

Original Article

Seroprevalence and awareness of hepatitis B infection among the students of Sindh University, Jamshoro.

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Abstract

Background: Approximately 500 million people are living with chronic viral hepatitis i.e. 1 in every 12 individuals is at risk of developing hepatitis. Viral hepatitis is among the top 10 infectious disease killers and the leading cause of liver cirrhosis and cancer. The aim of this study was to determine the prevalence of hepatitis B virus (HBV) and to assess the knowledge of associated risk factors among students.

Methodology: The cross-sectional study continued for one year from January to December 2016 at University of Sindh, Jamshoro. Around 1658 undergraduate students between the age of 20 to 25 years were included in the study. Subjects demographic details, knowledge, awareness regarding the risk factors were inquired through a structured questionnaire. HBV was screened using Lateral-flow immunochromatographic assay. Recorded data was analyzed using SPSS Version 20.

Results: Out of 1658 students enrolled in the study, HBV was observed in 87(5.24%), the ratio of male infected students 78(89%) was greater than female infected students 09(10%). Major reason behind increased exposure and silent incidence of this infectious disease was unawareness, 1110(66.94%) students were unaware of the HBV risk factors. While roadside shaving among males and piercing among females were the major practices that further contribute to the HBV incidence rate.

Conclusion: Our results indicate that unawareness is the major factor precipitating HBV infection risk, further a few students aware of the risk were observed doing activities that contribute to disease incidence.

Keywords

Hepatitis B Virus, Immunochromatographic Assay, Prevalence, Risk Factors



Introduction

HBV is a hepatotropic, noncytopathic virus that can lead to cirrhosis, and hepatocellular carcinoma¹. The viral DNA belongs to hepadnaviridae family with a genome of approximately 3200 base pairs, is the smallest virus. It affects the liver major cells, the hepatocytes^{2,3}. It is one of the major public health problems globally, and particularly in developing countries such as Pakistan⁴. About two billion people are infected with HBV worldwide and 400 million among them are suffering from chronic HBV infection. Pakistan is highly endemic with HBV with nine million people infected with HBV and its infection rate is on a steady rise⁵. HBV is transmitted through contaminated blood or other bodily fluids, via percutaneous or mucosal exposure. As such, children born from women infected with hepatitis B, individuals who have received multiple blood transfusions, drug users, and individuals with multiple sexual partners are considered to be high risk groups for HBV infection⁶.

In cirrhosis the intestinal microenvironment is directly or indirectly affected by liver damage and portal hypertension. Since the HBV is a small DNA virus, and there is only limited genetic information in the viral genome, the virus heavily relies on cellular factors for viral replication. During HBV infection, a variety of cellular factors are recruited by the virus to regulate multiple steps in the HBV replication cycle⁷. Patients who recover from acute hepatitis B acquire protective levels of anti-HBs with lifelong immunity. However, a proportion of patients will be chronically infected and approx. 0.1–0.5% develop fulminant hepatitis. Acute HBV and hepatitis delta virus (HDV) coinfection are associated with a high rate of fulminant hepatitis⁸. HBV can be classified into seven genotypes A–G and recent studies, all from Asia, suggest that HBV genotype B is associated with earlier HBeAg seroconversion than genotype C, thus most

likely explaining the less progressive disease in patients with genotype B^{9,10}.

The decreased availability of local literature regarding the knowledge and prevalence of this common health burden, highlights the need to generate significant findings in support of HBV awareness among local population in order to strengthen and alter national programs and policies accordingly. The current study was conducted to assess the prevalence of HBV among student of Sindh, Jamshoro and their knowledge and awareness was also evaluated regarding this public health issue.

Methodology

A cross-sectional, single centre experimental study was conducted from January to December 2016 over a sample of 1658 students of University of Jamshoro, Sindh. Undergraduate students between 20 to 25 years of age were included in the study. Written informed consents were taken from each participant before enrolment. The study was conducted in accordance to the declaration of Helenski and the data confidentially was maintained.

