A STUDY OF ADVERSE REACTIONS IN WHOLE BLOOD DONORS IN VADODARA, GUJARAT.

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Article Info: Received 30 April 2019; Accepted 30 May. 2019

DOI: <https://doi.org/10.32553/ijmbs.v3i5.264>

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Conflict of interest: No conflict of interest.

Abstract:

Background: Voluntary donors normally tolerate blood donation very well, but, occasionally, adverse reactions of variable severity may occur during or at the end of the collection. The occurrence of adverse reactions to blood donation significantly hampers donor retention and negatively impacts on the universal availability of adequate numbers of blood donor units.

Objective: To analyze the spectrum and prevalence of adverse reactions in blood donors in a tertiary care hospital-based blood bank in SSG Hospital, Vadodara.

Materials and Methods: The details of blood donors who presented for donation from January 2107 to April 2019 period were retrieved from the departmental archives for analysis. These included type of donor, type and frequency of adverse reactions to blood donation.

Results: The prevalence of adverse reactions to blood donation was (315/35027) 0.9%; this occurred more frequently in first time donors compared to repeat blood donors. Presyncopal reactions were the most frequent adverse reaction encountered among the donors 52.38% (165/315).

Conclusion: Presyncopal reactions are common adverse reactions in our blood donor set; this has implications on transfusion safety and blood donor retention.

Keywords: Presyncopal reactions, adverse donor reactions, blood donor

Introduction

Blood donors are precious resources. Donor retention is directly linked to donor services and donor care. It is important to provide total satisfaction to donor as customers because only then they would become regular donors and remain loyal to system. Most donors tolerate giving blood very well but occasionally adverse reactions may occur.^[1] Whole blood donation is generally considered to be a safe procedure, but occasionally adverse reactions of varying severity may occur during or at the end of the collection.^[2] The adverse reactions that occur in donors can be divided into local reactions and systemic reactions.^[3]

AIM

The aim of this study was to estimate the frequency and type of adverse events occurring in whole blood donors at Blood Bank, Department of IHBT, in Government Medical College and S.S.G Hospital, Vadodara from January 2017 to April 2019.

MATERIALS AND METHODS

This is a retrospective study, of all adverse reactions related to all the consecutive whole blood donations made between January 2017 to April 2019 at Blood Bank, Department of IHBT, in Government Medical College and S.S.G Hospital, Vadodara.

All donations were collected as per Departmental SOPs. Strict asepsis was maintained by cleaning the site of venipuncture sequentially using betadine and alcohol. For whole blood donation 350 mL of whole blood were collected from donors weighing between 45 and 55 kg while donors weighing more than 55 kg donated 450 mL of whole blood. As part of our study we assessed certain practices which could help to minimize the adverse incidents associated with blood donation. It is also very important to react swiftly to initial complaints of giddiness, light headedness, pallor by the donor by stopping the donation immediately and raising the legs of the donor (anti-shock position) as pallor, sweating, agitation are harbingers of a severe vasovagal reaction which could be prevented by taking corrective measures right at the onset of symptoms. Donors are given refreshment and retained in the recovery room for at least 30 minutes before being sent away.

The classification scheme employed for recording the adverse events was suggested by the American Red Cross Hemovigilance Program that classifies complications into defined categories with severity ratings (minor/major) for certain types of reaction.^[4] Presyncopal symptoms include pallor, sweating or light-headedness without loss of consciousness. Syncopal types of complications are classified as minor if there is a transient loss of consciousness lasting less than one minute, while prolonged loss of consciousness for more than a minute or complicated by loss of bowel/bladder control, seizures or

convulsions is said to be a major syncopal complication. Local adverse events include hematomas which can be small (25.8 mm²), bruises, infiltration, allergic reactions, and a tingling/burning sensation.

RESULTS

In our observation, a total of 35027 donations were recorded amongst which, 11586 were replacement donors and 23441 were voluntary donors. Male donors were 33867 and Female donors were 1160. Total adverse reactions observed were 315 (0.9 %), amongst which 0.84 % (230/27519) adverse reactions were seen in first time male donors and 0.43 % (27/6348) adverse reactions were seen among repeat male donors. Similarly, 5.33% (55/1032) adverse reactions were seen in first time female donors and 2.34% (3/128) adverse reactions were seen among repeat female donors. Repeat blood donors in our study had fewer adverse donor reactions than first time blood donors.

