Original Research Article

Knowledge and attitude of health care workers towards Hepatitis B infection and vaccination in a Federal Teaching Hospital in South Western Nigeria

ABSTRACT

This study was carried out to determine the knowledge and attitude of health care workers in Federal Teaching Hospital Ido Ekiti towards Hepatitis B vaccination and infection. This study employed a quantitative descriptive survey design which employed a simple random sampling technique to determine the sample size. Data was collected using structured self-administered questionnaire administered to 139 health care workers. Data was analyzed using descriptive statistics. The age distribution of respondents' showed 41% and 48.9% of the respondents were in the age range of 20-30 years and 31-40 years, respectively. Only 30.2% of the respondents believe that it is vital to recap needles after use while 79.9% believe that hepatitis B can be transmitted as a nosocomial infection. A total of 38.8% of the respondents believed that after vaccination for hepatitis B, it is not necessary to have a blood test to confirm immunity against hepatitis B while 61.9% of them affirmed that 90% of adults and children who are vaccinated achieve 100% protection against hepatitis B virus. The majority of the respondents (87.1%) were of the opinion that hepatitis B virus is about 100 times more infectious than HIV. Almost half (48.9%) of the participants indicated that a person who has been vaccinated or recovered from previous hepatitis B infection can still infect other. Also, 44.6% of the respondent strongly agreed that vaccination against hepatitis B virus should be made available to all healthcare workers for free. About half (48.2%) of the respondents indicated they have not been vaccinated against hepatitis B virus and of these only 10.8% received the completed 3 dose series. Although the health care workers claimed knowledge of hepatitis infection, their practice of preventive measures was not commensurate with their knowledge. It is therefore imperative to improve their knowledge to influence their practice. Resources for practice of hepatitis B preventive measures should be made regularly available to the health care workers in various health institutions to reduce the transmission of hepatitis B among the health care workers decrease medical as well as financial burden, hence improving the management of cirrhotic patients. These predictors, however, need further work to validate reliability.

Keywords: Attitude, Hepatitis B, knowledge, health care workers

1. INTRODUCTION

Hepatitis B virus (HBV) is a global public health problem and one of the most common viruses in the modern world and ranked by the World health organization (WHO) as one of the top ten killers. The virus is responsible for approximately 1.5 million deaths worldwide each year, two thirds of which are attributable to primary hepatic carcinoma following HBV infection [1]. About 360 million people are chronically infected with HBV and these chronically infected persons are at higher risk of death from HBV-related liver cancer or cirrhosis by approximately 25% and over 4 million new acute clinical cases occur [2, 3].

HBV is preventable with a safe and effective vaccine, it is a well-known occupational hazard of health care workers and they are considered to be at substantial risk for acquiring or transmitting the virus because of their occupational contact with blood, blood products and other body fluids (Kohn *et al*., 2003). The occupational risk for HBV acquisition varies according to the work place in the health care setting and time of exposure to the agent [4].

The route of infection of HBV include vertical transmission (such as through child birth) and horizontal transmission (occupational exposure, sexual contact and intravenous drug use). In low prevalence area, drug abuse and unprotected sex are the primary mode of transmission, although other factors may be important while in high prevalence areas, transmission during child birth is most common. In hospital setting, transmission of HBV can be from patient to patient, which presents the greatest risk, followed by patient to health care worker and health care worker to patient infections. However, because HBV is

blood borne and healthcare workers handle blood and other body fluids, this puts them at considerable risk of acquiring it if prevention and control measures are not adequate in hospitals. Needle stick injuries are common and it poses a significant risk of exposure to potentially fatal blood-borne viruses [5, 6].

The prevalence rate of HBV infection is high among health care workers because of the occupational contact with blood, blood product and body fluids as well as other procedures which often put them at risk of needle stick injury. HBV presents an occupational risk of infection for health care workers. Although HBV vaccine and safe working practices present an opportunity to prevent infection of health care workers risk, infections are still occurring in healthcare settings all around the world. It is reported that Nigeria is among the group of countries endemic for HBV infection, with about 18 million infected persons [7]. Since patients and healthy individuals report to health care facilities for medical investigation and care, health care workers attending to them in these health facilities are thus greatly at higher risk of acquiring HBV. Health care workers in Nigeria share the same fate with their clients even though it is assumed that they are well informed of the infection [3, 7, 8]

This study was therefore aimed at assessing the knowledge and attitude of health care workers in a Federal Teaching Hospital in South West Nigeria towards HBV infection and vaccination. The study findings may lead to a review of work place related occupational health and safety regulations and policy such as introduction of a compulsory provision for vaccination by the employer for HCWs identified to be at risk at the employers cost, the study may indirectly lead to safer work place practices by introduction of safer working methods and monitoring of HCWs compliance to safer practices.

