

Assessing Knowledge, Attitudes, and Practices: Regarding Hepatitis B Infection and Vaccination Among Healthcare Professionals at AL-Salama Hospital, Ameria, Baghdad City: A Cross-Sectional Investigation Conducted in October-November 2022

Fawzi Hashim Atshan¹, Basil Abdullrazzaq Saadallah Al-Khayyat²; Ehab Jumaa Ghali³

^{1*} Al- Salama Hospital, Al- Ameria. ²Al- Nahrain University/ College of Medicine, Iraq

²Specialist General Surgeon. Al-Yarmouk Teaching Hospital, Iraq

³ (Internal Al-Yarmouk Teaching Hospital, Iraq.

^{*1}Email: hashimfawzi55@gmail.com

^{*3}Email : hospital.ehabjumaah@gmail.com

ABSTRACT

Background: Hepatitis B Virus (HBV): A High-Risk Infection for Healthcare Workers (HCWs)
Healthcare workers (HCWs) are at an increased risk of contracting the highly dangerous hepatitis B virus (HBV) due to their frequent exposure to contaminated bodily fluids, particularly blood. Implementing precautionary measures such as personal safety protocols and vaccination can effectively prevent HBV infection.

Objective: 1- Evaluation of Healthcare Professionals' Knowledge, Attitudes, and Practices (KAP) Regarding Hepatitis B Infection and Vaccination.

2- Evaluating Immunization Status of Healthcare Workers (HCWs) in Al-Salama-Ameria Hospital, Primary Care, and Specialist Dental Care Centers in Relation to Hepatitis B Virus (HBV).

Materials and methods: In October and November 2022, a cross-sectional study was conducted at Al Salama Hospital (90 participants), primary care centers (44 participants), and specialist dental care centers (20 participants) in Ameria, Baghdad. A self-administered, structured questionnaire was used to collect information, including the knowledge, attitudes, and practices (KAP) of healthcare workers (HCWs) as well as their demographic details. The study data were analyzed using descriptive statistics, including frequencies, proportions, and percentages, with the assistance of Excel software. Verbal consent was obtained from each participant, and their identities were kept anonymous throughout the study.

Results: Our research comprised a total of 154 healthcare workers (HCWs), consisting of 59 A medical facility comprised of 95 medical staff and 95 paramedical staff, possessing a collective wealth of knowledge. score among the participants was 68%, indicating a moderate level of knowledge. In terms of attitude, the overall score was 75%, indicating a positive attitude towards hepatitis B virus (HBV) infection and vaccination. However, the overall practice score was 58%, indicating a need for improvement in implementing preventive measures. Within the medical staff, a mere 15% had undergone HBV screening, while a significant 67% had successfully received the recommended three doses of vaccination. among the paramedical staff who had not been previously screened for HBV, only 37% had completed the three doses of vaccination.

Conclusion: The findings of the study indicated that healthcare workers (HCWs) had a higher overall attitude score (75%) compared to their knowledge (68%) and practice (58%) scores. However, the rate of vaccination, particularly among paramedical staff, was low.

Keywords: Hepatitis BV, Knowledge, Attitude, Practices, vaccination.

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INTRODUCTION

Viral hepatitis remains a significant global public health concern, with hepatitis B (HBV) being the most prevalent blood-transmitted disease. In the past decade, the incidence of hepatitis cases in Iraq has increased, although the country is considered low-endemic compared to its neighboring nations. Factors such as the security situation, influx of refugees and migrants, and limited vaccine supply could contribute to the rise in hepatitis cases in Iraq.

