

Hepatitis B Vaccination Status among Students of a Medical College in Islamabad

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Abstract

Objective: To assess the hepatitis B vaccination status among medical students at Islamabad Medical and Dental College.

Materials and Methods: In August 2015, a cross-sectional survey was carried out at Pediatric Department, Islamabad Medical and Dental College, Islamabad using a pretested self-administered questionnaire among 315 medical students of clinical years (3rd, 4th and 5th years) after taking informed consent. In questionnaire the status of hepatitis B vaccination of medical students and the reasons for not getting vaccinations were assessed.

Results: Total 315 students were approached for survey; out of which 269 responded. Total response rate was 85%. Among 269 students who responded, 150 (56%) were female and 119 (44%) were male. 107 (40%) students were unvaccinated, while 73 (27%) were partially vaccinated and 89 (33%) were fully vaccinated. The most common reason of not receiving vaccination is laziness (53%) followed by lack of awareness (23%) and no knowledge about where to get vaccination (15%). According to medical students, the strongest recommendation for improving Hepatitis B vaccination is that vaccine should be mandatory for admission in medical colleges (33 %) followed by provision of vaccine free of cost (26%) and increasing awareness through media and seminars (20%).

Conclusion: There is alarmingly low rate of vaccination of hepatitis B among students of Islamabad Medical and Dental College, leading to a

high occupational risk of HBV infection. Therefore policy be implemented for making hepatitis B vaccination mandatory for admission in medical colleges to prevent student from getting this deadly disease.

Keywords: Awareness, Hepatitis B, Medical, Prevention & Control, Students, Vaccination.

Introduction

Hepatitis B virus (HBV) belongs to Hepadnavirus family and was first discovered by Blumberg *et al.*, in 1965.¹ HBV causes acute and chronic liver disease. Although HBV vaccine is currently used, viral hepatitis B is one of the major health problems worldwide.² More than two billion people are infected in the world; among them 400 million are chronic carriers and approximately one million people die because of the Hepatitis B annually.³ Viral hepatitis is ten times more common than human immune deficiency virus (HIV) infection, but there is no comprehensive global viral hepatitis prevention and control programme analogous to that of HIV/AIDS that provides public awareness of the disease and access to treatment of the vast numbers of people with chronic hepatitis B infection living in the poorer countries.⁴ Hepatitis B infection is a transmissible disease and is predominantly transmitted through blood and blood products of infected patients. Healthcare workers are exposed to blood and body fluids, they are at risk of incidents like needle stick and sharp injuries.⁵ According to WHO, each year 5.9% of healthcare workers are exposed to blood-borne HBV infections.⁶

Medical students are also at high-risk of being infected by HBV due to the lack of obligatory vaccination program and inadequate knowledge which results in lack of awareness and compliance with the HBV

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vaccine.⁷ In addition, high prevalence of HBV infections among the general population, lack of infection control activities and under-resourced health care system in Pakistan further augment the risk of nosocomial transmission of HBV to health care workers.⁸ Prevention is the only safe strategy against high prevalence of viral hepatitis. Medical students have a very important role in preventing the disease by improving the knowledge of disease among themselves and the patients they treat. Safe and effective Hepatitis B virus vaccine is available since 1981 that contain HBsAg protein and aluminium phosphate or aluminium hydroxide adjuvant.⁹ In 1992, the Global Advisory Group to the WHO recommended that all countries integrate hepatitis B vaccine into national immunization programs by 1997. By 2008, 177 of 193 WHO member states (92%) had integrated HBV vaccination into their national infant vaccination schedules¹⁰ and it was incorporated in Pakistan's EPI in 2001. HBV vaccine is freely available in Pakistan and costs Rs.200 and Rs.350 for children and adults respectively. Many countries have reported dramatic reductions in chronic HBV infection among children born since the hepatitis B vaccine was introduced into infant immunization schedules. Immunization with hepatitis B vaccine at first day, 30th day, and 180th day can create 90% and 95% protection in adults and children, respectively.

Reports from Pakistan indicate that only 40% of health care workers have received complete HBV immunization⁸. A study conducted in Muhammad Medical College Mirpurkhas to know the Hepatitis B vaccination coverage in medical students revealed that 57% of medical students were vaccinated against Hepatitis B.¹¹

As the medical students of Islamabad Medical and Dental College (IMDC) did not receive Hepatitis B vaccine in primary vaccination series, the aims of this study were to assess the vaccination status against Hepatitis B and the reasons for poor adherence to vaccination.

