

PREVALENCE OF HBV, HCV AND HIV INFECTIONS AMONG FAMILY BLOOD DONORS

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Family blood donors are those who donate blood when the need for blood transfusion arises in their family or their circle of friends. It may be a directed or undirected donation. After paid donations, family blood donations are the most common kind of blood donations in the country. In the absence of proper screening facilities of blood for HBV, HCV and HIV infections and growing awareness of the high prevalence of blood-transmitted infections among paid blood donors,¹⁻³ the number of family blood donations is increasing steadily in the country, with the belief that it is a safer kind of blood to be transfused, as no family donor, knowing of high-risk behavior or a history of blood-transmitted infections, will ever donate his blood to his relatives or friends. Since the reporting of a case of HIV infection in a family blood donor, there is a need to know the prevalence of HBV, HCV and HIV infections among them and assess the level of safety of their blood over paid and voluntary blood.⁴

Material and Methods

After meeting the minimum criteria for selection of blood donors, i.e., Hb >12 g, weight >50 kg, with no apparent history of hepatitis or high-risk behavior, 839 healthy family blood donors who donated blood at the Blood Transfusion Services, Jinnah Postgraduate Medical Center, Karachi, from 1 August 1995 to 30 September 1995, were included in the study. Basic information regarding age, sex and educational qualifications was obtained. Among 839 family blood donors, 796 (94.9%) were males and 43 (5.1%) were females, with a mean age of 27.1 years. Various ELISA kits were used: for HBV, Auszyme Abbott Laboratories (Abbott, IL), for HCV, Abbott HCV EIA 2nd generation (Abbott, IL), and for HIV, Abbott Recombinant HIV 1/2 3rd generation

(Abbott, IL). Quantum II analyzer was used to read the absorbency. All initial reactives were retested; however, repeatedly reactive samples could not be confirmed on any supplementary or confirmatory tests.

Results

Out of 839 family blood donors, 58 (6.9%) appeared reactive for blood-transmitted infections (see Table 1). Among them, 41 (4.9%) appeared HBV-reactive, 20 (2.4%) HCV-reactive and none HIV-reactive. Among 41 HBV reactives, 39 (95.1%) were males and two (4.9%) were females, with a mean age of 27.3 years. Prevalence of HBV infection was found to be 6.3% in illiterate donors, 4.1% in primary school-qualified donors, 4.1% in secondary school-qualified donors, and 4.23% in higher secondary school-qualified donors.

Among 20 HCV reactives, 19 (95%) were males and one (5%) was female, with a mean age of 29.3 years. Prevalence of HCV infection was found to be 4.2% in illiterate blood donors, 2.2% in primary school-qualified donors, 0% in secondary school-qualified donors, and 0.7% in higher secondary school-qualified donors. Three family blood donors appeared reactive for both HBV and HCV infections. All were males, two were illiterates and one was a secondary school-qualified donor.

Discussion

This study highlights a 7% prevalence of blood-transmitted infections among the family blood donors. A particularly high prevalence of HBV and HCV infections has been found in illiterate blood donor populations, indirectly indicating some correlation of the disease with low socioeconomic conditions, possibly due to the use of contaminated razor blades at barber shops or the use of unsterilized needles at clinics, dispensaries and nose and ear piercing setups.

The prevalence of HBV remains the same in all levels of literacy, while the prevalence of HCV infection appears to be lowered with an increase in the education level. It may indicate that the parental route is a main mode of

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TABLE 1. Prevalence of HBV, HCV and HIV infections among family blood donors.

Level of education	No. of subjects	No. of HBV	No. of HCV
Illiterate	284	18 (6.3%)	12 (4.2%)
Pri. school	315	13 (4.1%)	7 (2.2%)
Sec. school	98	4 (4.1%)	0 (0.0%)
High school	142	6 (4.2%)	1 (0.7%)
Total	839	41 (4.9%)	20 (2.4%)

transmission of infection in the country in the case of HCV infection, while in the case of HBV infection, besides the parental route, the perinatal and sexual routes may also be playing their role in the spread. Studies conducted among paid blood donors have shown a 10% prevalence of HBV infection,⁵ and frequent reporting of HIV infections.³ It is very difficult to compare the data of voluntary blood with family blood, as most of the studies conducted earlier have included family donors as voluntary blood donors. However, studies conducted among healthy subjects have shown a 2.9% and 3% prevalence of HBV infections.^{6,7} No data is available on the prevalence of HCV infections among healthy subjects and paid blood donors.

This study suggests that viral markers have a higher prevalence among family blood donors than among healthy subjects (nondonors). Family donors often donate blood under fear of death of the patient or further deterioration of his clinical condition, or sometimes unwillingly under pressure from family, friends or medical staff. Because of these reasons, some family blood donors hide their high-risk behavior and past/present diseases from the blood transfusion staff. Similarly, blood transfusion services working on a replacement basis, having no alternate source of supply of blood, force attendants of the patient to donate blood without giving due consideration to their high-risk behaviors and diseases. Considering these facts, there is a need to organize blood transfusion services in the country

purely on a voluntary, nonremunerated basis with arrangements made for screening of blood for HBV, HCV and HIV infections before every transfusion in all transfusion centers. Blood donors from illiterate populations should be selected with extra care by ensuring that they clearly understand what high-risk behavior and blood-transmitted infections mean before they are asked about their high-risk behavior and past history of illness. No donation of blood, irrespective of how close the donor is to the patient or how well his behavior or health status is known to the family or friends, can be considered safe unless it is tested for HBV, HCV and HIV infections.

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