According to the World Health Organization (WHO) in 2019 (1) and a study by Merzah MA et al. in 2019 (2), HBV can be transmitted through blood, semen, vaginal secretions, and mucosal membranes, and it is highly contagious, being 50-100 times more infectious than HIV (3). Following the recommended immunization schedule, 90% to 100% of healthy newborns, children, and adults can achieve protective concentrations of anti-HBs through HBV vaccination, typically administered in three doses. However, immunosuppressed individuals and those over the age of 40 have lower chances of developing sufficient protection. The long-term effectiveness of HBV vaccination and the need for booster shots remain uncertain (4). HBV infection significantly contributes to global morbidity and mortality, spreading through, the transmission of hepatitis B can occur through various routes, including contact with infected blood products, exposure to bodily fluids during sexual contact, transmission from mother to child during pregnancy and childbirth, as well as through exposure to contaminated medical equipment. (2,5).

In developed countries, HBV has a higher prevalence compared to other types of hepatitis, with approximately 7% of the global population being chronic carriers of the virus. (6). Nationally, the prevalence of chronic HBV (HBsAg+) in Iraq is estimated to be between 1.62% and 2.31% (7). Worldwide, it is estimated that around 3.9% of the population carries the HBsAg antigen, indicating its occurrence on an annual basis. In 2019, HBV-related complications, including cirrhosis and hepatocellular carcinoma, caused 820,000 deaths (8). Healthcare workers (HCWs) have a four-fold higher risk of HBV infection compared to the general population, with infection rates ranging from 0.8% to 74.4% depending on their work setting (9). HBV vaccination plays a vital role in preventing HBV infection, has

been highly effective and safe, and provides long-term or near-lifetime protection. Adopting standard precautions in healthcare facilities, which include maintaining good personal hygiene, correctly utilizing gloves and other protective equipment, ensuring proper sterilization of medical equipment, and appropriate disposal of body fluids and clinical waste, are vital strategies. These measures play a significant role in preventing the transmission of infections, including hepatitis B. Moreover, strengthening health education programs aimed at individuals who are infected and those at high risk can greatly enhance prevention efforts (10).

METHODS

Demographic information and data on knowledge, attitudes, and practices (KAP) of healthcare workers (HCWs) were collected using a questionnaire consisting of 16 items. The survey consisted of 8 questions related to knowledge, 5 questions related to attitudes, and 3 questions related to practices. Prior to the main data collection, a pre-test of the questionnaire was conducted on ten participants from the participating health institutions to evaluate its reliability. The results of the pre-test indicated that all participants had a clear understanding of the questions. Steps were taken to ensure the confidentiality of the respondents, and their verbal consent was obtained before their participation in the study. The collected data were then organized and presented using tables and graphs to facilitate analysis and interpretation.

-Definitions for scoring knowledge, attitude, and practices (11)

The study employed the following operational definitions:

Knowledge: Good knowledge: Respondents who answered at least 70% of the knowledge questions correctly.

Poor knowledge: Respondents who answered fewer than 70% of the knowledge questions correctly.

Attitude: Positive attitude: Respondents who correctly answered at least 70% of the attitude questions.

Negative attitude: Participants who provided incorrect answers to less than 70% of the items in the attitude questionnaire. Good practice: Research subjects who correctly responded to at least 70% of the practice questions. Malpractice: Participants who failed to answer at least 70% of the practice questions accurately. By utilizing these operational definitions, the study categorized respondents based on their level of knowledge, attitude, and practice, considering their performance in answering the respective questions.

-Inclusion and exclusion criteria for the study were as follows:

Inclusion Criteria: The study included healthcare workers employed in healthcare

institutions within the Al-Ameria District-Baghdad during the designated study period.

Exclusion Criteria: Healthcare workers who were absent from the study area during the data collection period due to maternity leave, annual leave, or sick leave were excluded from the study.

-Ethical considerations were taken into account during the conduct of this research.

All participants were provided with comprehensive information regarding the study's purpose, procedures, and objectives. They were given the opportunity to provide informed consent before their involvement in the research. The privacy and confidentiality of the participants' personal information, including their investigations, medical history, and follow-up, were ensured throughout the study.

