

## Prevalence of Hepatitis B in KPK Province Pakistan

Fawad Ali<sup>1\*</sup>, Muhammad Junaid Yousaf<sup>2</sup>, Sidra Farman<sup>3</sup>

<sup>1</sup>Bacha Khan University Charsadda, KPK, Pakistan

<sup>2</sup>Abdul Wali Khan University Mardan

<sup>3</sup>Agriculture University Peshawar

Received: 27<sup>th</sup> August, 2020 / Revised: 13<sup>th</sup> October, 2020 / Accepted: 20<sup>th</sup> October, 2020 / Published: 16<sup>th</sup> December, 2020

### Abstract

*Pakistan carries one of the world's highest burdens of chronic hepatitis and mortality due to liver failure and hepatocellular carcinoma. In Pakistan about 10-12 million of the people are suffering from hepatitis B. World Health organization estimates that there are about 300 million of carriers of HBV all over the world. This study is conducted in the Khyber Teaching Hospital Peshawar. A total of 3,977 patients, belonging to different localities were screened for HBsAg by using ELISA (enzyme linked immunosorbent assay) and ICT (immune chromatographic technique). Out of 3,977 cases, 81(2.03%) were positive for HBV. Co-infection was found only in 6 patients. The common risk factors associated with HBV was found such that history of dental treatment was 70%, treatment from unqualified doctor 49%, history of blood transfusion 43%, history of minor/major surgery 40%, HBV positive patients in family 35%, shaving from street barbers 32%, diabetes 16%, tattooing 11%, HCV co- infection 7.41%, sharing of drug injecting equipment's 1.2%, HIV and T.B co- infection was 0%.*

**Keyword:** Hepatitis, infection rate, immune chromatographic technique

### Introduction and Literature Review

Hepatitis (plural hepatitises) is the injury or inflammation of the liver, which is characterized by the presence of inflammatory cells in the tissue of the liver. A group of viruses known as the hepatitis viruses causes most of the damages worldwide. Hepatitis A, B, C, E, G and delta factor are viruses that cause hepatitis. Hepatitis in Pakistan has been seen to happen as sporadic cases in conditions including group of huge quantities of individuals in zones where the water supply was contaminated (Danem and Prince, 2004). A sum of 14 to 26% of the obviously solid pediatric populace was seen as presented to hepatitis (HEV IgG reactive) (Prince and Okochi 1968). Variability was found in revealed pervasiveness of HEV in different examinations. In any case, dependent upon 20 to 22% of grown-ups and 2.4% of youngsters were found to have intense hepatitis due to HEV (Asif, 2019). This sickness has created cataclysmic impacts in pregnant ladies, bringing about maternal death rates extending somewhere in the range of 20 and 29.3% and perinatal death pace of up to 30.3 per 1,000 live births (Waheed and Siddiq, 2018). It is

likewise a huge reason for mortality in patients with prior incessant liver disease. A nosocomial flare-up of hepatitis E in a neurosurgery ward in Karachi, which was credited to mistaken sharing of intravenous organization sets between patients, has prompted theory that this pathogen may likewise be parentally transmitted, a thought that is upheld by a couple of comparable reports in the literature (Rasche, 2016). This probability should be investigated, so as to reinforce the ebb and flow preventive procedures set up.

### Route of Transmission

Oro– fecal...A and E & .Blood-borne....B, C, D, G. There are six main types of hepatitis virus that have been identified, which are as Follow Hepatitis A, B, C, D, E, F.

## Materials and Methods

### Patients Collection

The data collection was started from October to November (2008). A total of 1, 33, 193 patients visited the Khyber Teaching Hospital Peshawar, from different localities, for different diseases or problems in these two months. Out of 1, 33,193 patients, 3,977 were prescribed by the doctors to HBV screening before any treatment. Out of 3,977 patients, 1624 were screened in the month of October and 2353 were screened in the month of November in the laboratory of the Khyber Teaching Hospital Peshawar.

### Sample Collection

The blood sample collected by the laboratory technician using medical disposable syringes. Blood was poured into the collection tube (containing anti-coagulant such as heparin, EDTA and sodium citrate).

After that centrifuge, the blood was centrifuged to get plasma specimen.

