

# Knowledge and Vaccination Coverage of Hepatitis-B among 1<sup>st</sup> Year MBBS Students at Indira Gandhi Institute of Medical Sciences, Patna

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## Abstract

**Introduction:** According to the World Health Organization hepatitis-B is the world's most common liver infection, which is caused by a DNA-virus. The lifespan chance of problems such as chronic hepatitis, cirrhosis, and hepatocellular carcinoma with chronic hepatitis-B virus infection is a vital concern for health-care personnel.

**Aim:** This study was conducted to assess the current knowledge and vaccination coverage for hepatitis-B among 1<sup>st</sup> year MBBS students.

**Materials and Methods:** A cross-sectional study was organized in the year 2016 on 100 MBBS students of the Indira Gandhi Institute of Medical Sciences (IGIMS), Patna. A semi-structured questionnaire was used to collect information. The data were examined in the form of percentage and fraction, and the Chi-square test was applied.

**Results:** A majority (81.6%) of MBBS students showed a good level of knowledge regarding hepatitis-B infection. The correct knowledge regarding postexposure prophylaxis and mode of transmission of hepatitis-B were 74% and 92%, respectively. It was found that 90% of the respondents correctly mentioned the mode of transmission and vaccination as a measure of prevention of hepatitis-B, 64% among all students were fully vaccinated against hepatitis-B. However, in a number of subjects, there is a lack of knowledge about prophylaxis, vaccination, and the treatment of hepatitis-B.

**Conclusion:** There is a crucial need for health education to improve the knowledge of pre MBBS course toward hepatitis-B infection.

**Key words:** Hepatitis-B infection, Knowledge, MBBS students, Vaccination coverage

## INTRODUCTION

According to the World Health Organization (WHO) hepatitis-B is the world's most common liver infection. The virus is highly infectious, 50-100 times more than human immunodeficiency virus (HIV), and is transmitted through blood, semen, vaginal secretion, and mucous membranes. There are more than 2 billion people Worldwide having recent or previous hepatitis-B

infection and 350 million are chronic carriers.<sup>1</sup> In South East Asian Region, there is approximately 80 million hepatitis-B virus (HBV) carriers (about 6% of the total population).<sup>2</sup> The most common route of transmission is unsafe sex, high-risk blood transfusions, contaminated needles, from mother to child at birth, close domiciliary touch and between children in early infant. HBV is specific to other sexually transmitted disease it can be preventable with vaccine.<sup>1</sup>

The infection heals in adults and they become healthy, but 90% in newborn and 30-50% in young children, the infection takes a path to chronic hepatitis-B.<sup>1</sup> This provides an increased risk, approximately 25% that they subsequent in life will suffer from liver cirrhosis and/or carcinoma of liver, if the infection is not medically treated.<sup>1,3</sup> HBV is quickly transmitted by percutaneous or mucous

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membrane as the HIV, although, HBV has 50-100 times more infection rate (WHO, 2012). HBV infection has been determined as an important occupational hazard for health-care workers.<sup>1</sup> Transmission of infection is unusual between the persons who have been immunized but it may be as high as 30% among those who are not vaccinated.<sup>4</sup> Moreover, in an estimate 15-40% of chronic HBV transporter were susceptible to develop liver cirrhosis and hepatocellular carcinoma.<sup>5</sup> HBV is a challenging ailment that results in 0.6 million deaths yearly. Although HBV is modified as “disease of priority,” there is a persistent increase in detection of new cases worldwide. HBV is common in the Asia Pacific region and 10-15 million people suffer from this disease.<sup>6-8</sup> The spread of HBV chronic infection is particularly high in Sub-Saharan Africa, ranging from 7% to 26%.<sup>9</sup> The objective of the study was to assess the knowledge and vaccination coverage on hepatitis-B among 1<sup>st</sup> year MBBS students studying at Indira Gandhi Institute of Medical Sciences (IGIMS) Medical College, Patna.