2. THEORETICAL FRAME WORK

The health belief model was developed to help in determining whether an individual is likely to participate in disease prevention and health promotion activities. This model is useful in developing programs that help engage in healthier lifestyles and more positive attitudes towards preventive health measure [9]. In this study, Health Belief Model was applied to help understand the human behaviour towards the knowledge, attitude and practice of health care workers towards Hepatitis B infection and vaccination.

The concern with health behaviour developed in the early 1950's. Behavioural scientists and health care workers were seeing an increasing need to understand why and under what conditions people will take action to prevent, detect, or treat diseases. The health belief model (HBM) is a psychosocial formulation that was developed to explain health-related behaviour at the level of individual decision making [9]. The model, as described by Rosenstock (1974), was developed by a group of social psychologists. They were working for the U.S. Public Health Service and were interested in why some people used health services or complied with a health regime while other people did not. They were also interested in what factors prevented or interfered with a person following health care recommendations.

In this study, only three concepts (perceived susceptibility, perceived severity and perceived benefits) will be used because they are the most relevant and most appropriate to topic of study. Every person perceives the severity or seriousness of a health problem differently; the preventive behaviours are a function of individuals' belief about their susceptibility to the health problem, the severity of the health problem and the benefits of adopting the preventive behaviour. In applying this model to the knowledge and attitude of health care workers towards HBV infection and vaccination, the health care workers need to perceive themselves as susceptible to the infection, perceive that it is a deadly disease and preventive measures are available that can reduce the risk of being infected and also perceive that through proper prevention and vaccination, HBV Infection can be reduced.

For perceived susceptibility, it is assumed that the health care workers who feel they are at risk of being infected with HBV and other blood-borne virus tend to adopt healthy behaviours that prevent occurrence of the condition, while those who perceive themselves to have low risk of being infected tend to ignore the possibility of having the disease. Health care workers who perceive themselves as susceptible tend to comply more with necessary precautions. With regards to perceived severity, the study assumed that health care workers who recognize the severity and seriousness of the infection tend to engage in health promoting and illness prevention activities (like use of universal precautions, prevention of needles stick

injury and vaccination) that will improve their health status.. For perceived benefits, it is assumed that health care workers who recognize the benefits and positivity of engaging in health promoting and illness preventive practices will often comply with necessary management. They are aware that their behaviour will either affect their health positively or negatively.

3. METHODOLOGY

This study employed a quantitative descriptive survey design. The hospital is a 280 bedded tertiary institution comprising of 24 functional wards with other ancillary units such as radiology department, laboratory and pharmacy.

The target population for this study were health care workers (Nurses, Doctors and Medical Scientist) working in the hospital. The instrument used in this study was a well-developed questionnaire designed according to the variables been tested in the study and consist of 41 questions, which answers relevant and current question. It consists of four sections; section A is the demographic which consists of the respondents' bio data i.e. age, educational level, marital status, years of experience, religion. Section B assessed their knowledge about hepatitis B infection and vaccination, section C is designed to assess their attitude towards hepatitis B infection and vaccination and section D assessed their practice in the prevention of hepatitis B infection. Each respondent was informed about the purpose of the study and were given instruction on how to complete the questionnaire.

A total of 139 health care workers participated in the study. Guidelines for completion of the questionnaire were provided and respondents were informed to tick where appropriate. Completed questionnaires were collected and collated. The data collected were analyzed using descriptive statistics.

For ethical considerations, the research proposal was approved by the Department of Nursing Science, Afe Babalola University, Ado-Ekiti. Before the commencement of the study, approvals were obtained from The Research Ethics Committee of Afe Babalola University and from the Research Ethic Committee of the Federal Teaching Hospital Ido- Ekiti, both in Ekiti State. Participants' rights were explained and informed consent was obtained. Also, to ensure confidentiality and anonymity, the names of respondents or any form of identity were not required on the questionnaire, thereby protecting the respondents' privacy.

