

Serological prevalence of hepatitis B virus infection in Lawaghar Valley, District karak KhyberPakhtoonkhwa, Pakistan

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Abstract – Hepatitis B virus (HBV) infection is a major health problem in the developing countries including Pakistan. This study aimed to investigate the prevalence of HBV in Lawaghar valley of district karak Khyber Pakhtunkhwa province, Pakistan. A total of 800 individuals (380 males and 164 females and 256 children) suspected for hepatitis B infection were screened for HBsAg. All the samples were analyzed for HBV by ELISA. Out Of the total samples collected 495(61.75%) were positive for Hepatitis. In males 65.78% were more infected than female 57.92% and childrens 58.59%. High occurrence 86% was recorded in 20-40 years, in age group of 40-60 years the percentage was 71.5% the lowest percentage was recorded in the age of 10-20years 64.66%. Extensive vaccination and other preventive measures should be taken to stop the spread of this dreadful disease in the study area.

Keywords – Hepatitis, Infection, Vaccination

1. Introduction

Hepatitis B infection is the main health problem throughout the world [1, 2]. Approximately 2 billion people are infected with Hepatitis B Virus (HBV) globally [3, 4, 5] of which 350 million are chronic HBV carrier [6, 1]. Each year approximately 1 to 2 million people die from HBV related complications such as chronic hepatitis, cirrhosis and hepatocellular carcinoma [7].

HBV transmission has been observed by percutaneous or mucosal exposure to infected blood and body fluids [8]. HBV can transmit through blood, serum, body fluids, semen, saliva and HBV can live for several days in dried blood on table surfaces, needles, syringes and razors [9,10]. The use of unsterilized dental and surgical instruments, shaving from barber, reuse of needle for nose and ear piercing, reuse of disposable syringes and sharing needles with drugs addicts, sharing personal things such as razors, toothbrushes, and nail cutters, sexual and prolonged close personal contact with infected personnel are also the common ways of HBV transmission [11].

Pakistan is highly endemic (9 million people infections across the country) [12], with 3% chronic HBV carriers [13,14] and the infection rate is rising day by day [1]. Generally, the epidemiological studies concerning the prevalence of HBV are restricted to the hospitalized patients [15], whereas there is very few population studies to estimate the exact infected population in different areas.

High prevalence of HBV was observed in geographical areas of low economic status, which underscores the importance in controlling this disease because approximately, 67.5% of the Pakistani population belongs to rural areas of low economic status [16, 17]. This study was planned with

the main aim to determine the serological prevalence of HBV infection in Lawaghar Valley Khyber Pakhtunkhwa Pakistan, as limited data is available about the HBV infection in this region of the country.

2. Methodology

2.1. Study Sample

A total of 800 blood samples were collected from Lawaghar valley district karak KhyberPakhtoonkhwa for diagnosis of HBV in Hayatabad medical complex Peshawar from June 2013-September 2013. All the individuals were aged between 10 to 60 years. A 5 ml blood sample was collected in a vacutainer from each patient; serum was separated and stored in the Blood Bank of Hayatabad Medical Complex Peshawar for further processing.

2.2. HBV screening and Conformation

HBV screening was carried out with Immunochromatographic (Accurate Diagnostics Canada) for the detection of anti HBsAg. Positive tests were confirmed by enzyme-linked immunosorbent assay (ELISA) methods using HBsAg ELISA test kits (CDC Diagnostics, Los Angeles)

