

RESEARCH ARTICLE

KNOWLEDGE ABOUT HEPATITIS B VIRUS INFECTION AND ATTITUDE TOWARDS ITS VACCINATION AMONG INTERNS IN TERTIARY CARE CENTRE, UDAIPUR

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Abstract

..... **Background:**Hepatitis B is the primary cause of illness and mortality worldwide. Interns are more likely to be exposed due to inexperience, inadequate training, and ignorance of protective measures. This studyevaluated interns' knowledge about the hepatitis B virus (HBV) and their attitudes toward vaccination.

Methodology: A four-month cross-sectional study of 117 interns at the American Institute of Medical Science in Udaipur used a semistructured, pretested questionnaire. The survey was divided into three sections: participants' general information; knowledge of HBV infection; andtheir attitudes regarding their HBV vaccination status. The relevant statistical program, SPSS version 22 was utilized to analyze the data.

Results: The mean age of the participants was 25.82±1.79 years. The majority of participants knew about HBV transmission, risk, and prevention. Although only 44.67% were aware of the vaccination schedule, 88% of respondents recognized the Hepatitis B vaccine's preventive benefits, and 90% had a positive view of interns' risk. 84.67% believed the Hepatitis B vaccine was effective, and 86.67% thought it was safe. Knowledge of the HBV infection among interns was statistically substantially associated with gender, exposure to Hepatitis B patients, and Hepatitis B testing (P value<0.005).

Conclusion: Nearly every student in the current study had a positive attitude and good knowledge. The findings of this investigation showed that to stop the spread of this fatal infection, interns who are constantly at risk need to be made more aware of Hepatitis B.

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Introduction:-

Infection with the Hepatitis B virus (HBV) is a serious worldwide health concern.¹ The only DNA virus among hepatitis viruses is HBV, which is an enclosed DNA virus. 10% of people get chronic hepatitis after acquiring HBV, and between 15 and 25 % develop cirrhosis. Later, hepatocellular cancer or hepatic decompensation affects half of

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these people.² One-third of people worldwide are affected, with 1.2 million new infections per year, 1.1 million fatalities, primarily from cirrhosis and hepatocellular carcinoma, and 254 million people living with chronic infections.³ According to estimates from the World Health Organization (WHO), 296 million individuals worldwide have Hepatitis B, 1.5 million have recently contracted chronic hepatitis, and 820000 have died from the infection.⁴

HBV is communicable and can be passed from the mother to the children, through sharps injuries, tattoos, piercings, and contact using tainted syringes, needles, or sharp things, as well as through unprotected sexual contact.⁴ Because of their frequent exposure, it is the primary infectious occupational health risk for healthcare workers. Every member of the medical staff is at work risk of contracting HBV. Because of their inexperience, inadequate training, and lack of information about prevention, the trainees may be much more at risk of unintentional exposure.⁵

Exposure to blood and bodily fluids from a patient who has an acute or chronic HBV infection through the skin or mucous membranes increases the chance of contracting the virus by at least 30% in the workplace.⁶ Each year, approximately 66,000 HBV infections are attributed to needlestick injuries. In India, hospital employees had a higher HBsAg carrier percentage (10.87%) than both the general population (5%) and voluntary blood donors (6%), according to research.⁷ Healthcare workers (HCWs) must take appropriate precautions to prevent and control infections because they are still at high risk of contracting the disease through skin pricks caused by syringes and needles that are contaminated or diseased, as well as through unintentionally inoculating small volumes of blood during dental and surgical procedures.

Chronic liver disease is largely preventable when an HBV infection is present. Following general precautions, like as wearing gloves or other protective barriers, sterilizing medical equipment, using a hospital waste management system, and getting vaccinated, can help avoid it. The most efficient and secure method of preventing the illness is the Hepatitis B vaccine. People who are at work-related risk of contracting the Hepatitis B virus should get vaccinated, according to WHO recommendations. The WHO assessment indicated that Health professionals' coverage of HBV vaccinations is poor globally, despite the substantial occupational risk among these workers.

