

Hepatitis B Immunisation Status Among Health Care Workers in Two Kuala Lumpur Hospitals

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Summary

Health care workers (HCW) are at higher risk of acquiring blood borne infections such as hepatitis B virus, hepatitis C virus and human immunodeficiency virus from patients. To minimise exposure, Universal Precautions Policy guidelines were introduced. This study looked into one of the aspects of hepatitis B prevention among HCW in the Malaysian context. The objective of this study was to assess hepatitis B vaccine coverage among HCW. A cross sectional study involving pre-tested questionnaires was undertaken from February 2001 to August 2001. Hospital staff in Hospital Kuala Lumpur and Hospital Universiti Kebangsaan Malaysia as well as undergraduate students undergoing clinical attachments were randomly chosen. A total of 625 subjects were enrolled. Only 58.4% had taken a complete hepatitis B vaccination. However, 82.2% have taken at least one dose of the hepatitis B vaccine and were supposed to complete the schedule in due course. Not all HCW were protected against hepatitis B. Preventing hepatitis B in HCW should be one of the priorities of the hospital management as it is definitely cheaper than managing chronic hepatitis B cases.

Key Words: Health care workers, Hepatitis B, Hepatitis B vaccination, Occupational exposure

Introduction

Health care workers (HCW) are defined as persons (e.g. employees, attending clinicians, public safety workers, students, contractors or volunteers) whose activities involve contact with patients, blood or other body fluids in a health care, laboratory, or public health setting¹. Due to the nature of work, health care workers are at greater risk of infections from patients. Blood borne pathogens particularly, hepatitis B virus (HBV), hepatitis C virus (HCV) and human immunodeficiency virus (HIV) have known to infect HCW². Based on the magnitude of this problem, it has increased the total health care cost in hospitals and a country.

Universal Precautions Policy guidelines have been drawn more than a decade ago to minimise exposure to diseases spread by blood and certain body fluids. Universal Precautions Policy stresses that all patients should be assumed to be infectious for blood-borne diseases such as HIV/AIDS and hepatitis B. The guidelines outline three strategies namely, use of personal protective equipment (e.g. gloves, laboratory coats, gowns, masks), engineering control (e.g. sharps disposal containers, biological hazard cabinet) and work practice control (e.g. hand washing, safe handling of specimens).

This study looked into the most important aspects of hepatitis B prevention among HCW in Malaysian context. Hepatitis B was chosen because this is a

This article was accepted: 8 August 2005

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preventable blood borne pathogen, through vaccination and in certain circumstances use of immunoglobulins. The objective of this study is to assess hepatitis B vaccine coverage among HCW.

Materials and Methods

This was a cross sectional study involving pre-tested questionnaires. The duration of the study was seven months, from February 2001 to August 2001. Hospital staff working in wards or diagnostic laboratories in Hospital Kuala Lumpur (HKL) and Hospital Universiti Kebangsaan Malaysia (HUKM) as well as Universiti Kebangsaan Malaysia (UKM) undergraduate students undergoing clinical attachments in HUKM were randomly chosen. All subjects volunteered to participate in this study. The hospital staff comprised nurses and medical laboratory technologists while the students included student nurses, medical students, biomedical students and dental students.

All statistical analyses were done using the standard SPSS version 10.01 software.

Results

A total of 625 subjects were enrolled. The highest number of participants were from HKL. Students other than student nurses were grouped together because of the similarity in the nature of activity. Hospital staff from HKL had more workers with longer work experience compared to HUKM (Table I). The students were understandably the least experienced.

As shown in Table II, an average of 82.2% had taken at least one dose of the hepatitis B vaccine. However, only 58.4% (365 of 625) had finished the schedule as universally recommended. The majority of subjects had their last dose within the past five years. About 17.8% HCW never received hepatitis B vaccination with the highest number from HKL (26.6% from the total staff in HKL). Only 22% had an anti-HBs test done a month post vaccination and 84.8% (56 of 66 subjects) had a desired response.

Table I: Demographics of subjects

	HKL hospital staff	HUKM hospital staff	Student nurses	Other students	Total
Number	241 (38.6)	153 (24.5)	60 (9.6)	171 (27.4)	625
Average age (years)	35.3	25.8	21.3	21.8	26.1
Work (or attachment) experience					
< 1 year	7 (2.9)	26 (17.0)	38 (63.3)	70 (40.9)	141 (22.6)
1 – 5 years	84 (34.9)	115 (75.2)	22 (36.7)	101 (59.1)	322 (51.5)
6 – 10 years	43 (17.8)	6 (3.9)	0 (0.0)	0 (0.0)	49 (7.8)
11 – 20 years	55 (22.8)	3 (2.0)	0 (0.0)	0 (0.0)	58 (9.3)
> 20 years	52 (21.6)	3 (2.0)	0 (0.0)	0 (0.0)	55 (8.8)

* Figures in parenthesis denote percentage.