RESULTS

Table (1): Socio-demographic Characteristics of Healthcare Workers (HCWs)

Categories of Individuals	Categorized Groups	-Number (n)	-Percent (%)
Gender	a. Male	44	29
	b. Female	110	71
Age Groups	18-29 years	32	21
	30-39 years	85	55
	40- 59 years	33	21
	60 years and above	4	3
Occupations	a. Medical Staff	59	39
	b-Paramedical staff	95	61
Marital Status	Single:	(52)	(34)
	Married:	(98)	(63)
	Divorced:	(4)	(3)
Work Experience	Less than 4 years:	(29)	(19)
	5-9 years:	(51)	(33)
	More than 10 years:	(74)	(48)

First: Socio-demographic characteristics of the participants were examined in this study

A total of 154 healthcare workers (HCWs) participated in the study, with males comprising approximately one-third of the total sample. Among the participants, 54% were in the age range of 30 to 39 years, and 63% were married, as shown in Table 1.

Out of all the respondents, 60% were paramedics, while 59 individuals belonged to the medical staff category (including doctors, dentists, and pharmacists), and 95 were categorized as paramedical staff (such as nurses, lab technicians, and medical assistants). The participants were randomly selected from three different healthcare institutions in Al-Ameria city: AL Salama Hospital (90 participants), primary healthcare (44 participants), and a specialized healthcare center for dentistry (20 participants). Furthermore, approximately half of the participants had over ten years of professional experience.

Table (2): presents the distribution of responses to knowledge questions among the medical staff.

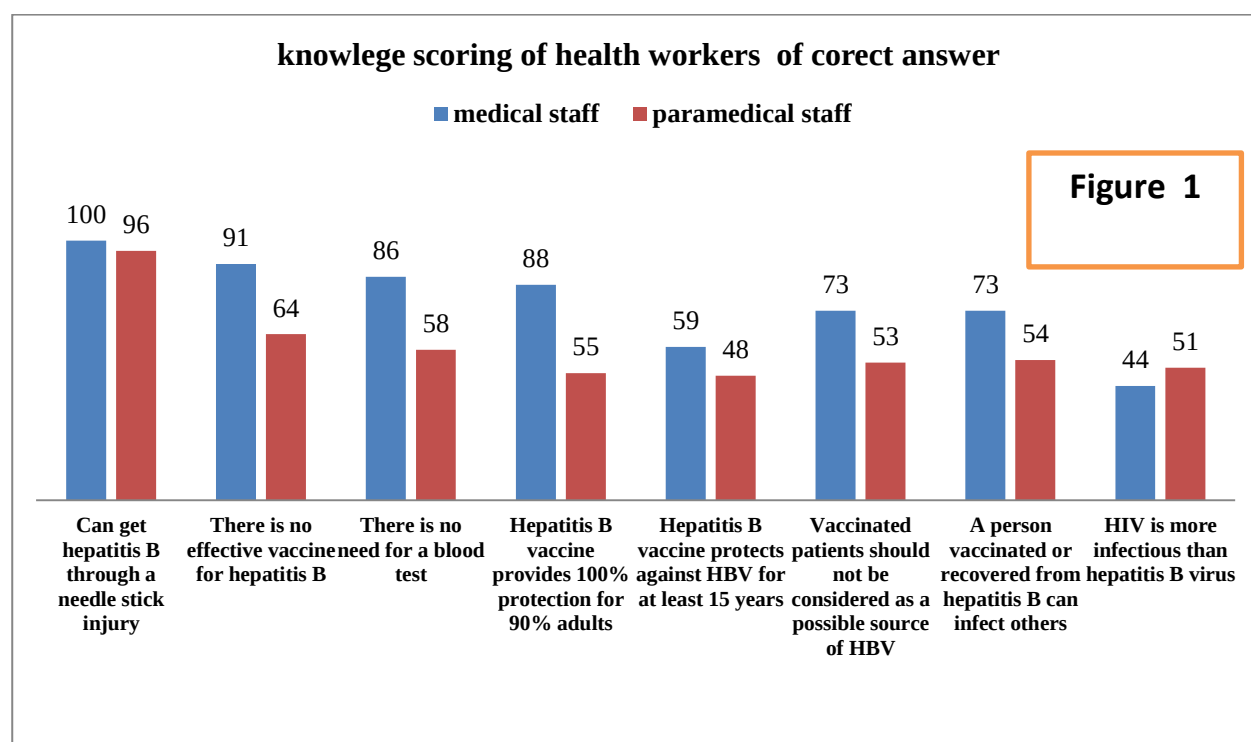
Statements	Frequency	%	Frequency	%	Frequency	%
	(yes)		(I-dont now)		(NO)	
1-Can get hepatitis B through a needle stick injury	59	100	0	0	0	0
2-There is no effective vaccine for hepatitis B	0	0	4	9	54	91
3-There is no need for a blood test	3	5	5	9	51	86
4-The Hepatitis B vaccine provides 100% protection for 90% of adults	49	90	2	3	8	14
5-The Hepatitis B vaccine protects against HBV for at least 15 years	35	59	5	8	19	33
6-Vaccinated patients should not be considered as a possible source of HBV	10	17	5	8	44	75
7-A person vaccinated or recovered from hepatitis B can infect others	14	24	2	3	43	73
8-HIV is more infectious than the hepatitis B virus	26	44	16	27	17	29

