INCIDENCE OF VASOVAGAL REACTION AMONG THE BLOOD DONORS ATTENDING AT TRANSFUSION MEDICINE DEPARTMENT OF DHAKA MEDICAL COLLEGE HOSPITAL

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Abstract:

Introduction: Without blood there may be no blood transfusion. Without donors there may not any blood. During vasovagal reaction there is chance of accidental fall and injury to blood donor. So improving the safety of the blood donation experience will reduce the donor injuries and increase the blood donation, donation frequency and donor satisfaction.

Objective: This study was done to find out the incidence of blood donor reaction- vasovagal reactions among the blood donors attending at transfusion medicine department of Dhaka Medical College Hospital and to improve the donor's safety.

Methodology: This study was done at Transfusion Medicine Department of Dhaka Medical College Hospital in the period between January 2010 to December 2010. Total 21815 donors of 18 to 55 years of both sexes were selected after reviewing the questionnaire, physical and medical examination and written consent. Donors were observed for 30 minutes after donation. The needle site was covered with a bandage and the donor was directed to keep the bandage on for several hours.

Result: In this study, out of 21815 donors 163(8.7%) developed reaction. In163 reactions, 72(44.18%) were in male and 91 (55.82%) were in female donors. Within 20179 male donors, adverse reactions occurred in 72 (0.35%) and within 1636 female donors, adverse reactions occurred in 91 (5.56%) The symptoms were agitation 23 (14.12%), pallor 31 (19.02%), sweating 29 (17.79%), nausea 21 (12.88%), vomiting 38 (23.21%), cold feeling 12(7.36%), loss of consciousness 9(5.52%),i.e. severe reactions were 9(5.53%) and mild to moderate reactions were154 (94.47%). Among the reactions 127 (0.89%) occurred in new donors, 32 (0.49%) occurred in occasional donors and 4 (0.37%) in periodic donors.

Conclusion: Vasovagal reactions are more common in female and new donors.

Key words: *Blood donor, vasovagal reaction.*

Introduction:

Blood transfusion differs from all other medical activities and therapy that it concerns not only doctors and patient but also blood donors. Without blood there may be no blood transfusion. Without donors there may not any blood. Careful donor selection contributes vitally to the safety of both donor and recipient. Work of blood transfusion starts with collection of blood. Blood donation is not completely free from risk. The risks of donation are less when donors are fit and well. Blood must be collected under the responsibilities of a physician. Any adult individual who is in good health, free from any recent serious infection, between 18-55 years, haemoglobin above 12gm/dl, weight above 50 kg, blood pressure above100/60 mm Hg and below 200/100 mm Hg, pulse 60-100/ minute, temperature normal can donate blood after every four months[1]. Most donor tolerate giving blood very well but occasionally a donor will have an adverse reaction to the donation. Most reactions are vasovagal reactions. The reactions may be the result of psychological influences caused by sight of blood, watching others to give blood, excitement, fear, apprehension or for unexplained reasons. They may be a neurophysiologic response to the donation[2]. Reactions are mild, moderate, and

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severe. Mild reactions are signs of shock without loss of consciousness i.e. anxiety, nervousness, nausea, vomiting, feeling cold, pallor, sweating, rapid and thready pulse, hyperventilation. Moderate reactions are progression of mild reactions with loss of consciousness. Mild and moderate reactions are managed by stopping the donations, loosening the clothes, clearing the airways, rebreathing in a paper bag, raising the feet end (Trendelenburg position), cold sponging over forehead or back of the neck, checking pulse, blood pressure, temperature, administering oxygen. Severe reactions are signs of shock with convulsion and vasovagal syncope. Severe reactions are managed as before after removing from donor couch to prevent injury[3].

Methodology:

Donors were selected after information and counseling about fulfilling the criteria. Donors were given a donor questionnaire that included several basic health and sensitive lifestyle questions required to protect both the donor and patient. Doctors reviewed the questionnaire and performed a health screening examination where pulse, blood pressure, temperature, haemoglobin, weight were checked. Donors of both sexes, between 18-55 years, Hb-more than 12 g/dl, weight above 50 kg, who is in good physical and mental health, free from any infection (malaria, hepatitis, typhoid, tuberculosis, syphilis) were included. Donors with history of allergy, hypertension (with or without medication), diabetes (taking insulin), surgery (within 6 months), tooth extraction (within 6 weeks), immunization (live vaccine within 4 weeks), blood donation (within 4 months), receiving blood or blood component (within 12 months), delivery, lactation, menstruation, travelling, drug addiction were excluded. After physical examination, informed written consent was taken. With all aseptic precaution about 450ml blood was collected in blood collecting bag with anticoagulant taking about 15 minutes[4].Donors were observed for 30 minutes after donation. The donors were given light refreshments to help the donor recover. The needle site was covered with a bandage and the donor was directed to keep the bandage on for several hours[5].