Material and Methods

After seeking permission from Institutional Ethical Review Board of Islamabad Medical and Dental College, Islamabad, this study was conducted at Pediatric Department, Islamabad Medical and Dental College, Islamabad, from 10th August, 2015 to 10th September, 2015. The medical curriculum in Pakistan spans over period of five years. Clinical rotation of

medical students starts from 3rd year. Therefore, a cross sectional study was conducted amongst all medical students of 3rd, 4th and 5th year of IMDC. Students of pre-clinical years (1st and 2nd year) were excluded from the study. Students were recruited through a non randomized, simple consecutive sampling. Written informed consent for enrolment in study was obtained from each medical student in which anonymity and voluntary participation was assured.

Data was collected through a structured questionnaire written in English language. Questionnaire had four components: (1) gender and academic year; (2) vaccination status (unvaccinated, fully vaccinated or partially vaccinated); (3) reasons for no and partial vaccination; (4) recommendations for increasing hepatitis B vaccination among medical students. Students who received three or more doses of Hepatitis B vaccine were considered fully vaccinated, those who received one or two doses were considered partially vaccinated and those who never received Hepatitis B vaccination were considered unvaccinated. Ten students of 5th year were randomly approached to explore any confusion in the questionnaire before reaching it final form. Printed copies of questionnaire were distributed among students. Students were allowed to return self completed questionnaire at their convenient time.

Data was coded, entered and analyzed through Statistical Package for Social Science (SPSS) version 20.0. Numbers and percentages were calculated for gender and academic years of medical students, their vaccination status, the reasons for not receiving vaccination and recommendations for increasing Hepatitis B vaccination rates among medical students. Chi-square test was applied for association among categorical variables. P-value less than 0.05 was considered significant.

Results

All students (315) of Clinical years (3rd, 4th, 5th year) were approached for survey; out of which 269 responded. Total response rate was 85.4% as shown in table I.

	No. of students surveyed	No. of students responded	Response Rate %
3rd Year	102	98	96%
4th Year	117	85	76%

5 th Year	96	86	90%
Total	315	269	85%

Table 2: Gender wise distribution of students

Academic Year	Female students n (%)	Male students n (%)
3rd year (n 98)	55 (56%)	43 (44%)
4th year (n 85)	42 (49%)	43 (51%)
5th year (n 86)	53 (62%)	33 (38%)
Total (n 269)	150 (56%)	119 (44%)

Table 3: Hepatitis B status of medical students

	Hepatitis B Vaccination Status			P value
	Unvaccinated n (%)	Partially vaccinated n (%)	Fully vaccinated n (%)	
Academic Year				
3rd year	57 (58%)	23 (24%)	18 (18%)	.000
4th year	26 (31%)	24 (28%)	35 (41%)	
5th year	24 (28%)	26 (30%)	36 (42%)	
Total	107 (40%)	73 (27%)	89 (33%)	
Gender				
Female	49 (33%)	46(31%)	55 (36%)	.028
Male	58(49%)	27(23%)	34(28%)	
Total	107 (40%)	73 (27%)	89 (33%)	

The most common reason of not receiving vaccination is laziness (53%) followed by lack of awareness (23%) and no knowledge about where to get vaccination (15%) as shown in figure 1.

According to medical students, the strongest recommendation for improving Hepatitis B vaccination is that vaccine should be mandatory for admission in medical colleges (33%) followed by provision of vaccine free of cost (25%) and increasing awareness through media and seminars (20%) and 4% students didn't mark any recommendation. Figure no. 2.

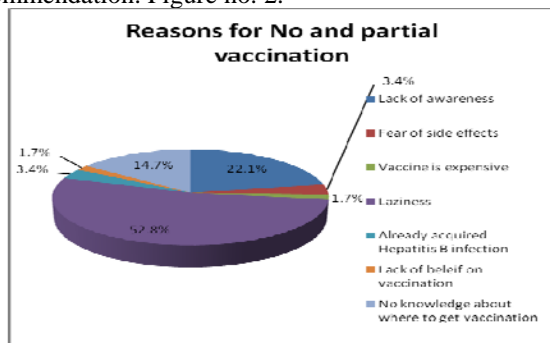


Figure 1. Reasons for no or partial vaccination

Among 269 students who responded, 150 (56%) were female and 119 (44%) were male (table 2). About 107

(40%) students were unvaccinated, while 73 (27%) were partially vaccinated and 89 (33%) were fully vaccinated. Percentage of fully vaccinated students was high in 5th year as compared to 3rd year which was statistically significant (P-value 0.000). Female students were more fully vaccinated as compare to male students which was also statistically significant (P-value 0.028) as shown in table 3.