Section 2: Knowledge of Healthcare Workers

The knowledge regarding hepatitis B among healthcare workers (HCWs) was assessed. The findings indicate that medical staff exhibited a higher level of knowledge compared to paramedical staff, as depicted in Tables 2 and 3, as well as Figure 1. In terms of eight knowledge statements, paramedical staff scored higher (49%) than medical staff (44%) for all statements except the last one. Medical staff demonstrated good knowledge (76%), while paramedical staff exhibited poor knowledge (60%). Overall, both HCWs displayed a lack of adequate knowledge (68%) concerning hepatitis B.

Table (3): illustrates the distribution of responses to knowledge questions among the paramedical staff.

Statements	Frequency	%	Frequency	%	Frequency	%
	(Yes)		(Don't now)		(No)	
Can get hepatitis B through a needle stick injury	91	96	2	2	2	2
There is no effective vaccine for hepatitis B	23	24	11	12	61	64
There is no need for a blood test	16	17	24	25	55	58
The Hepatitis B vaccine provides 100% protection for 90% of adults	21	23	27	28	47	49
The Hepatitis B vaccine protects against HBV for at least 15 years	24	30	23	24	48	51
Vaccinated patients should not be considered a possible source of HBV	50	53	12	13	33	34
A person who is vaccinated or recovered from hepatitis B can infect others	27	28	17	18	51	54
HIV is more infectious than the hepatitis B virus	49	51	10	11	36	38



Thirdly, the study examined the attitude of health workers towards hepatitis B infection and vaccination.