Results:

Results are given in tables.

Table I

Distribution of donors by sex (n=21815)

Sex of donors	No of donors	Percentage
Male	20179	92.5
Female	1636	7.5

Table II

Distribution by types of donors depending on frequency of donation (n=21815)

Types of donors	No of donors	%
Periodic	1091	5.01
Occasional	6544	29.99
New	14180	65.00

Table-III

Distribution by reaction (n=21815)

Reaction occurred or not	No of donors	%
Reaction	163	8.74
No reaction	21652	91.26

Table-IV

Distribution by symptoms (n=163)

Symptoms	No	%
Agitation	23	14.12
Pallor	31	19.02
Sweating	29	17.79
Nausea	21	12.88
Vomiting	38	23.21
Cold feeling	12	7.36
Loss of consciousness	09	5.52

Table-V

Distribution by severity of adverse reactions (n=163)

Severity of reaction	No	%
Mild to moderate	154	94.47
Severe	09	5.53

Table-VI

Distribution of adverse reactions by sex of donors (n=21815)

Sex	No of reaction	No of donor	%
Male	72	20179	0.35
Female	91	1636	5.56

Table-VII

Distribution of reactions by types of donor depending on frequency of donation

Types of donors	No of reactions	No of donor	%
Periodic	4	1091	0.37
Occasional	32	6544	0.49
New	127	14180	0.89

Discussion:

In this study, total donors were 21815, in which male were 20179 (92.5%) and female were 1636 (7.5%). Out of 21815 donors 163 (8.7%) developed vasovagal reactions. In163 reactions, 72 (44.18%) were in male and 91 (55.82%) were in female donors. Within 20179 male donors, adverse reactions occurred in 72 (0.35%) and within 1636 female donors, adverse reactions occurred in 91 (5.56%) It indicates that reactions are higher in female. The symptoms were agitation 23 (14.12%), pallor 31 (19.02%), sweating 29 (17.79%), nausea 21 (12.88%), vomiting 38 (23.21%),cold feeling 12 (7.36%),loss of consciousness 9 (5.52%), i.e. severe reactions were 9 (5.53%) and mild to moderate reactions were154 (94.47%). Among the reactions 127 (0.49%) occurred in new donors, 32 (0.49%) occurred in occasional donors and 4 (0.37) in periodic donors. Now the conclusion is that vasovagal reactions are more common in female and new donors. One study showed that 2% of donors had an adverse reaction to donation[6].Most of these reactions are minor. Studies have demonstrated that approximately 3% to 10% of blood donors will experience an adverse reaction or injury after the donation[7]. In one study records of 422,231 allogenic whole blood donations over a 9-month period and assessed for pre-faint and faint reactions. They found a total of 6,049 adverse events; a rate of 1.43 %. Of this total, the percent of mild, moderate or severe reactions was 63%, 29% and 8% respectively. Predictors of these reactions were age, sex, blood volume, blood pressure, pulse, and body mass index. The strongest predictors of a reaction were donor blood volume of less than 3500 ml, age, and first time donor status[8]. In one study the prevalence of moderate to severe reactions was 41 in 10,000 donations; 24% of these reactions were delayed, and 12% occurred offsite. Delayed reactions were associated with female gender. Low estimated blood volume, youth, and first-time donor status were major risk factors for immediate and delayed reactions. Women were more likely than men to report delayed reactions[9]. Adverse reactions recorded in the American Red Cross donor hemovigilance program in 2006, adverse reactions occurred at a rate of 7.4, 5.2, and 3.3 per 10,000 collections for whole blood, apheresis platelet, and 2-unit automated red cells[10].The donor reaction rate was 12.0 percent (870/7274). Female donors overall had a higher donor reaction rate than male donors (16.7% vs. 7.3%). A model suggested that a change in the blood-unit volume from 450 to 500 ml would increase donor reaction rates by 18 percent in either female or male donors, whereas a reduction in the blood-unit volume from 500 to 400 ml would decrease donor reaction rates by 29 and 27 percent in female and male donors, respectively[11]. Donors who developed delayed faint should be indefinitely deferred from blood donation[12].Syncopal reactions most commonly occur at the refreshment table where preventive safety measure against trauma could be applied[13].

Conclusion:

Reactions can be reduced by proper donor selection. All donors should be observed for at least 15 min after donation and should be questioned about their occupation. Donors in whom fainting would be especially hazardous to themselves or to others (pilot, surgeons, bus drivers) should refrain from work or potentially dangerous hobbies for up to 12 hrs after giving blood.

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Conflicts of interest: None

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