



HEPATITIS B AND C; KNOWLEDGE, ATTITUDE AND BEHAVIOR OF HEALTH CARE WORKERS AT RLMC AND AFFILIATED HOSPITALS (AMTH & HLH).

Dr. Tazeem Shahbaz¹, Ghulam Farid², Dr. Raja Sajjad Asghar³, Dr. Abdul Rashid⁴

1. Department of Community Medicine, University College of Medicine and Dentistry, The University of Lahore
2. In charge Library, Shalamar Medical and Dental College, Lahore.
3. Department of Community Medicine, University College of Medicine and Dentistry, The University of Lahore.
4. Department of Community Medicine, University College of Medicine and Dentistry, The University of Lahore

Correspondence Address:

Dr. Tazeem Shahbaz
House No 19 Block D-2
Johar Town Lahore
tazeemshahbaz@hotmail.com

Article received on:

02/03/2015

Accepted for publication:

18/08/2015

Received after proof reading:

13/11/2015

ABSTRACT... Background and Aims: The working conditions of Health care workers (HCW'S) expose them for a constant threat of contracting and spreading hepatitis B (HBV) and C virus (HCV) not only to their patients but family members as well. The aim of this study was to assess the knowledge and attitude toward hepatitis B and C infection among the health-care workers and correlate the level of awareness to their behavior towards prevention of the disease. **Study Settings:** The study was conducted in Rashid Latif medical college and its two affiliated hospitals (Arif memorial teaching hospital and Hameed Latif Hospital). **Study Design:** Descriptive cross sectional study. **Methodology:** A closed ended questionnaire was designed which consists of questions for evaluating the knowledge and attitude of the participants regarding hepatitis B and C infection. Sampling was done by convenient method. 350 participants took part in the study, which includes physicians, nurses and lab Technicians. Using the SPSS 16, we did statistical analysis. **Results:** Total 350 health care workers filled the forms. 52.6 % (184) of them were nurses with 25.7% (90) physicians, and Lab workers were 21.7 % (74). The mean age of the participants was 25.9 years with a range from 17-59 years. The service length of 73.2% of health care workers was noted to be 1-5 year. (97.7%) participants know about hepatitis B and C. 88.6% identified blood and blood products, needles and sharps and 68.6% marked sexual intercourse routes of transmission. 56% gave opinion that Hepatitis B and C is a noso-comial infection. 70.3% reported that both infections are widely transmitted like HIV/AIDS. Almost all of the participants (83.7%) mentioned that they are in a position to acquire these infections because of their duty with patients 88% of the respondents reported vaccination against Hepatitis B as a tool of prevention. Proper disposal of sharps, a needle and blood product as a preventing measure was also written by 88%of participants. A lot of them believe that transmission of these infections can be prevented by avoiding needle/sharps injury (73.7%) and casual sex (61.1%). 82.9 mentioned wearing of gloves while in contact with patients and 80.6% said that adequate disposal of sharps are the best ways of prevention. Complete vaccination for the hepatitis B was reported by 47.9 % (174) with 36 % (126) was partially vaccinated and 14.8 % (52) were not vaccinated at all. No specific reason was identified for lack of vaccination. It is noted that more females (87.7%) and physician (88.9%) and Nurses (88.2%) have completed the vaccination schedule than the Lab. Technicians (75%). **Conclusion:** There is a need of extensive health education campaign for training of HCWs to control and prevent the spread of these infections.

Key words: Attitude, Health-care workers, Hepatitis B, Hepatitis C, Behavior, Knowledge

Article Citation: Shahbaz T, Farid G, Asghar RS, Rashid A. Hepatitis B and C; knowledge, attitude and behavior of health care workers at rlmc and affiliated hospitals (AMTH & HLH). Professional Med J 2015;22(11):1383-1389. DOI: 10.17957/TPMJ/15.2838