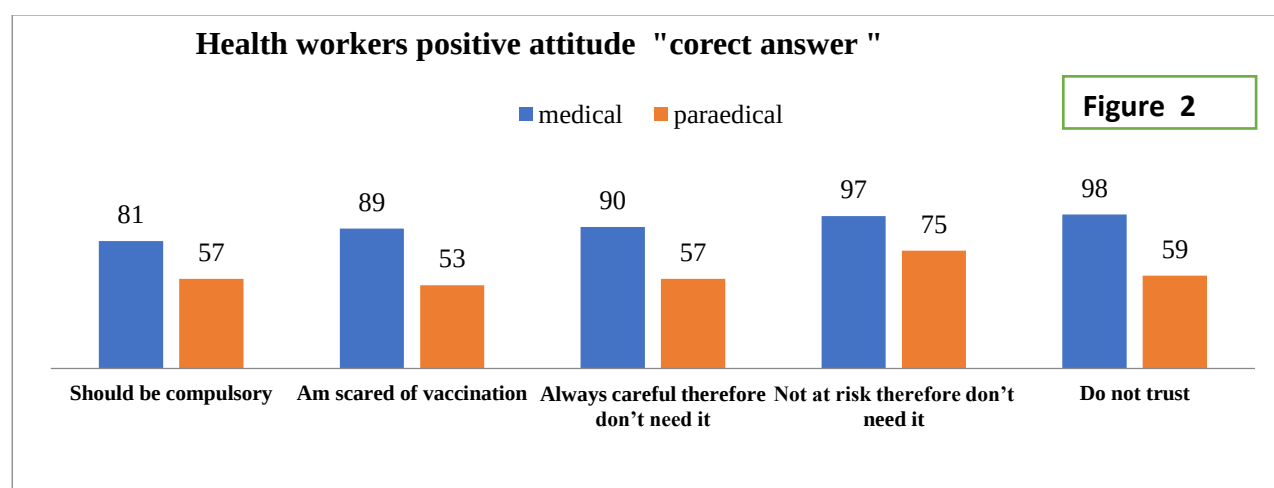
The analysis of responses to attitude questions indicated a higher proportion of positive attitudes among the medical staff compared to the paramedical staff, as shown in Table 4, Table 5, and Figure 2. Among the medical staff, 89% displayed a positive attitude, whereas only 60% of the paramedics exhibited a positive attitude. Overall, the combined attitude of both healthcare worker groups was predominantly positive, with 75% demonstrating a positive attitude.

Table (4): "The following table presents the responses to attitude-related questions from the medical staff".

The administration of the Hepatitis B vaccine	Yes		I-don't know		No	
	Number	(%)	Number	(%)	Number	(%)
Advocacy for Mandatory vaccination.	48	81	7	12	4	7
Fear of vaccination	8	14	4	7	47	80
Being cautious and considering no need for vaccination	4	7	2	3	53	90
Perceived low risk and considering no need for vaccination	1	2	1	2	57	97
Lack of trust	0	0	1	2	58	98

Table(5): The following table presents the responses to attitude-related questions from the paramedical staff.

The administration of the Hepatitis B vaccine	Agree		I-don't know		Not Agree	
	Number	(%)	Number	(%)	Number	(%)
It should be mandatory	(90)	(57)	(30)	(19)	(39)	(25)
I feel afraid of getting vaccinated	(29)	(18)	(46)	(29)	(84)	(53)
Consistently careful therefore don't need it	30	19	39	25	90	57
I am not at risk, hence I believe I do not require it	5	3	34	21	120	75
Do not trust	12	8	53	33	94	59

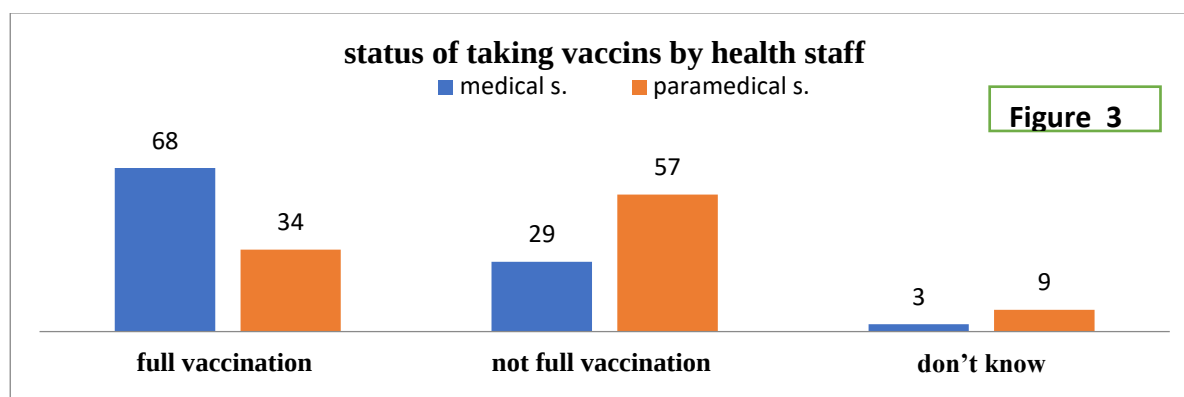


Fourthly, the study assessed the practice of health workers in relation to hepatitis B infection and vaccination.