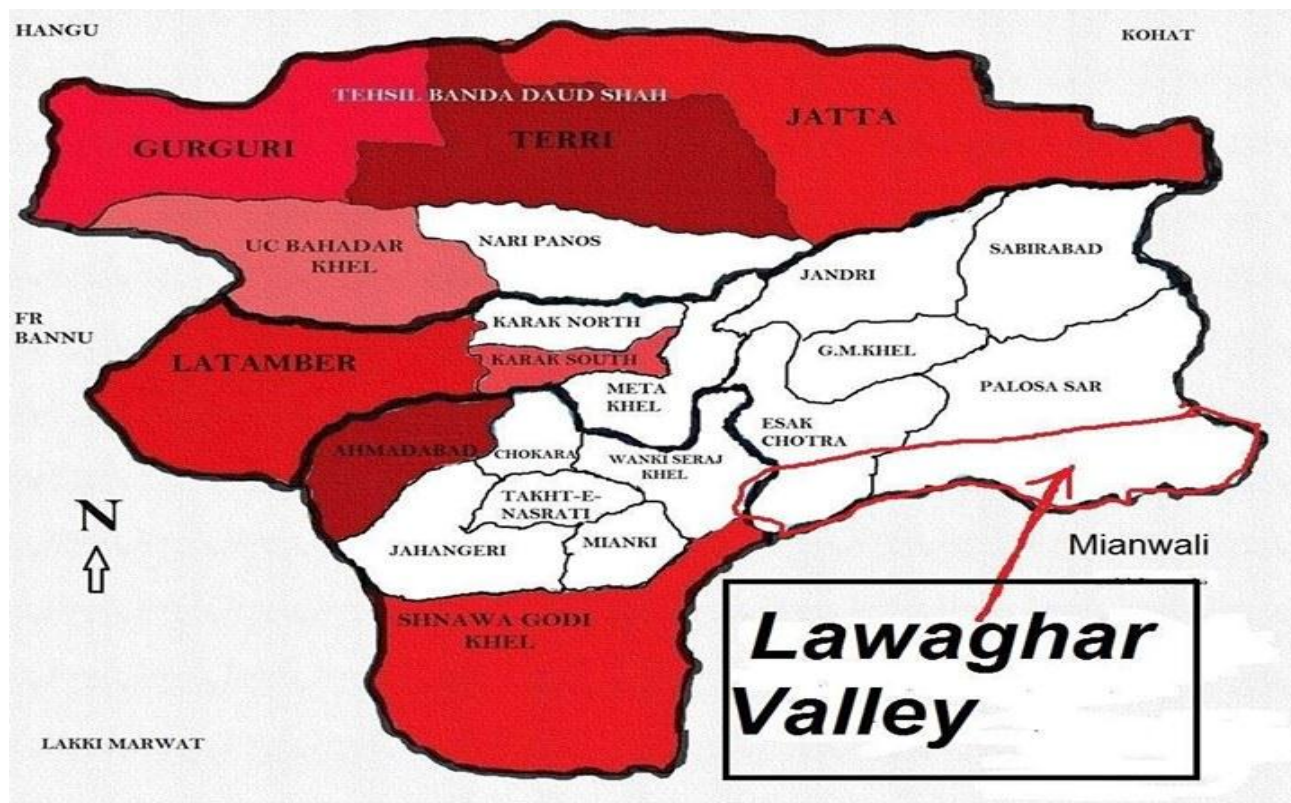
2.3. Prevalence Rate

The prevalence rate was determined by using the following formula:

Prevalence rate = No of Patients having Hepatitis B/ Total no patients×100.

2.4. Statistical Analysis

Data was analysed with Statistix software for windows.



Map of the Study Area: The Map is copied from Google maps.

3. Results

Hepatitis remains a well-known health issue in the world. Out of total 800 samples, 495(61.87%) were positive for hepatitis B. Gender wise prevalence was determined in this study the high prevalence was recorded in males 250(65.78%) then females 95(57.92%) and childrens 150(58.59%) Table 1. The data was significant when analysed by chi square test with $P < 0.05$. High prevalence 387(86%) was recorded in age 20-40. In age 40-60 years 143(71.5%) were found positive while the lowest 97(64.66%) was observed in age 10-20 years (Table 2). A high prevalence of hepatitis which was 134(67%) was recorded in the month of August, in September 44 (66.66%), in June 134(59.34%) the lowest percentage was recorded in the month of July 176(56.77%) Table 3.

Table 1. Gender wise prevalence of Hepatitis B

Sex	Total Samples	Positive	Percentage
Children	256	150	58.59%
Male	380	250	65.78%
Female	164	95	57.92%
Total	800	495	61.87%

Table 2. Age wise prevalence of Hepatitis B

Age	Total Samples	Total Positive Samples	Percentage
10-20	150	97	64.66%
20-40	450	387	86%
40-60	200	143	71.5%
Total	800	627	78.37%

Table 3. Month wise prevalence of Hepatitis B

Month	Total Samples	Positive	Percentage
June	224	134	59.82%
July	310	176	56.77%
August	200	134	67%
September	66	44	66.66%
Total	800	488	61%

4. Discussion

Hepatitis B infection is an international health

concerned problem with its continuously increasing burden in developing countries like Pakistan [17]. Representing all the geographical regions of Khyber Pakhtunkhwa, no study on HBV prevalence is available on that specific area. The current study was conducted with the main aim to find out the serological prevalence in the Lawaghar area of Khyber Pakhtunkhwa. In gender wise the high prevalence was recorded in males (65.78%) as compared to female (57.92%) and childrens (58.59%). This study is in line with other studies [18,7] who reported that more male were infected with HBV than female. In age wise the highest prevalence (86%) was recorded in age 20-40 years as compared to 40-60 which percentage is (71.5%) and the lowest was in 10-20 years which is (64.66%) our result show similarity with [14] reported high prevalence in age group of 20-40 (68.15%) as compared to 40-60 (31.85%). In month wise prevalence the highest percentage 67% was recorded in the month of august as compared to other months September (66.66%), June (59.34%) and the lowest percentage was recorded in the month of July which was (56.77%). Our result show similarity with [14] who reported the highest prevalence was in the month of august 70% as compared to the other months.

5. Conclusion

It is concluded that HBV infection is still prevalent in the Lawaghar valley District karak, Khyber Pakhtunkhwa Province. Massive awareness programs, extensive vaccination and other preventive measures should be taken to stop the spread of this alarming disease in the Lawaghar valley K.P.K, Pakistan.

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