INTRODUCTION

A remarkable number of deaths can be associated to Occupational blood-borne infections. Due to their profession, Health care workers (HCWs) are not only himself exposed to these fatal infections like hepatitis B (HBV), hepatitis C virus (HCV) but are also in position to spread these infection to their patients and their family members as well. This all can lead to serious public health prob-

lems. These infections have been recognized as a serious public health issue.¹ Although, Hepatitis B and Hepatitis C are considered among common occupational diseases which can be transmitted from patients to HCWs and from HCW to patients, and also to HCWs' families but these occl transmissions are preventable by using standard precautions.²

HCWs are at high risk for HBV and HCV infections by virtue of their occupation. It has been reported by center of Disease Control and Prevention (CDC) that as a whole, there are 3.9 million of population with who are carriers of HCV and among them, 2.7 million is likely to become chronic carriers.³ A study has also mentioned that 14.4% and 1.4% of hospital workers are infected with HBV and HCV, respectively.⁴ Regarding staff involved, a study showed that Physicians, dentists, nurses, laboratory staff, and dialysis center personnel are most likely members to get these infections and among them dentists are noted to be at highest risk.⁵ (41%) nurses and (31%) physicians were mentioned at a greater risk in a study at another place.⁶

As far as the transmission of these infections from HCWs to patients is concerned, it seems to be rare with only few case reports.⁶ Regarding the transmission of these infection from patients to health care workers, it is reported in many studies for quite some years, however the routes of their transmission are not been understood clearly.⁷ A study which was carried out in many countries of Europe like Italy, United Kingdom, France, Spain and Switzerland mentioned that there exists a strong relationship between transmission of these infections and type of procedure(injection, minor surgery or a major surgical procedures etc) conducted by the HCW.⁸ In a study which was conducted in Tehran, northern Iran, it was found that 1.8% of HCWs became serologically HCV positive after some sort of per-coetaneous exposure.⁹ In developing countries, risk factors which mainly contribute to spread of blood born infections (BBIs) are the use of un-sterile needles, unnecessary injections, and improper disposal of hazardous waste. Another study indicated an association between frequency of injections and spread of BBIs¹⁰ In a health care settings, the factors contributing in transmission of blood borne infections in HCW'S and their patients has also been shown to be related with individual infectivity and viral load. In clinical context, technical skill did also matter.¹¹ As Hepatitis was recognized a leading and most common occupational disease among HCWs and high risk group included nurses, doctors, and Lab. Attendants mainly, a best

and practical measure to control the spread of these infections is prevention. Which can only be achieved by having knowledge about the disease, its mode of transmission and data related to its mortality and morbidity as well as a positive attitude towards prevention of the disease is mandatory to stop its further transmission.¹² To follow the universal precautions for prevention of these infections is of utmost importance for the health care workers who are involved in surgical and dental procedures as they are at risk of accidental pricks with contaminated needles.

Studies have shown data related to discriminated attitude and behavior towards patients of hepatitis C not only by the members of their family and community but also by the health care professionals.^{13,14} Due to the fear of having these infections, HCW'S may have discriminatory behavior towards these patients which can effect not only treatment of patients but also result in a overall poor attitude regarding these types of diseases among HCW'S.

The most important factor in prevention and control of these types of infections is the knowledge and attitudes of the HCWs. Therefore, the objectives of the present study were to assess knowledge, attitudes and behavior for self-protection among HCWs regarding hepatitis B and C.

METHODOLOGY

Cross- sectional study was conducted in Rashid Latif Medical College, Lahore and its affiliated hospitals from Jan. to April 2013. Convenient sampling method was used for the enrollment of the participants. Ethical permission was taken from the concerned medical college and hospitals officials before the start of the study. HCWs who were working in Rashid Latif medical college and its affiliated hospitals were the study populations. Sampling was done by convenient method.

A self- administered questionnaire having close ended questions was designed and pre-tested before collecting data for this study. 350 participants took part in the study, which includes physicians, nurses and lab Technicians.

The questionnaire assessed the respondents' general knowledge of hepatitis B and c virus, mode of transmission, risk perception, and challenges to control these infections among respondents. The questionnaire inquired about their vaccination status and reasons of not vaccinating. The questionnaires were distributed consecutively to members of each occupational group during the break period after taking verbal consent. The respondents were allowed to fill the questionnaire in their spare time at their convenience. Questionnaire information was anonymised.

