

Seroprevalence Of Anti HCV, Hbsag, HIV, And VDRL Among Donors At Blood Transfusion Unit, THQ Hospital Ahmed Pur East, District Bahawalpur, Punjab, Pakistan.

Dr Kamran Ajmal Bhatti ^[1] Dr Maryum Khan Lashari ^[2] Dr Hijab Fatima ^[3]

Key Words: Hepatitis B, Hepatitis C, HIV, VDRL, ICT, THQ

Background

Abstract: Pakistan's annual blood requirement is approximately 1.5 million bags, with 40% of the demand being met by the public sector. Hepatitis B virus has recently been recognized as a universally established health challenge due to its worldwide distribution, complications and chronic persistence. Hepatitis C virus was first identified in 1988 ^[1]. Pakistan has one of the world's highest fertility rates, exceeding four children per woman ^[2]. The major modes of HCV transmission in Pakistan are use of contaminated

needles and instruments in medical practice, unsafe blood ^[3].

Hepatitis C virus (HCV), human immunodeficiency virus (HIV) and hepatitis B virus (HBV) and Syphilis (VDRL) are the four most important agents responsible for transfusion transmitted infections (TTIs). With the advent of greater advances western countries have decreased the risk of TTIs to a major extent. Despite this progress, Pakistan is far from achieving a “zero risk” blood supply. The safety of the blood supply is compromised, as the country

depends heavily on replacement donors. In the present study we attempted to assess the prevalence of markers of HCV, HIV and HBV and Syphilis in our donor population over a 2year period (2015 - 2016).

Objective

To assess the prevalence of hepatitis B, Hepatitis C, HIV and VDRL among the donors at Blood transfusion unit THQ Hospital Ahmed Pur East, District Bahawalpur. No study was previously done in the area upon this subject.

Study Design:

Cross Sectional
Observational

Place and Duration of Study:

Blood transfusion unit THQ Hospital Ahmed Pur East, District Bahawalpur. Study was done from January 2015 to December 2016.

Methodology

In this retrospective study, we reviewed 2239 healthy blood donors, over a period of 2 years (2015 - 2016), from the records of the blood bank at THQ Hospital Ahmed Pur East. The replacement donors were family members, friends or relatives of the patients concerned. Donors were selected and screened thoroughly by ICT method. Professional blood donors and those with previous history of jaundice were excluded. All the 2239 donor serum samples were screened for HBV, HCV, VDRL, HIV and Malarial Parasite.

Results

A total of 2239 patients were examined in this study. Total prevalence of Hepatitis C is 6.7%, Hepatitis B is 2.5% and that of VDRL is 1.2% while no case detected for HIV.

Out of which 232 were positive for above infections. We excluded malaria parasite from the study due to less chronicity and more easily

treatable etiology. Out of these (232) 149(64.22%) were positive for Hepatitis C, 56(24.1%) were positive for hepatitis B while 27(11.63%) were positive for Syphilis (VDRL). None amongst these was HIV positive.

Conclusion:

Very High prevalence Hepatitis C and B is very alarming situation and needs to be addressed very aggressively.

Introduction

Pakistan's annual blood requirement is approximately 1.5 million bags, with 40% of the demand being met by the public sector. About 80% of private sector blood transfusion takes place in the major cities, including Karachi and Lahore. Blood transfusion services in Pakistan are mostly hospital-based. There are nearly 170 public and about 450 private blood banks in the country.

Pakistan has a high burden of thalassemia. According to estimates, 5000 children are born with thalassemia each year and 70 000 patients are registered with the disease. Most services for these patients are provided by private blood transfusion services run by nongovernmental organizations.

Over 90% of total blood transfused in Pakistan is donated by the friends and relatives of patients. However, despite efforts to control the practice, around 10%–20% of the

blood supply is still donated by professional donors. The concept of voluntary non-remunerated donors is mainly absent due to the lack of a blood donor recruitment and retention strategy^[4].