Data regarding demographic characteristics (including age, previous disease history, family history of HBV, sharing habits, previous blood transfusion, blood donation), awareness regarding routes of HBV transmission and associated risk factors was collected through a structured questionnaire. 2ml/2000 µL blood was drawn from each enrolled participant which were centrifuged at 2500 to 3000 rpm for 5 to 7 minutes and Lateral-flow immunochromatographic assay was used for screening of HBV.

The collected data records were analyzed using SPSS Version 20 where mean and standard deviation was used to present quantitative variables while frequency and percentage for all qualitative variables.

Results

Out of 1658 enrolled students of which 1024 (61.76%) were males and 634 (38.23%) were females. Students were screened for the presence of HBV, 87(5.24%) were infected with HBV viral infection. Out of these infected participants, 78 were males and only 09 were females and majority of them were residing in hostels i.e. 52 (59.77%). Subjects were also inquired regarding HBV knowledge and awareness, based on the details provided 1110(66.94%) subjects were found unaware

while only 548(33.05%) were aware of HBV. Data regarding treatment options and preferred choices was also gathered. Based on the knowledge of these enrolled study subjects, allopathic treatment was the most preferable option followed by herbal treatment. Male subjects were further inquired for preferred shaving options 738(44.5%) suggested barber shaving, 160(9.65%) chose self-shaving, and 130(7.84%) preferred both. While females were questioned for ideal piercing method, 345 (54.41%) were in favor of professional piercing and 289(45.58%) suggested self-piercing.

Table I: Demographic & clinical characteristics of the study participants.

Variables	(n=1658)	
Mean Age (years)	23.5±2.5	
Gender	Males	1024(61)
	Females	634(38)
Prevalence		
HBV	Present	87(5.24)
	Absent	1571(94.75)
Knowledge		
Awareness	Aware	548 (33.05)
	Unaware	1110(66.94)
Preferred Treatment known	Homeopathic	14(18)
	Allopathic	1006(60.67)
	Herbal	511(30.80)
	Don't know	127(7.65)
Risk Factors		
Preferred mode of Shaving (Males)	Barber shaving	738(44.5)
	Self-shaving	160(9.65)
	Both shaving	130(7.84)
Type of Piercing (Females)	Professional piercing	345(54.41)
	Self-piercing	289(45.58)

*values are given as n(%)

*HBV-Hepatitis B Virus

Discussion

Pakistan is amongst the countries with high risk of HBV infections, the HBV prevalence is diverse among different regions of Pakistan. It is very essential to determine the prevalence of this widespread health risk among students as there are several factors to which they are more exposed in daily routine and to rectify their personal habits promoting this silent hazard. Our aim was to determine the prevalence of HBV infection among students of Sindh University, Jamshoro. The HBV prevalence among the enrolled subjects was 5.24% (Table I) and these infected subjects were having no knowledge of their HBV status. Similarly, a study conducted at a tertiary care hospital, Karachi reported that the subjects diagnosed with HBV were mainly students¹¹. Another study conducted in Uganda, showed high prevalence of HBV among students¹². Moreover, it was found that the clinical students are at increased risk of attaining HBV as compared to pre-clinical students¹².

Furthermore, increased prevalence was observed among males as compared to females. One of the reasons for this might be decreased awareness and high exposure to unhygienic environment. There are several modes of transmission of HBV, blood transfusion, sexual contact, sharing contaminated syringes, surgical procedures, dental procedures, immunization, tattooing, piercing and transfer of contaminants through razors and toothbrushes etc. are among the most significant factors behind the HBV etiology^{13,14}. In the current study four out of 87 HBV diagnosed subjects previously had dental surgery, five were having tattoos on their skin. 1455 were involved sharing personal items (comb, nail cutter, razors, towel, food pots and cosmetics). A study reported, roadside barbers as the major source of HBV spread after positive family history, followed by dental extraction, blood transfusion and Tattoos etc¹¹.

