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Original Research Article

An audit of hepatitis B vaccination status, knowledge and attitudes among healthcare professionals at northwest general hospital Peshawar

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ABSTRACT

Background: This clinical audit assessed healthcare professionals' (HCPs') knowledge, awareness, and attitudes regarding hepatitis B vaccination at northwest general hospital Peshawar, Pakistan.
Methods: A self-administered questionnaire was distributed to HCPs (n=212) including doctors, nurses, pharmacists, technicians, and lab personnel. The questionnaire assessed demographics, vaccination status, knowledge of hepatitis B transmission and prevention, and attitudes towards the vaccine. Data was analyzed using descriptive statistics.
Results: The study found that while a majority of healthcare professionals (HCPs) were vaccinated against hepatitis B, many had not received the full recommended dose. Specifically, 84.9% of HCPs reported being vaccinated, but only 45.8% had received the full three doses. Despite a high perceived risk of exposure, only 24.5% of HCPs had participated in recent hepatitis B training. This suggested that there is a need for improved education and awareness programs regarding hepatitis B prevention among healthcare workers.
Conclusions: While a majority of HCPs reported being vaccinated against hepatitis B, knowledge about the complete vaccination schedule and the importance of training was limited. Efforts are needed to improve vaccination completion rates and address knowledge gaps through training programs.

Keywords: Attitudes, Healthcare professionals, Hepatitis B vaccination, Knowledge

INTRODUCTION

The hepatitis B virus (HBV) is the cause of hepatitis B, a dangerous liver illness. Hepatitis B is a persistent and concerning global public health issue that, if untreated, can result in cirrhosis, liver cancer, and liver failure.[1] Because of its high rates of morbidity, death, and treatment expenses, HBV places a heavy load on health care systems. Hepatocellular carcinoma, liver failure, or cirrhosis affect 15-40% of infected people.[2] Hepatitis affects 400 million people worldwide, with an estimated 1 million new cases each year. It is thought to be the cause of 1.45 million deaths annually.[3] Additionally, about 257 million people have a chronic HBV infection; most of them are not aware of their infection, which might infect others and eventually cause liver disease-related death.[4]

Sexual contact, sharing contaminated syringes, needles, or other injectable equipment, or mother-to-child transmission at birth are all ways that hepatitis B is spread.[5] Higher levels of HBV are found in blood and serous exudates. Although interferon-alpha (IFN-α) is used to treat chronic HBV infections, its effectiveness is limited in people with specific conditions, such as immunosuppression, decompensated liver disease, and childhood infections.[6] Additionally, ribavirin, which has broad-spectrum antiviral activity, was one of several medications that were unsuccessfully tested as possible anti-HBV treatments.[7] Chronic HBV infection is still incurable at this time.[4]

In contrast to just 0.5% of the general population, screening programs in the US predict that 10-15% of health-care professionals (HCPs) have a chronic HBV infection.[8] Over 60,000 HBV infections are thought to occur each year as a result of the percutaneous injuries that healthcare professionals are frequently exposed to.[9]

Since the 1980s, safe and efficient hepatitis B vaccinations have been on the market, with an estimated 95% efficacy in preventing both acute and chronic infections.[10] People of all ages can receive vaccines, which are preventive measures against hepatitis B. High vaccination efficacy is suggested by a recent follow-up study that found the vaccine can continue to protect a vaccinated person for up to 30 years.[11] Worldwide, the World Health Organization (WHO) advises immunizing infants and anyone who have risk factors for contracting hepatitis B, such as intravenous drug users, healthcare professionals, and those who have several sexual partners. There are two primary strategies for delivering the vaccine to those in need: universal immunization and selective vaccination. Many nations around the world have embraced the WHO's 1992 recommendation that all babies receive a hepatitis B immunization.[12]

Lack of appropriate preventive strategies in hospitals or other healthcare facilities, limited awareness of hepatitis B risk, and insufficient orientation of recently hired health care professionals are some of the main obstacles to hepatitis B prevention. Research indicates that a greater understanding of hepatitis B is significantly linked to hepatitis B vaccination.[13]

Thus, this study was performed with the objective of assessing HCP knowledge, awareness, attitudes of HCPs in Northwest General Hospital Peshawar, Pakistan towards hepatitis B vaccination.