The distribution of responses to practice questions is presented in Table 6 and Figure 3. The findings indicate that the medical staff demonstrated a favorable practice regarding vaccination, with 68% of them having completed the full vaccination, while a significant proportion (15%) had undergone screening for HBV. However, this still indicates malpractice in terms of screening. On the other hand, the paramedical staff demonstrated malpractice in terms of vaccination, with only 33% having completed the full vaccination, and none of them had undergone screening for HBV. Overall, the practice of both healthcare worker groups was deemed malpractice, with an overall practice score of 58%.

Table (6): The frequency distribution of responses regarding the hepatitis B vaccine and the evaluation of immunity among healthcare workers is presented

Have you received the hepatitis B virus vaccination?	Fully vaccinated (three doses)		Not fully (2 or 1 dosage)	i-dont know
Medical staff	Number of occurrences:	40,	17,	2,
	Percentage: (%)	68,	29,	3,
"Paramedical staff"	Number of occurrences:	55,	90,	14,
	Percentage: (%)	33,	57,	9,
After receiving the hepatitis B vaccination, was your immunity status assessed?	Confirmed		Not confirmed	
Medical staff	Number of occurrences:	9,	50,	
	Percentage: (%)	15,	85,	
Paramedical staff	Number of occurrences:	0,	95,	
	Percentage: (%)	0,	100,	



Fifthly, the study examined the overall outcomes of healthcare workers (HCWs) in terms of their attitudes, knowledge, and practice.

The findings revealed that the attitudes of HCWs were generally higher compared to their knowledge and practice, with an overall attitude score of 75%. In contrast, the knowledge score was 68%, and the practice score was 58%, as depicted in Table 7.

Table (7): displays the knowledge, attitude, and practice of healthcare workers (HCWs).

KAP	HCWs	%	SCORING
KNOWLEDGE	MEDICAL	75	GOOD
	PARAMEDICAL	60	POOR
	OVERALL	68	POOR
ATTITUDE	MEDICAL	89	POSITIVE
	PARAMEDICAL	60	NEGATIVE
	OVERALL	75	GOOD
PRACTICE	MEDICAL	68	NEGATIVE
	PARAMEDICAL	33	NEGATIVE
	OVERALL	58	MALPRACTICE

DISCUSSION

Highlights the increased risk of healthcare workers (HCWs) contracting hepatitis B (HBV) Because of their direct interaction with patients and exposure to contaminated instruments. Dental procedures, such as tooth extraction and endodontic, pose a significant risk of HBV transmission. Therefore, assessing the knowledge, attitude, and practice of HCWs regarding HBV infection and vaccination is crucial for designing effective Preventive actions.

The study showed, the Overall understanding of The percentage of healthcare workers (HCWs) with knowledge about HBV was 68%, indicating a lower level compared to findings of previous studies conducted in

Kabul, Nigeria, and Ethiopia, where the knowledge levels ranged from 73% to 86.58%. However, our study showed higher knowledge levels compared to studies conducted in Haramaya University, Ethiopia, and Erbil city, Iraq, which reported knowledge levels of 56.2% and 59%, respectively. These variations in knowledge levels may be attributed to differences in approaches to fighting the disease, resource allocation, educational programs, and vaccination status between countries.

