IS SEROPREVALENCE OF HEPATITIS B AND C AMONG BLOOD DONORS CHANGING IN NORTHERN PAKISTAN?

Tariq Butt, Batool Butt*

Foundation University Medical College (FUMC) Rawalpindi Pakistan, *Military Hospital/University of Medical Sciences (NUMS) Rawalpindi Pakistan

ABSTRACT

Objective: To determine seroprevalence of hepatitis B and C among blood donors in 2009 and comparing with the seroprevalence in 2014.
Study Design: Cross sectional study with retrospective data collection.
Place and Duration of Study: Foundation University Medical College and Fauji Foundation Hospital, Rawalpindi. Data in 2009 and in 2014 were collected.
Material and Methods: The blood samples collected from individuals from Province of Khyber Pakhtunkhawa, Azad Kashmir and Northern Punjab including Rawalpindi-Islamabad & comprised 3776 (in the year 2009) and 6740 (in the year 2014) adults ranging from 18 to 60 years who reported to Fauji Foundation Hospital, Rawalpindi voluntarily or as a compulsion to donate blood for their patients.
Results: During 2009, there were 71 (1.88%) and 113 (2.99%) donors positive for hepatitis B surface antigen (HBsAg) and anti hepatitis C virus (Anti HCV) respectively out of a total of 3776 donors whereas during 2014 there were 106 (1.57%) and 174 (2.58%) donors positive for HBsAg and anti HCV respectively out of a total donors of 6740. There was no statistical significant difference between the year (2009 and 2014) and seroprevalence of HBsAg (p=0.239) and HCV positive donors (p=0.215).
Conclusion: There is no significant change in seroprevalence of hepatitis B and C among blood donors during 2014 as compared to 2009 in Northern Pakistan.

Keywords: Anti HCV anti bodies, Blood Donors, Hepatitis B surface antigen, Seroprevalence.

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INTRODUCTION

About 2%-3% of the world's population is infected with hepatitis C virus (HCV) and every year, more than 350 000 persons die due to HCV-related complications[1]. This burden has increased up to 2.8% in different countries[2]. Worldwide prevalence of hepatitis B virus infected people is about 3.6%[3] and there are more than 360 million chronic carriers. Every year about 620 000 people die as a result of hepatitis B virus infection[4].

In Pakistan prevalence of HCV and HBV infection is 4.9% (95% CI 4.7-5.1%) and 2.5% (95% CI 2.3-2.6%) respectively. HCV infection ranges from 2.2 to 14%. Accordingly, approximately 10 million people are HCV infected. HCV prevalence rate among four provinces of Pakistan varies as 6.7% in Punjab, 5% in Sind, 1.5% in Baluchistan, and 1.1% in Khyber Pakhtunkhwa[5]. Hepatitis B antigen prevalence in pediatric populations is 2.3% and among healthy adults general population is 2.6% and among blood donors it is 2.4%[6].

Both of these viruses are being transmitted through infected blood and blood products through transfusion, contaminated syringes and needles, dialysis, razors, tooth brushes, dental procedures, ear and nose piercing, traditional tattooing, acupuncture and also vertically transmitted to infants.

The reason of transmission in these procedures is because of poor adoption of prevention protocols. Several reports of increase in prevalence of hepatitis B and C are available.

There is an urgent need to assess whether the prevalence of these infections is increasing or otherwise in order to improve preventive

Correspondence: Dr Tariq Butt, Professor of Microbiology Foundation University of Medical College and Fauji Foundation Hospital Rawalpindi Pakistan *(Email: tariqbutt24@yahoo.com)*
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strategies including improving the health education of general public. As blood donors are representing the disease free population locally, frequency of hepatitis B and C among healthy donors depicts indirectly its prevalence in healthy population of that locality. A study was planned to determine the change in seroprevalence of hepatitis B and C among blood donors in 2014 from that of 2009.

