

SCIENTIFIC ARTICLES

ADVERSE REACTIONS IN VOLUNTARY WHOLE BLOOD DONORS: Experience at the National Blood Transfusion Centre in Democratic Republic of Congo

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ABSTRACT

BACKGROUND

Whole blood donation, generally considered as a safe procedure, may be sometimes associated with adverse reactions and injuries of variable severity during or after the blood donation process. There are few reports of adverse events related to blood donation in the Democratic Republic of Congo.

OBJECTIVES

The aim of this study was to document the frequencies and types of adverse reactions in whole blood donors.

MATERIALS AND METHODS

A prospective study was conducted and data collected from January 2006 to December 2012 at the National Blood Transfusion Centre in Kinshasa, Democratic Republic of Congo. In this centre, all blood donors are voluntary and blood donation is only of whole blood. All donor events and complications were recorded in the consecutive 150696 whole blood donations at the centre and were later analyzed.

RESULTS

Overall 2717 (1.8%) of the 150696 donors showed adverse reactions. Vasovagal reactions (dizziness, intense thirst, nausea, sweating, palpitations, vomiting, blurred vision and loss of consciousness) accounted for 84.3%, and local reactions (haematoma, contact allergy, etc) for 15.7% of all adverse reactions. 71.0% of adverse reactions observed, were in first-time blood donors.

CONCLUSION

Analysis of adverse reactions related to blood donation is necessary in order to design appropriate voluntary donor motivational strategies, and to improve pre-donation counseling, and donor care during, and after blood donation. Blood centres have an obligation to assure blood donor safety by constant effort to minimise blood donation complications, so as to promote voluntary blood donation.

INTRODUCTION

Whole blood donation, a procedure generally considered as safe, may be sometimes associated with adverse reactions and injuries of variable severity during or after the blood donation process^{1,2}. In Democratic Republic of Congo (DRC), there is lack of awareness and community motivation for voluntary blood donation. This results in the shortage of donor blood, and the predominance of the replacement system of blood donation, which in turn causes high prevalence of transfusion transmitted infections. There is need to implement strategies to increase the recruitment and retention of voluntary blood donors so as to ensure adequate blood supply. To achieve this purpose it is essential to make the blood donation experience as pleasant as possible, especially for the first time donor, and to assure blood donor safety during, and after blood donation. Adverse reactions and injuries in blood donors are known to have a negative impact on the donors' willingness to return and become repeat donors^{3,4}. Little is reported about adverse events related to blood donation in DRC. The aim of this study was to document the types and frequencies of adverse reactions in whole blood donors. The results of this study should help in the design of appropriate donor motivational strategies, and the pre-donation counseling, and care, of donors. Physicians who deal with blood donors should also benefit from the results, by becoming familiar with possible donor adverse reactions, and their management and prognoses^{5,6}.

MATERIALS AND METHODS

The study was conducted at the National Blood Transfusion Centre in Kinshasa, DRC, from January 2006 to December 2012. In this centre, all blood donors are voluntary and blood donation is only of whole blood. The blood donors were selected using criteria established by the National Programme of Blood Transfusion. For donation, the lowest body weight accepted was 45 kilograms (kg), and the minimum acceptable concentration of haemoglobin was 12 g/dl or 38% haematocrit. An 18 gauge needle was used, and was inserted, without local anesthesia, into a prominent vein in the ante-cubital fossa area, after sterile swabbing, to take the donation. From female donors with weight ranged from 45 to 64 kg, 250ml of whole blood were collected and 450ml from those weighing more than 64kg. From male donors 250ml of blood were collected from those weighing from 45 to 59kg and 450ml from those with weight greater than 59kg. All adverse reactions during or after blood donation at the collection sites, were recorded.

RESULTS

Frequency of adverse reactions

Adverse reactions were reported in 2717 of the 150696 blood donations. The overall adverse reactions frequency was 1.8 %, that is, 1 case of adverse reactions in every 55 donations. The frequency distribution of symptoms occurring in donors during or after the donation is presented in Table I.

