International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

After-Effects of Blood Donation: A Study from a Tertiary Care Center

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Abstract: ***Introduction: Blood donation is a noble act. It is usually a safe procedure. It plays very important role in any healthcare system for saving many lives around the world. About 30% of all people require blood or its products during their life. However it is observed that some donors may experience the adverse reaction to this procedure ranging from mild (fatigue, weakness, pain on Venepuncture site) to moderate (vasovagal syncope with or without loss of consciousness, hematoma, thrombophlebitis and very rarely serious reactions (cardiac symptoms, myocardial infarction, cardiac arrest, TIA, CVA). Aim and objective: Main aim of this study was to analyse the frequency off adverse effect happened post blood donation and to study the factors responsible for same. Material and method: A retrospective observational study was performed from January 2022 to February 2022 and a total of 284 whole blood donors were contacted post donation and a series of predefined questioner was asked and data was recorded and analysed. Results: Total 322 blood donors were contacted, out of which only 284 responded to our phone call. Overall 248 (87.3%) of the donors were male and 36 (12.7%) were female out of which 8 (2.8%) donors experienced the adverse effects post blood donation. Among those 6 (2.4%) were male and two (5.6%) were females. Out of these eight donors seven were first time donors and one was repeated blood donor. Conclusion: During the study we found that first time donors are more prone to experience adverse reaction as compared to repeated donors. Female donors are more vulnerable to adverse reaction as compared to males (almost double).***

Keywords: Adverse effect, adverse reactions, blood donors, follow up, haemovigilance

1. Introduction

Blood is elixir of life and it is very essential for human life. There is no substitute for it. (1) Transfusion is defined as transfer of blood from one individual to another. On March 15, 1937, the world's first blood bank was established at Chicago's Cook county hospital by Dr Bernaud Fantus which was considered as breakthrough for surgical and emergency treatments. (1) After that there was no looking back, year after year many discoveries were made on how to store, screen and transfuse blood and its products. History of blood banking dates back to 1942 in India when first blood bank was established in Kolkata. In 1940, The Drugs and Cosmetic act was framed and was first amended in 1992 which categorised human blood as "drug" under section 2 (b). It provides the legal framework for regulating the functioning and providing minimum requirements for space, staff and any equipment. (1) In 1972, Indian Society of Blood Transfusion and Immunohaematology (ISBTI) was established which proved to be a stepping stone in Indian blood banking. In 1981, AIDS virus was detected following which NACO (National AIDS Control Organization) was established in 1987 and AIDS screening was made mandatory from 1989 and similarly HCV testing was made mandatory since 2001. (1) In the year 2002, the National Blood Policy (NBP) was published by government of India to ensure commitment by government for safe blood and its components. In an average adult there is approximately 5 litres of blood (70 ml per Kg body weight in males and 66ml per Kg body weight in females). (1)

Blood transfusion being the main pillar in any healthcare system saving millions of lives round the globe each year (2). About 30% of all people have had a need to receive blood or its products during their life (3). Despite the fact that blood donation is a very low risk procedure, some amount of adverse reactions are inevitable which plays a major role in decreasing the desire of blood donor to donate again. (4) It was seen that 9% of the donors experiencing adverse reactions while or post their first blood donation did not return for subsequent donations (5).

Adverse reaction to donor can be defined as unintended response associated with collection of blood or its components that causing any discomfort to the donor. The adverse reactions experienced by blood donors during or post blood donation are divided into two categories local reactions and systemic reactions. Local reactions were principally caused due to problems related to venous access predominantly comprising of hematoma, pain, hyperaemia and swelling. These are the minor complications usually not requiring any medical intervention while in few cases local phlebitis and thrombophelbitis can also occur leading to serious complications but these are very rare. Systemic complications can be divided into mild or severe. Most common being vasovagal reaction triggered by sight of blood, pain, seeing other donors reaction or due to anxiety. More severe being sweating, dizziness, gastrointestinal disorders nausea very rarely progressing to convulsive syncope (8). The main focus of our study was to evaluate the frequency and type of adverse effects occurring during and post blood donation, as well as factors responsible for same. (8)

2. Materials and Method

Selection of blood donor and collection of blood-All the voluntary as well as replacement donors who met the eligibility criteria (age, weight, good health and medical history) for blood donation were asked to lie down in supine position and phlebotomy was performed in the antecubital fossa area of the arm with a 16-guage needle. The blood volume collected was 350ml in a triple blood bag containing CPDA-SAGM. Post donation donor was asked to lie for 10 more minutes after which he was guided towards the refreshment area. (9)

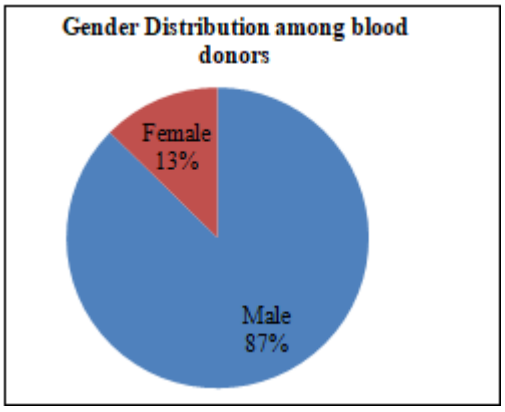
Data collection and analysis-We performed a retrospective observational study from January 2022 to February 2022 and a total of 284 whole blood donors were contacted post donation and a series of predefined questioner was asked and data was recorded and analysed.