Viral Hepatitis is a blood transmissible disease its rate is higher in Pakistan due to unavailability of proper treatment, no proper sterilization, and unawareness of peoples. Viral hepatitis is the major health problem in the developing countries today including Pakistan^[5]. Hepatitis B and C infections are blood borne and are transmitted through unscreened blood transfusions, inadequately sterilized invasive medical devices and reuse of syringes and razors^[6]. The contaminated dental instruments also play an important role in HBV infection because of the presence of HbsAg in the saliva of acute and chronic hepatitis B patients. THQ Hospital Ahmed Pur East is a Secondary level health facility

equipped with all kind of surgical, obstetrical and emergency services. The demand for blood transfusion services in this area is high due to endemicity of infections causing anemia, malnutrition, and surgical and obstetrical emergencies associated with blood loss. Blood safety remains an issue of major concern due to illegal supply of non-screened blood especially in the private blood banks. There are also some social myths that limit the replacement donors and find it easy to purchase the blood from professional blood donors. This is aggravated by the predominance of family and replacement, rather than regular benevolent, non-remunerated donors and lack of comprehensive and systematic screening of donated blood for transfusion-transmissible agents especially in private commercial unregistered blood Banks. Thus, the objective of this study was to determine, the Seroprevalence of HIV, HCV, HbsAg, and syphilis among

blood donors at BTU THQ Ahmed Pur East.

Materials and Methods

This cross sectional observational study was carried out at the Blood Transfusion Unit of Tehsil Head Quarter Hospital Ahmed Pur East. THQ Hospital Ahmed Pur East is a secondary level health facility located at a distance of 50km from Bahawalpur. Total patients in this study were 2239. This study carried out from January 2015 to December 2016.

Inclusion Criteria

In this study all the donors volunteers and replacement donors were included except known professional donors and persons having uncontrolled Diabetes and jaundice.

Data Collection and Analysis

This retrospective data was collected from the hospital record

after taking permission from the Blood Transfusion Officer All data was analyzed manually. Results were generated and documented.

Immuno-Chromatographic Tests (ICT) SD Device

ICT Method was used to analyze blood samples. In accordance with the instruction given by the manufactures 2239 serum samples were tested for Hepatitis Surface Antigen and Anti-HCV, Human Immuno virus (HIV-1 & HIV-2) and Venereal Disease Research Laboratory (VDRL) through Immuno-Chromatographic.