4. FINDINGS AND DISCUSSION

The demographic data of respondents revealed that with respect to gender distribution of the respondents' shows that 41% were males while 59% are females. The age distribution of respondents' showed 41% and 48.9% of the respondents were in the age range of 20-30 years and 31-40 years, respectively. The marital distribution of respondents showed that 46.8% and 49.6% of them were married and single, respectively. The majority of the respondents were nurses (51.8%) and doctors (40.3%). A total of 66.2% of the respondents had work experience in their profession between 1-10 years of experience (Table 1).

Table 1: Socio demographic profile of the respondents

	Frequency	Percentage
AGE		
20-30years	57	41.0
31-40years	68	48.9
41-50years	14	10.1
Total	139	100
RELIGION		
Christian	95	67.6
Muslims	45	32.4
Other	0	0
Total	139	100
GENDER		
Male	57	41.0

Female	82	59.0
Total	139	100
MARITAL STATUS		
Married	65	46.8
Single	69	49.6
Divorced	5	3.6
Total	139	100
OCCUPATION		
Nurses	72	51.8
Doctors	56	40.3
Medical scientist	11	7.9
Total	139	100
YEARS OF EXPERIENCE		
1-10	92	
11-20	47	
21-35	0	
Total	139	

When the respondents were asked if 'universal precautions' (infectious disease control techniques, such as hand washing, use of gloves and other barriers, and aseptic techniques) should be used only when dealing with known hepatitis B virus positive patients)8.6% indicated true and 91.4% indicated false. When asked if the consumption of spoilt/old rotten food can result in hepatitis B virus infection, 35.3% answered true while 61.2% answered false. Only 30.2% of the respondents believe that it is vital to recap needles after use while 79.9% believe that hepatitis B can be transmitted as a nosocomial infection (Fig. 1).

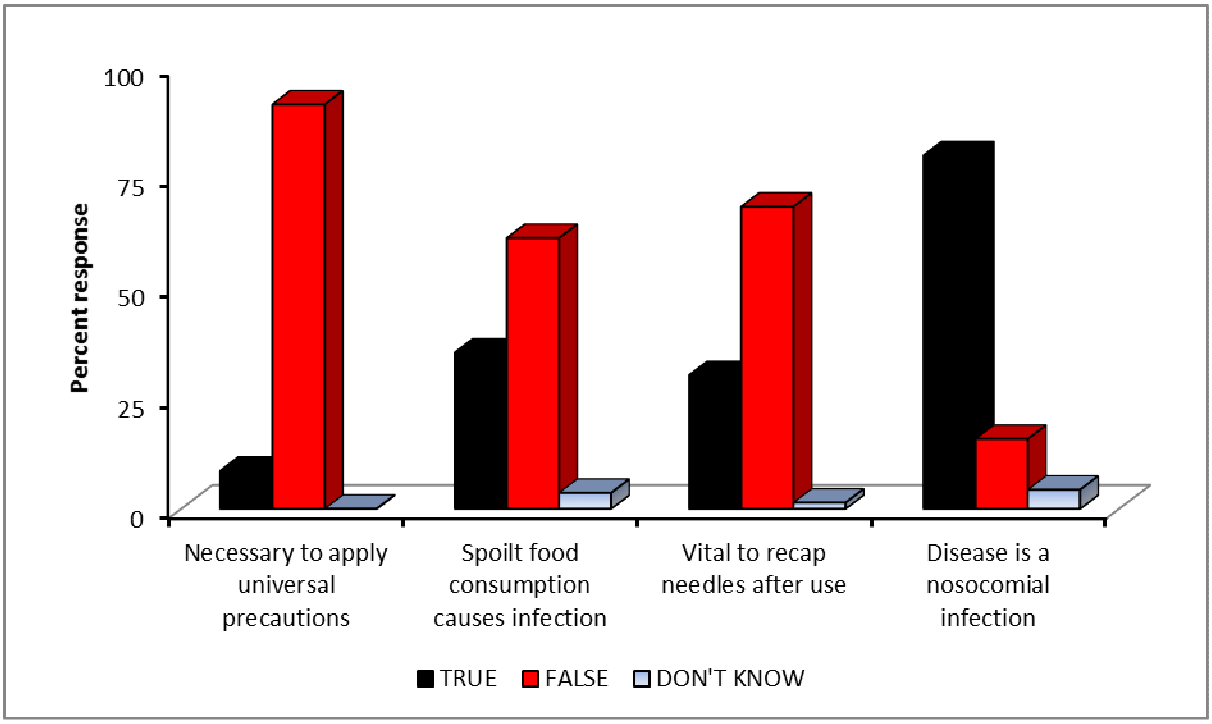

Fig. 1: Knowledge of the respondents regarding hepatitis B virus infection and vaccination.