The data collected was entered and analyzed by using SPSS version 16. Simple descriptive and inferential statistics were done. Test of significance was conducted using appropriate statistical methods.

RESULTS

350 people who were employed in Rashid Latif medical college and its affiliated hospitals gave data related this study. 26.85% were males and 73% were females. 52.6% were nurses, 25.7% Physicians and 21.7% were Lab. Technicians. The age of the participants' ranged 17-65 years with mean age 25.9 years. Regarding the professional experience, 69.1% less than 5 years, 22.95% between 5-10 years and 6% have experience for more than 25 years. (Table-I)

Variable	Frequency (%) (N=350)
Age Group	
17-25	216 (61.7)
26-35	102(29.1)
36-45	16(4.6)
46-55	6(1.7)
> 55	10(2.9)
Sex	
Male	94(26.8)
Female	256(73.1)
Profession	
Physician	90(25.7)
Nurses	184(52.6)
Lab. Technicians	76(21.7)
Experience	
<5	242(69.1)
5-10	80(22.9)
11-20	20(5.7)
21-25	2(.6)
>25	6(1.7)

Table-I. Demographic characteristics of the respondents.

In our study, almost all the participants (97.7%) know about hepatitis B and C. When asked about routes of transmission As far as routes of Hepatitis are concern, 88.6% identified blood and blood products, needles and sharps and 68.6% marked sexual intercourse as valid routes of transmission. Feco oral route and through contaminated water are the routes which are identified wrongly by 9.7% participants.

56% participants have the opinion that Hepatitis B and C is a noso-comial infection. 70.3% reported that both infections are widely transmitted like HIV/AIDS. Almost all of the participants (83.7%) mentioned that they are in a position to acquire these infections because of their duty with patients while some of them wrongly believe that they are not at risk and felt safe (6.3%). The response for ways of preventing hepatitis B infection was correctly submitted by 88% of the respondents who reported vaccination against Hepatitis B as a tool of prevention.

Proper disposal of sharps, a needle and blood product as a preventing measure was also written by 88%of participants. A lot of them believe that transmission of these infections can be prevented by avoiding needle/sharps injury (73.7%) and casual sex (61.1%). Avoid drinking contaminated water (9.1%) and avoid food not well cooked (6.9%) are the incorrect ways of preventing transmission of these infections which were also identified by a small number of participants. (Table II)

Regarding ways of protecting themselves against hepatitis B and C infections, 82.9 mentioned wearing of gloves while in contact with patients and 80.6% said that adequate disposal of sharps are the best ways.

By avoiding contact with diagnosed patients (5.7%), using multivitamin/blood tonic (2.3%) and by using antibiotics after contact with an infected person (1.7%) as ways of protecting themselves from having these infections were reported by participants incorrectly. (Table III).

Variable	Frequency (%) (N=350)
Ever heard of hepatitis B and C Infection	348(97.7)
Yes	2(2.3)
No	
*Routes of transmission of hepatitis B and C	310(88.6)
Blood and blood products	304(86.6)
Needles and sharps	240(68.6)
Sexual intercourse	34(9.7)
Faeco-oral	34(9.7)
Contaminated water	
Hepatitis B and C can be transmitted as a noso- comial infection	154(44.0)
Yes	196(56.0)
No	
Hepatitis B and C is also widely transmitted like HIV/AIDS	246(70.3)
Yes	104(29.7)
No	
Health workers are at risk of Hepatitis B and C Infection by virtue of their work	328(93.7)
Yes	22(6.3)
No	
*Ways of preventing Hepatitis B & C infection	308(88.0)
Vaccination	308(88.0)
Proper disposal of sharps, needles and blood	258(73.7)
Avoid needle/sharps injury	214(61.1)
Avoid casual sex or/and multiple sexual partners	32(9.1)
Avoid drinking contaminated water	24(6.9)
Avoid food not well cooked	

Table-II. Distribution of the participants by knowledge of hepatitis B and C infection.

