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The Prevalence of Blood-Borne Viral Infection (HBV, HCV, HIV) among Hemophilia Patients in Hamedan Province of Iran

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Abstract

Background: Hemophilia A and B are the most frequent congenital coagulation disorders. This study was conducted to determine the prevalence of hepatitis B, C and human immunodeficiency viruses among hemophilic patients in Hamadan, Iran.

Patients and Methods: In this study, patients with hemophilia A and B treated in Hamedan Hemophilia Center, Hamedan, Iran, were screened for hepatitis B, C and human immunodeficiency viruses (HIV) during the year 2012.

Results: The prevalence of hemophilia A and B were 86.5 % and 13.5% respectively, and 57.3% of patients had severe hemophilia. HBS antigen, HCV antibody, HCV PCR and HIV antibody were positive in 1.1%, 49.4%, 16.7% and 1.1% of patients respectively. The prevalence of HCV antibody was higher in those patients receiving cryoprecipitates more frequently.

Conclusion: Hepatitis C infection has a high prevalence in Hamedan Hemophilia Center, Hamedan, Iran, among hemophilic patients. It seems reasonable to use more accurate virus deactivation techniques during blood products preparation or use other safer treatment methods for hemophilia patients.

Keywords: Hepatitis, human immunodeficiency virus, hemophilia.

Introduction

Hemophilia A and B are the most frequent congenital coagulation disorders [1]. In many institutions, patients use plasma-derived coagulation factors instead of recombinant factors as a replacement therapy, which is processed by virus-deactivation methods [2-4]. Transfusion transmitted infections are one of the most pronounced hygienic hazards among these patients [5-6]. This study was conducted to determine prevalence of hepatitis B, C and human immunodeficiency viruses in hemophilic patients in Hamadan, Iran.

Patients and Methods

In the present study, patients with hemophilia A and B treated in Hamedan Hemophilia Center, Hamedan, Iran, were screened for hepatitis B, C and human immunodeficiency viruses (HIV) during the year 2012.

Results

In the present study, 77 patients (86.5%) of 89 patients suffered from hemophilia A, and the remainder had hemophilia B. Seventy nine patients (88.8%) were male and 10 patients (11.2%) were female. Mild hemophilia was observed in 18 patients (20.2 %), moderate hemophilia in 20 patients (22.5%), and severe hemophilia in 51 patients (57.3%). Upper gastrointestinal bleeding followed by mouth lesions, trauma, surgery, circumcision, epistaxis, hemarthrosis, anemia and obstetrics problem were the most common reasons for blood transfusion. In average, patients received 0.76 blood bags per year during the last 7.38 years. Positive HBS antigen and HIV antibody were detected in one patient (1.1%), HCV antibody in 44 patients (49.4%) and HCV PCR was positive in 15 patients (16.7%). According to our findings, there was a significant relation between the presence of HCV antibody and the disease severity

Table 1: The relationship between amount and frequency of transfused blood derived products per year and HCV antibody

Relation to HCV antibody / Received Product Per Year	HCV Antibody	Blood Product	Standard Deviation	P-value
Amount of Blood*	Positive	0.57	0.62	0.09
	Negative	0.95	1.36	
Amount of Fresh Frozen Plasma*	Positive	17.08	36.77	0.15
	Negative	44.77	122.71	
Amount of Cryoprecipitate*	Positive	25.95	107.98	0.37
	Negative	49.13	103.44	
Frequency of Blood	Positive	0.62	0.64	0.45
	Negative	0.72	0.65	
Frequency of Fresh Frozen Plasma	Positive	46.86	52.39	0.08
	Negative	72.68	82.62	
Frequency of Cryoprecipitate	Positive	65.38	67.11	0.00
	Negative	13.51	38.05	

*Bag

(P-value<0.05).

Positive HCV antibody was not statistically significantly correlated with the frequency of blood transfusion, but had a statistically significant relation with the frequency of cryoprecipitate transfusion (P-value<0.001) (Table 1). The prevalence of positive HCV antibody was 56.5% and 25% in hemophilia A and B patients respectively (P-Value 0.013).

Discussion

According the present study, hepatitis C infection was seen in a significant number of hemophiliacs treated in our center, and it was also more common in patients with hemophilia A. A study in Kosovo has indicated that 38.7% of hemophiliacs had HCV antibody, most of them being hemophilia B patients[7]. Another study in New-Zealand revealed only one positive case of

HCV antibody in 30 patients [8]. Assarehzadegan et al. in Ahvaz, Iran, studied 87 hemophiliacs and found positive HBS antigen and HCV antibody in 1.1% and 54% of their patients respectively [9]. In another study in Esfahan, Iran, 80.5% of hemophilic patients had positive HCV antibody and 70.1% of them were also positive in HCV PCR test [10]. These differences may be due to different treatment plans for hepatitis C infection in different centers, or the laboratory quality. Nasirtoosi et al. from Iran Hemophilia Center reported that HBS antigen, HCV antibody, HCV PCR and HIV antibody were positive in 3.2%, 83.3%, 73.1% and 4.7% of their patients respectively [11]. Their center is a referral center for Iranian hemophilia patients and probably accepts more chronic and complicated cases that may explain their high percentage of infection. In western India, positive HBS antigen, HCV antibody and HIV antibody were seen in 6%, 23.9% and 3.8% of hemophilic patients respectively [12] and in Tunisia, the prevalence of positive HBS antigen; HCV antibody and HIV antibody in hemophiliacs were 7.1%, 23.9% and 8.6% respectively [13].

Conclusion

Hepatitis C infection has a high prevalence in Hamedan Hemophilia Center, Hamedan, Iran, among hemophilic patients. It seems reasonable to use more accurate virus deactivation techniques

during blood products preparation or use other safer treatment methods for hemophilia patients.

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