Results

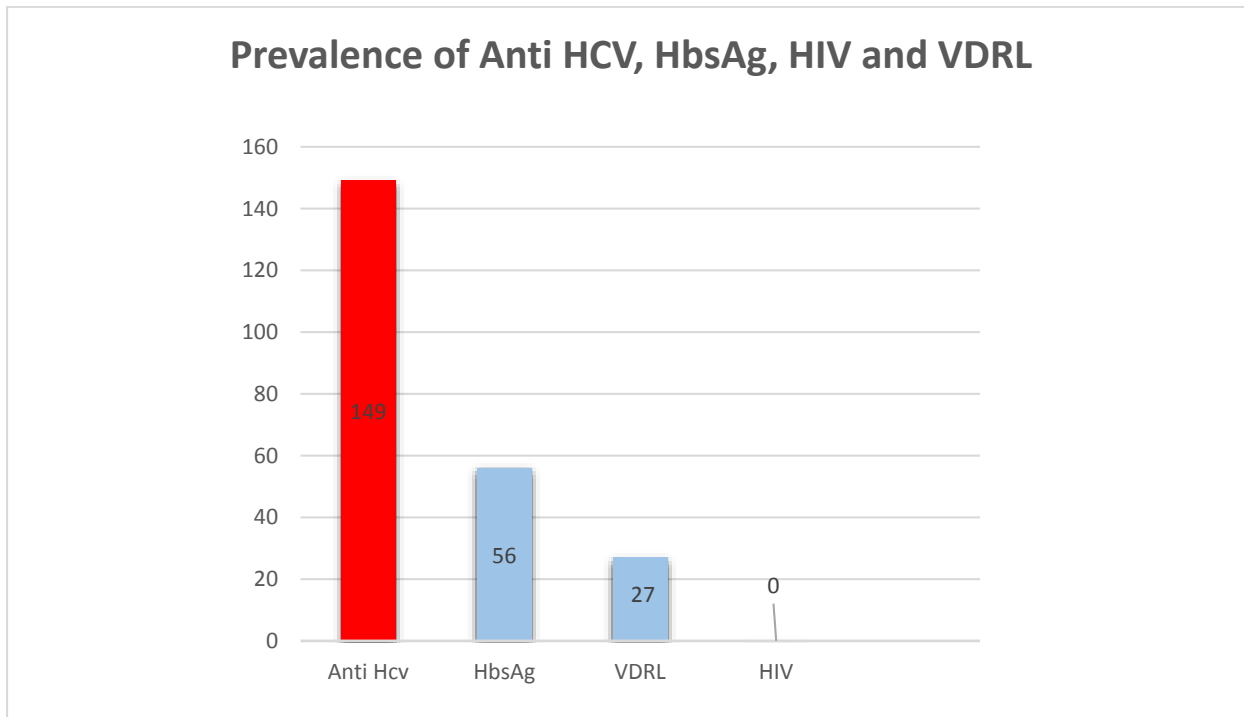
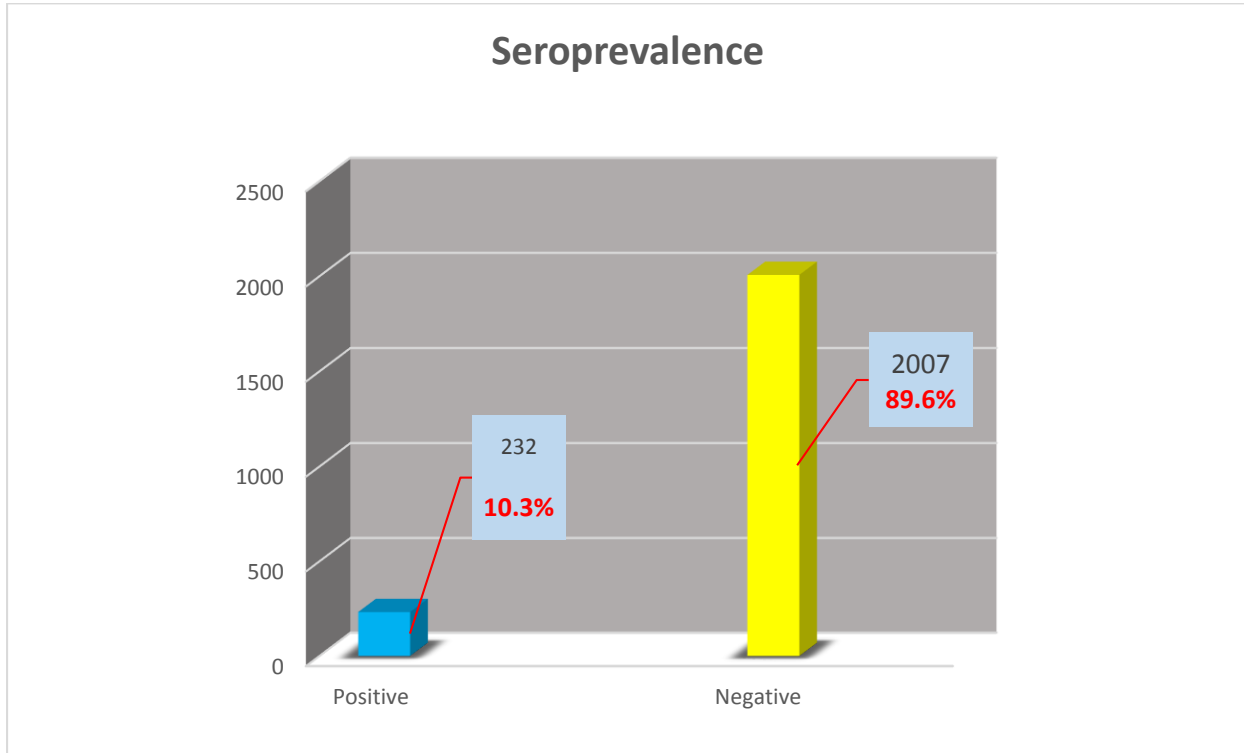
A total of 2239 patients were examined in this study. Prevalence of Hepatitis C, Hepatitis B, HIV, and VDRL was found to be 10.3%. 232 donors of 2239 were found to be seropositive.

Total prevalence of Hepatitis C is 6.7%, Hepatitis B is 2.5% and that of VDRL is 1.2%.

Among these positive cases predominance is by the Hepatitis C virus being 64.22% (149/232) of total positives. While 24.1% (56/232) were Hepatitis B virus and 27/232 11.63% were VDRL positive. None of the Donor was found to be HIV positive.