Presyncopal symptoms, in other words vasovagal reactions of mild intensity were the most commonly observed adverse reactions and accounted for approximately 52.38 % (165/315) of all adverse reactions noted. They affected 0.47 % of donors (165/35027). Major syncopal reactions accounted for nil. The frequency distribution of the various types of adverse reactions that occurred in first time and repeat blood donors amongst males and females during the study period is presented in Table-1.

Table 1: Distribution of adverse events between the first time and repeat male and female blood donors

Type of adverse reactions	Males		Females		Total
	First time donors	Repeat donors	First time donors	Repeat donors	
Systemic complication					
Presyncopal	108	15	40	02	165 (52.38%)
Syncopal (minor)	30	01	02	00	33 (10.48%)
Syncopal (major)	00	00	00	00	00 (0%)
Local complications					
Hematoma	70	05	07	01	83 (26.35%)
Numbness/ tingling	20	06	05	00	31 (9.84%)
Allergic reactions	02	00	01	00	03 (0.95%)
Total	230	27	55	3	315 (100%)

Adverse donor reaction rate among voluntary male donor was 0.69% (155/22319) and among replacement male donors the adverse reaction rate was 0.88% (102/11548). Similarly among voluntary female donors adverse reaction rate seen was 4.90% (55/1122) and in replacement females donors the adverse donor reaction rate was 7.90% (3/38).(Table-2)

Table 2: Distribution of adverse events between voluntary and replacement donors in males and females

Type of Donors	Total donors	Adverse reactions	Adverse Reaction Rate
Males			
Voluntary donors	22319	155	0.69%
Replacement donors	11548	102	0.88%
Females			
Voluntary donors	1122	55	4.90%
Replacement donors	38	03	7.90%
Total	35027	315	0.9%

DISCUSSION

Blood donation is a safe process though blood collection sometimes may cause adverse reactions in donors. Blood transfusion services are concerned about it because moderate-to-severe donor reactions could affect donor return rate and decrease the potential donor pool. Therefore, it is important to identify the adverse donor reactions and the risk factors associated with it and manage them to improve blood donation experience. In present study, percentage of adverse donor reaction was 0.9 %. This is in accordance with the results of a study conducted all over the world in which rate of adverse donor reaction ranged from 0.4 to 2.5 %.^[2, 3, 5-7], (Table-3).

Table-3: comparison of frequency of adverse donor reaction in various studies

Sr. No.	Study	Adverse donor reaction reported
1.	Pathak C et al. ^[2]	0.6%
2.	Kumari S ^[3]	0.46%
3.	Dogra A et al ^[5]	1.6%
4.	Crocco et al. ^[6]	2.2%
5	Agnihotri N et al ^[7]	2.5%
6.	Present study	0.9%

Male donors reported 0.76% (257/33867), adverse donor reactions (ADRs) and female donor reported 5% (58/1160) ADRs. Presyncopal reactions were the most commonly observed and accounted for 52.38% (165/315). Major syncopal reactions observed were nil in the present study. As similar other studies reported very low incidence of severe reactions with no episodes necessitating hospitalization of donor or administration of intravenous fluids.^[6,8,9] Presyncopal reactions accounted for 0.47% (165/35027) and syncopal complications (minor) accounted for 0.09% (33/35027) This is in accordance with the results of a study conducted by Dogra A et al and Crocco et al.^[5,6]

Repeat blood donors had fewer ADRs than first time blood donors in present study which is 0.46% in repeat donors and 1% in first time donors ; this is similar to the study done by Kumari S, Dogra A et al and D.O Kasprisin .^[3,5,10]

CONCLUSION

As only 0.9 % of whole blood donations were complicated by adverse events and most of these events were pre syncopal symptoms, thus our study confirms that blood donation is a very safe procedure which could be made more event free by following, certain friendly, reassuring and tactful practices.

Overall, the number of donors who developed adverse reactions during or immediately after the blood donation was very low, but vasovagal reactions whether mild or severe (progressing to syncope/faint) were significantly more common among female donors, also incidence of adverse reactions as such was more among 1st-time donors when compared to repeat donors.

The donor's physical experience has a significant impact on the willingness to return and donate blood; therefore, precautions to prevent or to manage the adverse reactions should be taken at the earliest.

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