

HBV VACCINATION; STATUS IN HEALTH CARE WORKERS

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ABSTRACT... (SUMMARY) Objective: The study was conducted to determine the HBV vaccination status in health care workers of Muhammad Medical College Mirpurkhas. **Study design, Setting & Duration of Study:** This was a descriptive study carried out at Muhammad Medical College Mirpurkhas, from December 2007 to February 2008. **Subjects & Methods:** Total 480 health care workers were included; both male and female. Vaccination status & other data were filled on preformed Questionnaire proforma, if vaccinated or not. And if vaccinated either complete or incomplete. **Results:** Total 480 health care workers were studied, including 300 (62.5%) male and 180 (37.5%) females. The mean age was 34 ± 8.7 and 36 ± 9.3 years in vaccinated and non-vaccinated subjects respectively. A total of 255 (53.15%) were vaccinated, including 215 males and 40 females. A 225 (44.875%) patients were non-vaccinated including 85 males and 140 females. The prevaccination HBsAg status was checked and found negative in all the subjects. The frequency of vaccination was highest among house officer 55 (91.66%) and lowest in the sanitary workers 3 (11.5%). The most common reason of not being vaccinated was non-affordability (high cost of vaccine). **Conclusions:** We conclude that a substantial number of health care workers are not vaccinated. So it demands a need for a more aggressive approach to be vaccinated and vaccine must be cost effective.

Key words: HBV, Health care workers, Vaccination status.

INTRODUCTION

Hepatitis B virus (HBV) infection is a global health problem. The virus is infecting more than 350 million populations and an estimated 1-2 million people die of HBV related chronic liver disease (CLD) each year globally¹. Pakistan remains in the intermediate HBV prevalence area. While few population-based studies are available, the estimate is 4-5 million carriers, with a carrier rate of 3-4% of HBV².

country as other smaller studies have reported a population prevalence of 16% from Lahore and 23.8% from Gunranwala³. The health care workers (HCW) are at the forefront of this battle to control this epidemic.

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There may be pockets of much higher prevalence in the

From physicians & nurses to the paramedical staff, the HCW constantly places himself in potential danger, by attending to infected patients⁴. The risk of contracting HBV by the HCW is four times greater than that of general adult population, among those who do not work or are not a part of health care institutions⁵. While acquiring infection from an infected patient is common, transmitting infection from an infected HCW to a patient is also being documented in an increasing frequency⁴. Mass vaccination programme introduced in the late 1980s and mid 1990s in most East & Southeast Asian countries to combat HBV infection has resulted in decline in HBV carrier rate and number of patients with hepatocellular carcinoma⁶. We conducted the present study to assess the level of awareness of HBV vaccination & to assess vaccination status against HBV in a medical college to highlight the major causes of non-vaccination and to formulate future strategy for ensuring 100% protection to the high risk HCW.

SUBJECTS AND METHODS

The study was carried out at Muhammad Medical College Mirpurkhas, from December 2007 to February 2008. Our descriptive study used a structured questionnaire consisting of designation of HCW and questions regarding HBV vaccination status. The subjects included were doctors, medical officer, house officers, staff nurses, medical students, nursing students, nursing assistants O.T technicians, Laboratory technicians, X-ray technicians, hospital administrators, and sanitary workers. Prior written permission was taken from the ethics committee of the institute. A verbal consent was obtained from each of the subject. Data was entered and analyzed on SPSS 10.0 version. The chi-square and fisher's exact test, as required by the sample size, were used to assess the significance of difference. The p-value of ≤ 0.05 was considered to indicate statistical significance.

RESULTS

Total 480 subjects were studied and results were analyzed and summed up. The frequency of various working groups is shown in table I. Mean age of vaccinated subjects was 34 ± 8.7 and non-vaccinated 36 ± 9.3 . Out of 480 subjects 300 (62.5%) were male and 180 (37.5%) were females. Male to female ratio was approximately 2:1. A total of 255 (53.15%) were vaccinated, including 215 males and 40 females. A 225 (44.875%) patients were non-vaccinated including 85 males and 140 females. Out of 255 (53.15%), only 120 (47.05%), including 101 male & 19 female had received the complete dose according to the standard schedule, 123 (48.3%) including 105 male & 18 female had incomplete dosage and 12 (4.7%) including 10 male & 2 female were yet completing the vaccination. There were gross differences in the male and female vaccination status ($p=0.000$). Highest frequency of HBV vaccination was seen among house officers 55 (91.7%) including 43 (95.6%) male & 12 (80%) female, the difference in proportions with respect to male and female is not statistically significant as p-value is 0.094. The least frequency in the sanitary workers 03 (11.5%). While the vaccination status amongst doctors was 70 (87.5%) including 60 (92.3%) male & 10 (66.7%) female ($p = 0.017$, Odds Ratio of vaccination for male over female is 6), medical students 110 (42.30%) including 98 (62%) males & 12 (11.8%) females ($p = 0.000$, OR = 12), nurses 6 (25%), male technicians 2(20%) and male hospital administrator 9 (45%). The details are shown in table I. A statistical significant difference (p -value=0.000) was noted in the proportions of vaccinated subjects with respect to different fields . A significant difference (p -value=0.00) was noted in practice of checking of pre-vaccination HBsAg status in both vaccinated and non-vaccinated subjects (What said this sentence???????). Regarding reasons of not being vaccinated were lack of knowledge 100 (44.44%), high cost 160 (71.11%), lack of interest 85 (37.77%), no reasons 12(5.33%) and fear of being HBV +ve 26 (11.5%).