Total Donors	Anti HCV+ve	HbsAg +ve	VDRL	HIV
2239	149	56	27	0
	6.7%	2.5%	1.2%	0

Total Seropositive Donors	Anti HCV +ve	HbsAg +ve	VDRL +ve	HIV +ve
232	149	56	27	0
	64.22%	24.1%	11.63%	0



Discussion

Every 10th person in the country is suffering from one type of hepatitis or the other and the viral infection varies in severity from a self-limited condition with total recovery to a life-threatening or lifelong disease. Over 20 million people in Pakistan are infected with hepatitis B and C virus including around 15 million with C and five million with B and the disease is swelling at an alarming rate, medical experts say. Owing to lack of preventive measures and treatment facilities, hepatitis prevalence in Pakistan is the highest on the globe^[8].

Data on the safety of this transfusion process are scanty — perhaps due to the lack of a system of reporting infectious or non-infectious adverse events. The transfusion network is poorly organized and likely contributes significantly in the transmission of serious infectious diseases. We evaluated the annual

prevalence of HCV, HbsAg, HIV and VDRL in the blood of donors at our center.

Globally, 2.2% of the world's population is suffering from hepatitis C virus (HCV)^[6]. The disease is becoming a major health problem of developing countries, including Pakistan that has the second highest prevalence rate of hepatitis C ranging from 4.5% to 8%^[9]. Studies in Pakistan on small targeted groups including blood donors, health professionals, drug abusers and chronic liver disease patients indicate that the prevalence of hepatitis C is as high as 40%^[10]. However, literature is still inadequate to clearly reflect the overall picture due to its limitation on identifying the incidence in healthy individuals.

A total of 2239 patients were examined in this study. Prevalence of Hepatitis C, Hepatitis B, HIV, and VDRL was found to be 10.3%. 232

donors of 2239 were found to be seropositive.

Total prevalence of Hepatitis C is 6.7%, Hepatitis B is 2.5% and that of VDRL is 1.2%.

Among these positive cases predominance is by the Hepatitis C virus being 64.22% (149/232) of total positives. While 24.1% (56/232) were Hepatitis B virus and 27/232 11.63% were VDRL positive. None of the Donor was found to be HIV positive.

The average Seroprevalence of Hepatitis C over the past 2-year period was found to be 6.7%, which was 4.2% higher than Hepatitis B with no significant trend. This may be due to non-availability of wider screening methods for Hepatitis C, non-availability of a vaccine, absence of screening of donors for Hepatitis C in many centers, continued unsafe practices while giving injections and an unknown mode of transmission, other than the parenteral route.

Prevalence of HCV in blood donors from diverse nations of the established world has been stated to be between 0.3 and 1.5% and in Iran, the prevalence was 0.14% [11]. Whereas from other nations such as India 0.25% to 0.9% [12]. The prevalence rate of HCV is much higher in Pakistani donors. The essential anti-HCV screening was announced to blood transfusion centers in Pakistan nearby the year 2000. But still, standard screening approaches are accessible only in few blood transfusion centers of large cities.

Seroprevalence rate of HBV and HCV amongst blood donors in Southern part of Pakistan (Karachi) was much lower (HbsAg 2.28% and anti HCV 1.18%) than that reported by us and another study (HbsAg 5.0% anti HIV 2.4%) reported from the same area [13]. The reasons for this difference are not very obvious. However, it was observed that the positivity for HCV was directly related to the level of

literacy thus a higher number of educated donors visiting AKUH could be responsible for decreased prevalence rate for HCV in their data. World Health Organization has estimated the number of Hepatitis Surface Antigen carriers is expected to reach 400 million worldwide with a prevalence of up to 10% in some Asian countries. It is 0.1-0.5% in the general US population and 0.02-0.04% in US blood donors [14].

The overall prevalence of HbsAg Showed 2.5%. This prevalence was nearly equal to a study done in Karachi that showed prevalence of 2.16% [15]. The decline in the frequency of HbsAg seen in our data has also been reported from other countries in the region. [16] This may in part be due to improved awareness and increased vaccination against hepatitis B in the country during the same period.

The overall prevalence of VDRL in our study was 1.2%.A

Karachi based study conducted in 2008 has shown that only 0.22% of donors were reactive for syphilis antibodies in contrast with 1.2% in our study. However, Venereal disease research laboratory (VDRL) test was used for syphilis screening, which is different than the rapid ICT method used in our study [17]. A study done at Pak Armed Forces hospital Rawalpindi showed 0.95% prevalence of VDRL [18].