## MATERIALS AND METHODS

A cross-sectional study was carried out among 1<sup>st</sup> year MBBS students studying at IGIMS and Medical College, Patna. All 100 1<sup>st</sup> year MBBS students of regular batch of the year 2015 were enrolled, and given information about the proposal and objectives of the study. The data were collected on a semi-structured questionnaire distributed among these 1<sup>st</sup> year MBBS students. The questionnaire was in English only and consisted of questions associated to understanding of hepatitis-B infection as regard to basic information, epidemiological aspects and prevention of hepatitis-B related issues. All the questions were objective type with “Yes” or “No” as the options, although a less questions were of multiple-choice type. Knowledge was estimate through 12 questions. A scoring mechanism was used to understand overall knowledge level. Every correct answer was given one score and the range of the score varied between 0 (with no correct answer) and 12 (for all correct answers). Respondents with all correct answer got a maximum of 12 points, higher points indicate good knowledge. Based on total score, knowledge level was categorized into poor ( $\leq 5$  points), average (6-8 points), and good ( $\geq 9$  points). Apart from knowledge on hepatitis-B demographic profile such as age, sex, and marital status of the respondents were also recorded. Data entered into Microsoft Excel and analyzed using SPSS version - 18.0. The  $P \leq 0.05$  was used for statistical significance. The response rates differed by item; hence the frequency issue was calculated using the similarity for the individual item.

## RESULTS

Out of total 100 participants, 62% males and 38% were female. More than three-fourth (78%) were in the age group of 17-22 years followed by 40% in 17-19 years and (38%) in 20-22 years age, Two-third (64%) among all students were fully immunized for hepatitis-B (Table 1).

The majority (81.6%) of students had shown good level of knowledge, whereas 18.4% had average level of knowledge. 92% of students had correct knowledge regarding mode of transmission. However, 84% MBBS students could know about hepatitis. Half (52%) students could not give the correct answer regarding scheduled of the vaccination. 88% respondents had correct knowledge about hepatitis-B transmitted from one person to another person. Although hepatitis-B vaccination was included in National Vaccination Program in India, but it was unexpectedly 52% students did not know the correct WHO schedule for hepatitis-B immunization (Table 2).

## DISCUSSION

Hepatitis-B is an acute infection of liver caused by HBV. The lifespan chance of problems such as chronic hepatitis, cirrhosis, and hepatocellular carcinoma with chronic HBV infection is a vital concern for health-care personnel.<sup>10,11</sup> HBV infection is an occupational risk for physicians and surgeons mainly in developing countries where a carrier state is about 4% and kills about 1.1 million people globally every year. This study revealed that 81.6% MBBS students had shown good level of knowledge, whereas 18.4% had average level of knowledge. This may be attributed to coverage of topic in MBBS undergraduate curriculum. Similar finding by Khan *et al.*<sup>12</sup> and Darwish, and Al Khaldi<sup>13</sup> reported that the overall knowledge level

**Table 1: Demographic characteristics and vaccination status of the study population**

Particulars	N (%)
Age (in years)	
17-19	40 (40)
20-22	38 (38)
23-24	20 (20)
$\geq 24$	02 (02)
Gender	
Male	62 (62)
Female	38 (38)
Vaccination status	
Yes	64 (64)
No	36 (36)

**Table 2: Gender wise distribution of respondent's knowledge about HBV infection of study sample (N=100)**

Question regarding knowledge	Correct answer			Incorrect answer			$\chi^2$ -value P value*
	Male	Female	Total	Male	Female	Total	
Have you heard about hepatitis? (Yes)*	54	30	84	10	06	16	$\chi^2=0.000$ $P=1.000$
What organs is primarily affected in hepatitis-B?*	58	32	90	07	03	10	$\chi^2=0.000$ $P=1.000$
Can hepatitis-B transmitted from one person to another? (Yes)*	54	34	88	09	03	12	$\chi^2=0.359$ $P=0.549$
If Yes, then what in your view is/are the mode (s) of its transmission? (Sexual and Parental)*	59	33	92	06	02	08	$\chi^2=0.053$ $P=0.816$
What in your view can be possible outcomes of this disease?*	50	28	78	12	10	22	$\chi^2=0.321$ $P=0.570$
Who are at higher risk of acquiring hepatitis?*	52	24	76	13	11	24	$\chi^2=1.062$ $P=0.302$
Is hepatitis-B infection preventable by vaccination (Yes)*	56	34	90	04	06	10	$\chi^2=1.041$ $P=0.307$
Do you know about PEP about hepatitis B? (Hepatitis-B vaccine and hepatitis-B immunoglobulin)*	46	28	74	16	10	26	$\chi^2=0.000$ $P=1.000$
What is the schedule followed?*	25	23	48	36	16	52	$\chi^2=2.406$ $P=0.120$
What was the source of information about this vaccine?*	55	22	77	12	11	23	$\chi^2=2.162$ $P=0.141$
Did you ever come across anyone suffering from hepatitis among young relatives/friends/colleagues? (Yes)*	47	20	67	16	17	33	$\chi^2=3.570$ $P=0.058$
Do you think you have sufficient knowledge regarding hepatitis? (Yes)*	28	16	44	40	16	56	$\chi^2=0.376$ $P=0.539$