### Laboratory Diagnosis

The data was collected on the basis of the results of the following test Performed by the laboratory technicians:

#### ICT (Imuno Chromatography Technique)

It is an in-vitro immune-chromatographic, one assay designed for qualitative determination of HBsAg in human serum or plasma. This test cassette contains a membrane strip, which is pre-coated with mouse monoclonal anti-HBs capture antibody on test band region. The mouse monoclonal anti-HBs-colloid gold conjugate and serum sample moves along the membrane chromatographically to the test region (T) and forms a visible line as the antibody – antigen –antibody gold particle complex form. This test cassette has a letter of T and C as Test Line and control line on the surface of the cassette. Both the Test Line and Control Line in result window are not visible before applying any samples. The Control Line is used for procedural control. Control line should always appear if the test procedure is performed properly and the reagents of control line are working. This test can identify HBsAg in plasma or serum specimens with a high degree of sensitivity.

#### ELISA (Enzyme Linked Immuno Sorbent Assay) Test (Abcam's)

The Hostage test is based on a direct sandwich assay comprising micro wells coated with a monoclonal antibody (mab, mouse) against HBsAg.

Test sample reacts simultaneously with the immobilized mab and with a polyclonal anti-HBsAg antibody (guinea pig) conjugated with horseradish peroxidase. If

HBsAg is present in the sample, the peroxides –containing complex is captured on the micro wells surface. After incubation unbound enzyme conjugate is removed by washing. Substrate solution is added and during further incubation a blue color develops. The intensity of this color, which to yellow after stopping the reaction with acidic solution, is proportional to the amount of HBsAg in the specimen. Reading less than cut-off value is considered negative for HBsAg. A reading equal to or greater than the cut-off value is considered reactive for HBsAg tests. Specimens yielding repeatedly reactive readings by this assay are considered positive for the presence of HBsAg. These specimens must be confirmed by a confirmatory test.

## Results

This study was conducted to estimate the prevalence of hepatitis B virus infection in the general population of NWFP, attending the Khyber Teaching Hospital, Peshawar. The data collection is based on medically made Proforma, filled from the patients itself or from their relatives after the HBV positive test result and note a detail disease history including the major causes or route of hepatitis B infection, its symptoms, age, sex and locality. Results were concluded from the laboratory test recommended by doctors before any treatment. The data was collected in the months of October and November. A total of 1, 33,193 patients visited the Khyber Teaching Hospital, Peshawar, from different localities such as Peshawar, Mardan, Charsadda, Nowshera, Malakand, Swat, Dir, Bajawar, Chitral, Parachinar, Hango, Kohat,

D.I.Khan, Karak, Bannu, Khyber Agency, Waziristan, Miranshah etc, attended different OPDs, for different diseases or problems. Some of them were being hospitalized. About 3,977 patients were referred by the doctors for the screening of HBsAg and anti-HCV before any treatment, out of which 81(2.03%) of the patients were positive for HBsAg. Six of the patients were co-infected with HCV. In the co-infected patients, six females and two males were included.

Table 3.: Distribution of Hepatitis B in selected patients at KTH.

Months	Total patients	Positive HBsAg	%age
October	1624	32	1.970%
November	2353	49	2.08%
Total	3,977	81	2.03%

The overall prevalence of HBsAg in general population of NWFP, referred to KTH, is 2.03%. The prevalence of hepatitis B virus infection in both male and female sex in the months of October and November is summarized in Table 3.1.

It can be noted from the table that out of 1624 patients in the month of October, 32 were HBsAg positive in which males were 1% (19/1624) while females were 0.8% (13/1624). In the month of November, out of 2353 patients, 49 were HBsAg positive in which males were 1.40% (33/2353) while females were 0.68 % (16/2353). Overall, average prevalence of HBsAg in males were 1.3% while in females 0.73%. The age group selected was 1-90 years both for males and females. Most of the cases were positive in adults, especially young people having age between 21-40 years.

## Conclusion

Results of the study show that HBV infection are increasing day by day and are the major health problem all over the world and in our country Pakistan. The incidence of viral hepatitis is increasing every year due several reasons.

1. Transfusion of unscreened blood and blood products
2. Use of contaminated syringes or reuse of needles
3. Lack of awareness about hepatitis
4. Lack of health education
5. Lack of hygienic measure

There are extensive need to give attention to the high risk groups such as babies born to infected mothers, donors for blood and organ transplant, patients of haemophilia, Thalassaemia and Haemodialysis etc.