A total of 38.8% of the respondents believed that after vaccination for hepatitis B, it is not necessary to have a blood test to confirm immunity against hepatitis B while 61.9% of them affirmed that 90% of adults and children who are vaccinated achieve 100% protection against hepatitis B virus. The majority of the respondents (87.1%) were of the opinion that hepatitis B virus is about 100 times more infectious than HIV. Only of few of the respondents indicated that a titre of at least 10mIU/ml of antibodies against hepatitis B is considered essential for protection against the virus. Also, the majority of the respondents believe that after exposure to hepatitis B vaccine, receiving the first dose of hepatitis B vaccine and hepatitis B immunoglobulin within a week can reduce chances of infection (Fig. 2).

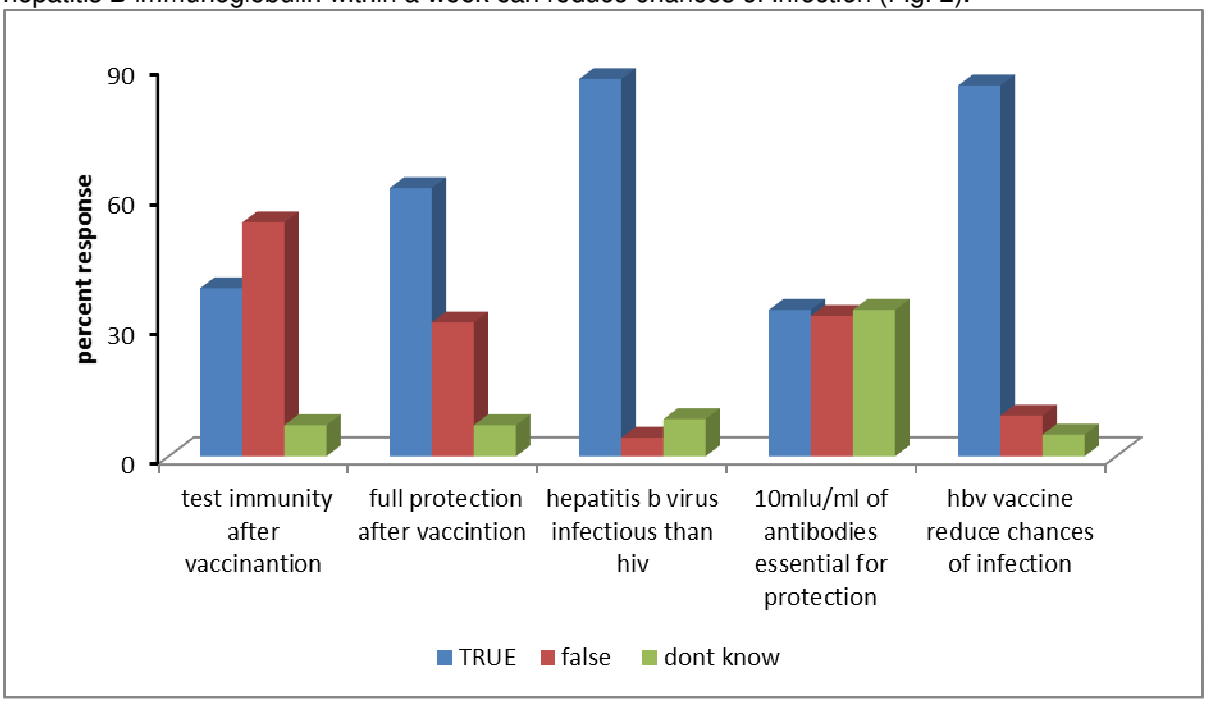

Fig. 2: Attitudes of the respondents regarding the prevention of hepatitis B virus infection

As shown in Fig. 3, most of the respondents (55.4%) were of the view that once a patient has been vaccinated against hepatitis B, they should not be considered possible sources of the virus while 48.9% of them indicated that a person who has been vaccinated or recovered from previous hepatitis B infection can still infect others. An overwhelming majority of the respondents (83.5%) agreed that three doses of hepatitis B vaccine are required for complete vaccination, with 33.8% of them indicating that the duration of protection after successful vaccination is at least 15years. Also all the respondents (87.1%) believed that hepatitis B virus can be sexually transmitted (Fig. 3).

