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Original Article

Knowledge, Attitude and Practice of Hepatitis-B Vaccination among Clinical Medical Students at a Medical College in Nepal

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ABSTRACT

Background: Hepatitis B vaccine is the single most effective and safest strategy for the prevention of the disease among health care workers (HCW), trainees and medical students. There is scanty information on knowledge, attitude and practice (KAP) regarding Hepatitis B vaccination among medical students who are likely to get exposed in the future as they start practicing. This study was undertaken to understand the knowledge, attitude and practice of hepatitis B vaccination among clinical medical students of Manipal College of Medical sciences at Pokhara, Nepal.

Methods: Two hundred and four medical students were enrolled for a descriptive cross-sectional study at Manipal College of Medical sciences at Pokhara, Nepal after obtaining ethical clearance from Institutional Review Committee. Answers to pre-tested questionnaire were collected. Knowledge, attitude and practice regarding Hepatitis B vaccination were studied.

Results: All participants demonstrated good knowledge and positive attitude towards Hepatitis B infection and vaccination. However majority had poor practice towards it. Only 47.1% were completely vaccinated. The most common reason for non vaccination was that many thought they will vaccinate in internship or when they start practicing.

Conclusions: Despite good knowledge and positive attitude towards Hepatitis B infection and vaccination, low rates of vaccination and poor practice was observed among medical students indicating the necessity of encouragement for vaccination and proper practices among them. All medical students should be immunized against Hepatitis B during their medical school. Regular Hepatitis B vaccination, educational and awareness programs must be conducted in coordination and with active participation of the medical students.

Keywords: Attitude; Hepatitis-B; Knowledge; Medical Students; Practice; Vaccination

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INTRODUCTION

Hepatitis-B virus (HBV) infection is a worldwide healthcare problem.[1] About 10% of the patients develop chronic hepatitis and about 15%-25% develop cirrhosis after infection with HBV.[2,3] National study on HBV has shown upto 2.7% prevalence among high risk group with injecting drugs in Western Nepal.[4] Hepatitis B is the major infectious occupational health hazard for hospital staffs because of their repeated exposure.[5] All the hospital staffs including trainees and medical students are at occupational risk of HBV infection. The risk of accidental exposure among the trainees could be even higher due to their non experience, insufficient training and lack of preventive knowledge.[5]

Hepatitis B virus infection is one of the most preventable causes of chronic liver disease.[5] Hepatitis B vaccine is the single most effective and safe strategy for the prevention of the disease.[6] World Health Organization (WHO) has recommended vaccination to people at occupational risks of Hepatitis B virus infection.[7] Despite of high occupational risk among health professionals, the WHO estimate showed that HBV vaccination coverage among Health care workers (HCW) is low worldwide.[7]

Studies regarding the prevailing knowledge, attitude and practice of Hepatitis B vaccination among medical students within the country are scanty. This study was therefore carried out to determine the knowledge, attitude and practice of Hepatitis B vaccination among clinical medical students at Manipal College of Medical Sciences at Pokhara, Nepal.

MATERIALS AND METHODS

This descriptive, cross-sectional study was conducted at Manipal College of Medical Sciences and Teaching Hospital at Pokhara, Gandaki Province from 1st June to 30th June 2020, over a period of 1 month. The study was conducted after obtaining ethical clearance from Institutional Research Committee (MEMG/IRC/334/GA) and informed consent from study participants.

The college runs an undergraduate MBBS programme and recruits a batch of 100 students each year. Previous batches, including this study batch contained 135 medical students. All clinical medical students of 3rd and 4th (Final) year MBBS were enrolled in the study. Subjects who were absent during the study period and those who did not return the questionnaire were excluded from the study. This included pre-tested questionnaire that were categorized into 3 sections: section 1- knowledge, section 2- attitude, section 3- practice of Hepatitis B vaccination. Each correct response was scored as one mark and incorrect or non response was scored zero. Level of knowledge was graded as good or adequate for participants who scored ≥50% and poor when <50%. Similarly, for attitudes and practices, participants achieving ≥50% were classified as having positive attitudes and safe practices, respectively and <50% as having negative attitude and poor practices.

The data analysis was done using SPSS Version 16. All categorical data were expressed in percent and absolute number. All numerical continuous data were expressed in mean ±SD. Chi squared test / fisher exact test were used to test for significant difference of proportions and mean. All tests were analyzed with a 95% confidence interval and a p value of <0.05 was considered significant.

RESULTS

The semi structured questionnaire was distributed to 214 MBBS clinical medical students at Manipal College of Medical Sciences. However they were returned and answered by only 204 medical students. The response rate was thus 95.3 %. The study participants comprised of 122 males and 82 females (M: F=3:2). The mean age of study participants was 24.2 ±.3.25 years. The study participants comprised of 112 students from 1st clinical year (i.e. 3rd year MBBS) and 92 students from 2nd clinical year (Final or 4th year MBBS).