Regarding vaccination, although, majority of them (85.7%) have received either full or partial vaccine of hepatitis, only 58.0% completed their vaccine schedule. The participants who did not receive full vaccine 71.45% got 2 doses and 22.2% had only 1 dose of the vaccine. The participants who had their children 53.1% had got their children vaccinated. Similarly, the participants who did not receive any dose of vaccine, 27.2% of them have no particular reason for that with 14.7% and 17.0% who are of the opinion that they cannot be infected or they are too careful to have these infections. Carelessness as a reason of not receiving vaccine was given by 18.15% along with 13.65% who mentioned they are too busy to get vaccination.

Variable	Frequency (%)
*Measures taken to protect against hepatitis infection	
Wearing of gloves	290(82.9)
Adequate disposal of sharps	282(80.6)
Avoid patients diagnosed With hepatitis B	20(5.7)
Multivitamin/Blood Tonic	8(2.3)
Use antibiotics after contact	6(1.7)
*Your children received Hepatitis B Vaccine	68 (53.1)
Yes	60 (46.9)
No	222
Not applicable	350
total	
Ever received hepatitis B Vaccine	300(85.7)
Yes	50(14.3)
No	
Reason for not being Vaccinated	48(27.2)
No reason	26(14.7)
Can't be infected with hepatitis B	30(17.0)
I am very careful	24(13.6)
No time/too busy	32(18.1)
Carelessness	176
Total	
Number of doses of vaccine received	28(22.2)
1	90(71.4)
2	8(6.3)
3	126
Total	
Completed vaccination schedule	174(49.7)
Yes	176(50.3)
No	350
Total	

Table-III. Attitude and Behavior of respondents towards Hepatitis B vaccination measures taken by HCWs for self-protection against Hepatitis B and C.

It is specifically noted that more females (87.7%) and physician (88.9%) and Nurses (88.2%) have completed the vaccination schedule than the Lab. Technicians (75%). ($p < 0.05$).

DISCUSSION

In developing countries, HBV and HCV infections have been shown as endemic in many studies.^{15,16} For health care workers, one of fatal occupational hazard which is preventable with a safe and effective vaccine is Hepatitis B and C virus.¹⁷ It is a common assumption that health care workers by virtue of their work and being their duty hours in health care facility possess better knowledge of these infections.

Variable	Completed Vaccination		Chi-square and P Value
	Yes	No	
Male	72 (80)	18 (20)	X ² = 32.82 P = 0.00
Female	228 (87.70)	32 (14.0)	
Profession			
Physician	80 (88.9)	10 (11.1)	X ² = 24.73 P = 0.00
Nurses	166 (88.2)	22 (11.7)	
Lab. Assistant	54 (75)	18 (25)	

Table-IV. Association of sex, profession and completion of vaccination schedule.

Our study seems to endorse this believe because majority of the participants showed a desirable level of knowledge of hepatitis B and C infections, the routes of their transmission, the ways of preventing the infections and the fact that the infection can be transmitted as a nosocomial infection. On the other hand, a study conducted in Karachi (Pakistan) does not relate with these findings where HCWs showed a very low level of knowledge.^{18,19} Although our participants showed a very desirable level of knowledge which is surely a encouraging finding and can be considered as a first step in modification of a behavior but it is also noteworthy that about one third of them is of the opinion that they are not at risk of contacting the infection. This gap between knowledge and risk perception of participants is definitely sending many high rise waves to all stakeholders who are of the opinion that these infections are health hazard for health workers because of their day to day exposure to blood and other body fluids in their routine job along with high virulence of hepatitis. (Viral Hepatitis, 2008). As vaccine for controlling of Hepatitis B infection and its complications is available since 1982 which is known to be 95% effective.(Hepatitis and Fact, 2000) However, It is alarming to note in study in Canada in a hospital that coverage of vaccination is low among HCWs who are expected to have a high vaccination rates as compared to general public because of their constant presence and exposure to these infections in their professional life.²¹ With regards to attitude and behavior of the participants regarding this, our study showed that majority of the participants hold a positive attitude,