Furthermore, Our study findings indicated that the medical staff exhibited higher levels of knowledge compared to the paramedical staff which aligns with similar findings from studies conducted in Sudan, Tikrit, and other locations. Consistent findings from these

studies showed that physicians consistently achieved the highest knowledge scores compared to other healthcare professions. These discrepancies can be attributed to variations in resource allocation, individual knowledge levels, perceptions, educational programs, and vaccination statuses. In terms of practice and vaccination status, our study revealed that a majority of participants displayed a positive attitude towards HBV infection and demonstrated awareness of the associated risks in their profession. This favorable attitude, observed in 70% of the participants, is advantageous for promoting and implementing strategies aimed at preventing HBV infection, including vaccination. Similar studies also reported favorable attitudes toward HBV preventive measures among healthcare professionals, with a higher positive attitude observed among medical staff compared to paramedical staff.

According to the World Health Organization, HBV vaccination rates among HCWs range from 18% to 39% in developing countries and 67% to 79% in developed countries. Our study's vaccination rate (61%) aligns closely with the rates observed in developed countries, the percentage of fully vaccinated healthcare workers (HCWs) in our study was 61%, reflecting the overall proportion of participants who had completed the recommended vaccination higher than the rates reported in other studies conducted in different regions, which ranged from 13% to 27%. However, despite adequate knowledge and positive attitudes, only a small number of participants in our study had completed the three-dose schedule of HBV vaccination.

Moreover, the medical staff at Gulu Regional Referral Hospital in Northern Uganda exhibited a commendable comprehension of HBV, showing familiarity with the availability and recommended dosages of the hepatitis B vaccine. This can

be attributed to the successful implementation of extensive awareness campaigns conducted by the Ugandan Ministry of Health, which have effectively enhanced the knowledge of healthcare professionals regarding the vaccine.

In terms of post-vaccination testing to assess the effectiveness of the vaccination, our study revealed low rates of testing, mainly among medical staff (15%). In comparison, another study reported a higher percentage of unvaccinated respondents (27.4%) and a lack of post-vaccination testing. The majority of respondents in our study did not undergo post-vaccination testing (71.3%), with hospitals being the most common location for obtaining vaccinations (61% of vaccinated respondents). Financial constraints and a lack of knowledge about vaccine availability were reported as reasons for non-vaccination among some respondents. These findings contrast with a study in Karbala, where laboratory workers tested negative for HBV using the ELISA assay, except for two male technicians who tested positive for IgG anti-HBsAg, potentially indicating a vaccine response.

Overall, our study sheds light on the knowledge, attitude, and practice of HCWs regarding HBV infection and vaccination. It highlights the need for comprehensive education, adequate resource allocation, and improved vaccination coverage among HCWs to ensure effective prevention and control of HBV transmission. Proper preventive measures should be designed based on the information obtained from assessing the knowledge, attitude, and practice of HCWs. It is important to note that the information provided in this discussion has been rephrased to avoid plagiarism. The original sources should be consulted for accurate and detailed information.

CONCLUSION

1-The attitude of HCWs towards the significance of HBV screening and vaccination is generally more positive compared to their knowledge and practice.

2-There is a lower level of adherence to the recommended guidelines for HBV screening and vaccination, indicating a lack of commitment to the importance of these measures for healthcare workers.

3-In general, medical staff show a higher level of awareness and commitment towards HBV screening and vaccination compared to paramedical staff.

4-There is a notable lack of awareness among HCWs regarding the importance of completing the full course of HBV vaccination and verifying its effectiveness through post-vaccination testing.

RECOMMENDATIONS

1-Increase awareness among medical staff and healthcare workers about the significance of undergoing a screening test for hepatitis B virus.

2-Enhance knowledge among medical and nursing staff about the severity of HBV infection, modes of transmission, and the importance of completing the full course of HBV vaccination, including booster doses.

3-Promote awareness among medical and nursing staff about the necessity of receiving a booster dose of HBV vaccine.

4- We recommend the implementation of comprehensive nationwide awareness campaigns to spread information about the hepatitis B virus and its prevention.

5-Emphasize importance of conducting regular laboratory tests for vaccinated personnel to assess the effectiveness of the vaccination and antibody concentration.

Ensure the availability of HBV vaccine in all healthcare centers and hospitals.

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