Knowledge, attitude and practice about Hepatitis B vaccination

Majority comprising of 195 (95.6%) respondents had good knowledge of Hepatitis B infection and vaccination. Majority comprising of 198 (97.1%) respondents had positive attitude. The mean knowledge and attitude scores of the study subjects were 73.92 ± 17.57 and 82.16±12.6 respectively. Despite good knowledge and good attitude, majority of 175 (85.8%) respondents had poor practice against Hepatitis B infection and vaccination. The mean practice score of the study subjects was 35.29±18.02 (Table 1).

All 204 (100%) medical students had this knowledge that Hepatitis B virus can be acquired through needle stick injury. Majority comprising of 170 (83.3%) respondents knew that Hepatitis B is not spread by handshaking .Only 146 (47.1%) knew that Hepatitis B was 50-100 times more infectious than HIV. One hundred and sixty (78.4 %) students

Table 1: Grading of Knowledge, Attitude and Practice of Hepatitis B Vaccination			
Grade	**Knowledge Frequency (%)**	**Attitude Frequency (%)**	**Practice Frequency (%)**
Good (score ≥50%)	195(95.6)	198(97.1)	29(14.2)
Poor (score ≤50%)	9(4.4)	6(2.9)	175(85.8)
Total	204(100)	204(100)	204(100)
Mean score (%)	73.92 ± 17.57	82.16±12.6	35.29±18.02

knew about effective Hepatitis B vaccine but only 158 (77.5%) knew its recommended schedule. Its effectiveness was known to 163(79.9%) but only 82(40.2%) knew that it could provide protection for at least 20 years. Post vaccination test is necessary to detect the immunization status and the value must be > 10IU/ml were known to 134(65.7%) and 88(43.1%) respectively. (Table 2)

Attitude towards Hepatitis B vaccination

Majority comprising of 198 (97.1%) respondents had positive attitude towards Hepatitis B infection and vaccination. The mean attitude score of the study subjects was 80.59 ± 12.83 (Table 2). Majority comprising of 186 (90.2%) respondents informed that they might be at risk once they start practicing after completing medical school and all medical students felt that they need to be protected against Hepatitis B. Majority comprising of 165 (80.9%) respondents considered it was a safe vaccine and 147 (72.1%) trusted its efficacy. All students believed that vaccination must be compulsory to all medical students before they complete their medical school, 188(92.1%) felt that more students would be vaccinated if provided for free and 183(89.7%) believed that regular vaccination campaigns must be conducted in the hospitals . Majority comprising of 194 (95.1%) respondents were willing to receive or complete their Hepatitis B vaccination if not vaccinated or incompletely vaccinated and 161 (78.9%) would recommend vaccination to their friends at work (Table 3).

Table 2: Knowledge about Hepatitis B vaccination in study participants			
Variables	3rd MBBS (N=112) correct response (%)	4th MBBS (N= 92) correct response (%)	Total (N=204) correct response (%)
Hepatitis B virus can be acquired through a needle stick injury	112 (100)	92(100)	204(100)
Hepatitis B Virus is not spread by hand shaking	96(85.7)	74(80.4)	170(83.3)
Hepatitis B is 50–100 times more infectious than HIV	44(39.3)	52(56.5)	96(47.1)
There is effective vaccine for hepatitis B	76(67.9)	84(91.3)	160(78.4)
Hepatitis B vaccine dosing 0,1,6 months : 3 doses	72(64.3)	86(93.5)	158(77.5)
Complete dose of Hepatitis B vaccine is 95% effective	77(68.7)	86(93.5)	163(79.9)
It provides protection for at least 20 years	40(35.7)	42(45.6)	82(40.2)
A patient who has fully recovered cannot infect others	62(60.1)	68(73.9)	130(63.7)
Post Hepatitis B vaccination test is necessary	60(53.6)	74(80.4)	134(65.7)
For protection against Hepatitis B, one needs antibody titer of > 10 IU/ml	40(35.7)	48(52.2)	88(43.1)

