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Prevalence Study of Hepatitis B in Timergara Khyber Pakhtunkhwa Pakistan

[1]Irfan Ullah, [2]Sulaiman Bahadar, [3]Fahad Ali, [3]Muhammad Ismail Khan, [2]Javed Khan, [4]Raheem Bahadar, [2]Ziafat Rehman, [2]Telawat Khan, [2]Rabia Zardad, [2]Hubab Ahmad, [2]Azam Hayat, [5]Saira Zahoor, [2]Muhammad Ayub Khan and [2]Mujaddad ur Rehman

[1]Department of Microbiology, Hazara University, Mansehra, Pakistan
[2]Department of Microbiology, Abbottabad University of Science and Technology, Havialian, Pakistan
[3]Department of Genetics, Hazara University, Mansehra, Pakistan
[4]Department of Microbiology, Kohat University of Science and Technology, Kohat, Pakistan
[5]Department of Biochemistry, Hazara University Mansehra, Pakistan

Abstract: Hepatitis B is a common public health problem throughout the world especially in developing countries like Pakistan. Hepatitis B Virus (HBV) infection causes a verity of liver diseases in humans, such as, liver fibrosis, liver cirrhosis and hepatocellular carcinoma. In Pakistan the prevalence rate of HBV is 2.5%. The current study was designed to find out the frequency of HBV in general population of District Dir lower, for this purpose one year data (2013) was collected from D.H.Q Hospital and Qazi clinical laboratory Timergara. A total of 2200 suspected persons visited for the diagnosis of Hepatitis B. Out of the total 181 were diagnosed positive for the presence of HBV during study period. On the analysis of the data it was found that out of the total positive cases 114 (62.98%) were male and 67(37.01%) were female. Age wise study showed that the prevalence rate was high in the patients 91 (50.27%) having age range 21-40. By comparing marital status wise showed that Hepatitis B occurrence was high in married subjects 111 (61.32%) than Unmarried 70 (38.67%). On the basis of literacy rate and risk factors high percentage is determined in illiterate 99 (54.69%) and in those peoples who share personal items 65 (35.91%).

Key words: Hepatitis B · Prevalence · Pakistan · Infection

INTRODUCTION

Hepatitis is characterized by the infection of liver commonly produce swelling and in some cases serious damage to liver tissue. Hepatitis A-C are types of Hepatitis. Hepatitis B and C both can lead to serious liver damage and may be death in some cases [1]. The HBV virus replicate by an RNA intermediate form through reverse transcription, due to which it is called retroviruses [2]. Hepatitis B virus is a hepatotropic virus that replicates in the liver and causes hepatic dysfunction [3]. Most infections take place during childhood and infancy. In children some infection are asymptomatic, there is minute evidence of acute disease related to HBV, but in adult chronic liver disease rates and liver cancer rates are high [4].

Hepatitis B virus are spread through interaction with infected body fluids and human is the only natural host for this virus. Blood is the most important route for transmission, but other body fluids have also been involved, including semen and saliva [5, 6]. In areas of low endemicity, the virus is mostly spread in the adult population, among drug users sharing needles and through sexual contact with an infected person [4]. Hepatitis B is considered to be a sexually transmitted disease (STD). For a long time, homosexual men have been measured to be at the highest risk of infection because of sexual contact and after about 5 year 70% of homosexual men were infected [4].

Globally approximately 3.5 billion individual is affected in both developed and under developed countries so therefore Hepatitis is consider a major public health problem [7]. Pakistan is one of the worst suffering

Corresponding Author: Fahad Ali, Department of Genetics, Hazara University, Mansehra, Pakistan.
Cell: +923139207385.

countries with hepatitis B and hepatitis C. Seroprevalence of hepatitis C in Pakistan is higher than in other countries of the region like India, Iran, Nepal, Afghanistan and Myanmar [8]. A country wide survey conducted from July 2007 to May 2008 by Pakistan Medical Research Council reveals that prevalence of hepatitis B is 2.5% in general population of Pakistan and intra province prevalence of the hepatitis B was very high in Baluchistan (4.3%) while it was 2.5% in Sindh, 2.4% in Punjab and 1.3% in Khyber Pakhtunkhwa [9]. On the provinces basis Baluchistan has the highest prevalence 4.3% and KP the lowest of 1.3%. [10, 11].