METHODS

This clinical audit was performed from 20th August 2024 till 30th September 2024 at Northwest General Hospital and Research Centre, Peshawar. Data was collected using a questionnaire containing 4 sections. The first section contained questions designed to gather demographic variables, including age groups, gender, profession, level of education, and years of experience. The second part of the questionnaire assessed knowledge of HBV infection, including methods of transmission, vaccination efficiency and need, and whether hepatitis B vaccination should be part of the medical practice. The third section measured HCP awareness about hepatitis B infection and vaccination. The last section measured HCP attitudes toward the HBV vaccine. The survey did not collect any identifiers to ensure confidentiality and to protect the participants' privacy.

Total number of participants were 212 including medical doctors (house officers, post graduate residents of surgery and allied department, registrars and consultants), pharmacists, nurses and technicians (laboratory + surgical) available at the time of data collection in the hospital. The questionnaires were distributed among HCPs by authors of the clinical audit in different departments. The questionnaire was voluntary, and the completion and return of the questionnaire were taken as consent to participate. Questionnaires were collected on the spot. The questionnaire was designed by taking help from a previous study.[14] HCPs working in all the 3 duty shifts (morning, evening and night) were covered by visiting them in their respective shifts in their breaks/free time so that their duties and patients' care is not disturbed. Those HCPs that were prone to needle stick injury or sharps were included while those working in non-clinical departments or having no interaction with sharps/needles were excluded.

Data collected was entered and analyzed through SPSS version 25 and presented in the form of tables and graphs.

RESULTS

The mean age of the participants in this study was 27.28 years, with a standard deviation of 0.364, ranging from 22 to 58 years old. The majority of participants (80.2%) were under 30 years of age, while only 0.9% were over 50. Most were male (62.3%), single (63.2%), and held various education levels, with 30.7% having diplomas. Nurses constituted the largest professional group (45.8%), followed by medical doctors (32.5%), with most participants working in surgery and allied departments (39.2%).

Regarding vaccination status, 84.9% of participants were vaccinated against hepatitis B, but only 45.8% had received the full vaccination doses. Reasons for incomplete vaccination included being too busy (17.5%) and waiting for the next dose (16.5%). Knowledge about hepatitis B varied, with 66% of participants correctly identifying three as the full dose requirement for the vaccine, and 90.1% agreeing that the vaccine is effective in preventing infection. Attitudinally, 75% considered hepatitis B a very serious health risk, and 91% believed that administering the vaccine should be part of routine medical practice. Despite this, 31.1% reported experiencing needle stick injuries, and only 24.5% had participated in hepatitis B-related training in the past year.

Table 1: Demographic characteristics of participants.

Characteristics		Frequency	Percent
Age (years)	<30	170	80.2
	30-50	40	18.9
	>50	2	0.9
Gender	Male	132	62.3
	Female	80	37.7
Marital status	Married	78	36.8
	Single	134	63.2
Education level	Postgraduation	45	21.2
	Graduation	64	30.2
	Bachelor	37	17.5
	Diploma	65	30.7
Profession	Medical doctor	69	32.5
	Pharmacist	7	3.3
	Nurse	97	45.8
	Surg tech.	20	9.4
	Lab tech.	19	9.0
	Total	212	100.0
Department	Surgery and allied	83	39.2
	Medicine and allied	57	26.9
	Obstetrics and gynecology	10	4.7
	OT	23	10.8
	Pharmacy	6	2.8
	Lab	18	8.5
	Emergency	15	7.1

Table 2: Hepatitis B vaccination status.