Table 3: Attitude towards Hepatitis B Vaccination in study participants			
Variables	3rd MBBS (N=112) positive response (%)	4th MBBS (N= 92) positive response (%)	Total (N=204) positive response (%)
Will you be at risk as you work?	96(85.7)	88(95.6)	184(90.2)
Do you feel you need to be protected against Hepatitis B infection	112(100)	92(100)	204(100)
Is Hepatitis B vaccine safe?	87(77.7)	78(84.8)	165(80.9)
Trust efficacy of Hepatitis B vaccine	71(63.4)	76(82.6)	147(72.1)
Hepatitis B vaccination should be made compulsory in medical school	112(100)	92(100)	204(100)
If vaccine provided by free from medical school, more HCW will be vaccinated	1046(92.8)	84(91.3)	188(92.1)
Regular vaccination campaigns must be conducted in medical schools	98(87.5)	85(92.4)	183(89.7)
Medical students should be vaccinated within 1year of joining school	96(85.7)	88(95.6)	184(90.2)
Willing to receive or complete their Hepatitis B vaccination	106(94.6)	88(95.6)	194(95.1)
Willing to recommend Hepatitis B Vaccination to medical friends	78(69.6)	83(90.2)	161(78.9)

Practices towards Hepatitis B vaccination:

Majority comprising of 175 (85.8%) respondents had poor practice against Hepatitis B infection and vaccination. The mean practice score of the study subjects was 40.34 ± 23.81 (Table 2).

Only 77 (37.7%) respondents had screened for Hepatitis B infection in the past. One hundred and twenty (58.8%) clinical medical students had vaccinated at least once. But complete doses of 3 vaccines were received by only 96 (47.1%) medical students. Twenty four (11.7%) medical students were partially vaccinated against Hepatitis B Virus infection. Eighty four (41.2%) medical students were never vaccinated. Among the respondents, only 28(13.7%) participants had screened for their Hepatitis B status just before vaccination and 19(9.3%) checked their immune status post vaccination (Table 4). Among the respondents, 130 (63.7 %) medical students had participated in some form of educational program or campaign against Hepatitis B.

Factors associated with non vaccination against Hepatitis B

A total of 84(41.2%) clinical medical students had never received even a single dose of hepatitis B vaccine. The most common reason for non vaccination described by 40 (47.6%) medical students was that they thought they will vaccinate in internship or when they start practicing. The other reasons mentioned were negligence by

Table 4: Practices towards Hepatitis B vaccination in study participants			
Practice towards Hepatitis B Vaccination	3rd MBBS (N= 112) Correct (%)	4th MBBS (N=92) Correct (%)	Total (N=204) Correct (%)
Have you screened for Hepatitis B	36(32.1)	41(44.6)	77(37.7)
Have you participated in any educational program or campaign on Hepatitis B	84(75)	46(50)	130(63.7)
Received Hepatitis B vaccine (at least once)	64(57.1)	56(58.3)	120(58.8)
Received complete Hepatitis B vaccine	52(46.4)	44(47.8)	96(47.1)
Screened for Hepatitis B just before vaccination	16 (14.3)	12(13)	28(13.7)
Checked immune status (Anti HbS) after vaccination	8(7.1)	11(11.9)	19(9.3)

Table 5: Association between Characteristic of Respondents and levels of KAP

Variables	Good	Bad	Statistics
Knowledge of Medical students			
Male	118	4	Chi sq. test =0.92; df=1 p=0.336
Female	77	5	
3rd MBBS	107	5	Chi sq. test =0.46; df=1 p=0.968
4th MBBS	88	4	
Attitude of Medical students			
Male	119	3	Chi sq. test =0.24;df =1 p=0.619
Female	79	3	
3rd MBBS	106	6	Chi sq. test =5.078; df=1 p=0.024
4th MBBS	92	0	
Practice of Medical students			
Male	21	101	Chi sq. test =2.23; df=1 p=0.135
Female	8	74	
3rd MBBS	93	19	Chi sq. test =1.53; df=1 p=0.215
4th MBBS	82	10	

24(28.6%) medical students followed by not really felt or realized by 8 (9.5 %), afraid of injection by 6(7.1%) and rest 6 (7.1%) medical students had no reasons.

All medical students of both the clinical years demonstrated good knowledge and good attitude overall. There was statistically no significant association between sex and clinical medical year against level of knowledge and attitude for hepatitis B vaccination (p>0.05) (Table 5).

Despite, good knowledge and good attitude, all medical students of both clinical years showed a poor practice. There was statistically no significant association between sex and clinical medical years with practice towards Hepatitis B vaccination (p>0.05).

DISCUSSION

The mean age of study participants was 22.1 ±.2.35 years in the current study which is nearly similar to the study by Vasantha et al.[8] with mean value of 21.05±1.14 years. In the current study, majority (95.6%) of the respondents had good knowledge of hepatitis B vaccination. Similar, good knowledge were demonstrated by 77.07% and 79.1% in the studies by Vasantha et al.[8] and Jacob et al.[9] in India respectively. But in Senegal, majority of 73% showed poor knowledge in the study by Fortes et al.[10]

Among the respondents in the current study, 83.3% knew that hepatitis B is not spread by handshaking. It was reported by 93% medical students in the study by Jacob et al.[9] In the current study, 78.4 % medical students knew about effective hepatitis B vaccine .Whereas even greater frequencies of knowledge by 86.5%, 89.6% and 94.6% medical students were documented in the studies by Alhowaish et al.[11] in Saudi Arabia, Jacob et al.[9] and Vasantha et al.[8] in India respectively.