Table-I. HBV vaccination status among 480 health care workers

Fields	Vaccination status	Male (%)	Female (%)	Total	p-value	Odds ratio
Doctors	Vaccinated	60 (92.3%)	10 (66.7%)	70 (87.5%)	0.017	6.00
	Non-vaccinated	05 (7.7%)	05 (33.3%)	10 (12.5%)		
House officers	Vaccinated	43 (95.6%)	12 (80%)	55 (91.7%)	0.094	5.36
	Non-vaccinated	02 (4.4%)	03 (203%)	05 (8.3%)		
Medical students	Vaccinated	98 (62%)	12 (11.8%)	110 (42.3%)	0.000	12.25
	Non-vaccinated	60 (38%)	90 (88.2%)	150 (57.7%)		
Nurses	Vaccinated	-	06 (25%)	06 (25%)	-	-
	Non-vaccinated	-	18 (75%)	18 (75%)		
Hospital administrators	Vaccinated	09 (50%)	0 (0%)	09 (45%)	0.479	1.22
	Non-vaccinated	09 (50%)	02 (100%)	11(55%)		
Technicians	Vaccinated	02 (22.2%)	0 (0)	02 (20%)	1.00	1.14
	Non-vaccinated	07 (77.8%)	01 (100%)	08 (80%)		
Sanitary workers	Vaccinated	03 (60%)	0 (0%)	03 (11.5%)	0.004	11.5
	Non-vaccinated	02 (40%)	21 (100%)	23 (88.5%)		
Total	Vaccinated	215 (71.7%)	40 (22.2%)	255 (53.1%)	0.000	8.85
	Non-vaccinated	85 (28.3%)	140 (77.8%)	225 (46.9%)		

DISCUSSION

HBV is a major occupation related health hazard in HCW and can be prevented by vaccination⁷. In HCW the prevalence of infectious agents, especially HBV in different population groups is generally 3 to 5 times higher than that in the community⁸. Our study revealed that 255 (53.15%) of the HCW were vaccinated, while Sadiq et al, Nilofer et al, Nasir et al, and Younus et al have reported vaccination rates of 64%, 86%, 49% & 72% respectively^{9,10,11}. Our results are comparable to the above quoted studies and our subject's vaccination rate was better than Nasir et al. Our study results are also very close to Sherista, Bhattari and Rauf et al, which have reported rates of 48%, 48%, 52% respectively¹². This is really a low figure despite availability of a highly effective vaccine¹³. A study from Rawalpindi revealed

49% vaccination rates¹⁴ which are also very similar to our results. Another study from Karachi showed 86% of vaccination rate among HCW which was still less than ideal coverage¹⁵. The vaccination rate in our study is quite comparable to studies reported from Brazil, Iran, and Nepal which showed 79%, 62%, & 48.9% respectively⁵. There were no differences in vaccination status of male and female in the above studies, but our study results are contrary to this. The highest frequency of HBV vaccination was seen among house officers 55 (91.66%), & least in the sanitary workers 03 (11.5%). Similar results of better vaccination among house officers are reported by Nilofer⁹ et al. The reasons of non-vaccination among HCW was high cost of vaccine but also the lack of knowledge, lack of interest and belief that they are not at increased risk. High cost of vaccine as a

reason of non-vaccination is also reported from Fatima Jinnah Medical College¹⁴ and Allama Iqbal Medical College Lahore¹¹. There were gross differences in the male and female vaccination status in this study ($p=0.000$).

CONCLUSIONS

We conclude that a substantial number of HCW are not vaccinated. So it demands a need for a more aggressive approach to be vaccinated and vaccine must be cost effective.

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