For treatment of chronic Hepatitis B (CHB) currently available medication is alpha interferon (IFN) and some nucleoside analogs like adefovir, lamivudine and entecavir. These analogs prevent nucleoside formation and also block synthesis of DNA by termination of premature chain [12]. For the prevention of HBV Hepatitis B vaccine are used [13]. Since 1980 plasma derived vaccine is available, second generation recombinant vaccine is also available since 1986 [14].

The aim of the present study is to increase awareness in public about the causes and transmission of Hepatitis B and to literate people about risk factors for Hepatitis B.

MATERIALS AND METHODS

Data Collection: The data of patients was collected from January 2013 to December 2013, from D.H.Q hospital laboratory and Qazi clinical laboratory Timergara District Dir Lower. The patients visited for diagnosis of Hepatitis B is also asked for risk factor and literacy. A total of 2200 suspected individuals were screened for HBV. Out of which 181 were diagnosed positive for HBV. The positive data were further analyzed by using the following parameters.

Prevalence of HBV: The prevalence of HBV is on basis of age, gander, marital status, literacy, diagnostic test and risk factor.

Diagnostic Test for HBV: For the diagnosis of HBV in patient's body the following tests are used.

ICT Test: Immuno-chromotogaphic Technique (ICT) was used for the detection of anti HBsAg in the patient's body serum. In this technique blood samples were collected from patients, for serum isolation these blood samples were centrifuged at 8000 relative centrifugal force (rcf) for five minutes. After centrifugation the clear serum was used for anti HBsAg detection by using Immuno Chromatographic Technique (ICT) [15].

ELIZA Test: Another type of test called "Enzyme Linked Imunosorbent assay" (ELISA) was also used. In this method firstly the serum was obtain by centrifugation and then the serum is tested for HBsAg and anti HBc by using ELISA kits such as "Genedia, Green, Cross and korea" [16].

RESULTS

The present study was conducted on prevalence of Hepatitis B in District Dir lower KP Pakistan. The positive data was further analyzed by using the following parameter.

Age, Gender, Marital Status and Literacy Rate Wise prevalence of Hepatitis B: The results showed that high prevalence were found among the age group 21-40 which was 91 (50.27%) while the lowest prevalence was found among the age group 60 plus which was 16 (8.83%). In age groups 1-20 and 41-60 the prevalence rate was 52 (28.72%) and 27 (14.91%) respectively. Gender wise prevalence showed that male were more infected 114 (62.98%) as compared to the female 67 (37.01%).Marital status wise study showed that prevalence of Hepatitis B was high in married patients 111 (61.32%) compared to the unmarried 70 (38.67%). prevalence of Hepatitis B was high in illiterate patients then literate.

Prevalence of Hepatitis on the Basis of Diagnostic Test: Two types of tests were used for the diagnosis of hepatitis B the 1st one was ICT and 2nd one was ELISA, more patients 110 (60.77%) were diagnosed positive through ICT while less 71 (39.22%) were diagnosed though ELISA.

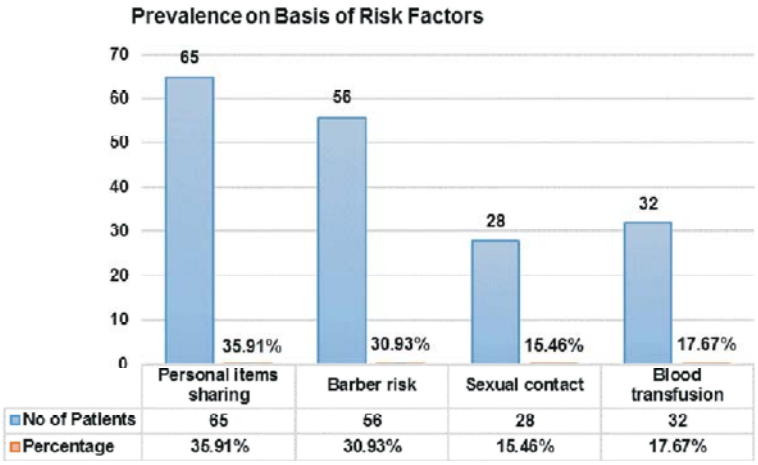
Prevalence of Hepatitis B on the Basis of Risk Factors: The study revealed that by personal items sharing mostly 65 (35.91%) the hepatitis transmits from one person to another and less 28 (15.46%) transmissions occurs through sexual contact. While through Barbers and blood transfusion the transmission rate was 56 (30.93%) and 32 (17.67%) respectively.