Prevalence of HIV in our study was not detected like all other areas of Pakistan.

A retrospective study in a tertiary care center in India has reported the Seroprevalence of HBV, HCV, HIV and syphilis (VDRL) to be 1.7%, 0.8%, 0.6% and 0.7%, respectively [19]. While HCV infection is again lower in comparison with our data, HIV infection rate appears to be very high in Indian blood donors.

Conclusion

There should be a situational analysis and a realistic assessment of the blood requirement in the area, followed by recruitment and maintenance of voluntary, non-remunerated blood donors and standardization and regulation of appropriate blood screening procedures.

References:

1. Junejo SA, Khan NA, Lodhi AA. Prevalence of Hepatitis B and C infection in patients admitted at Tertiary Eye Care Centre: A hospital based study. Pakistan Journal of Medical Sciences. 2009; 25(4):597-600.
2. Journal of Infection and Molecular Biology. 2014; 2(3):35-38. <http://dx.doi.org/10.14737/jimb.2307-5465/2.3.35.3Basit> et al. Prevalence of Hepatitis B and C Infection in Pakistan.
3. Alam MM, Zaidi SZ, Malik SA, Naeem A, Shaukat S, Sharif S et al. Serology based disease status of Pakistani population infected with Hepatitis B virus. BMC Infect Dis. 2007; 7:64. 10.1186/1471-2334-7-64
4. <http://www.emro.who.int/pak/programmes/blood-safety.html>
5. Prevalence of Hepatitis B and C in Urban Patients Undergoing Cataract Surgery, Pak J Ophthalmol. 2013, 29(3).
6. Altaf Bosan, Huma Qureshi, Khalif Mohamud Bile, Irtaza Ahmad. A review of hepatitis viral infections in Pakistan, National Institute of Health, Pakistan Medical Research Council, WHO. 2010, 60(12).
7. Alter MJ. Epidemiology of hepatitis C virus infection. World J Gastroenterol. 2007; 13:2436-2441. Retrieved on April 6th, 2010 from: <http://www.wjgnet.com/1007-9327/13/2436.asp>
8. <http://nation.com.pk/lahore/04-May-2015/every-10th-pakistani-suffering-from-hepatitis>
9. Alter MJ. Epidemiology of hepatitis C virus infection. World J Gastroenterol. 2007; 13:2436-2441. Retrieved on April 6th, 2010 from: <http://www.wjgnet.com/1007-9327/13/2436.asp>
10. Alter MJ. Epidemiology of hepatitis C virus infection. World J Gastroenterol. 2007; 13:2436-2441. Retrieved on April 6th, 2010 from: <http://www.wjgnet.com/1007-9327/13/2436.asp>
11. Lavanchy D. Global surveillance and control of hepatitis C. Report of a WHO Consultation organized in collaboration with the Viral Hepatitis Prevention Board, Antwerp, Belgium. Journal of viral hepatitis. 1999;6(1):35-47.
12. Rezvan H, Abolghassemi H, Kafiabad SA. Transfusion-transmitted infections among multitransfused patients in Iran: a review. Transfusion Medicine. 2007; 17(6):425-33.
13. Mujeeb SA, Mehmood K. Prevalence of HBV, HCV and HIV infections among family blood

- donors. Ann. Saudi Med., 1996; 16:702-3.
14. Lee WM. Hepatitis B virus infection. N. Engl. J. Med., 1997; 337:1733-45.
 15. <http://onlinelibrary.wiley.com/doi/10.1111/j.1537-2995.2007.01066.x/full>
 16. Bashawri, L.A., Fawaz, N.A., Ahmad, M.S., Qadi, A.A., and Almawi, W.Y. Prevalence of seromarkers of HBV and HCV among blood donors in eastern Saudi Arabia, 1998–2001. Clin Lab Haematol. 2004; 26: 225–228
 17. Bushra M, Naseem AS, Khurshid M. Seroprevalence of syphilis in healthy non commercial blood donors in Karachi. J Coll Physicians Surg Pak 2006; 16(5):3856.
 18. Transfusion Transmissible Infections in Donors Pak Armed Forces Med J 2016; 66(2):190-93.
 19. Kaur G, Basu S, Kaur R, Kaur P, Garg S. Patterns of infections among blood donors in a tertiary care centre: a retrospective study. Natl Med J India 2010; 23(3): 147-9.