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TRANSFUSION CLINIQUE ET BIOLOGIQUE

Transfusion Clinique et Biologique 21 (2014) 94–97

Short communication

The risk for hepatitis C infection in blood donors in Cluj County, Romania

Le risque d'infection par l'hépatite C chez les donneurs de sang dans le comté de Cluj, Roumanie

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Available online 3 May 2014

Abstract

Blood products safety is based on different criteria including the selection of blood donors. Blood donors referred to Cluj County (Romania) Blood Transfusion Centre in January–March 2012 completed a self-administered questionnaire and were examined by a physician. Data collected from first-time and repeat donors were compared for possible risk factors for hepatitis C infection. In total, 1100 donors were selected. In first-time donors, most frequent factors were age < 26 years, female gender and history of health care procedures. Behavioural risk factors (e.g. drug use, sexual promiscuity) may not be properly filtered out in blood donors, suggesting the necessity of improving the health screening process.

Keywords: Blood donation; Blood borne viral infection transmission; Screening

Résumé

La sécurité des produits sanguins repose sur différents critères parmi lesquels la sélection des donneurs de sang. Les donneurs de sang du Centre de transfusion sanguine de Cluj (Roumanie) pendant la période janvier–mars 2012 ont rempli un questionnaire auto administré et ont été examinés par un médecin. Les données recueillies à partir des nouveaux donneurs et donneurs habituels ont été comparées pour les facteurs de risque possibles pour l'infection par le virus de l'hépatite C. Les données concernant 1100 donneurs ont été analysées. Pour les nouveaux donneurs, les facteurs les plus fréquents étaient l'âge < 26 ans, le sexe féminin ainsi que les antécédents de soins médicaux. Les facteurs de risque comportementaux, tels que la consommation de drogue ou la promiscuité sexuelle ne peuvent pas être correctement filtrés parmi les donneurs de sang, ce qui suggère la nécessité d'améliorer le processus d'examen de santé.

Mots clés : Don du sang ; Infection virales transmises par sang ; Dépistage

1. Introduction

All blood transfusion services have specific rules to make sure that blood products are obtained and kept safe for transfusion. Donor screening is crucial in providing safe blood products [1]. Because of the increasing migration process of citizens within the European Union, a high and similar level of safety for blood products is required in every Member State of the European Union [2].

Therefore, high-risk and potentially infected candidates have to be excluded from blood donation by a careful selection associated with laboratory screening [2]. Nevertheless, laboratory tests are not completely reliable due to the serologic window period during which some infections, such as HIV or hepatitis C virus (HCV) are not detectable [1]. The lower prevalence of specific viral infections in selected blood donors as compared to the general population suggests the efficacy of the selection of candidates for donation in reducing the transmission of specific viral infections [3].

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http://dx.doi.org/10.1016/j.tracli.2014.03.004
1246-7820/

Table 1
Number and percentage of risk factors for HCV in blood donors in Cluj County.

Variables	Blood donors						*P* value
	First-time		Repeated		Total		
	n = 265	(24.1%)	*n* = 835	(75.9%)	*n* = 1,100	(100%)	
Demographic data							
Age (years)							
18–25	124	46.8%	277	33.2%	401	36.5%	0.02
26–35	64	24.2%	242	29.0%	306	27.8%	
36–45	52	19.6%	215	25.7%	267	24.3%	
45–62	25	9.4%	101	12.1%	126	11.5%	
Gender							
Male	207	78.1%	700	83.8%	907	82.5%	0.03
Female	58	21.9%	135	16.2%	193	17.5%	
Residency							
Urban	184	69.4%	604	72.3%	788	71.6%	0.22
Rural	60	22.6%	151	18.1%	211	19.2%	
Unspecified	21	7.9%	80	9.6%	101	9.2%	
History of health care related factors							
Surgery	50	18.9%	113	13.5%	163	14.8%	0.04
Hospitalisation	53	20.0%	109	13.1%	162	14.7%	0.01
Health care procedure other than surgery	26	9.8%	39	4.7%	65	5.9%	0.01
Behavioural risk factors							
Intravenous drug use	0	0.0%	0	0.0%	0	0.0%	0.42
Recent change of sexual partner	3	1.1%	4	0.5%	7	0.6%	0.24
Sex with non-usual partner	3	1.1%	2	0.2%	5	0.5%	0.14

The available data from Europe indicates a wide variation in HBV and HCV prevalence between countries, ranging from 0.1 to 7.0% for HBV and from 0.4% to 3.5% by country for HCV infection [4,5]. In the southern part of the European Union (EU), the HCV prevalence is higher compared to the north or the west of the EU. The prevalence is indeed low ($\leq 1\%$) in Belgium, Germany, Netherlands, Slovakia, Sweden, Switzerland and the United Kingdom, medium ($> 1\%$ and $\leq 2\%$) in France and Spain and high ($> 2\%$) in Romania and Italy [4]. HIV prevalence varies from below 0.2% in parts of Central Europe (Romania–0.1%, but with the highest rate of AIDS cases, 1.3 per 100,000 population) to above 0.7% in Western Europe (Portugal has the highest HIV prevalence, followed by Austria, France, Italy and Spain at 0.4%). Generally, HIV and AIDS have affected Western Europe more than Central Europe [6].

The aim of our study was to assess if there are any differences in selection of the possible risk factors for hepatitis C infection in new and repeat blood donors in Cluj County (Romania).

2. Methods

In the Cluj County, (middle of North-Western area of Romania), a single Blood Transfusion Centre is operating for 460,000 inhabitants. Each candidate donor aged 18–62 was screened using a standardized self-administered questionnaire, including demographic data, history of health care related and behavioural risk factors. Candidates were finally selected as donors by a physician. Only the selected donors were included from January to March 2012 in this study. To assess the efficacy of donor's selection process, first-time donors were compared to repeat donors (considered as a reference) for known HCV risk factors using Chi^2 tests and then a logistic regression, including all risk factors with univariate *P* value ≤ 0.20. Factors validated in the literature were also forced in the model. The study was approved by the ethics committee of Iuliu Hatieganu University of Medicine and Pharmacy in Cluj–Napoca.

3. Results

During three months, 1100 blood donors were selected among whom 24.1% were first-time blood donors; 36.5% were aged 18 to 25 and 82.5% were men. Sexual risk factors for HCV transmission were reported in only 5 donors (0.5%) and none reported intravenous illicit drug use. A history of hospital admission was reported in 14.7%, a surgical procedure in 14.8% and a health care procedure other than surgery in 5.9% (Table 1). Logistic regression analysis (Table 2) shows that first-time blood donors were younger, more frequently women and that they reported more often a history of health care procedure other than surgery.

Table 2
Factors independently associated with first-time versus repeat donors in Cluj–Napoca (2012).

Variables	OR	95% CI	*P* value
Age $\geq$ 26 years (vs < 26)	0.56	0.42–0.75	0.0001
Male gender (vs female)	0.67	0.47–0.95	0.03
History of health care			
Admission	1.43	0.86–2.37	0.16
Surgical procedure	1.05	0.62–1.76	0.85
Other procedure	2.08	1.22–3.54	0.007
Sexual risk factors	1.70	0.47–6.21	0.42