Healthcare providers in both developed and developing nations have been reported to have low levels of vaccination awareness. Instead of using human blood or plasma, the recombinant yeast culture used to make the Hepatitis B vaccine is non-infectious. The immunization does not increase the risk of contracting HBV or any other blood-borne infections. A three-dosage protocol is used to accomplish this, with dosages two and three administered One and six months after the initial dose, respectively. A good response to immunization is indicated by antibody levels of more than 100 μ /ml. A poor response is indicated by an antibody concentration ranging from 10 to 100 μ /ml.⁸

The study of knowledge and attitude determines important information, emotions, tendencies or abilities that a group of people have in common for specific topics. By taking into account the at-risk population's awareness, beliefs, and health-seeking behaviour, it has been utilized as a helpful research method to develop public health strategies. Despite the significant risk, there aren't many studies on interns' attitudes regarding vaccination and current understanding of HBV infection in the country. Future healthcare workers are interns, so they must understand HBV. Thus, the purpose of this study was to ascertain the Knowledge about HBV infection & attitudes towards its vaccination among interns of the American Institute of Medical Science, Udaipur.

Objectives:-

- > To understand the level of knowledge among interns regarding HBV infection.
- To identify the factors that affect attitudes of interns toward Hepatitis B vaccination, including its effectiveness, and personal willingness to receive the vaccine.

Methodology:-

A cross-sectional investigation was carried out among 117 interns at a territory care center of Udaipur regarding the knowledge of HBV infection and attitude towards its vaccination. The study was conducted for 4 months. The Inclusion Criteria were interns of the American Institute of Medical Science, Udaipur willing to participate in study and the exclusion Criteria were interns not interested for participation in the study.

Following the participants' consent to participate in the study, they were informed of its objective. A semistructured, pre-tested questionnaire was used to collect data which was entered into a Microsoft Excel sheet, statistical analysis was done using SPSS Version 22. All categorical data were presented as percentages and frequencies. To check for a significant variation in proportions, the chi-squared test was employed. A significant p-value was defined as less than 0.05, and all tests were examined using a 95% confidence interval.

Results:-

Sociodemographic characteristics

117 interns participated in the current study, which aimed to evaluate their attitudes regarding vaccination and the knowledge of HBV infection. With a mean age of 25.36 ± 1.79 years, the participants' ages ranged from 24 to 27 years. Of the total number of participants, 58 (49.57%) were males and 59(50.42%) were females. In terms of religion, Hindus made up the majority of participants 111(94.87%), followed by Muslims 5(4.27%) and Christians1 (0.85%). Only 31.33 % of all participants said they had received a Hepatitis B vaccine, while 68.67% said they had not received one. Furthermore, 43.33% of the participants did not record any encounters with Hepatitis B patients in the hospital, but over half (56.67%) did. (Table 1)

Sociodemographic variable					
Age (in years) [24 to 27]	25.36±1.79				
	Frequency	Percentage (%)			
Gender					
Male	58	49.57			
Female	59	50.42			
Religion					
Hindu	111	94.87			
Christian	1	0.85			
Muslim	5	4.27			
Checked for hepatitis B					
Yes	37	31.33			
No	80	68.67			
Encountered patients with hepatitis B while posting					
Yes	66	56.67			
No	51	43.33			

Table 1:- The sociodemographic characteristics of the interns.

Knowledge of HBV infection

Most research participants showed that they understood HBV infection and how it spreads. 88% of respondents were aware that HBV can spread through needlestick injuries, 91.33% were aware that it can spread through sexual contact, 81.33% were aware of vertical transmission, and 89.33% were aware that it can spread through contaminated blood transfusions. 88% were aware of the connection to liver cancer. Only 44.67% of participants were aware of the vaccination schedule, despite 88% of them acknowledging the Hepatitis B vaccine's preventive benefits. Only 55.33% of participants were aware that Hepatitis B is more contagious than HIV, and the majority (85.33%) believed that hospital workers were more likely to have Hepatitis B than the general population. (Table 2) **Table 2:-** Knowledge regarding Hepatitis B infection among interns.

Variables	Positive Response,	Negative
	n (%)	Response,
		n (%)
Can Hepatitis B be transmitted by needle stick injury	103 (88%)	14 (12%)
Can Hepatitis B be transmitted sexually	106 (91.33%)	11 (8.67%)
Is it possible to spread Hepatitis B by vertical transmission	95 (81.33%)	22 (18.67%)
Is it possible to spread Hepatitis B by infected blood transfusion	105 (89.33%)	12 (10.67%)
Is HBV more transmissible than HIV	65 (55.33%)	52 (44.67%)
Can HBV cause liver cancer	103 (88%)	14 (12%)
Can safe needle disposal prevent Hepatitis B infection	105 (90%)	12 (10%)
Do you think vaccine can prevent Hepatitis B infection	103 (88%)	14 (12%)
Do You know the vaccination schedule for adults	52 (44.67%)	65 (55.33%)
Do you think HBV has laboratory tests	96 (82%)	21 (18%)