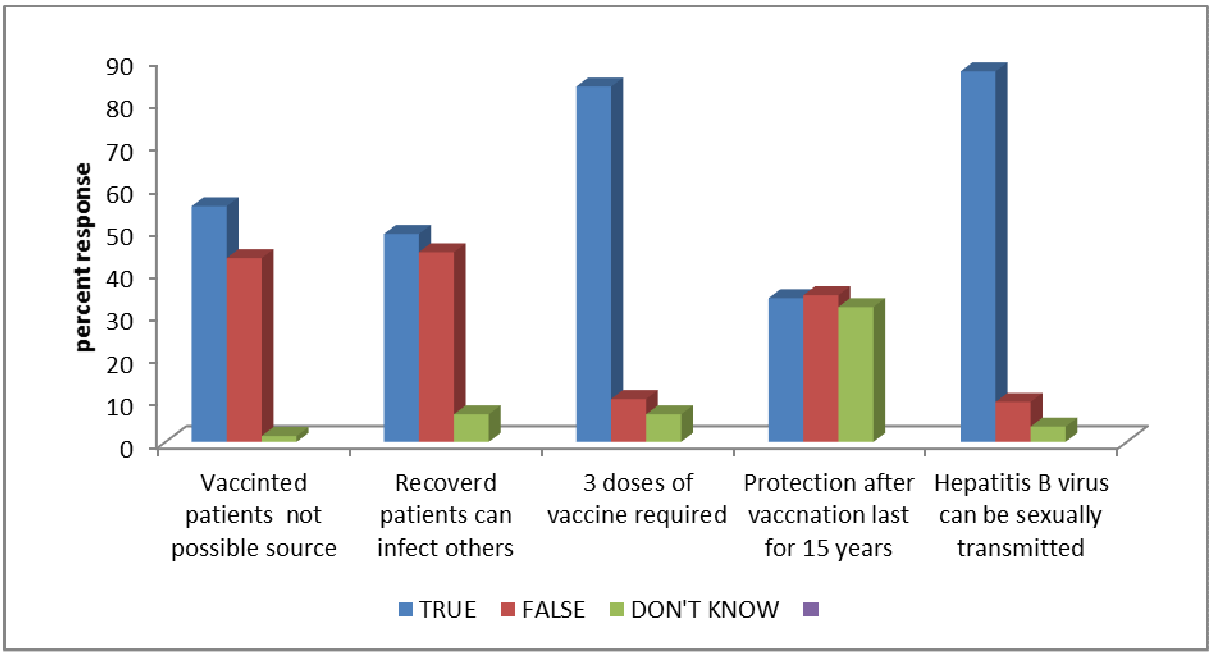

Fig. 3: Practice of the respondents towards the prevention of hepatitis B infection

When the respondents were asked if vaccination against hepatitis B virus should be made available to all healthcare workers for free, 44.6% of the respondent strongly agreed, 25% of them agreed and 22.3% of then disagreed. The majority of the respondents (66.2%) disagreed that with the assertion that hepatitis B vaccination is too expensive to purchase, hence if not given for free, they will not purchase it. A total of 15.8% and 20.1% of the respondents strongly agreed and agreed, respectively with the statement that 'I do not trust vaccination' with 5.85% and 12.9% strongly agreeing and agreeing, respectively that vaccination is against their religious or traditional beliefs (Fig. 4).

