Blood collection (phlebotomy) was done as per standard SOP. Donors were asked to take rest for five minutes on bed after donation. Venipuncture site was checked for bleeding and band-aid applied. Donor was escorted to the refreshment room provided refreshment, and allowed to rest for 10-20 minutes.

RESULTS

1. A total of 12103 donors were included in this one year study.
2. Number of male donors was 11828 (98%) while female donors was 275 (2%).
3. Out of total of 12103 donors, 11955 (98.8%) donors showed no adverse reactions, while as 148 donors (1.2%) showed adverse reactions.
4. Out of 148 donors who showed adverse reactions 135 donors (91.2%), showed systemic adverse reactions while as 13 donors (8.8%), showed local adverse reactions.
5. Most common systemic adverse effects were vasovagal reactions (commonest clinical findings were pallor, dizziness diaphoresis hyperventilation and nausea), while as most common local adverse effect was hematoma formation.
6. Out of 148 donors showing adverse reactions, 146 donors (98.8%), recovered in less than 30minutes time, while as two (1.4%), took more than 30 minutes to recover.
7. In 148 donors showing adverse reactions, 115 donors (77.7%), were first time donors, while 33 donors (22.3%) were repeat donors.
8. Out of 148 donors who showed adverse effects, 134 donors (90.5%) donors were males while as 14 donors (9.4%) donors were females.
9. Mean age of males showing adverse reactions was 29.6 years while that of females was 32.6years.
10. Mean weight of males showing adverse reaction was 64.8 kg, while that of females was 62.2 kg
11. Mean systolic and diastolic blood pressure before donation and after reaction was statistically significant ($p \leq .0001$).

Mean pulse per minute before donation and after reaction was found to be statistically significant ($p \leq 0.0001$).

DISCUSSION

Repeated volunteer blood donors are one of the best sources of healthy blood [7].The most important factor that increases the desire for volunteer blood donors for further blood donation is adverse events experienced during blood donation [8].

During this one year study 148 donors got post donation adverse reaction out of a total of 12103 donors. As per donations status 115 (77.7%) were first time donors and 3(22.3%) were repeated donors. This showed higher adverse reactions in first time donors.

Out of 12103 total donations, systemic vasovagal reaction occurred in 1.1% donors, and local reaction like hematoma occurred in 0.1% donors. Our study is almost in conformity with study done by Boynton et al and kasprisin et al which showed vasovagal reactions as 2% to 3%. Study of Galena et al [9] and Howanitz et al [10] showed hematoma formation as 0.3%.

According to time of recovery 146(98.6%) recovered within 30 minutes whereas 2(1.4%) required more than 30 minutes to recover with surgical/medical interventions. In our study only 2 donors required special medical/surgical interventions and got severe adverse reaction. One of the donors had a severe systemic reaction was shifted to emergency department and was discharged after 12 hours. Second donor had vasovagal reaction. He had a fall after donation while going to the post-donation room for taking refreshment. Donor got small lacerated wound on his occipital region which was stitched and dressed in the emergency department.

Factors associated with increased donor reaction [11]:-

- 1st time donation
- Greater percentage of blood volume removed
- Admitted anxiety
- History of fainting
- Age less than 30
- Tall/thin habitus
- Greater than 4hours from last meal
- Mobile blood drive
- Low diastolic blood pressure

Variables associated with decreased donor reaction [11]:-

- Increased number of prior blood donation
- Greater body surface area
- Higher diastolic and systolic pressure
- Donation in spring season

RECOMMENDATION [12]

- Adequate food and fluid intake (a good breakfast), to be taken before donation.
- Strict medical examination and medical questionnaires to rule out unfit donors before Donation.
- Continous monitoring of donors during and after donation so that donor reactions can be minimized.
- Reassurance from attentive, courteous staff.
- Immediate attention to symptoms with raising the lower extremities or lowering the head to promote blood return.
- A recovery period with snacks for the donors should be there.

- There should be a social worker or counselor in the blood-bank, who interacts with the donors, educating them about the benefits of blood donation to the donor, society and dispelling myths associated with it.

CONCLUSION

Blood donation is a safe procedure, with a low rate of post-donation complications and should be encouraged as a token of sacred gift.

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