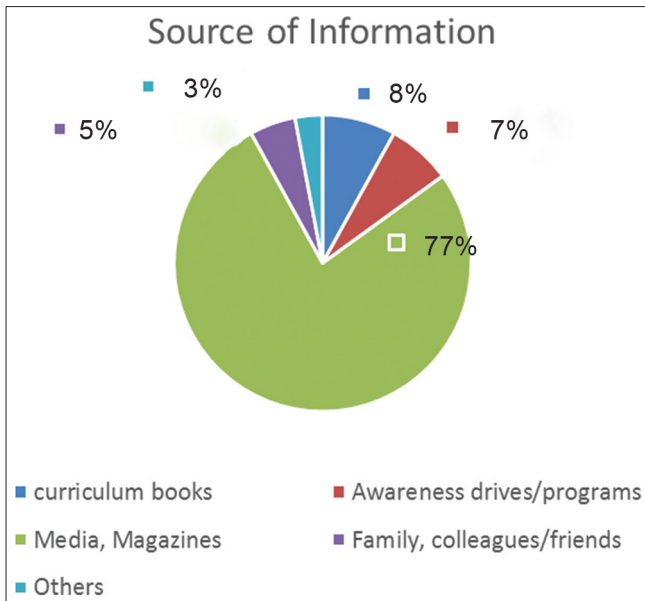
Data indicates both number and percentage, \*Correct answer, <sup>†</sup>Value are significant  $P < 0.05$ . HBV: Hepatitis-B virus

regarding hepatitis-B among medical students ranged between “good” and “average.”

The majority (92%) of students had correct knowledge regarding mode of transmission of hepatitis-B in this study. Similar findings by Darwish and Al Khaldi<sup>13</sup> and Singh and Jain<sup>14</sup> among medical students declared that 77.7% and 86.7% of students had correct knowledge regarding mode of transmission of hepatitis-B, respectively. Another study done by Kasetty *et al.*<sup>15</sup> among dental professionals showed that 82.1% had correct knowledge regarding the mode of transmission. Whereas, a study done by Khan *et al.*<sup>12</sup> among medical students of Karachi, found that only 57.1% had correct knowledge regarding the same. It was declared that majority of respondents (84%) had heard of HBV infection, while only (16%) indicated they had not heard about the disease. The major source of information about HBV infection was the Media as indicated by most of the respondents (77%). Similarly, Hwang *et al.* (2010)<sup>16</sup> found that about 87% of respondents had heard about HBV before and had extremely greater knowledge compared to those who had not heard about the disease.

In this study, 74% MBBS students had the correct knowledge regarding postexposure prophylaxis (PEP) for hepatitis-B. Similarly, a study by Kasetty *et al.*<sup>15</sup> found

that 93.9% dental professionals had correct knowledge regarding PEP. However, in contrast, a study done by Khan *et al.*<sup>12</sup> revealed that 76% medical students did not have the knowledge regarding PEP. Low level of knowledge about postexposure treatment for hepatitis-B among the medical students was also found by Darwish and Al Khaldi.<sup>13</sup> Whereas, a study done by Singh and Jain<sup>14</sup> found that the majority of 3<sup>rd</sup> year undergraduate medical students gave correct answers, while only 20% of the 2<sup>nd</sup> year had the correct knowledge regarding the same. The most effective means to prevent HBV infection is through vaccination. Viral hepatitis is curable with effective vaccines, which is available since 1982 and has proven safe to both adults and children. In this study, two-third (64%) of MBBS students were fully immunized for hepatitis-B. However, 36% of students not immunized are the matter of concern. Similar results were observed in other studies also.<sup>3,12</sup> However, in contrast, a study conducted by Darwish and Al Khaldi<sup>13</sup> revealed that only 28.1% of medical students were vaccinated against HBV. The overall knowledge among MBBS students were satisfactory as compared to other studies but there was a gap which needs to be corrected regarding inclusion of hepatitis-B vaccination in national immunization program and even the correct WHO schedule for immunization, prevention and postexposure management of hepatitis-B.