not only towards hepatitis B and C infections but also towards vaccination (85.7%). Similar findings have been noted in a study, which was conducted in Karachi hospital i.e., 66.4% HCWs were aware of the infection and vaccination. But it is matter of relief to know that our level is high from some other studies conducted in Canadian hospitals, which showed a very low level i.e. 5.1%.^{21,22} Different studies showed different reasons for being not vaccinated including busy schedules, lost of time (and perhaps income) while getting the vaccination, lack of knowledge about severity and vaccine efficacy, perception of low risk status, the bother of a sore arm.^{21,22} However, in our study only 58% of those who started the vaccination programme completed the schedule. Similar results were obtained in a study conducted in Germany, which showed that 41.2% of the participants who started the vaccination receive their three doses.²³ Our study results regarding this issue are much better than the results quoted in two other studies in Germany and Nigeria where health care workers' vaccination percentage was found to be only 37.9 and 18.1% respectively.^{24,25} Stakeholders who are seeing vaccination as a only tool to prevent spread of these infections among health care workers are really alarmed by this lack of adherence to the vaccination schedule and non-adoption of universal precautions by health care workers in their routine practices. This fact can be verified from this study in which almost one fourth of the participants still don't wear gloves (17.1%), or dispose off Sharps adequately (19.4%) in the course of their work. In certain studies in Nigeria^{26,27}, authors have recommended that vaccination programmes should be made compulsory for health care workers to address the problem of non-compliance among them. A health education campaign for health workers needs a serious attention so that they can understand the risks that they are exposed to because of the nature of their jobs and working conditions.

CONCLUSIONS

While knowledge level of many participants was acceptable, for some HCWs, a poor attitude

towards prevention and vaccination status for Hepatitis B was less than desirable. This needs immediate attention of concerned authorizes. Health care managers as well as government should take measures by running awareness programs to strengthen the knowledge and attitude of HCWs and to make it necessary to supervise HCWs from time to time when they are doing procedures to avoid the occurrence of these problems among them. It is also recommended that protocol of 3 doses of vaccination should be made mandatory for all HCWs to prevent Hepatitis B.

Copyright© 02 Oct, 2015.