The present study also identified the knowledge of students, more than 50% of the study subjects were unaware of the HBV transmission, risk factors and treatment. Lack of awareness and stigmatization is among the major contributing factors for decreased screening and treatment of HBV locally. Despite of several limitations the study contributed significant findings in relation to the local prevalence of the HBV among students which can be used as base for future conducts. The study sample included students from only one centre, a descriptive study on more diverse population must be conducted in order to evaluate the overall prevalence of HBV among students of Pakistan. Moreover, the results were drawn on the basis of self-reporting of the respondents, no direct observations were made.

Conclusion

It can be concluded from the study results that there are several silent carriers of HBV among the general population as in this case silent HBV infection was seen among students. Therefore, for risk management, proper screening and vaccination should be implemented. Moreover, the inappropriate habits and practices of students contribute to the transmission of this health hazard.

Conflicts of Interest

None.

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References

1. Phillips S, Chokshi S, Riva A, Evans A, Williams R, Naoumov NV. Naoumov: CD8+ T Cell Control of Hepatitis B Virus Replication: Direct Comparison between Cytolytic and Noncytolytic Functions; *J Immunol.* 2010; 184(1):287-295.
2. Dawurung JS, Bukbuk DN, Ajayi BB, Baba MM. Prevalence of hepatitis B and C virus co-infection among students of University of Maiduguri, Nigeria. *Arch. Appl. Sci. Res.* 2012;4(4):1581-1584.
3. Guettouche T, Hnatyszyn HJ. Chronic hepatitis B and viral genotype: the clinical significance of determining HBV genotypes. *Antivir. Ther.* 2005;10(5):593-604.
4. Mujeeb SA, Pearce MS. Temporal trends in hepatitis B and C infection in family blood donors from interior Sindh, Pakistan. *BMC Infect. Dis.* 2008; Article number 8(1):43.
5. Bhatti FA, Ullah Z, Salamat N, Ayub M, Ghani E. Anti-hepatitis B core antigen testing, viral markers, and occult hepatitis B virus infection in Pakistani blood donors: implications for transfusion practice. *Transfusion.* 2007;47(1):74-79.
6. Anjos GR, Martins RM, Carneiro MA, Brunini SM, Teles SA. Epidemiology of hepatitis B virus infection in first-time blood donors in the southwestern region of Goiás, central Brazil. *Rev Bras Hematol Hemoter.* 2011;33(1):38-42.
7. Quasdorff M, Protzer U. Control of hepatitis B virus at the level of transcription. *J Viral Hepat.* 2010;17(8):527-536.
8. World Health Organization. Hepatitis D: Key facts. [8 July 2019]. Available at: <https://www.who.int/news-room/fact-sheets/detail/hepatitis-d>
9. Orito E, Mizokami M, Sakugawa H, Michitaka K, Ishikawa K, Ichida T, Okanoue T, Yotsuyanagi H, Iino S, Japan HBV Genotype Research Group. A case-control study for clinical and molecular biological differences between hepatitis B viruses of genotypes B and C. *Hepatology.* 2001;33(1):218-223.
10. Chu CJ, Hussain M, Lok AS. Hepatitis B virus genotype B is associated with earlier HBeAg seroconversion compared with hepatitis B virus genotype C. *Gastroenterology.* 2002;122(7):1756-1762.
11. Butt N, Khan MA, Haleem F, Butt S, Reema S, Qureshi T, Abbasi A. Epidemiology, Clinical Characteristics, and Management Status of Hepatitis B: A Cross-sectional Study in a Tertiary Care Hospital at Karachi, Pakistan. *Cureus.* 2019;11(1): e3880.
12. Pido B, Kagimu M. Prevalence of hepatitis B virus (HBV) infection among Makerere University medical students. *Afr Health Sci.* 2005;5(2):93-98.
13. Centers for Disease Control and Prevention. Hepatitis B Questions and Answers for the Public. [Updated: September 10, 2019] Available at: <https://www.cdc.gov/hepatitis/hbv/bfaq.htm#bFAQc01>.
14. World Health Organization. International travel and health; Hepatitis B. Available at: <https://www.who.int/ith/diseases/hepatitisB/en/>.