MATERIAL AND METHODS

This descriptive cross sectional study was planned at Foundation University Medical College and Fauji Foundation Hospital, Rawalpindi. Healthy adults of both genders ranging from 18 to 60 years were included in the study. Individuals with history of drug abuse and having physical body defects or systemic or local diseases/ conditions such as fever, diabetes mellitus, hypertension, lymphadenopathy, hepatosplenomegaly, cardiac valvular defects or any other systemic disease, anaemia, leucopenia/ leucocytosis or thrombocytopenia/thrombophilia were not included in the study. These individuals came from Province of Khyber Pakhtunkhawa, Azad Kashmir and Northern Punjab including Rawalpindi-Islamabad.

The sampling technique was purposive non probability and a total of 3776 samples of blood donors were tested for HBsAg and anti HCV antibodies in the year 2009 and 6740 blood donors were tested for HBsAg and anti HCV antibodies in the year 2014 using Architect System (Abbott). Ethical approval was taken from the Ethical review committee Fauji Foundation Hospital Rawalpindi before undergoing the research.

SPSS version 21 was used for data compilation and calculations. Descriptive statistics were calculated. Categorical variables were presented by frequency and percentage. Pearson's Chi Square test was employed to calculate the statistically significant change of Hepatitis B and C positivity among blood donors in the year 2009 as compared to the year 2014. *P*-values <0.05 were taken as statistically significant.

RESULTS

During 2009, there were 71 (1.88%) and 113 (2.99%) donors positive for HBsAg and anti HCV respectively out of a total of 3776 donors whereas during 2014 there were 106 (1.57%) and 174 (2.58%) donors positive for HBsAg and anti HCV respectively out of a total donors of 6740. There was no statistical significant difference between the year (2009 and 2014) and seroprevalence of HBsAg (p=0.239) and HCV positive donors (p=0.215) (table).

Table: HBsAg and anti-HCV reactive donors among blood donors during 2009 and 2014.

Year	Total Donors (n)	HBs Ag Reactive (n)	Anti HCV Reactive (n)
2009	3776	71	113
2014	6740	106	174
p-value		0.2395	0.2146

DISCUSSION

HBV and HCV infections have remarkable morbidity and mortality all over the world. Prevalence of HBsAg in voluntary blood donors varies from 1.82% to 8.3% in Pakistan[7–10] whereas 2.0% to 8.34% blood donors revealed anti HCV reactivity[7-11]. In one study conducted in northern areas of Pakistan 3.3% were HBsAg reactive and 4.0% anti HCV reactive donors (1996-2006)[10]. However, 2.4% and 3.6% seroprevalence of Hepatitis B and C respectively among blood donors in Pakistan has been demonstrated in an extensive review[6]. In another study 3% HBsAg and 18.7% anti-HBc (anti-hepatitis B core antigen) prevalence among blood donors in Tabuk, Saudi Arabia was demonstrated[12].

Due to the latent nature of the disease (infection may precede symptoms by an average of 25 years) several of the donors would not be aware of the disease. Most patients with acute

hepatitis C do not have demonstrable signs or symptoms at the onset of infection but about 25% of patients had jaundice. Worldwide HCV most commonly cause chronic liver disease, cirrhosis and liver cancer[13]. Eighty to 90% of HCV cases occur within 5–12 weeks post-transfusion but actual incubation time of HCV is 12–27 weeks[13].

In a study done by Butt and Amin (2008), the prevalence of both of the infections, 1.7% anti-HCV and 2.93% HBsAg were estimated in young adults[14]. Similarly Mehr et al. (2013) determined prevalence of 2.2% to 3% (HCV antibodies) and 2.3% to 4.5% (HBsAg) among disease free young individuals who applied for job in Khyber Pakhtunkhawa[15]. The present study population is blood donors reflecting the disease free general population.

HCV infection is known to have significant associations with a history of blood transfusion, intravenous drug use, multiple sexual partners and sexual contact with an infected person[16]. Barbers, unhygienic nasal and ear piercing and quackery dental extraction and manipulation could be a source of infection in positive cases.

CONCLUSION

There is no significant change in seroprevalence of hepatitis B and C among blood donors in 2014 as compared to the year 2009 in Northern Pakistan.

CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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