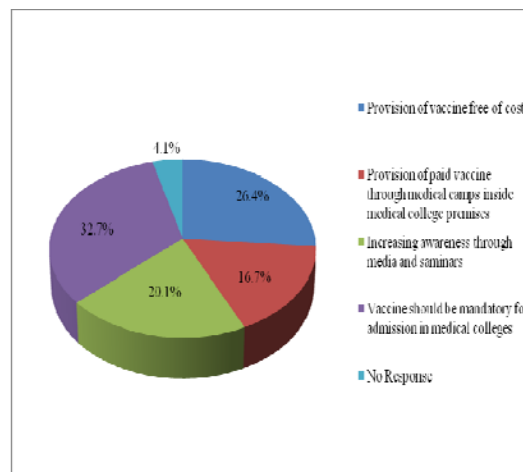


Figure 2: Recommendation for improving hepatitis B vaccination among medical students

Discussion

Medical students were more at the risk of exposure to risk factors of hepatitis B and especially per-cutaneous injuries.^{12,13} There is need for more focused efforts and preventive measures to be put in to protect the medical students from the deadly infection. In the present study conducted in IMDC Islamabad, Pakistan, 2015, survey of 315 medical students of clinical years (3rd, 4th and 5th years) was carried out. Students were recruited through a non-randomized, simple and consecutive sampling. Total 315 students were approached for survey, out of which 269 responded. Total response rate was 85% which was comparable to study conducted in Brazil,¹⁴ where response rate was 78.7%, but lower than that of Mirpurkhas, Pakistan, where response rate was 95%¹⁰. The study conducted in Nepal showed lower response rate (66.9%) than our study.¹⁵

Among 269 students who responded, 150 (56%) were female and 119 (44%) were males. The average age of the students and male to female ratio was almost the same in a study conducted among medical and dental students of Karachi and the one conducted in Brazil.^{16,14} This ratio was reversed in a study conducted in Mirpurkhas, Pakistan, where there were

more male students (57%) than female students (43%).¹¹ Percentage of fully vaccinated students increased from 3rd year to 5th year. Percentage of unvaccinated students decreased from 3rd year to 5th year. The increase in the uptake of vaccine with the advancing age and professional years in MBBS indicate increasing awareness about the disease. Likewise, in a study conducted among medical students of Karachi, it was found that knowledge about hepatitis B vaccine was lowest (75%) among the students of 1st professional and students of remaining years had a knowledge at 90%.¹⁶ In our Study, 107 (40%) students were unvaccinated, while 73 (27%) were partially vaccinated and 89 (33%) were fully vaccinated, as shown in table III of our study results. The vaccination rate in study conducted in Mirpurkhas, Pakistan was 57% and that of Lahore was 42%, both are slightly higher than our study.^{11,17} The vaccination rate in study conducted in Karachi was 70.6% which was much higher than our study.¹⁸ A Study conducted in Nepal, 2014, Hepatitis B vaccination coverage among medical school students was 86.50%, which is comparable to a study carried out in Malaysia (85.5%).¹⁹ In Palestine, Al-Dabbas reported that 76.8% of medical students and 46.7% of interns in their study were vaccinated against HBV.¹² A study conducted among Brazilian medical students in 2009 reported that approximately 60% of the students were vaccinated against hepatitis B before entering medical school.²⁰ In a study, conducted at Department of Community Medicine, B.J. Medical College, Ahmedabad, 2012, 63% of the students were vaccinated against Hepatitis B.²¹ In all of these studies; the vaccination status was higher than the vaccination status of only 33% reported among medical students of IMDC, Pakistan. In a study conducted in Allama Iqbal Medical College, Lahore the reason of non-vaccination was high cost of vaccination (44.7%) and a false belief among students that they were not even at risk (33.7%).²² Asif M et al., in another study, reported that students did not receive vaccination because there was a lack of motivation among peers (29.2%) and some even did not feel the need of it (24.8%).¹¹ Likewise, the students in our study conducted at IMDC were also not motivated for their vaccination against hepatitis B. The most common reason of not receiving vaccination in our study is laziness (53%) followed by lack of awareness (23%) and no knowledge about where to get vaccination (15%) as shown in figure no.1. Similarly, the reasons of non-vaccination in study conducted in Cameroon are same

as those of our study.²³ According to medical students of IMDC, the strongest recommendation for improving Hepatitis B vaccination is that vaccine should be mandatory for admission in medical colleges, provision of vaccine free of cost and increasing awareness through media and seminars.

Conclusion

There is alarmingly low rate of vaccination status of hepatitis B among students of Islamabad Medical and Dental College. Therefore, students are more at risk of acquiring Hepatitis B infection during their career.

1. As there is increased prevalence rate of Hepatitis B infection in Pakistan, medical students should be routinely vaccinated upon entry into the medical college.
2. Furthermore, education on prevention and management of occupational exposures should also be provided to the students, and counseling should be immediately available in case of exposure.

Recommendations

1. It is recommended that a policy be implemented for complete vaccination and health education of all medical students in first year in all medical colleges in our region.
2. HBV vaccination should be strongly recommended and the vaccine made available free of charge for medical students before the beginning of their training.

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Conflict of Interest

This study has no conflict of interest as declared by any author:

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