Majority (97.1%) of the respondents had positive attitude towards Hepatitis B vaccination. In India, studies by Vasantha et al.[8], Chhabra et al.[12] and Jacob et al.[9] reported positive attitude by 77.56%, 80.6% and 84.3% respectively. Whereas, 67.6% of the students demonstrated a poor attitude in the study by Fortes et al.[10] in Senegal.

In the current study, 80.9% of the medical students believed that it was a safe vaccine and 72.1% trusted its efficacy. Even better were the findings in the study by Alhowaish et al.[11] in Saudi Arabia where 86.5% believed that HBV vaccine was safe and 90% believed that following proper infection and control guidelines, it would protect them from

HBV. Majority (85.6%) of the respondents had bad or poor practice against Hepatitis B infection and vaccination in the current study. Poor practice was common among medical students in many studies as well. It was 55.2% and 66.6% in the Indian studies by Jacob et al.[9] and Vasantha et al.[8]

Only 37.7% had tested for Hepatitis B in the current study, whereas, more than half (56.5%) and 55.6% had screened for HBV infection in the studies by Alhowaish et al.[11] and Fortes et al.[10] respectively. It was even better (79.5%) in the study by Vasantha et al.[8]

Many studies have demonstrated a low rate of complete vaccination among medical students. In the current study, 58.8% clinical medical students had vaccinated at least once but complete vaccines were received by only 47.1%. Among the respondents, 48.5% were immunized at least once but complete vaccination were received by only 34.5% in the study by Jacob et al.[9] In a similar study by Chhabra et al.[12], 82.8% students underwent vaccination but only 62.4% completed the recommended three doses of vaccination schedule. In a similar study by Alhowaish et al.[11], 69.5% had received HBV vaccine but only 38% of them had received the complete doses respectively. This rate of complete vaccination was comparatively higher, 88.1% by Kabir et al.[13] in Iran and 87.8% by Muhammad et al.[14] in Pakistan. Studies by Raza et al.[15] in Pakistan, Vasantha et al.[8] in India and Fortes et al.[10] in Senegal suggested that 80.6%, 79.5% and 61.3% of the students were fully vaccinated respectively. At the other hand, very low, i.e. only 8% and 2% of the medical students were fully vaccinated in the studies by Rathi et al.[16] and Abdela et al.[17] respectively.

Studies have also demonstrated tendency of incomplete vaccination among medical students. In the current study, 11.7% students were partially vaccinated against Hepatitis B Virus infection whereas 20.5% and 18.7% were partially vaccinated in the Indian studies by Vasantha et al.[8] and Rathi et al.[16] respectively. In our current study, 41.2% were never vaccinated against Hepatitis B whereas, even a larger mass of 73.3% was not vaccinated in the Indian study by Rathi et al.[16] All these studies suggest that majority of medical students despite having adequate knowledge and good practice regarding hepatitis infection and importance of vaccination , however many are not vaccinated. Those who get vaccinated, some of them fail to complete the recommended schedule.

The most common reason for non vaccination in the current study described by 47.6% was that they thought they will vaccinate in internship. The other reasons were negligence in 28.6 % followed by felt no necessity or not realized in 9.5 %, afraid of injection in 7.1% and rest 7.1% had no reasons. The common reasons were lack of information by 39.3%, not felt necessity in 35.6% , negligence in 22% and fear of injection in 2.9 % in the Yemenian study by Almulam et al.,[18] reasoning almost similar to ours.

The practice of testing for antibodies for confirming immunization post vaccination was even very low among the medical students. Among the respondents in the current study, only 9.3% had checked their immune status post vaccination. It was only 7% according to the study by Chhabra et al.[12] Among the respondents, 63.7 % had participated in some form of educational program or campaign against Hepatitis B .whereas , only 17.8% and 8.8% had participated in such programs according to Jacob et al.[9] and Almulam et al.[18] respectively .

This study had its own limitations. The study reflects the knowledge, attitude and practice of a group of MBBS clinical medical students of a medical school which may not be uniform to all medical students within the country. Larger sample size with multi centers study is recommended.

CONCLUSION

Despite the good knowledge and positive attitude towards Hepatitis B infection and vaccination, many medical students have poor practice towards it indicating the necessity of encouragement for vaccination and proper practices among them.

All medical students should be protected and immunized against Hepatitis B followed by confirmation of immunization with post vaccination antibodies testing before their occupational exposure in hospitals and their practices. Regular Hepatitis B vaccination, educational and awareness programs with active participation of the medical students are highly recommended.

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