## CONCLUSION

HBV is a common but serious infectious disease of the liver. Hepatitis-B infection is an extensive health problem in the community. Theoretically, this study has provided some empirical evidence on knowledge and perception on HBV infection among 1<sup>st</sup> year MBBS students studying in IGIMS, Patna. The finding showed students were aware of HBV infection. It was also revealed that 81.6% MBBS students had shown good level of knowledge regarding hepatitis-B, and 64% of MBBS students are fully immunized for the same, which is matter of concern. Appropriate knowledge should be provided to the medical and other health-care professional students regarding HBV in the curriculum. Most important approach for prevention of occupational HBV infection is the use of hepatitis-B vaccine. Based on the results of this study, health authorities may plan awareness programs and interventions to improve the level of knowledge in MBBS students and health-care professionals and those with low level of knowledge about

HBV vaccination to prevent the burden of this disease among this high-risk group.

## REFERENCES

1. World Health Organization, (WHO). Immunization, Vaccines and Biological, Hepatitis B. 2012. Available from: [http://www.who.int/immunization/topics/hepatitis\\_b/en/index.htm](http://www.who.int/immunization/topics/hepatitis_b/en/index.htm) 1. [Last cited on 2012 Dec 20].
2. Malik AH, Lee WM. Chronic hepatitis B virus infection: Treatment strategies for the next millennium. *Ann Intern Med* 2000;132:723-31.
3. Chao J, Chang ET, So SK. Hepatitis B and liver cancer knowledge and practices among healthcare and public health professionals in China: A cross-sectional study. *BMC Public Health* 2010;10:98.
4. Centers for Disease Control and Prevention, (CDC). Recommendations for preventing transmission of human immunodeficiency virus and hepatitis B virus to patients during exposure-prone invasive procedures. *MMWR Recommend Rep* 1991;40:1-9.
5. Lok AS, McMahon BJ. Chronic hepatitis B. *Hepatology* 2007;45:507-39.
6. Keeffe EB, Dieterich DT, Han SH, Jacobson IM, Martin P, Schiff ER, *et al.* A treatment algorithm for the management of chronic hepatitis B virus infection in the United States: 2008 update. *Clin Gastroenterol Hepatol* 2008;6:1315-41.
7. Lok AS, McMahon BJ. Chronic hepatitis B: Update 2009. *Hepatology* 2009;50:661-2.
8. Lesmana LA, Leung NW, Mahachai V, Phiet PH, Suh DJ, Yao G, *et al.* Hepatitis B: Overview of the burden of disease in the Asia Pacific region. *Liver Int* 2006;26:3-10.
9. André F. Hepatitis B epidemiology in Asia, the Middle East and Africa. *Vaccine* 2000;18:S20-2.
10. Barker LF, Shulman NR, Murray R, Hirschman RJ, Ratner F, Diefenbach WC, *et al.* Transmission of serum hepatitis 1970. *JAMA* 1996;276:841-4.
11. Ozaras R, Tahan V. Acute hepatitis C: Prevention and treatment. *Expert Rev Anti Infect Ther* 2009;7:351-61.
12. Khan N, Ahmed SM, Khalid MM, Siddiqui SH, Merchant AA. Effect of gender and age on the knowledge, attitude and practice regarding hepatitis B and C and vaccination status of hepatitis B among medical students of Karachi, Pakistan. *J Pak Med Assoc* 2010;60:450-5.
13. Darwish MA, Al Khaldi NM. Knowledge about hepatitis B virus infection among medical students in University of Dammam, Eastern Region of Saudi Arabia. *Life Sci J* 2013;10:860-7.
14. Singh A, Jain S. Prevention of hepatitis B; knowledge and practices among medical students. *Healthline* 2011;2:8-1.
15. Kasetty S, Mohania A, Dwivedi D, Tijare M, Kallianpur S, Gupta S. A cross-sectional study on the knowledge of hepatitis B infection among dental professionals. *J Virol Micro Biol* 2013; Article ID: 288280. DOI: 10.5171/2013.288280.
16. Hwang J, Huang CH, Yi J. Knowledge about hepatitis-B and predictors of hepatitis-B vaccination among Vietnamese American college students. *J Am Coll Health* 2010;56:377-82.

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