ORIGINAL ARTICLE

Seroprevalence of Hepatitis B among Healthy Blood Donors in Blood Banks of Khyber Pakhtunkhwa

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ABSTRACT

Objective: To determine the prevalence of HBV in healthy blood donors of Khyber Pakhtunkhwa.

Place of Duration: Prospective observational study, conducted by faculty of Khyber Medical University Institute of Medical Sciences, Kohat, during 1st July 2008 to 30th March 2009.

Material and Methods: The study was conducted in 17 districts and four teaching hospitals of Khyber Pakhtunkhwa. Healthy blood donors who reported to blood banks were screened for Hepatitis B surface antigen (HBsAg). The kits used were rapid immune-chromatographic Kits. All positive cases were counter checked by enzyme linked immune assay. The kits were provided by safe blood transfusion project of Khyber Pakhtunkhwa.

Results: A total 60103 healthy blood samples were screened during a period of 9 months. Out of which 2.11% (1287/60103) were found positive for HBV. The highest prevalence from District Head Quarter hospitals Daggar Buner was 10.45%, DI Khan was10.05 %, Karak 9.00 % and Bannu 8.88 %. No case for HBV was found in the blood of donors from Lakki, Timergara and Haripur Districts.

Conclusion: Hepatitis B is a public health problem in Khyber Pakhtunkhwa like rest of the country. Transmission through blood is most common, therefore, screening during blood donation to be strictly monitored. To prevent the spread of Hepatitis B, public awareness about spread by all other ways is need of the time.

Key words: Hepatitis B, Healthy Blood Donors, Blood Bank.

INTRODUCTION

Hepatitis-B Virus (HBV) and Hepatitis C virus (HCV) infections form substantial proportion of liver diseases worldwide[1]. More than 2 billion people world-wide are infected with HBV and HCV or both and an estimated 500 million have chronic infection with these viruses. The principal long term sequalae of chronic HBV and HCV infections are cirrhosis liver and primary liver cancer. Both infections compromise quality of patient life even in the pre-cirrhotic stage[2].

Hepatitis B is a DNA virus of the family of Hepadenaviridae, a causative agent of Hepatitis B infection[3]. It is 50-100 times more infectious than HIV and 10 times more infectious than Hepatitis C virus. Many carriers not realizing the fact that they are infected with the virus, thus this infection is referred to as a "Silent Killer" as called by Samuel D et al 2004[4].

Blood has been used since 1930 for various indications[5]. In Pakistan more than 1.5 million pints blood are collected each year[6,7]. Among them 65% is from replacement donors, 25% are volunteer donors and 10% from professional donors[8].

Blood is one of the major sources of transmission of Hepatitis B, C, HIV and many other diseases[9]. These infectious hazards can be minimized by screening and selection of donors

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before collection of blood. The Ideal sample for any sero-prevalence study is a sample from general population[10]. However, this may not always be feasible Prevalence among health blood donors is often used.

Epidemiological studies conducted in the past have provided data regarding the prevalence of Hepatitis B in different parts of the worlds. Many studies are necessary for ongoing preventive strategies. This large study was conducted to determine the prevalence of HBV in healthy blood donors of Khyber Pakhtunkhwa.

MATERIAL & METHODS

This prospective observational study was conducted in 17 districts and four teaching hospitals of Khyber Pakhtunkhwa. Subject consisted of apparently healthy blood donors who reported for blood banks for blood donation between 1st July 2008 to 30th March 2009. Their blood samples were screened for Hepatitis B surface antigen (HBsAg) using rapid immune-chromatographic technique.

Total data was collected from 17 different districts of Khyber Pakhtunkhwa, Federally Administered Tribal Area and 04 teaching hospitals i.e. Hayatabad Medical Complex (HMC), Khyber Teaching Hospital (KTH), and Lady Reading Hospital (LRH), Peshawar and Ayub Teaching Hospital, Abbottabad.

The districts included in the study were from each division of Khyber Pakhtunkhwa i.e Dera Ismail Khan, Bannu, Malakand, Mardan, Buner, Dargai, Kohat, Karak, Buttkhela, Mansehra, Timergara, Lakki Marwat, Nowshera, Chitral, Battagram. Other hospitals from which the data was collected was King Abdullah Teaching Hospital, Mansehra, Saidu Group of Teaching Hospital and Agency Headquarter Hospital Parachinar.

Table-1. District Wise Results

Serial No.	Hospital Name	Percentage
1.	DHQ Hospital, Chitral	2.53%
2.	DHQ Hospital, Mansehra	2.92%
3.	DHQ Hospital, Karak	9.00%
4.	DHQ Hospital, Lakki Marwat	0%
5.	DHQ Hospital, Bannu	8.88%
6.	DHQ Hospital, Dera Ismail Khan	10.05%
7.	DHQ Hospital, Kohat	6.66%
8.	DHQ Hospital, Mardan	1.90%
9.	DHQ Hospital, Timergara	0%
10.	DHQ Hospital, Batkhela	0.87%
11.	DHQ Hospital, Harripur	0%
12.	DHQ Hospital, Batagram	0.87%
13.	Khyber Teaching Hospital, Peshawar	1.45%
14.	Lady Reading Hospital, Peshawar	2.66%
15.	Hayatabad Medical Complex, Peshawar	1.87%
16.	King Abdullah Teaching Hospital, Mansehra	5.22%
17.	Ayub Teaching Hospital, Abbottabad	0.73%
18.	DHQ Hospital, Dagar Buner	10.45%
19.	DHQ Hospital, Parachinar	2.13%
20.	DHQ Hospital, Nowshera	9.0%

Table-2
National Studies with HBV Percentage for Comparison.