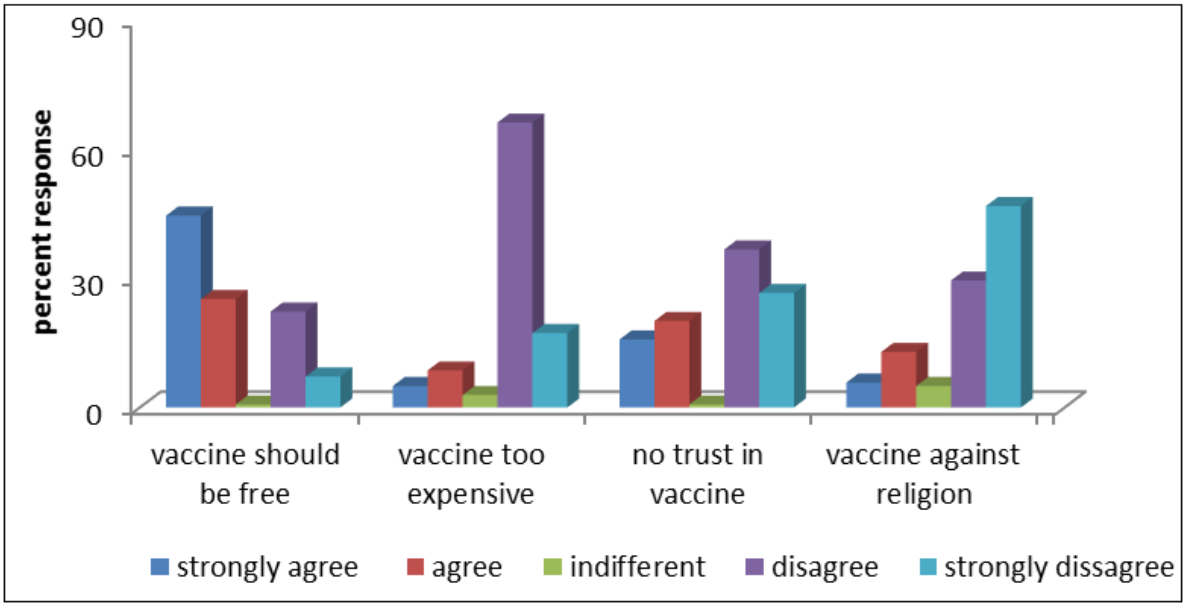

Fig. 4: Attitude of respondents towards the hepatitis B virus vaccination

On the prevention strategies for hepatitis B virus infection, the majority (over 82%) of the respondents were of the view that every patient should be as one carrying a blood pathogen while they 78.4% strongly agreed that it is important to undertake handwashing after any contact with a patient. About 24% and 16% of the respondents strongly agreed and agreed that they are not at risk of hepatitis virus infection because they are health. When the respondents were asked if their job put them at risk of HBV infection, 45.3% of them strongly agreed, 49.6% of them agreed and 1.4% of them disagreed (Fig. 5)

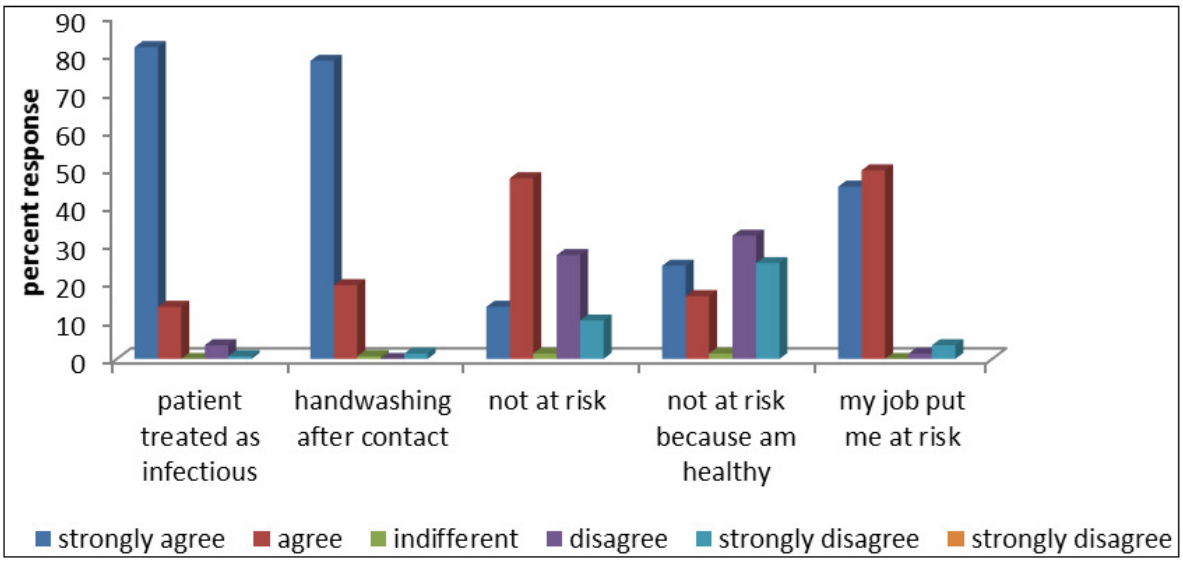

Fig. 5: Prevention measures by respondents against hepatitis B virus infection

Generally, 51.1% and 48.2% of the respondents indicated they have been vaccinated and have not been vaccinated against hepatitis B virus, respectively. Only 0.7% of them could not remember if they had ever been vaccinated or not. Of the total number of respondents that has had vaccination against the virus, 20.9%, 15.8% and 10.8% had received 1, 2 and 3 vaccine doses, respectively. None of the respondents had received more than 3 doses while 3.6% of them could not remember the number of vaccine doses they had received.