Do you know HBV vaccine effectiveness can be checked by testing	95 (81.33%)	22 (18.67%)
(Anti-HBs) antibody levels		
Do you know HBV has post-exposure prophylaxis	109 (93.33%)	8 (6.67%)
Do you think Hepatitis B is more common in hospital workers than	100 (85.33%)	17 (14.67%)
normal population		

Attitude regarding Hepatitis B vaccination

The majority of participants (90%) expressed a positive attitude toward the risks that interns face, and all participants (100%) believed that Hepatitis B prevention was necessary. The majority of participants (86.67%) believed the Hepatitis B vaccine to be safe, and 84.67% had faith in its effectiveness. Nearly all interns (99.33%) said that vaccinations should be required for all medical schools, 96.67% thought that more HCWs would get vaccinated if they were given for free, and 96% thought that hospitals should regularly conduct vaccination programs. The majority of respondents (90%) believe that medical students thought to have their vaccinations a year after enrolling in medical school. 98% expressed a willingness to get or finish their Hepatitis B vaccinated (Table 3). **Table 3:**-Attitudes regarding the Hepatitis B vaccination among interns.

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Variables	Positive attitude n (%)	Negative attitude, n (%)
Will working put you in risk?	106 (90%)	11 (10%)
Do you believe that protection against Hepatitis B infection is necessary?	117 (100%)	-
Is Hepatitis B vaccine safe?	101 (86.67%)	16 (13.33%)
Trust in the Hepatitis B vaccine's effectiveness.	99 (84.67%)	18 (15.33%)
In medical school, Hepatitis B vaccination needs to be required.	116 (99.33%)	1 (0.67%)
More healthcare workers will receive vaccinations if medical schools supply them for free.	113 (96.67%)	4 (3.33%)
Medical schools need to run vaccination campaigns regularly.	112 (96%)	5 (4%)
Within a year of starting school, medical students should receive their vaccinations.	105 (90%)	12 (10%)
Willingness to obtain or finish the Hepatitis B vaccination	115 (98%)	2 (2%)
Willing to suggest Hepatitis B vaccination to friends in the medical field	105 (89.33%)	12 (10.67%

Association of knowledge of HBV infection and attitude towards vaccination with sociodemographic variables.

Knowledge of the HBV infection among interns was statistically substantially connected with gender, exposure to Hepatitis B patients, and Hepatitis B testing (P value<0.005). While there was a strong correlation between gender and knowledge, there was no statistically significant relationship between gender and attitude. Religion did not significantly correlate with either vaccination attitude or knowledge. Compared to those who have not tested, those who have tested for Hepatitis B showed better knowledge and attitude; however, the difference was not statistically significant for attitude toward vaccination but was statistically significant for knowledge. There was a statistically significant correlation between knowledge and experiencingHepatitis B patients in the posting, but not between attitude toward vaccination and knowledge. (Table 4)

Table 4:- Association of knowledge of HBV infection and attitude towards vaccination with sociodemographic variables among interns.

Variable	Knowledge			Attitude		
	Good	Poor	p-value	Positive	Negative	p-value
	n (%)	n (%)	e	n (%)	n (%)	е
Gender						
Male	14 (12%)	2 (1.33%)	< 0.05	15 (12.67%)	1 (0.67%)	>0.05
female	96 (82%)	5 (4.67%)		97 (83.33%)	4 (3.33%)	
Religion						
Hindu	93 (80%)	4 (3.33%)	>0.05	95 (81.34%)	2 (2%)	
Christian	8 (6.67%)	2 (2%)		9 (7.33%)	2 (1.33%)	>0.05
Muslim	8 (6.67%)	2(1.33%)		7 (6%)	2 (2%)	

Tested for Hepatitis B						
Yes	36 (30.66%)	1 (0.67%)	< 0.05	35 (30.67%)	1 (0.67%)	>0.05
No	78 (66.67%)	2 (2%)		79 (67.33%)	2 (1.33%)	
Hepatitis B patients were encountered during the posting.						
Yes	65 (56%)	1 (0.67%)	< 0.05	66 (56%)	1 (0.67%)	>0.05
No	47 (40%)	4 (3.33%)		48 (41.33%)	2 (2%)	
<0.05 indicates a statistically significant P value.						