Vaccinated against hepatitis B	Frequency	Percent
Yes	180	84.9
No	32	15.1
Received full doses		
Yes	97	45.8
No	115	54.2
Reason for not being vaccinated		
Cost of Vaccine	3	1.4
Vaccine not easily available	2	0.9
Afraid of its side effect	8	3.8
Lack of awareness	3	1.4
Too busy	13	6.1
Not important	1	0.5
Fear of needle	1	0.5
HBS Positive	1	0.5
Reason for not receiving full dose		
Started and waiting for the next dose	35	16.5
Fear of adverse effects	8	3.8
assuming that it was enough	11	5.2
Busy	37	17.5
Carelessness	14	6.6
Not available	11	5.2

Table 3: Knowledge regarding hepatitis B vaccine.

Knowledge	Frequency	Percent
What are the full doses of hepatitis B vaccine		
1	14	6.6
2	54	25.5
3	140	66.0
>3	4	1.9
Do you think the hepatitis vaccine is effective in preventing hepatitis B infection?		
Yes	191	90.1
No	7	3.3
Don't know	14	6.6
Who should receive the hepatitis B vaccine?		
Adult	73	34.4
Children	20	9.4
Health professionals	113	53.3
Pregnant women	6	2.8
Who should not receive hepatitis B vaccine?		
People allergic to HBV	122	57.5
Pregnant women	40	18.9
Diabetics	3	1.4
Immunocompromised	42	19.8
Patient having chronic renal failure	5	2.4
Administering hepatitis B vaccination should be part of medical practice		
Yes	193	91.0
No	8	3.8
Don't know	11	5.2
The hepatitis B vaccine may cause some people to get hepatitis B infection		
True	59	27.8
False	92	43.4
Not sure	61	28.8
Hepatitis B vaccine does not work for everyone		
True	46	21.7
False	94	44.3
Not sure	72	34.0

Table 4: Attitude of HCPs towards hepatitis B vaccine.

Attitude	Frequency	Percent
Did you ever get pricked by a needle/sharp during any procedure/attending a patient?		
Yes	66	31.1
No	133	62.7
Don't know	13	6.1
Is hospital staff at risk for infectious exposure?		
Very high-risk	97	45.8
High-risk	103	48.6
Not sure	6	2.8
Less risk	6	2.8
Potential seriousness of hepatitis B infection for yourself is considered		
Very serious	159	75.0
Minor	25	11.8
Not sure	19	9.0
Less serious	9	4.2
Have you or your colleagues participated in any training or continuing education related in the hepatitis B vaccine in the past 12 months?		
Yes	52	24.5
No	160	75.5

Table 5: Cross relation.

Have you received full doses of the vaccine			
	Yes	**No**	**P value**
Gender			
Male	53	79	0.025
Female	44	36	
Profession			
Medical doctor	26	43	0.085
Pharmacist	3	4	
Nurse	51	46	
Surgical tech.	12	8	
Lab tech.	5	14	
Participated in hepatitis B training			
Yes	28	24	0.202
No	69	91	
Pricked by needle/sharp during procedure.			
Yes	30	36	0.852
No	62	71	
Don't know	5	8	
Direct contact with patients /patient samples			
Always	30	32	0.986
Usually	14	17	
Sometimes	32	38	
Rarely	11	15	
Never	10	13	

DISCUSSION

Hepatocellular carcinoma is more likely to develop in those with chronic HBV infections, and there is no known therapy for these infections. They are also linked to cirrhotic liver failure.[4] Healthcare professionals are at a significantly higher risk of unintentionally contracting HBV because they are one of the demographic groups most frequently exposed to infected patients or patient samples. Because it is ethically obligated for health care professionals to give health services to patients infected with HBV, they interact with these individuals to provide various health services, regardless of whether they are aware of their infection or not. Thankfully, the HBV vaccine offers a reliable defence against infection for healthcare professionals.

