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Need to Vaccinate (HBV) and Train Medical Students Against Hazards of Hepatitis B: A Study Conducted among Final Year Medical Students

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Introduction

Hepatitis B (HBV) is a major infectious disease and endemic all over the world. More than two billion people worldwide have been infected and out of them 350 million are chronically infected. In South East Asia Region >30% of the population is infected and 80 million carriers. In India there are an estimated 43-45 million carriers and the carrier rate is 5-7%. The carrier rate is highest (10.87%) among hospital staff [1].

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. About 360 million people are chronically infected with HBV. These chronically infected persons are at higher risk of death from HBV-related liver cancer or cirrhosis [2].

Due to their occupational exposure, health workers are at higher risk of contracting blood borne infections like HIV, Hepatitis B and C. As per WHO database, out of 35 million health care workers, two million had experienced percutaneous exposure each year, accounting for 37.6% of Hepatitis B [3]. Through knowledge about modes of transmission, strategies of preventions of Hepatitis B is therefore necessary to reduce the risk of HBV infection. Fortunately the potent vaccine is available for Hepatitis B and every health worker should be well equipped with adequate knowledge and vaccinated to prevent consequences of the exposure to HBV.

Medical students being part of the health care delivery system are also exposed to the same, though

the magnitude of risk of exposure is less [4]. Final year medical students who will enter the health care services in near future, are expected to have well-awareness about preventive strategies like vaccination, post exposure prophylaxis and so on. They are expected to undertake activities related to patient care with the beginning of their clinical years and internship.

Hence the present study was conducted among final year medical students to assess their knowledge level about preventive measures for HBV infection and their vaccination status of HBV.

Methodology

Study Design: A Cross sectional Study was conducted among Final medical students of Dr Vikhe Patil Medical College Ahmednagar.

Sampling Technique and Sample Size

The study participants were MBBS students of final year i.e. third year. By simple random sampling technique 50% students of third minor (III/I) and third major (III/III) MBBS were selected and a total 140 students were assessed for their knowledge and vaccination status.

Data collection- Data collection was done with the help of pre designed structured questionnaire prepared by related literature search. The questions were both open ended and closed ended and covered the domains like. modes of transmission, strategies for prevention, measures to be taken after accidental

exposure .The vaccination status of the individuals was also assessed.

Answers were evaluated and each correct answer was given one mark. The knowledge level was assessed based on the total score gained. Total 20 questions were assessed and the score above 15 was labeled as excellent knowledge, 11-15 was adequate. 7-10 average and score below 7 was poor knowledge.

Statistical Analysis- statistical analysis was done using appropriate statistical techniques like percentage, proportion, mean and standard deviation. Tests of significance used were standard error of difference between two means and standard error of difference between two proportions

Results

Present study was conducted among 140 medical students of third year (III/I and III/III). Out of 140 students , 35 (25%) students' parents were doctors.

Their knowledge level was assessed for preventive strategies against HBV and merely 55% of students had adequate knowledge and 4% students had poor

knowledge about risks of occupational exposure and preventive strategies for hepatitis B. As shown in Table 1, mean knowledge level of III/III students was significantly better. ($p < 0.005$). Less than half (48.5%) were immunized against Hepatitis-B. Vaccination rate was 45.7% among third major and 51.4% among third minor students and out of 68 students who had taken hepatitis B vaccine, 45% students had not taken the booster dose (Table 2).

Merely 47.1% students knew that Hepatitis B is more infectious than HIV. Only 61.4% students could correctly name the screening test for HBV infection. Only 22.8% students had complete knowledge about universal precautions, and just 45% students had complete and correct knowledge regarding preventive measures for HBV exposure. Students of third major batch had comparatively better knowledge than their junior batch (Table 3).

