Original Research

Knowledge and awareness on hepatitis B infection among paramedic and non-paramedic students in the district of Kanchanpur, Nepal

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Abstract

Background: Hepatitis is a systemic infection with major pathology in the liver mainly due to hepatitis B virus (HBV). It can cause acute and chronic infections while some patients never get rid of the virus and develop cirrhosis of the liver or liver cancer many years later.

Objective: To assess the knowledge regarding HBV infection, mode of transmission and prevention among paramedics and non-paramedics of an intermediate level

Methods: A cross-sectional study was conducted in the district of Kanchanpur, Nepal during the period March-April 2015. A non-probability and purposive sampling technique was used to recruit 184 trainees in paramedical (pharmacy, general medicine and nursing) and non-paramedical (computer engineering and civil engineering) fields. Data were collected through interviews using a structured and semi-structured questionnaire.

Results: Among the 184 respondents, there were 92 each from the paramedical and non-paramedical fields. Mean age of the paramedics was 18.6 (SD=1.54) years and 19.5 (SD=1.17) years among the non-paramedics. The majority of paramedics (64.1%) consisted of females, in contrast to the majority being males among non-paramedics (79.3%). More than 80% of paramedics (98.9%) and non-paramedics (84.3%) knew hepatitis is a communicable disease and is transmitted by unsafe sexual contact, unsafe blood transfusion, tattooing and drug abuses. However, the level of knowledge in paramedics was higher than in non-paramedics.

Conclusion: There is potential need to raise awareness and knowledge of HBV among the non-paramedics through vertical programs as well as through social media in the country.

Key words: hepatitis B, knowledge, awareness, paramedics, non-paramedics, Nepal

Introduction

Hepatitis B virus (HBV) is a potentially life threatening liver infection and a major public health problem with more than 350 million HBV carriers in the world (1). The prevalence of HBV is highest in Sub-Saharan Africa and East Asia, where according to the World Health Organization (WHO), 5-10% of the adult population is chronically infected (1). It is estimated that 15-25% of patients with chronic HBV develop serious hepatic complications including liver cirrhosis, hepatic failure and liver cancer (2).

HBV is commonly spread from mother to child at birth (perinatal transmission) or through horizontal transmission (sexual contact, sharing of needles, accidental needle stick injuries and exposure to infected blood) (3-4). In Nepal, the prevalence of HBV among drug injectors in three provinces (Nepalgunj; Dharan, Biratnagar; and Kathmandu, Lalitpur and Chitwan) was observed as 3.5% (5). In another study conducted in Nepal on HBV vaccination status and needle-stick and sharp-related injuries among medical school students, the prevalence was 4.4% (6). By virtue of occupation, laboratory and healthcare workers generally face many occupational hazards, including the constant danger of acquiring HBV most commonly transmitted as blood-borne infection from infected patients (7-8). Unless adequate preventive measures are taken, their safety and health could be severely jeopardized (9). Such prevention requires thorough knowledge of the risks and practical measures which can be taken on time (8, 10-11). Therefore, everyone should be familiarized with universal precautions at work, as defined by the Centre for Disease Control to prevent the transmission of HBV, hepatitis C virus, human immunodeficiency virus (HIV) and blood-borne infections (12).

The HBV vaccine provides protection via a three-dose regimen. The vaccine is prepared from recombinant yeast culture rather than from human blood or plasma, and therefore less risk of contamination with blood-borne HBV pathogens (9). However, vaccination awareness has been found to be very poor in healthcare workers as well as in non-healthcare workers in developing countries (13-14). This suggests the vulnerability particularly of young workers to HBV, owing to their risk behaviour such as intravenous drug abuse, unsafe sexual practices and tattooing. Therefore, this study was conducted to assess the knowledge regarding HBV infection, mode of transmission and prevention among two occupational groups in Nepal.

Methods

A cross-sectional study was carried out during March-April 2015 in the district of Kanchanpur in the Province 7 of Nepal. A non-probability, purposive sampling technique was used to recruit final year students from three colleges: Far-West School of Medicine, Seti Mahankali Nursing Campus and Baijnath Engineering College: 92 students in pharmacy, general medicine and nursing courses to represent the young population in health related work, and another 92 students in computer engineering and civil engineering courses to represent the same in non-health related work. A pre-designed questionnaire containing forty open- and close-ended questions (yes or no and multiple choice) was used. Questionnaire was prepared in English language and was translated in local Nepali language.