Also, when the respondents that had received vaccination against the hepatitis B virus were asked if they got tested afterwards to establish if they have hepatitis B antibodies, 42.3% of them indicated they were tested, 50.7% indicated they were not tested while 7.1% of them indicated they don't know if they had been tested or not. When the respondents were asked if they resheath needles manually (using the cap in one hand to cover the used needle held in the other hand) following taking blood, 14.4% choose always, 10.8% choose almost always, 34.5% choose sometimes, 2.2% choose almost never and 38.1% choose never. On whether they place disposable sharps in sharps' containers immediately after use, 62.6% of the respondents indicated they do that always, 12.9% indicated they do that almost always, 15.1% indicated they do that sometimes, 7.2% indicated they almost never and 2.2% indicated they never do.

About 56.8% of the respondents indicated they have had needle stick/sharps injury with a used needle or other sharp instrument that had been used on a patient in the course of their work while 43.3% of them they had never experience needle stick injury. Of the number of respondents that have had needle stick injuries 46.8%, 38% and 15.2% indicated they reported the injury, they never reported and they cannot remember if they reported the injury or not. About 60.8% of respondents were have had a needle stick injury indicated they received post exposure prophylaxis for hepatitis B while 39.2% of them did not.

A total of 15.8% of the respondents indicated they had experienced blood or body fluid splash on their eyes or mouth during the course of their work while 82.7% of them indicated they have never had such an experience and 1.4% of them indicating they cannot remember. Only 37,5% of respondents who indicated they had experienced body fluid splash on their eyes or mouth, only 37.5% of them indicated they received post exposure prophylaxis against hepatitis B while 62.5% of them indicated they never received any form of post exposure prophylaxis

Respondents were asked if they wear protective clothing when handling blood or body fluids, the majority of them (71%) indicated they always do. On the use wearing of gloves in procedures where there are possibilities of blood or body fluid exposures, 66.9% of them indicated they always do (Fig. 6).

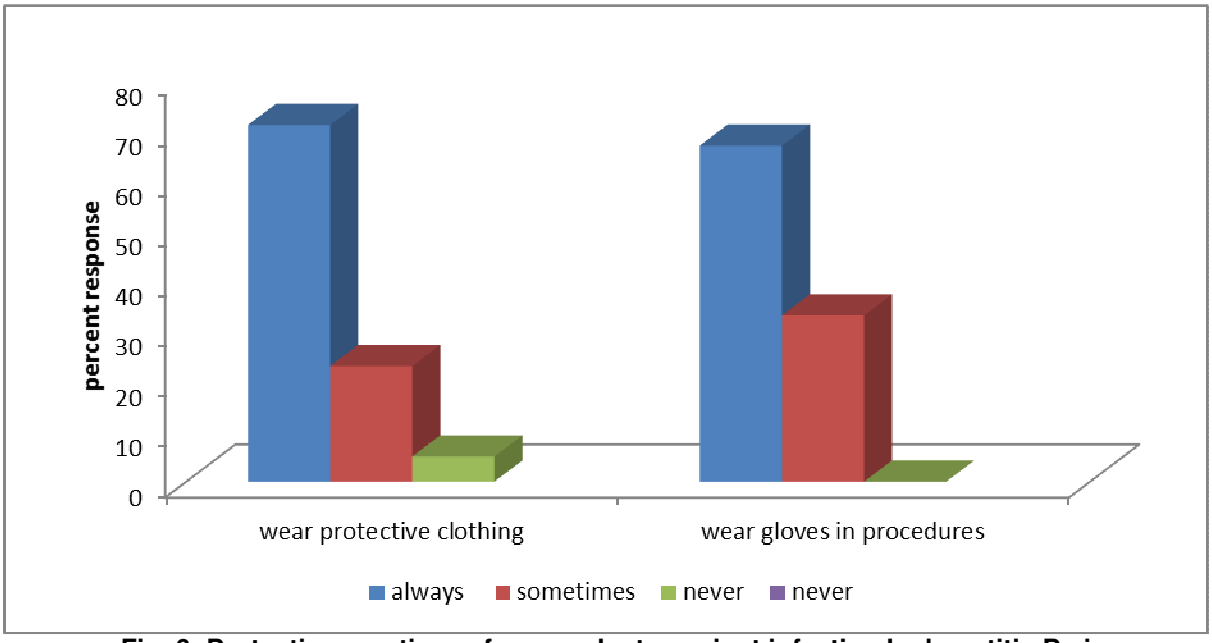

Fig. 6: Protective practices of respondents against infection by hepatitis B virus

