

Seroprevalence of transfusion-transmissible infections among replacement and voluntary blood donors in a tertiary care hospital

Sir,

Blood bank plays a pivotal role in ensuring supply of safe blood as and when required. However, recruitment of healthy blood donors is a challenge that the health industry is facing today. Predominantly, the blood donation is derived from family and friends as replacement donors for the patient.

A retrospective study was carried out in the Department of Blood Bank in a Tertiary Care Hospital in New Delhi from May 2014 to November 2015. All blood donors were screened for transfusion transmitted infections (TTI) such as hepatitis B surface antigen ([HBsAg]; Hepalisa), anti-HIV antibodies (HIV 3rd generation kit for detection of antibodies to HIV1 and HIV2), anti-hepatitis C virus antibodies ([HCV] MicroELISA 3rd generation), rapid plasma reagin (RPR) and malarial antigen.

Among 41,657 blood donations, 40,187 (96.4%) were replacement and 1470 (3.52%) were voluntary donors. Predominant donor population was males 41,416 (99.42%). A comparison of the demographic profile of the voluntary and replacement donors have been shown in Table 1.

Out of total 41,657 donations, 1682 (4.03%) were found to be positive for one of the infectious diseases and the corresponding blood bags were discarded. HBsAg (2.54%) was the most common infection in both voluntary and replacement donors, followed by HCV (1.07%) as shown in Table 2. Dual positivity for HIV and HBsAg was found in three donors. Only 21 (1.42%) voluntary donors were found to be TTI positive as compared to 1661 (4.13%) replacement donors.

A comparison of the seroprevalence of TTIs among voluntary and replacement donors have been shown in Table 2.

Our study correlated with the existing studies with overall seroprevalence for HIV, HBsAg, HCV, and syphilis as 4.03% (1680 cases).^[1,2] Seroprevalence of HBsAg and HCV was 2.54% and 1.07% and was again comparable to other studies.^[3] However, a significant difference between the seroprevalence of HBsAg and HCV among replacement (2.61% and 1.09%) and voluntary donors (0.75% and 0.34%) is noted as compared to other studies. HBV (62.9%) was most common infection according to our study followed by HCV (26.4%) and HIV (8.2%). The prevalence of coinfection in our study was very low (0.01%) as compared to other studies where the prevalence of coinfection was high.^[4] The RPR reactivity for syphilis in our study was 0.09% which was comparable to other studies.^[5] In this study, HIV and syphilis seroprevalence showed no significant difference between voluntary and replacement donors.

Seroprevalence of TTI among the donors leads to discard and wastage of a large volume of blood. The overall lower prevalence of TTI among voluntary

Table 1: Comparison of the demographic profile of the voluntary and replacement donors

Demographic variables	Group		χ^2	P
	Replacement (%)	Voluntary (%)		
Age				
<20	2347 (5.84)	357 (24.29)	2286.523	<0.0001 (HS)
20-30	17,544 (43.66)	419 (28.50)		
30-40	17,248 (42.92)	212 (14.42)		
40-50	2145 (5.34)	272 (18.50)		
>50	903 (2.25)	210 (14.29)		
Gender				
Male	40,031 (99.61)	1385 (94.22)	708.031	<0.0001 (HS)
Female	156 (0.39)	85 (5.78)		

HS=Highly significant

Table 2: Comparison of the seroprevalence of transfusion transmitted infections among voluntary and replacement donors

Infections	Group		χ^2	P
	Replacement (%)	Voluntary (%)		
HbsAg				
Positive	1047 (2.61)	11 (0.75)	19.014	<0.0001 (HS)
Negative	39,140 (97.39)	1459 (99.25)		
HCV				
Positive	439 (1.09)	5 (0.34)	6.856	0.0088 (S)
Negative	39,748 (98.91)	1465 (99.66)		
HIV				
Positive	135 (0.34)	3 (0.20)	0.388	0.5334 (NS)
Negative	40,052 (99.66)	1467 (99.8)		
Syphilis				
Positive	35 (0.09)	2 (0.14)	0.0326	0.8567 (NS)
Negative	40,152 (99.91)	1468 (99.86)		
Malaria				
Positive	2 (0)	0	2.734	0.0982 (NS)
Negative	40,185 (100.00)	1460 (100)		
Mixed				
Positive	3 (0.01)	0	1.538	0.215 (NS)
Negative	40,184 (99.99)	1460 (100)		

NS=Not significant; S=Significant; HS=Highly significant; HbsAg=Hepatitis B surface antigen; HCV=Hepatitis C virus

donors reiterates that voluntary donation may be the best way of achieving the safest blood, but replacement donors form the bulk. As a part of a tertiary care center, where numerous requisitions have to be dealt daily with a shortage of donors; we want to suggest that it is imperative to equip the potential donors with proper knowledge of the procedure. Constant counseling of patient's relatives and friends and motivation of the staff can help us achieve the goal. Nonmonetary incentives like pre-donation medical check-ups and testing could nurture the habit of regular blood donors.

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Conflicts of interest

There are no conflicts of interest.

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