Abstract

Objectives: To assess the awareness and attitudes related to blood transfusion safety among blood donors from the Autonomous Province (AP) Vojvodina, Republic of Serbia.

Background: Blood donors are at the initial point of safe blood transfusion systems. The active participation of blood donors in the selection process contributes to increasing the safety of blood transfusions and reduces potential risks for the recipients.

Materials and Methods: The cross-sectional survey included 1191 blood donors from AP Vojvodina. The awareness and attitudes regarding safe blood supply were measured as five-point scales of agreement/disagreement with statements on a Likert scale. The data were analyzed using non-parametric methods by frequency modalities.

Results: Male blood donors, the youngest age group (18 to 20 years), those who donate blood for the first time and those with a lower educational level showed the lowest awareness of, and the most negative attitudes about, blood safety.

Conclusions: The study found that there is a small, but for the safety of transfusion, significant, number of blood donors who do not have a positive attitude or awareness of their own impact on safe transfusion therapy, and who are not discovered during standard selection procedures.

Keywords: Awareness, Attitude, Blood donor, Cross-sectional survey, Blood safety

Introduction

Blood transfusion safety is a complex process that includes a range of activities from recruitment and selection of blood donors, to monitoring reactions of patients during and after transfusions treatment (Nel, 2008).

Despite the implementation of numerous preventive activities, transfusion-transmitted infections (TTI) still pose a risk associated with transfusion treatment. Appropriate donor selection and blood collection from voluntary repeat blood donors are very important ways to reduce TTI risk. Effective donor selection should be applied to identify those donors who should not donate blood either temporarily or permanently. This would prevent the collection of blood from donors who are at risk of TTI, but who at the time of blood donation are without clinical and serological evidence of TTI (Watkins et al., 2012).

The active participation of blood donors in the selection process contributes to increasing the safety of blood transfusions and reduces potential risks for the recipients. Self-deferral of the blood donor during the selection processes means that the donor themselves determines that their blood donation could be harmful to the recipient. The decision of the blood donor to self-defer depends on their awareness and attitudes related to TTI and associated risk factors (Steele et al., 2012).
In Serbia, blood donation is based on voluntary, non-remunerated donation, according to the recommendations of the World Health Organisation and the Council of Europe. The screening of blood donors in this country includes the use of a questionnaire for each donor to identify possible forms of risk behaviour, an interview with a physician and a short physical health examination. Each blood donor answers questions related to his/her knowledge and awareness of, and attitudes towards, TTI risk, as well as his/her socioeconomic status and education. In addition, all the collected blood units undergo laboratory testing for human immunodeficiency virus, hepatitis B virus, hepatitis C virus and syphilis.

In order to determine the awareness and attitudes related to blood transfusion safety among blood donors from the Autonomous Province (AP) Vojvodina, Republic of Serbia, we conducted a cross-sectional survey.

**Materials and Methods**

A cross-sectional survey was performed, using non-random volunteer sampling. Participants were recruited at ten collection sites in AP Vojvodina: The Blood Transfusion Institute of Vojvodina in Novi Sad, blood transfusion services in general hospitals in Subotica, Sombor, Pancevo, Kikinda, Vrsac, Senta, Zrenjanin, Vrbas and Sremska Mitrovica and in their mobile units. All participants completed a self-administered questionnaire designed and validated for this study. The questionnaire included socio-demographic information (gender, age, number of blood donations, level of education) and five statements about awareness and attitudes related to TTI and risk factors. All five statements were measured on a five-point scale of agreement/disagreement (Likert scale) to indicate how much they agreed with the statement.

Participation in the study was voluntary and anonymous. Blood donors, male and female, aged between 18 and 65 years, first time and repeat blood donors, different levels of education, and who met the criteria for blood donation, according to the guidelines of donor suitability for blood donation, were included. Blood donors who did not reply to all the statements were excluded from the study. The study was approved by the Ethics Committee for Medical Research of the Faculty of Medicine, University of Novi Sad and signed informed consent was obtained from each study participant.

Collected data were coded, entered and analysed using non-parametric methods. Variables, scaled in contingency tables, were analysed using multivariate analysis of variance (MANOVA) and discriminant analysis. Calculation of the coefficient of discrimination (C) defined the characteristics that determined the specificity of the subsamples. Associations between agreement/disagreement with statements and socio-demographic variables of participants were analysed using Chi-square tests. The level of statistical significance was set at p=0.05.
Results

One thousand and forty five blood donors were included in the study and 1191 of them responded to all statements (96% response rate). The study sample of 1191 blood donors consisted of 910 males (76.4%) and 281 females (23.6%). Within the sample, 69.5% of blood donors were 21 to 50 years old (mean age 35.5, median 35.0); 92.3% were repeat donors; 69.7% were high school educated (Table 1).