Serial No.	Place	Year	HBV +ve %
1.	Farooqi JI, et al. Govt Lady Reading Hospital Peshawar and Khyber Teaching Hospital Peshwar.[19]	2007	2.54%
2.	Chaudhry I A et al, Fauji Foundation hospital, Rawalpindi.[20]	2007	2.45%
3.	Bangash MH, et al. Agency Headquarter Hospital, Parachinar and Tehsil headquarter Hostpital, Parachinar[21]	2007	5.07%
4.	Muhammad A, et al. Khyber Medical University, Peshawar[22]	2007	2.3%
5.	Ahmed J, et al. Rehman Medical Institute Peshawar [23]	2004	1.9 %
6.	Mehmood, et al. Nishtar Medical College, Multan[24]	2004	3.37%
7.	Asif N, et al. Shifa International hospital Islamabad [25]	2004	2.251%
8.	Mumtaz S, et al. Isamic Int Medical College, Rawalpindi [26]	2002	5.86%
9.	Khattak MF, et al. Armed Forces Institute of Transfusion Medicine, Rawalpindi[27]	2002	3.3%
10.	Ahmed MU, et al. Abbasi Shaheed Hospital, Karachi[28]	2002	3.3%
11.	Ahmed F, et al. Ayub Medical college, Abbotabad[29]	2000	5.50%
12.	Bukhari SM, et al. Mayo Hospital, Lahore [30]	1999	4.3%
13.	Fayyaz KM, et al. Quaid Azam Medical College Bahawalpur[31]	2002	7.35%
14.	Ryas M, et al. Military Hospital, Rawalpindi [32]	2001	6.4%
15.	Lone DS, et al. Allama Iqbal Medical College, Lahore [33]	1999	6.4%
16.	Bhatti, et al. Armed Forces Institute of Transfusion Medicine, Rawalpindi [34]	1996	2.06%
17.	Mujeeb, et al. Blood Transfusion Service, Jinnah Postgraduate Medical Centre, Karachi[35]	1996	2.2%
18.	Mujeeb, et al. Jinnah Postgraduate Medical Center, Karachi[36]	1995	4.9%

RESULTS

Over the 9 months period of study, 60103 samples were screened for HBV out of which 1287 (2.11%) were found positive for HBV. The data was collected from various districts of all administrative divisions of Khyber Pakhtunkhwa including Federally Administered Tribal Area and four teaching hospitals. The district-wise results are given in table 1.

The highest prevalence from District Headquarter (DHQ) hospitals Daggar Buner (10.45%); DHQ hospital Buttkhela, DI Khan (10.05 %) and DHQ hospital Karak (9.00 %).

The lower prevalence is from Ayub Teaching Hospital, Abbotabad (0.73%); DHQ Hospital b (0.87%) and the intermediate prevalence was reported from King Abdullah Teaching hospital, Mansehra and DHQ Hospital, Kohat (6.66%)

DISCUSSION

Screening asymptomatic people is an important tool in disease detection, prompt diagnosis and intervention, especially in silent killer disease like HBV infection. Evaluation of prevalence among blood donors is easy method to obtain the epidemiology of such type of infection like HBV in this century. There are some difference between normal populations and blood donors. However, this approach is very common in screening studies. Such type of screening studies gives insight into the problem and helps us in solving difficulties in collecting information among healthy population[11,12].

Sero-prevalence of HBV in blood donor is different in various countries. HBV infection is lower in USA and Western Europe (0.1% to 0.5%) and is reported to be higher 5 to 15% in South East Asia and China[13].

High prevalence has been reported from various parts of developing world including 3,5% in Gaza Palestine[14,15], 1.6 to 7.7 % in Brazil[16,17], 19.6% in Egypt[14] and 2 to 10% from various parts of India[18]. Pakistan remains in the intermediate HBV Prevalence area. The national estimates for prevalence of HBV infections are unknown. The sero-prevalence in our study is 2.11%. Studies published in literature for the past 10 years were compared with this study (Table-2)[19-22].

The mean prevalence of these studies is 3.97%. The sero-prevalence of Hepatitis B is 2.11% in our study. The sero-prevalance has been reported 1.9% from Peshawar[23], 3.37% from Multan[24], 2.51% from Islamabad[25], 5.86% and 3.3% from Rawalpindi[26,27], 3.3% from Karachi[28], 5.50% from Abbottabad[29] and 4.3% from Lahore[30]. The highest sero-prevalence of HBV is reported from Bahawalpur (7.53%)[31], Military Hospital Rawalpindi and Lahore (6.4% each)[32,33]. Lower percentages (2 to 4%) from different parts of the country[34-36]. So the sero-prevalence of HBV varies from 1.55% to 7.53% among healthy blood donors from different parts of the country. Our study comes in the lower prevalence, but some districts show high prevalence like Bahawalpur[31] and Lahore[33].

Encouraging position was with that of low prevalence and threat full position from high prevalence with some districts, but still the percentages was low in some of international community reported[14-18]. Hepatitis B virus is preventable by inject able immunization and hence requires mass program for it. More than it is required to keep eyes on reservoir of these HBV positive populations. Further studies are required to be done to know the cause of higher prevalence of districts[32-34] and like wise. Prevention steps for that to be specially designed and implemented.

CONCLUSION

Sero-prevalence is not high in Pakistan and nationwide efforts are required to identify the infected people and to reduce the existent prevalence. As it is preventable infection, strategies like awareness programmes about different modes of spread and achievement of universal immunization to each child should be ensured.

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