[Position: Under RESULTS Section, After first paragraph]

Table II: Hepatitis B vaccination and anti-HBs test

	HKL hospital staff	HUKM hospital staff	Student nurses	Other students	Total
Number	241	153	60	171	625
Taken vaccine	177 (73.4)	139 (90.8)	60 (100)	138 (80.7)	514 (82.2)
One dose only	14 (7.9)	5 (3.6)	0 (0)	13 (9.4)	32 (6.2)
2 doses only	17 (9.6)	19 (13.7)	24 (40.0)	16 (11.6)	76 (14.8)
Completed	119 (67.2)	112 (80.6)	31 (51.7)	103 (74.6)	365 (71.0)
Unsure	27 (15.3)	3 (2.2)	5 (8.3)	6 (4.3)	41 (8.0)
Last dose taken					
≤ 5 years	43 (24.3)	81 (58.3)	17 (28.3)	109 (79.0)	250 (48.6)
≥ 6 years	61 (34.5)	10 (7.2)	0 (0.0)	5 (3.6)	76 (14.8)
Unsure	73 (41.2)	48 (34.5)	43 (71.7)	24 (17.4)	188 (36.6)
Never taken vaccine	64 (26.6)	14 (9.2)	0 (0.0)	33 (19.3)	111 (17.8)
Anti-HBs test done	67 (27.8)	50 (32.7)	9 (15.0)	12 (7.0)	138 (22.1)
≥ 10 mIU/ml	22 (32.8)	23 (46.0)	3 (33.3)	8 (66.7)	56 (40.6)
< 10 mIU/ml	6 (9.0)	3 (6.0)	0 (0.0)	1 (8.3)	10 (7.2)
Unsure	39 (58.2)	24 (48.0)	6 (66.7)	3 (25.0)	72 (52.2)
Not done	174 (72.2)	103 (67.3)	51 (85.0)	159 (93.0)	487 (77.9)

* figures in parenthesis denote percentage.

Discussion

The aspects of prevention of hepatitis B among health care workers in Malaysia were seldom studied. Since 1989, the Ministry of Health Malaysia launched the National Hepatitis B Immunisation Programme. Hepatitis B vaccination is given free to all newborns and health care workers.

In this study, only those who have received the complete three-dose schedule of hepatitis B vaccine would be considered as being successfully vaccinated. Those who have taken one or two doses are assumed to complete their vaccination in due course but will not be included. At that particular time, only 58.4% of the total subjects had completed their vaccination. This figure rose slightly to 58.6% when only hospital staff from HKL and HUKM were taken into consideration. Agerton et al (1995) indicated only 51% of HCW in 150 hospitals in the United States have completed their hepatitis B vaccination³.

When only hospital staff were taken into consideration, about 19.8% had not taken the vaccine for unknown reasons. It is disturbing to note that a significant 26.6% of staff in HKL had not been immunised for hepatitis B. Mhase & Reddy (2000) reported 67% nurses never took

any immunisation against hepatitis B even though they indicated that hepatitis B is the second most important occupational risk after HIV⁴.

This study reveals that the vaccine coverage for the students was not adequate if compared to a study done in Australia⁵. However, in this institution, there is a well organised hepatitis B vaccination programme compulsory for students who go for clinical attachments during the course of their studies. The coverage is expected to increase when some of the students complete their vaccination doses.

The majority of respondents had their last dose of hepatitis B vaccine within the last five years. It is not surprising to note that a big percentage of 36.6% were unsure of the timing of their last dose. Fifteen percent claimed that their last dose was more than five years ago and 10.7% did take a booster dose of the vaccine. The issue of whether to administer booster doses had been subjected to intense debate. The general consensus is booster doses of hepatitis B vaccine are unnecessary in healthy adults who respond well to a full course of hepatitis B vaccination⁶.

Though hepatitis B vaccine is indeed a good vaccine giving a seroconversion rate of more than 90%, post

vaccination anti-HBs testing is strongly recommended in high risk groups such as HCW⁷. This is to identify individuals who respond poorly or do not respond at all to the vaccine. Knowledge of antibody response aids in determining the appropriate post exposure prophylaxis. In this study, 22.1% admitted that anti-HBs test was done although slightly more than half could not recall their antibody level. Taking into account those who remembered, the response rate is 84.8% which is acceptable. This is on par with studies done in the US⁸.

The coverage figure revealed that a significant number of HCW are still not protected against hepatitis B. Preventing hepatitis B in HCW should be one of the priorities of the hospital management. The programme is definitely cheaper than managing chronic hepatitis B cases. To improve hepatitis B vaccination awareness, it is proposed that yearly 'Hepatitis B Immunization Week.' Be held. With this programme, it is hoped that

hepatitis B vaccination coverage among HCW will increase especially among new staff and students.

This study is based on questionnaires and therefore the data are totally dependent on the honesty and recollection of respondents. It has highlighted several issues namely, the role of Hospital Infection Control Unit or Staff Health Care Unit in ensuring that the staff and students are adequately protected from preventable blood borne pathogens and the existence of proper vaccination programme including post vaccination blood tests.

Conclusion

This study revealed that only 58.4% of health care workers had completed their hepatitis B vaccination. The hospital management must make serious efforts to improve the coverage as hepatitis B is the most preventable blood borne disease.

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