

THE PREVALENCE OF HBV, HCV AND HIV INFECTIONS AMONG BLOOD DONORS IN IZMIR, TURKEY

Dear editor,

The evaluation of the data of the prevalence of the transfusion transmitted infections (TTIs), Hepatitis B virus (HBV), Hepatitis C virus (HCV) and Human immunodeficiency virus (HIV), among blood donors permits an assessment of the acquisition of the infections in the blood donor population and consequently the safety of the collected donations. It also gives an idea for the epidemiology of these infections in the community.^[1] Therefore, the purpose of the present study was to determine the prevalence of serological markers of HBV, HCV and HIV in the population of blood donors in Izmir, Turkey.

The present study was carried out from September 2004 through August 2007 among voluntary blood donors in Ataturk Training and Research Hospital, Izmir, Turkey. It is a state hospital under the governance of Ministry of Health, and the city of Izmir has a population of 3,400,000 according to the census 2000. Blood samples (about 10 mL) from 44982 donors were tested for antibodies against HCV and HIV, and hepatitis B surface antigen (HBsAg). The screening for these three tests was performed by the microparticle-based enzyme-linked immunoassay (AxSYM; Abbott Laboratories). The positive HBV, HCV and HIV samples were confirmed by HBsAg Confirmatory microparticle enzyme immunoassays (MEIA) on the AxSYM system for HBsAg, branched DNA probe assay (HCV bDNA version 3.0; Bayer) for HCV RNA and HIV BLOT 2.2 confirmation test (MP Diagnostics, Singapore) for HIV respectively. The study period was divided into three sections between the dates of September 2004 and August 2007 in order to examine the results by years.

The quantitative distribution of the total donors for years was as follows: 19593 donors from September 2004 through August 2005 (first year), 15202 donors from September 2005 through August 2006 (second year), and 10187 donors from September 2006 through August 2007 (third year). Of the 44982 blood donations investigated, 620 (1.38%) had HBsAg, 159 (0.35%) had anti-HCV, and only one had anti-HIV confirmed. Of the 19593 blood

samples investigated during the first year 280 (1.42%) were positive for HBV, 78 (0.39%) were positive for HCV, and one was positive for HIV. Of the 15202 blood samples investigated during the second year, 230 (1.51%) were positive for HBV and 43 (0.28%) were positive for HCV. Of the 10187 blood samples investigated during the third year, 110 (1.07%) were positive for HBV, and 38 (0.37%) were positive for HCV. No blood samples were positive for HIV during the second and third years of the study period (Table). There was no statistical significant difference between the data of the HBV positivity rates and the years, and the HCV positivity rates and the years according to Spearman's correlation coefficient ($P = 0.667$).

Transfusion of blood and blood product is a life saving measure and benefits numerous patients worldwide. However, transfusion-transmitted infections (TTIs) are the most commonly encountered complications in transfusion practice. Serological markers for hepatitis HBV, HCV and HIV are screened in blood banks routinely. These tests are obligatory for transfusion safety and may give an idea about the seropositivity rates of a specific region. In our study, the average mean of the three years was found to be 1.38% for HBV. The HBsAg positivity rates were found as 3.4% in Georgia in year 2001, 1.5% in Kingdom of Saudi Arabia in year 2002, 4.3% in Egypt, and 2.21% in Pakistan in year 2006.^[2-5] When we reviewed the same regions for HCV, the anti-HCV positivity rate was found to be 6.9%, 0.4%, 2.7% and 0.5%.^[2-5] Therefore, the results of our study seem to correlate or are lower than the rates in other countries.

We determined anti-HIV positivity in three individuals whose sera were tested by the MEIA method during three years study period, and only one serum was found to be positive after HIV confirmation test.

There is no screening method to reduce the risk of TTIs to zero, it appears that it is essential to adopt strict criteria in the selection of donors and to avoid unnecessary transfusion.

Table: The distribution of the total blood samples studied according to the years and the prevalence of the positivity rates of HBV, HCV and HIV

Infection	Total number of samples studied			1 year (%)	2 year (%)	3 year (%)
	1 year	2 year	3 year			
HBV	19593	15202	10187	280 (1.42)	230 (1.51)	110 (1.07)
HCV	19593	15202	10187	78 (0.39)	43 (0.28)	38 (0.37)
HIV	19593	15202	10187	1	-	-

In our study, we did not find a statistically significant difference for the incidences of TTIs between the period from September 2004 through August 2007. In general, blood donors are members of a low risk behaviour group. The prevalence of TTIs is much higher in higher risk group. We believe that the upgraded measures taken in the blood banks, the rising awareness in the public, the increased HBV vaccination rates, and the use of more developed technologies for determination of TTIs were responsible for the decrease of infection rates in blood banks. The number of samples included in our study has shown decrease during subsequent years. Ministry of health has streamlined the Red Crescent, which is a general blood source unit. It is more active and uses safe blood products. Consequently, the routine number of blood donations has decreased in our blood bank. In conclusion, there is no statistical difference in TTIs prevalence during the last three years in our blood bank. The data of our hospital's blood bank gives a lower rate of positivity for TTIs when compared with the prevalence of TTIs in other regions of our country and other countries.

References

1. Bhattacharya P, Chandra PK, Data S, Banerjee A, Chakraborty S, Rajendran K, *et al.* Significant increase in HBV, HCV, HIV and syphilis infections among blood donors in West Bengal, Eastern India 2004-2005: Exploratory screening reveals high frequency of occult HBV infection. *World J Gastroenterol* 2007;13:3730-3.
2. Butsashvili M, Tsertsvadze T, McNutt LA, Kamkamidze G, Gvetadze R, Badridze N. Prevalence of hepatitis B, hepatitis C, syphilis and HIV in Georgian blood donors. *Eur J Epidemiol* 2001;17:693-5.
3. El-Hazmi MM. Prevalence of HBV, HCV, HIV-1, 2 and HTLV-I/II infections among blood donors in a teaching hospital in the Central region of Saudi Arabia. *Saudi Med J* 2004;25:26-33.
4. El-Gilany AH, El-Fedawy S. Bloodborne infections among student voluntary blood in Mansoura University, Egypt. *East Mediterr Health J* 2006;12:742-8.
5. Mujeeb SA, Aamir K, Mehmood K. Seroprevalence of HBV, HCV and HIV infections among college going first time voluntary blood donors. *J Pak Med Assoc* 2006;56:24-5.

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Received: 18-01-08

Accepted: 09-02-08