The data showing associations between agreement/disagreement with statements and demographic characteristics of study participants are summarized in Table 2. The multivariate analysis (MANOVA) showed that the demographic characteristics were significantly associated with agreement/disagreement with statements of study participants (p<0.05 for all characteristics). Male blood donors, the youngest age group (18 to 20 years), those who donated blood for the first time and those with a lower educational level have shown the lowest awareness of and the most negative attitudes towards blood safety.

Discussion

This study showed that some blood donors (0.8-6.7% of study participants according to the statements) in AP Vojvodina do not have full awareness of and a positive attitude towards safe blood supply, thus representing a serious risk to the health of blood product recipients. This result has great significance because all the study participants had undergone the standard blood donor selection procedure and had met all the selection criteria.

The answers of blood donors depends on several factors: knowledge about blood donation and transfusion treatment, understanding the criteria for donor selection listed in the questionnaire for blood donors, the motivation for blood donation and the impact of social and psychological characteristics (Gonzalez et al., 2008; Franklin 2007; O'Brien et al., 2010a).

Blood donors who donate blood solely for altruistic reasons have no reason to conceal answers to questions that may affect their eligibility for blood donation (Wilkinson et al., 2011, 2012; Sinclair et al., 2010). However, some blood donors still conceal answers, usually because the motivation for blood donation is based on personal benefit (O'Brien et al., 2010a). Rugege-Hakiza et al. (2003) found that the knowledge regarding blood safety is less influential than motivational factors of self-deferral of blood donors.

Male blood donors constituted the majority of participants in this study, and comprise the majority of blood donors in AP Vojvodina. This is in line with the study of Miskulin et al. (2011) among blood donors from East Croatia where males made up 86.5% of blood donors. In studies from other geographic areas, the number of male blood donors was different: 93% in India (Uma et al., 2013), 52.8% in Norway (Stigum et al., 2001b), 52% in Brazil (Gonzalez et al., 2008) and 48% in the USA (Sharma et al., 2001).
In our study, 74 (6.2%) blood donors strongly disagreed or disagreed with the statement that a blood donor needs to notify a transfusion service if they develop any illness during the six months after donating. Nine (0.8%) blood donors strongly disagreed or disagreed with the statement that their blood was safe for a recipient. This is a higher percentage than in the study from Canada, which evaluated results of the confidential unit exclusion (CUE), conducted by O’Brien et al. (2010b), and showed that there were 0.15% blood donors who had indicated their blood was not safe for use. Another study conducted by Sünnig et al. (2010) in Germany found 0.26% blood units marked as unsafe by blood donors.

Thirty-one (2.6%) blood donors strongly disagreed or disagreed with the statement that they would give up blood donation if they knew their blood was not safe for a recipient, which is less than in the study by Sharma et al. (2001) where 12% of the tested blood donors donated blood knowing it was at risk for HIV. Stigum et al. (2001a) found that 2-8% blood donors reported to have donated blood in order to be HIV tested.

In our study, 80 (6.7%) blood donors agreed or strongly agreed with the statement that they give blood only in order to be tested for HIV and other sexually transmitted infections. HIV test-seeking blood donors are more often inclined to conceal information about risky behaviours which threaten the system of safe blood transfusion treatment (Gonzalez et al., 2008). In the study by Steele et al. (2012) conducted in the USA, 30% of blood donors considered it to be appropriate to give blood only for testing purposes, while the highest risk combination (giving blood for testing only and recent risky behaviour), comprised of 4.2% of blood donors. In another study in the USA, conducted by Sharma et al. (2001), 23% blood donors considered it appropriate to give blood for testing.

Truthful and accurate answers to the questions on the blood donor questionnaire are one of the most important elements of blood donor selection. O’Brien et al. (2010a) have been investigating why blood donors conceal answers to issues related to risky behaviour and consider that these blood donors can be identified in post donation interview after the positive results of laboratory testing or by an anonymous questionnaire. The reasons for concealing responses are complex and despite the efforts of transfusion services in the field of transfusion safety, some of the blood donors conceal answers. In our study, 33 (2.8%) blood donors strongly disagreed and disagreed with the statement that truthful and accurate answers to the questions on donor questionnaires are essential for the safety of patients who receive that blood. Stigum et al. (2001b) found in a study of Norwegian blood donors that 1.5% of the donors reported behaviour that would have led to deferral, had the behaviour been disclosed at the pre-donation interview.

This is the first study about awareness and attitudes related to blood transfusion safety among blood donors from the AP Vojvodina and these findings are in concordance with similar studies (Davison et al., 2015; Stigum et al. 2001a). The results of this study will be of great help in planning future strategies to recruit and retain low-risk blood donors. Information, education and communication activities relating to the impact of blood donors on blood safety can be helpful in reducing blood transfusion risk, as well as encouraging regular blood donors to continue their active participation in the selection process.
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Conflict of interest

The authors have no competing interests.

References