From the findings of this study, all the respondents have good knowledge on hepatitis B infection and vaccinations. Samuel et al. [10] reported in their similar study that a majority of the respondents demonstrated a high level of knowledge of hepatitis B virus. The findings of this study could imply that most of the health care workers do not utilize the preventive measure for hepatitis B because they feel they are healthy and that with their working experience, they are always careful when handling affected patients. In spite of the obvious risk of occupational exposure to blood born infections, only 45.3% of our respondents believed that their work put them at high risk of contracting hepatitis B infection. The rest thought they were at low risk, no risk at all or were unsure. The perception of risk drives the practice of prevention. Their low risk perception explains why the vaccination coverage among was also low.

The study revealed that not all the respondents who had experienced needle stick injuries reported such, which is against normal safety procedures. In standard practice, all needle stick injuries should be reported. Some of the benefits of reporting a needle stick injury by a health workers include counselling, access to post exposure prophylaxis and the possibility of secondary transmission to patients and sexual partners is eliminated. There are also legal aspects to reporting, thus the event needs to be documented in order to establish a causal link between exposure and a subsequent complication claimed by the health care worker. In this study, more than half of the respondents indicated they have had needle stick injuries with less than half reporting such injuries. This finding is consistent with study of Alam [11] in Saudi Arabia which found out that 74% of the respondents had a history of needle stick injury with only 7% reported such injuries.

Vaccination uptake was less than adequate in this study, with only a limited number indicating they had been vaccinated against hepatitis B. This lack of compliance to hepatitis B vaccination among health workers calls for concern among people seeing that the only way to prevent HBV infection among health workers is through effective vaccination program and adherence to universal precaution which often times cannot be guaranteed. Poor compliance of health workers to hepatitis B vaccination is an issue that deserves serious attention, with some authors advocating for mandatory vaccination program [12, 13].

From the study findings, it is apparent that despite the knowledge of health care workers towards Hepatitis B preventive measures, there are still gaps in their practice of universal precaution to reduce risk of being infected. Considering the high percentage of needle stick injury, the health care workers need to allow their knowledge to positively influence their practice so that in years to come, the health care workers themselves will not become patients in place of the clients they are taking care of. This implies that some of the participants may be incubating hepatitis B virus without knowing it since it is asymptomatic especially in the early stage. Therefore, the health care workers may need to go for proper screening for HBsAg, HBeAg and HBcAg.

With only 65.7% had been vaccinated against hepatitis B infection, it could imply that some of the health workers some were not even screened before vaccination and this may be dangerous since an infected health care worker may even be vaccinated ignorantly. Also, hepatitis B policy should be in place so that all the health care workers are fully immunized together with their family members so they will be fit to take care of their clients and they will not constitute a health hazard to their clients and vice versa.

This study found the knowledge of HB infection to be quite high among the health care workers though both the knowledge of HB vaccine and its uptake among them was very low. Their perception of the occupational risk for HB infection was also low. It is recommended that a deliberate programme of education/training and vaccine provision should be implemented for the target population in order to protect this group of vulnerable healthcare workers from HB infection and to prevent them from transmitting it to their clients.

5. CONCLUSION AND RECOMMENDATION

This study showed that despite the knowledge of hepatitis B preventive measures by the health care workers, their practice of preventive measures was low. Although the health care workers claimed knowledge of hepatitis infection, their practice of preventive measures was not commensurate with their knowledge. It is therefore imperative to improve their knowledge to influence their practice. Resources for practice of hepatitis B preventive measures should be made regularly available to the health care workers in various health institutions to reduce the transmission of hepatitis B among the health care workers. Knowledge, attitudes and practices about hepatitis B among health care workers was moderate, with important gaps which need to be strengthened especially among non-vaccinated group. Measures should be taken by health care managers as well as government by running awareness programs. Based on the study findings, it is recommended that responsible authorities in health care management should:

- Disseminate knowledge of the hepatitis B virus vaccine, and post exposure prophylaxis
- Increase vaccination uptake of health care workers in particular nurses.
- look into ways of making anti-HBs testing available after vaccination of health care workers to increase adherence to anti-HBs testing
- Offer safer injection devices
- Maintain a steady supply of free hepatitis B vaccine
- Look into how post exposure prophylaxis can be accessed by workers though all hours of the day, including testing of source patients

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