Table 1: Age, Gender, Marital status and Literacy rate wise prevalence of Hepatitis B in 2013

Age limit	Total	Married	Unmarried	Male	Female	Literate	Illiterate
1-20	52(28.72%)	18(34.61%)	34(65.38%)	31(59.61%)	21(40.38%)	-	-
21-40	91(50.27%)	64(70.32%)	27(29.67%)	61(67.03%)	30(32.96%)	-	-
41-60	27(14.91%)	20(74.07%)	7(25.92%)	15(55.55%)	12(44.44%)	-	-
61 plus	11(6.03%)	9(81.81%)	2(18.18%)	7(63.63%)	4 (36.36%)	-	-
Total	181(100%)	111(61.32%)	70(38.67%)	114(62.98%)	67(37.01%)	82(45.30%)	99(54.69%)

Table 2: Prevalence of Hepatitis on the basis of Diagnostic Test in 2013

Diagnostic test	No of patients	Percentage
ICT	110	60.77%
ELISA	71	39.22%



Graph of Hepatitis B on the basis of Risk Factors

DISCUSSION

The present study was conducted in general population of District Dir lower. In Pakistan the prevalence rate of Hepatitis B was 2.5%, so occurs in the area of intermediate endemicty [9].

All the patients were grouped in to four age groups and the prevalence was different among all groups. The prevalence rate observed was 28.72%, 50.27%, 14.91% and 8.83 respectively in age limits 0-20, 21-40, 41-60 and above 60. The lowest rate observed in age limit above 60 years but the highest rate shown by the age limit 21-40 as Munir *et al.* [15] revealed the maximum prevalence from 21 to 40 years. According to Castolo *et al*. [17] Mustapha *et al*. [18] Lavanya *et al.* [19] and Rehman *et al.* [20] age limits 19 to 40 shows maximum prevalence.

Gender wise prevalence show that in male 62.98% were positive the ratio is much greater than female. This statement is supported by Tanveer *et al.* [21] infected females are 0.9% while males are 5%, Qureshi *et al.* [22] in males 2.9% in females 2.0%, Ilyas *et al*. [23] 2.15% in male and 0.84 in female, Awan *et al*. [24] 68.58% in male and 31.41% in female, Soomro *et al.* [25] in males 56.25% and 43.75% in females and Walana *et al*. [26] demonstrated that 9.7%male are infected and 8.5% of females are infected.

Hepatitis B in marital status was 61.32% in married and 38.67% in unmarried. Different studies support the present work [18] demonstrated 79% in married and 21% in unmarried, Qureshi *et al*. [22] reported 6.2% in married and 3.5% in unmarried and Munir *et al*. [15] concluded 4.5% in married and 2.8% in unmarried.

ELISA based test show (39.22%) positivity rate and ICT showed (60.77%) positivity rate. Waheed *et al*. [27] reported 54.50% positive cases through ICT and 45.50% through ELISA. They also demonstrated that ELISA was more effective ICT gives relatively more false positive results.

In the present study Hepatitis B was 54.69% in illiterate people and 45.30% in literate. In contrast [28] reported low prevalence in illiterate 10% then literate 90% because literacy and awareness about Hepatitis B is much

high in U.S. Hakim *et al*. [29] concluded 55.40% in illiterate and 44.60% in literate, Ali *et al*. [30] reported 52.30% in illiterate while 48.70% in literate.

On the basis of risk factors the prevalence was high in those patients, which share personal items (Towels, nail cuter, tooth brush, sharing razors, cigarettes) were high 35.91%, than those which are exposed to other risk factors like barber risk 30.93%, sexual contact 15.46% and blood transfusion 17.67%. The result of present study were related with the result Waheed *et al*. [27] reported high prevalence in patients sharing personal items compared to other risk factors, Awan *et al*. [24] showed 20.19% positive subjects shares personal items, 10% shaves from community barber, 9.54% from blood transfusion and 9.7% was due to sexual contact.

CONCLUSION

It is concluded that ELISA is better than ICT to diagnose hepatitis B. Age limit 21-40 years show high percent of positivity may be due to high exposure to risk factors. Awareness may limit the spreading rate of HBV.

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