The data were collected by the principal author and analysed using the Statistical Package for Social Sciences (SPSS) version 20 software. Descriptive statistics with cross tabulation were used to analyse data. The study protocol was approved by the Asian College for Advanced Studies before data collection. Further, permission was obtained from the district public health office. Purpose of the study was explained and informed written consent was taken from all the participants before interviewing.

Results

Of the 184 interviewed, 92 each were from paramedics and non-paramedics. They were aged 16-22 years. The mean age of paramedics was 18.7 years (SD=1.54) compared to 19.5 (SD=1.17) years of the non-paramedics. Majority of the paramedics consisted of females (64.1%) compared to males among the non-paramedics (79.3%). Further, the majority in both groups belonged to Brahmin and Chettri ethnicity (Table 1). The main sources of knowledge on hepatitis B were teachers, health personnel, social media, family/friends and reading material.

Regarding the knowledge on HBV, all the paramedics have heard about hepatitis and its types while among the non-paramedics, 90.2% have heard about

hepatitis and only 50.5% about its different types (Table 2). All paramedics and 91.6% of the non-paramedics knew that hepatitis affects the liver, whereas 88% of the paramedics and 60.2% of the non-paramedics correctly identified jaundice, fever, loss of appetite; abdomen pain, nausea and vomiting as the main symptoms of hepatitis B. All except 15.7% among the non-paramedics knew that HBV transfers from one person to another.

Regarding prevention of HBV, 96.7% of the paramedics and 84.3% of the non-paramedics were knowledgeable about prevention of hepatitis. Among the non-paramedics, only a few knew that hepatitis can be prevented by using condoms (17.1%), not sharing needles (4.3%), use of gloves (4.3%) and tattooing or body piercing done with sterilized tools (5.7%). In contrast, 92.1% of the paramedics knew all the preventive methods. All paramedics and 86.7% of non-paramedics knew about the availability of a vaccine to prevent HBV. There were 71.7% and 22.9% of paramedics and non-paramedics immunized with HBV vaccine respectively.

Regarding treatment for HBV infection, 84.8% of the paramedics and 74.7% of the non-paramedics knew about definitive treatment. Hepatitis A infection was reported by two paramedics and five non-paramedics, and hepatitis B infection by one non-paramedic.

Table 1. Socio-demographic characteristics of the participants (N=184)

Variable	Paramedics		Non-paramedics		Total	
	No.	%	No.	%	No.	%
Age (in years)						
16-18	40	43.48	28	30.43	68	36.95
19-22	52	56.52	64	69.57	116	63.05
Sex						
Male	33	35.9	73	79.3	106	57.6
Female	59	64.1	19	20.7	78	42.4
Ethnic group						
Brahmin	33	35.9	34	37.0	67	36.4
Chettri	42	45.7	43	46.7	85	46.2
Newar	5	5.4	5	5.4	10	5.4
Tharu	6	6.5	7	7.6	13	7.1
Janjati	3	3.3	-	-	3	1.6
Dalit	3	3.3	3	3.3	6	3.3
Current marital status						
Married	9	9.8	11	12.0	20	10.9
Unmarried	83	90.2	81	88.0	164	89.1

Table 2. Distribution of the participants according to their knowledge of hepatitis B virus (N=175)[1]