Discussion:-

Our study assessed the interns' attitudes toward the Hepatitis B vaccine and their knowledge of HBV infection atUdaipur tertiary care center. Compared to the study by Paudel et al⁹ from Nepal, the participants in our study had a mean age of 25.36 ± 1.79 . The participants' average age was 23 ± 2.001 years, according to their report. Similar to our study, a study by Maroof KA et al.¹⁰ revealed that medical and nursing students who participants' mean age was 2.73 ± 1.97 years. In contrast to the study of Dahal K et al., the majority of participants in the present study were female. Of the participants in their study, 68 (33%) were women and 138 (67%) were men.

According to the current study, over 50% of medical students had come into contact with Hepatitis B patients while on posting, indicating a high risk among them. This study recommends enhancing health education regarding universal safety precautions, which are crucial in preventing infections among medical students. However, our study's incidence is lower than that of Nguyen TTL et al. of Vietnam, whose data showed that 94.3% of Students have come into contact with people who had Hepatitis B.¹¹Likewise; only 31.33% of our study participants had a Hepatitis B test. This study is comparable to that of Ibrahim et al.¹² where only 16.4% of students had taken the HBV test. But compared to the research of Vasantha Mallika MC et al.¹³ and Nguyen TTL et al. this is significantly lower.

In terms of knowledge about HBV infection, 80% of study participants were aware that Hepatitis B can be spread through needlestick injuries. This is better than a similar study by Shukla M et al.¹⁴ which found that only 50% of participants knew about it and another study by SarosheS et al¹⁵ in central India found that only 40% of participants knew about it. In the current investigation, 88% of participants were aware that Liver cancer can be caused by Hepatitis B. which is more than the Oberoi T et al. study. Of the participants in their survey, 81.9% were aware of it ³. Similarly, a higher percentage of participants (55.33%) in our study were aware that Hepatitis B is more contagious than HIV, which is also higher than their study.

In the current investigation, 88% of participants had detailed knowledge about the prevention of Hepatitis B through vaccination; this is in contrast to another research conducted by Shukla M et al.¹⁴ where 95% were aware of vaccination. The level of understanding surrounding post-exposure prophylaxis is a significant concern. 93.33% of participants in our study were aware that post-exposure prophylaxis was available.

In terms of attitude toward vaccination, 90% of participants in the current study believed they were at risk of contracting HBV, compared to 84% in prior studies by Fufore et al. ¹⁶. 79.9% in Bhattarai S et al. ², 84.5% in Abiola et al. ¹⁷, and 75.9% in Akibu et al. ¹⁸. In this study, 99.33% of respondents suggested that vaccination against Hepatitis B should be required for medical students. In contrast, 84.3% of respondents suggested that vaccination should be required, as per studies by Abiola et al. ¹⁷Bhattarai S et al., Akibu et al., and Fufore et al. Compared to the study by Bhattarai S et al.², 86.67% of respondents in this study believed the Hepatitis B vaccine to be safe and 84.67% believed it to be effective. According to their survey, 72.1% of respondents believed the Hepatitis B vaccine was effective and 80.9% thought it was safe.

The present study found that interns' knowledge of HBV infection was statistically significantly correlated with their gender, testing for Hepatitis B, and exposure to individuals with Hepatitis B (P value<0.005), but not with their attitude toward vaccination (p-value>0.05), which is comparable to the findings of the Dahal K et al. study.

There are several limitations to the study. We cannot completely rule out the possibility of bias in measuring real practices and compliance because this is a self-reported cross-sectional study finding. Because only interns from a single medical institution were included in this study, the sample size was small, making it unable to generalize the

findings. Despite these drawbacks, the study's findings showed the significant medical students get tested for HBV and receive a Hepatitis B vaccination.

Conclusion:-

Nearly every student in the current study had a positive attitude and good knowledge. The findings of the study made clear how important it is to educate interns who are constantly at risk about Hepatitis B to stop the fatal virus from spreading. It is strongly advised that medical students actively participate in Hepatitis B vaccination, education, and awareness campaigns.

Recommendation:-

To stop the spread of Hepatitis B, we recommend medical university students to participate in more rigorous training programs that emphasize preventive measures and make active HBV vaccination essential.

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Ethical Clearance

Obtained from Institutional Ethical Committee.

Consent

Participants provided written informed consent for publication.

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