Numerous international studies have demonstrated that vaccination prevents hepatitis B infection, and immunization of healthcare professionals has been helpful in stopping the disease's spread and enhancing their health.[15] Our current study's findings show that a sizable portion of HCPs (84.9%) have received an HBV vaccination. Nonetheless, this falls short of the CDC's 2020 objective of over 90% vaccination coverage in the United States.[16] A study of Saudi Arabian dentists revealed similar findings, with 80.5% of them having received vaccinations.[17] In order to ensure that patients and healthcare personnel have a very low chance of acquiring HBV, the current results show that vaccination coverage at our facility still has to be enhanced.

Research has been done all around the world to find out how much the general public and medical professionals know about the hepatitis B vaccine, in both developed and developing nations.[18,19] This research sought to ascertain the level of immunization among the general public and healthcare professionals in order to evaluate the discrepancy between standard practice and protocol. A study conducted in Ethiopia found that fewer people received hepatitis B vaccinations due to the lack of awareness among healthcare professionals, who are expected to be well-versed in the vaccine program.[18] Despite the small number of participants, the study's findings show positive connection and meaning. Studies have been carried out to determine the general public's knowledge of the hepatitis B vaccine and the vaccination rates among healthcare professionals in Sweden, where the vaccine is not part of the country's universal immunization program.[18,21] According to the survey, parents in the educated population have adequate information about the hepatitis vaccination, and healthcare professionals are not reluctant to get vaccinated, but employers do not vaccinate their staff. Dental students have also been the subject of studies aimed at determining their level of expertise and evaluating their immunization history.

According to one study, students in the developing nation of India have a strong understanding of hepatitis B (80%+

responses), but they also have low vaccination rates (44.4%) and a negative attitude toward getting vaccinated against HBV.[22]

15.1% of HCPs in the current study were not HBV-vaccinated; Table 2 lists a number of causes for non-compliance. This finding was undoubtedly influenced by a lack of knowledge and comprehension of the illness or the vaccine. Furthermore, and this is important, just 24.5% of all HCPs had participated in an HBV training program within the previous 12 months, which means that HCPs do not know enough about the hepatitis B vaccine. 27.9% of people thought that getting the HBV vaccine could make you infected with hepatitis B. The HBV vaccine was deemed effective against hepatitis B infection by 90.1% of our healthcare professionals.

Compared to healthcare professionals' understanding of hepatitis B vaccination and immunization rates, awareness of current guidelines and standard hospital procedures for HBV is still low. To increase HCPs knowledge and comprehension of the hepatitis B vaccine, more training sessions are required to explain current guidelines. Hospital employees' attitudes on the hepatitis B vaccine are not the best, and training sessions could change that.

Nevertheless, we are now grateful to the Northwest General Hospital Peshawar management for making the hepatitis B vaccination mandatory for all staff members, particularly newly hired, who must have it. With any luck, the audit cycle's re-audit phase will see the targeted number of HCPs vaccinated and other shortcomings fixed.

The main limitations of our clinical audit are that our sample size was small and the other branch of our hospital (northwest teaching hospital) was not included in this study for ease of data collection. Also, HCPs who were either on leaves or on clinical rotations in other hospitals were missed.

CONCLUSION

This clinical audit highlights significant gaps in the hepatitis B vaccination practices and related knowledge among healthcare professionals (HCPs) at Northwest General Hospital Peshawar. While a commendable majority (84.9%) of HCPs reported being vaccinated, only 45.8% completed the full three-dose regimen, reflecting challenges like busy schedules and insufficient awareness. Furthermore, only a quarter of participants engaged in hepatitis B-related training in the past year, underscoring the need for robust educational initiatives to address misconceptions, enhance compliance, and emphasize the vaccine's importance. The findings call for targeted interventions, including mandatory vaccination policies, periodic training programs, and strengthened workplace awareness campaigns, to ensure the safety of HCPs and mitigate the risk of HBV transmission within healthcare settings.

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