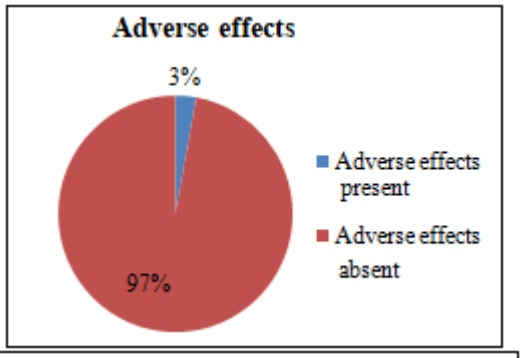
The questionnaire comprised of questions like-

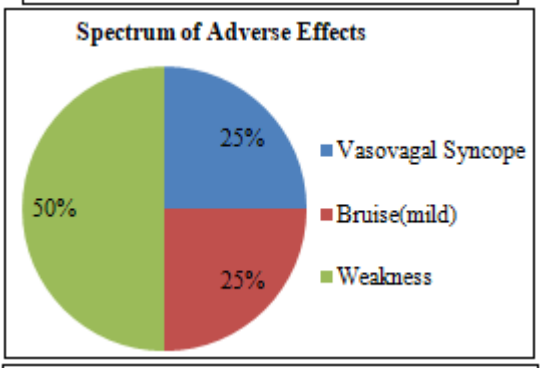
1) Are you a first time donor or repeated donor?
2) Have you experienced any adverse reaction during or post blood donation?
3) Did you consult any doctor for the reaction experienced?
4) Frequency of adverse reactions at previous donation (if any)?

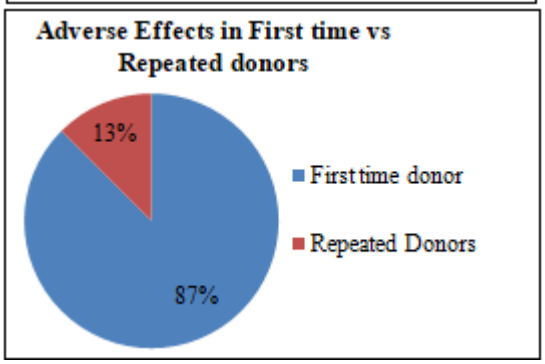
3. Results

Total 322 blood donors were contacted, out of which only 284 responded to our phone call. Overall 248 (87.3%) of the donors were male and 36 (12.7%) were female out of which 8 (3%) donors experienced the adverse effects post blood donation. Among those 6 (75%) were male and two (25%) were females. Out of these eight donors seven were first time donors and one was repeated blood donor. Symptoms of adverse effects from blood donation were very mild in our study subjects and there were no serious consequences observed. Mostly donors recovered on taking rest and refreshment post donation and none needed hospitalisation or any medical care.









4. Discussion

During our study we observed that number of female donors were very less, probably because of unawareness and/or rejection due to non meeting the eligible criteria of a healthy donor. Also it was seen that females are more prone to get adverse effects as compared to males not affected by the status of donation (first or repeated). In our study we noted weakness being the most common adverse effect although there was no correlation to the amount of blood donated as we only collected 350+/-50 ml of blood which do not even come close to the amount of blood needed to cause class I risk of hypovolemia (which is at least 800-1500 ml). (10-13) It was observed that weakness was mostly due to anxiety or psychological. Bruise at the site of venepuncture is also very commonly seen mostly due to trauma at the time of needle insertion. Other factors contributing to the adverse reactions were sleep status before the day of blood donation, meal status before donation, rest post blood donation of blood and profession of donor whether requires high physical strength or a behind the desk job person. So to summarise we can comfortably conclude that adverse reactions are not dependent on just one or two factors, there is a whole plethora of factors contributing for same. In view of these reactions to blood donors a Hemovigilance Programme of India (HvPI) was also launched on 10th December 2012 and then National Blood Donor Vigilance Programme (NBDVP)

was also launched on 14th June 2015, to keep a check on these kind of adverse reactions. These programme are recruiting more and more blood banks across India and keeping a check on such incidences and trying to minimise them. (15)

5. Conclusion

During the study we found that first time donors are more prone to experience adverse reaction as compared to repeated donors. Female donors are more vulnerable to adverse reaction as compared to males (almost double). We can now safely say that just by taking care of small things like proper diet, sleep, rest before and after donation as well as providing guidance to the donor about to dos and not to dos of blood donation we can prevent majority of adverse effects and thereby encouraging people to do more donation and help the needful.

Acknowledgements
The author would like to acknowledge all the participants of the survey as well as the blood bank staff members for their support and input in making this study successful.

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