REFERENCES

1. Bahadori M, Sadigh G. **Occupational exposure to blood and body fluids.** The International Journal of Occupational and Environmental Medicine; 2010; 1:1-10.
2. Gounden YP, Moodley J. **Exposure to human deficiency virus among health care workers in South Africa.** Int J Gynaecol Obstet. 2000; 69:265-70.
3. Centers for Disease Control and Prevention. **Prevention and control of infections with hepatitis virus in correctional setting.** MMWR; 2003; 352(RR- 1):1-30.
4. Polish LB, Tong MJ, Co RL, et al. **Risk factors for hepatitis C virus infection among health care personnel in a community hospital.** Am J Infect Control. 1993; 21:196-200.
5. Nagao Y, Matsuoka H. **HBV and HCV infections in Japanese dental care workers.** Int J Mol Med. 2008; 21:791-9.
6. Bosques-Padilla FJ, Vázquez-Elizondo G, Villaseñor-Todd A, et al. **Hepatitis C virus infection in health-care settings: medical and ethical implications.** Ann Hepatol. 2010; 9:132-40.
7. Moloughney BW. **Transmission and post exposure management of blood borne virus infections in the health care setting: where are we now?** CMAJ. 2001; 165:445-51.
8. Yazdanpanah Y, Carli GD, Miguères B, et al. **Risk factors for hepatitis C virus transmission to health care workers after occupational exposure: a European case-control study.** Clin Infect Dis. 2005; 41:1423-30.
9. Bahadori M, Sadigh G. **Occupational exposure to blood and body fluids.** The International Journal of Occupational and Environmental Medicine; 2010; 1:1-10.
10. Sagoe-Moses C, Pearson RD, Perry J, Jagger J. **Risks to health care workers in developing countries.** N Engl J Med. 2001; 345:538-41.
11. Communicable Diseases Network Australia. **Guideline for Managing Blood-Borne Virus Infection in Health Care Workers.** Canberra: Australian Government, Department of Health and Aging.2005 1-16.
12. Razi A, Rehman R, Naz S, Ghafoor F, Ullah MA. **Knowledge attitude and practices of university students regarding hepatitis B and C.** ARPN J Agric Biol Sci.2010; 5:38-43.
13. Reis C, Heisler M, Amowitz LL, Moreland RS, Mafeni JO, Anyamele C, et al. **Discriminatory attitudes and practices by health workers toward patients with HIV/AIDS in Nigeria.** PLoS Med. 2005; 2:e246.
14. D'Souza RF, Glynn MJ, Alstead E, Osonayo C, Foster GR. **Knowledge of chronic hepatitis C among East London primary care physicians following the Department of Health's educational campaign.** QJM. 2004; 97:331-6.
15. Abiodun PO, Omoike IV. **Hepatitis B surface Antigenaemia in children in Benin-City Nigeria.** Niger. J. Paediatr. 1990; 17:27-31.
16. Fakunle YM, Abdurahman MB, Whittle HC(1981). **Hepatitis B virus infection in children and adults in Northern Nigeria: a preliminary survey.** Trans. Roy. Soc. Trop. Med. Hyg. 1981; 75: 626-629.
17. **Hepatitis B.** Fact Sheet N: 204. Geneva, World Health Organization, 2000. <http://www.who.int/mediacentre/factsheet/fs204/en/>.
18. Shaheen S, Nighat N, Majid HQ. **Knowledge Regarding Hepatitis B among EPI vaccinators working in district sout, Karachi.** Pakistan J. Med. Sci., 23(4):538-541.
19. Fiona B, Mirian N, Issa M. **Hepatitis B infection among health workers in Uganda.** Sci. Direct. 2006; 24:6930 6937.
20. Viral Hepatitis. <http://www.cdc.gov/hepatitis/B/bFAQ.htm>. printed 20/08/2008.
21. Elizabeth R, Ross U. **The ethics of infection prevention among health care workers.** Canadian Med. Asso. J., 2001; 164(10): 1447-1448.
22. Abdul RM, Munit AS, Salahuddin A. **Hepatitis B vaccination status and knowledge, attitude, practices of health care workers (HCWS) regarding Hepatitis B and C in a tertiary care setting of Karachi.** Pak. Med. Net. 2007; 16(4):105-107.

23. Karl S, Doris R, Viviane B. **Viral Hepatitis B in Germany; Poor vaccination coverage and little knowledge about transmission in target groups.** BMC Public Health. 2008; 10:1186/1177-2458-8-132.
24. Sofola OO, Folayan MO, Denloye OO, Okeigbemen SA. **Occupational Exposure to Bloodborne Pathogens and Management of Exposure Incidents in Nigerian Dental Schools.** J. Dent. Edu. 2007; 71 (6):832-837.
25. Adebamowo CA. **Knowledge attitude and practices related to hepatitis B virus infection among Nigerian obstetricians and midwives.** J Obst. Gynae., DOI: 10.1080/01443619866255. 1998; 18(6): 528- 532.
26. Gunson RN, Shouval D, Rogendorf M, Zaaizer H, Nicholas S, Holzmann H. **Hepatitis B virus (HBV) and hepatitis C virus (HCV) infection in health care workers (HCWs): guidelines for prevention of transmission of HBV and HCV from HCWs to patients.** J. Clin. Virol. 2003; 27:213-230.
27. Saffar MJ, Jooyan AR, Mahdavi MR, Khalilian AR. **Hepatitis B vaccination status in health-care workers.** Indian J. Gastroenterol., 2005;24:82-83.



“Life is too short to spend worrying about people who opposed you. ”

Benazir Bhutto



AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Dr. Tazeem Shahbaz	Concep, tool development, literature data analysis, review, write-up and references	
2	Mr. Ghulam Farid	Data collection, Data organization literature reveiw and transportation for data collection	
3	Dr. Raja Sajjad Asghar	Data collection, Literature review and data analysis	
4	Dr. Abdul Rashid	Data review, organization and review of paper	