Knowledge	Paramedics		Non-paramedics		Total	
	No.	%	No.	%	No.	%
Organ affected by hepatitis						
Liver	92	100.0	76	91.6	168	96.0
Kidney	-	-	2	2.4	2	1.1
Brain	-	-	2	2.4	2	1.1
Lungs	-	-	3	3.6	3	1.7
Symptoms of hepatitis						
Jaundice	11	9.8	21	25.3	32	18.3
Fever	2	2.2	17	20.5	19	10.9
Loss appetite	-	-	3	3.6	3	1.7
Abdomen pain	2	2.2	10	12.0	12	6.9
All above symptoms	81	88.0	50	60.2	131	74.9
No response	-	-	2	2.4	2	1.1
Mode of transmission						
Yes	91	98.9	70	84.3	161	92.0
No	1	1.1	13	15.7	14	8.0
Hepatitis is preventable						
Yes	89	96.7	70	84.3	159	90.9
No	3	3.3	13	15.7	16	9.1
Availability of vaccine						
Yes	92	100.0	72	86.7	164	93.7
No	-	-	8	9.6	8	4.6
No Response	-	-	3	3.6	3	1.7
Availability of treatment						
Yes	78	84.8	62	74.7	140	80.0
No	14	15.2	21	25.3	35	20.0
Vaccinated						
Yes	66	71.7	19	22.9	85	48.6
No	26	28.3	59	71.1	85	48.6
No response	-	-	5	6.0	5	2.9
Incidence of hepatitis						
Yes	2	2.2	5	6.0	7	4.0
No	90	97.8	78	94.0	168	96.0

[1]Of the total sample of 184, only those who have heard about hepatitis are included.

Discussion

Our study showed that paramedics had higher knowledge than the non-paramedics, indicating the health-related background as a positive predictor. Findings from other studies are also compatible with knowledge of medical or paramedics being higher than that of non-paramedics (15-18).

A higher proportion of paramedics were aware of different types of hepatitis, compared to the non-paramedics. Further, paramedics' knowledge on HBV as the most dangerous hepatitis infection was better than that of non-paramedics. In contrast, a study from Quetta, Pakistan demonstrated very low knowledge on HBV infection among its participants (19).

Majority of the paramedics and non-paramedics in our study knew that intravenous drug use, unsafe sexual practices, babies born to mothers with hepatitis B and frequent blood transfusion are the high risk groups for Hepatitis B. In contrast, some studies conducted in Nepal showed that knowledge in health care workers about the risks associated with needle-stick injuries and use of preventive measures was inadequate (20-22). However, samples of these studies were limited to healthcare units and laboratory institutions.

Most of the participants in our study knew that HBV is a preventable disease (90.9%). A study from Bangladesh also found similar findings (23). Despite the knowledge, our study shows that only 48.7% were vaccinated against HBV. However, such vaccination was much higher among the paramedics (71.7% of paramedics versus 22.9% of non-paramedics). Also, although the proportion was much smaller among the non-paramedics, this is comparable with the study from Bangladesh (23). These results are further compatible with other studies, where knowledge on HBV as in paramedics has been associated with increased HBV screening and vaccination (24-26), implying that knowledge dictates the behaviour in relation to HBV.

On the other hand, stigma related to HBV has been observed with decreased likelihood of HBV screening (27). This was however not assessed in the current study. This calls for further studies on identifying the reasons for poor vaccination, such as stigma and practical difficulties in providing HBV screening in work settings in Nepal.

Our study also had some limitations. We collected data using purposive sampling from one district due to time limitations. However, the situation in other districts is expected to be more or less the same.

Conclusions and Recommendations

Our study showed that knowledge as well as preventive practices regarding hepatitis B was much better among paramedics compared to the non-paramedics. There is a potential need to raise awareness on HBV among non-health related workers through vertical programs and social media in the country.

Public health implications

Hepatitis B is one of the most common blood-borne viral infections and a worldwide public health problem. Adolescent and young adults are more vulnerable to HBV owing to their unsafe practices. This study reveals knowledge regarding HBV infection, mode of transmission and prevention, and screening practices among paramedics and non-paramedics in Nepal. This knowledge will ensure the provision of better healthcare by identifying the occupational groups and areas of knowledge needing improvement.

Author Declarations

Competing interests: None

Ethics approval and consent to participate: The study protocol was approved by the Asian College for Advance Studies, Lalitpur, Nepal (Reference No. 453/067). Permission for the study was obtained from District Public Health Office.

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Author contribution: MHS and SS participated in study design, analysis and data interpretation, draft writing and editing. PP participated in study design, data collection, data analysis and data interpretation, draft writing, editing and submission. All authors read and approved the final manuscript.

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