30(21.4%) students opined that there is no post exposure prophylaxis for HBV while 23(15.7%) students don't know whether post exposure prophylaxis is available for HBV? Only 49 (35%) students could tell all the steps of post exposure prophylaxis of HBV. However third major students had significantly better knowledge than their juniors. ($p < 0.005$)(Table 4)

Table 1: Knowledge level of Medical students

	Academic Year	Mean Knowledge Score	S.D.
1	Third Major(III/III)	14.21	14.99
2	Third Minor (III/I)	12.64	16.52

SE(X1-X2) = 2.66, $p < 0.005$ significant

Table 2: Vaccination Status of the students

Academic year	Yes	No	Total
Third Major MBBS	32 (45.7%)	38	70
Third Minor MBBS	36 (51.45)	34	70
Total	68	72	140

Out of 68 students who were vaccinated only 38 (55.8%) had taken the booster doses

Table 3: Knowledge regarding preventive measures

Correct and complete knowledge of	Third Minor MBBS(n=70)	Third Major MBBS(n=70)	Level of Significance (Z test, SE of two proportions)
Screening test	27 (38.57%)	59(84.28%)	$P < 0.001$ Highly significant
Universal precautions	08 (11.42%)	25 (88.5%)	$P < 0.005$ significant
Measures to prevent exposure	28 (40%)	35(50%)	$p > 0.005$ not significant

Table 4: Knowledge regarding Post Exposure Prophylaxis (PEP) for HBV

Knowledge about	Third Minor(n=70)	Third Major(n=70)	Significance
Availability of PEP	41 (58.5%)	47 (67.1%)	$p > 0.005$ not significant
Steps of PEP	21(30%)	38 (54.2%)	$P < 0.005$ significant

Students of Third major had significantly better knowledge about PEP

Discussion

Hepatitis B is one of the infectious diseases to which all health care providers are exposed. Though the disease has serious consequences, it can be prevented by use of HBV vaccine and other personal protection measures. Therefore it is expected that all medical professionals and paramedical staff should have appropriate knowledge and immunization of HBV.

However, several studies conducted among medical professionals revealed that their HBV vaccination status is not 100% [5-6]. In our study conducted among 140 medical students of final year only 48.5% were immunized against HBV. Similar to our study in a study conducted by Velvezi et al Only 57% students were vaccinated against HBV in Tamilnadu and 65.4% students were vaccinated in a study conducted by Pantha et al in Bangladesh [7-8].

The mean knowledge score in our study was 12.64 and 14.99 for third minor and major students respectively. 55% students in our study had adequate knowledge and 4% had poor knowledge regarding prevention of HBV. 37.8% students did not know that post exposure prophylaxis is available for HBV. 54% students of third major and 30% students of third minor had complete knowledge of PEP. Similar finding was observed by Baig et al in India and Mesfin et al in Ethiopia [9-10]. Baig et al reported that the mean knowledge score for the entire study cohort was 15.66 ± 1.9 and (59.04%) were within the adequate knowledge range. While Mefsin et al noted that out of the 322 participants, 141 (43.8%) were within the poor knowledge range whereas 181 (56.2%) showed adequate knowledge about HBV. early half; 156 (48.4%) of the study participants were not know that HB has post exposure prophylaxis and the mean knowledge score for the entire study cohort was 11.52 ± 2.37 [10].

Only 47.1% students in our study knew that HBV is more infectious than HIV. Similar finding was observed by Othaman et al in their study conducted in Iraq [11].

Similar to our study, Singh A reported in her study that majority of the students of III year gave correct answers of the questions while only 20% of the II year students had the correct knowledge regarding PEP for HBV [4]. In a study conducted by Hazmi, 72% students did not had the knowledge regarding PEP [6].

In present study, the overall knowledge was comparatively better among third major students

than their juniors. Similar finding was reported by Sujatha et al and Chhabra et al in their studies [12-13].

Conclusion

To conclude More than half of the students were not immunized against HBV. The knowledge level was not adequate for majority of students. There is an urgent need to train and vaccinate all medical students for Hepatitis B.

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