TABLE 1: Frequency of the symptoms occurring in donors during or after the donation

Adverse reaction	Number (n)	Percentage (%)
Systemic reaction		
Dizziness	581	21,4
Intense thirst	502	18,5
Nausea	458	16,9
Sweating and palpitations	305	11,2
Vomiting	213	7,8
Blurred vision	182	6,7
Loss of consciousness	50	1,8
Local reaction		
Haematoma	274	10,1
Contact allergy	152	5,6
Total	2717	100,0

Vasovagal reactions (dizziness, intense thirst, nausea, sweating, palpitations, vomiting, blurred vision and loss of consciousness) were the most commonly observed reactions. They occurred in 2291/2717 (84.3%) of donors showing reactions. Local reactions (hematoma, contact allergy) were recorded in 426/2717 (15.7%) of donors showing adverse reactions.

Frequency of adverse reactions in relation to type of donor is shown in figure 1.

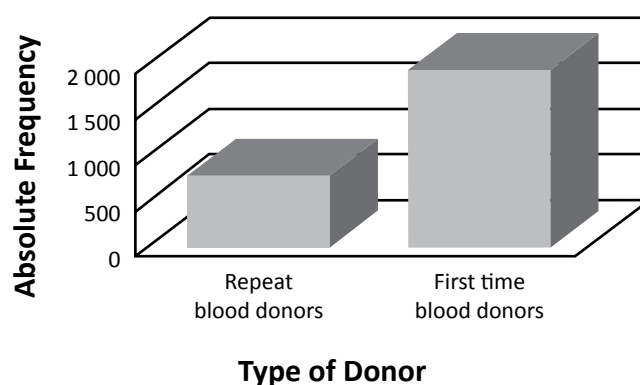


FIGURE 1: Absolute frequency of adverse reactions and type of donor

Adverse reactions most commonly occurred in first-time blood donors and accounted for 1930/2717 (71.0%) of donors showing adverse events. 4.3% of first-time donors (1930/45201) showed adverse reactions, while the figure for repeat donors was 0.7% (787/105495).

DISCUSSION

1.8% of the 150696 whole blood donations were complicated by adverse reactions. This frequency, like the 1.2% observed in Italy⁷, is in accordance with other studies in which frequency of adverse events related to blood donation ranged from 0.28 to 2.5%^{8,6}. Our results confirm the fact that blood donation is, generally, a safe procedure. However, vasovagal reactions are fairly common.

First-time donor status is recognised to be a risk factor for vasovagal reaction⁹ and the frequency of the vasovagal reactions varied in various studies: 0.20% in Italian centres⁸, 53.7%¹ and 70% in India². Fortunately, the vasovagal reactions observed in our study were mostly of mild intensity. There was no major episode that necessitated hospitalisation. With a frequency of adverse reactions of 1 in every 55 donations shown in our study, the National Blood Transfusion Centre must continue to monitor events related to blood donation and make constant effort to reduce the frequency of adverse reactions to the lowest level possible.

Some practices could help to minimize occurrence of adverse events during blood donation. These include a friendly and warm atmosphere for donation, and engagement of the donor in friendly conversation. Attendants must develop the capacity to recognize quickly and to react fast and correctly, at the onset of symptoms and signs of impending fainting, such as dizziness, feeling of weakness, and sweating¹⁰. After donation, it is important to offer refreshments (lemonade, tea, coffee, juice, sandwiches, and biscuits) to the donors so that they can remain seated, and be under observation for about 15 - 30 minutes in the recovery room^{10,2}. At this time, blood donors may be given some post donation counseling about healthy living, and be encouraged to return for future donation.

Hematoma is the most common local reaction observed in our study: It occurred in 10.1% of donors showing adverse reactions. The frequency of hematoma formation was reported as 12 % in India². The effect of experiencing this venepuncture – related problem¹⁰, particularly in first-time donors, could lead to reduction of return rates³. The National Blood Transfusion Centre should offer opportunities to the phlebotomists to improve their skill with practice under supervision of experts¹⁰.

CONCLUSION

Analysis of adverse reactions related to blood donation is necessary as basis for design of appropriate voluntary donor motivational strategies, to improve pre-donation counseling, and donor care during and after blood donation. Blood centres have an obligation to assure blood donor safety by constant effort to minimise blood donation complications, so as to maintain higher levels of repeat voluntary blood donation.

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