## Recommendations

1. People should be immunized. A massive vaccination programme should be started for this purpose in which vaccine is given free of cost.
2. Cost of blood screening and medicine should be made low so that poor people can get the treatment easily.
3. Injection use should be limited and instead of injection, powered or liquid form of medications should be introduced.
4. Safety measures should be adopted while living in the environment or family that have high load of HBV infection.
5. Sharing of syringes, razors, needles, tooth brush, dental treatment equipments and even sharing of towel, comb, nail cutter, should d be avoided

to prevent transmission of hepatitis through these factors.

6. All the health care workers, doctors and technicians should be guided properly about safety measures and should observed strict sterilization standard for surgery tools.
7. Government should arrange seminars, workshops and public gathering for the awareness of people.
8. In the centers of blood screening, there must be trained Pathologists for diagnostic tests and standard protocols should be followed for blood screening.
9. All disposable medical equipments such as syringes, needles, plastic bottles and drips should be cut to make non-usable at the point of use.
10. Discarded blood is highly infectious, before disposal it must be disinfected.
11. When hepatitis is once detected, the treatment should be started as soon as possible.

## References

- Asif, A.F., 2019. Appraisal of National Response to Chronic Hepatitis in Pakistan. *Journal of Islamabad Medical & Dental College*, 8(1), pp.3-7.
- Baqi, S., Shah, S.A., Baig, M.A., Mujeeb, S.A. and Memon, A. (1999). Seroprevalence of HIV, HBV, and syphilis and associated risk behaviours in male transvestites (Hijras) in Karachi, Pakistan. *Int-J-STD-AIDS*, 10(5): 300-4
- Blal, C.A., Passos, S.R., Horn, C., Georg, I., Bonecini-Almeida, M.G., Rolla, V.C. and De-Castro, L. (2005). High prevalence of hepatitis B virus infection among tuberculosis patients with and
- Ganem, D., Prince, A.M (2004). Hepatitis B Viruse Infection –Natural History and Clinical Consequences. *N Engl J Med* 350:1118-29.

- Gilchrist, J.A (1999). Journal of American Dental Association 130:509-20
- Khattak, M.F., Salamat, N., Bhatti, F.A. and Qureshi, T.Z. 2002. Seroprevalence of hepatitis B, C and HIV in blood donors in northern Pakistan. *J-Pak-Med-Assoc*, 52(9): 398-402
- Khokhar, N., Gill, M.L. and Malik, G.J. 2004. General Seroprevalence of hepatitis C and hepatitis B virus infections in population. *J-Coll-Physicians-Surg-Pak*,14(9): 534-6
- Kwon, S.Y., Ahn, M.S. and Chang, H.J. 2000. Clinical significance of hepatitis C virus infection to alcoholics with cirrhosis in Korea. *J-Gastroenterol-Hepatol*, 15(11): 1282-6
- Qureshi, H., Ahsan, T., Mujeeb, S.A., Jawad, F., Mehdi, I., Ahmed, W. and Alam, S.E. 2002. Diabetes mellitus is equally frequent in chronic HCV and HBV infection. *Pak-Med-Assoc*, 52(7): 280-3.
- Rasche, A., Saqib, M., Liljander, A.M., Bornstein, S., Zohaib, A., Renneker, S., Steinhagen, K., Wernery, R., Younan, M., Gluecks, I. and Hilali, M. 2016. Hepatitis E virus infection in dromedaries, North and East Africa, United Arab Emirates, and Pakistan, 1983–2015. *Emerging infectious diseases*, 22(7), p.1249.
- Saha, M.K., Chakrabarti, S., Panda, S., Naik, T.N., Manna, B., Chatterjee, A., Detels, R. and Bhattacharya, S.K. 2000. Prevalence of HCV & HBV infection amongst HIV seropositive intravenous drug users & their non-injecting wives in Manipur, India. *Indian-J-Med-Res*, 111: 37
- Waheed, Y. and Siddiq, M. 2018. Elimination of hepatitis from Pakistan by 2030: is it possible?. *Hepatoma Res*, 4(8), p.45.