



KNOWLEDGE, ATTITUDE AND PRACTICES TOWARDS HBV AND HCV INFECTION AMONG HEALTHCARE INTERNS IN HYDERABAD CITY.

Dentistry

Dr. Alka Kumari Muthyam*

MDS, Senior Lecturer -Department of Public Health Dentistry, Panineeya Mahavidyalaya Institute of Dental Sciences, Dilsukhnagar, Hyderabad, Telangana.
*Corresponding Author

Dr. Santan Reddy Muthyam

MDS, Professor and HoD- Department of Oral Medicine and Radiology, Sri Balaji Dental College, Moinabad, Hyderabad Telangana.

ABSTRACT

Background: Viral Hepatitis is a silent epidemic causing significant burden to healthcare system, resulting in around 1.3million deaths every year globally out of which HBV and HCV are responsible for about 90% of these fatalities. So, this study was aimed to assess and correlate the knowledge, attitude and practices towards HBV and HCV infection among healthcare interns in Hyderabad city. **Materials and Method:** A cross-sectional study was conducted by a validated self-administered 21-item questionnaire for obtaining data on knowledge, attitude and practices among medical, dental and nursing students based on inclusion and exclusion criteria from different institutions in Hyderabad city. The results were statistically analysed using t-test, post hoc test, Pearson's correlation and the level of significance was set at p- value < 0.05. **Results:** Majority of subjects knew about Hepatitis B and C, its modes of transmission, availability of Hepatitis B vaccine and preventive protocols. Mean knowledge was high among medical interns followed by dental and nursing. Whereas, attitude regarding hepatitis B and C was comparable among medical, dental and nursing students. Likely practices also shows no significant difference among these three fraternity. **Conclusion:** Hence, the study concluded that, all the participants from medical, dental and nursing background were having high knowledge levels and positive attitude regarding HBV and HCV but comparable percentages of participants were having negative practices towards these viral diseases. So, there is a need to improve baseline knowledge and attitude to reinforce safe and protective practices.

KEYWORDS

Hepatitis B, Hepatitis C, Viral hepatitis, Healthcare workers, Knowledge, Attitude, Practices

INTRODUCTION

Hepatitis is an inflammation of liver which is a vital organ that processes nutrients, filters the blood and fight infections hence its inflammation leads to impaired functions performed by it. Hepatitis is mainly caused by alcohol use, toxins, some medical conditions, medications and often by a virus. There are five main strains of viral hepatitis i.e., hepatitis A, B, C, D, and E. Each one differs in mode of transmission, causative agent, signs, symptoms and chronicity.^[1,2,3] Viral hepatitis is a silent epidemic and major public health concern as next to tuberculosis it is the leading cause of death due to communicable diseases, infecting millions of people across the globe. Worldwide Viral hepatitis alone results in around 1.3million deaths every year, out of which Hepatitis B and Hepatitis C are responsible for about 90% of these fatalities.^[4] Transmission of these two viruses commonly occurs via perinatal route, contact with blood and body fluids, unprotected sex with infected partner, unsafe injection practices, transfusion of unscreened blood and blood products, needle sticks, exposure to sharp instruments and unsafe healthcare.

HBV is a DNA virus from family Hepadnaviridae, which enters the liver via blood stream. It is present in high concentration in blood, serum, serum exudates, saliva and most other body fluids.

Worldwide 254 million people were living with chronic HBV infection in 2022 with 1.2 million new infections each year. India harbors around 10- 15% of the entire pool of HBV carriers in the world and on an average of 2-4% of whole country population is estimated to be HBV carriers.^[5]

HCV is also a blood borne virus belonging to family flavi-viridae, genus Hepavirus, and a major cause of post transfusion hepatitis and liver cancer in developing countries. HCV is estimated to infect 50 million people globally with 1 million infections occurring per year in 2022 around 242,000 people died from hepatitis C related liver diseases mainly cirrhosis and liver cancer.^[6] In India the seroprevalence of HCV ranges between 0.09% - 0.2%.^[7] New HCV infections are usually asymptomatic and around 30% infected individuals are free from the virus spontaneously in 6 months without any treatment owing to the strong host immunity. Similarly, HBV chronic carriers also do not have any symptoms and they are often undiagnosed for years. But both HBV and HCV infection can lead to acute and chronic infection and chronicity depends on the age a person gets infected. Acute illness in HBV and HCV infections present with symptoms lasting for weeks, that includes fever, fatigue, anorexia, jaundice, nausea, vomiting, abdominal and joint pains etc. Laboratory

diagnosis of hepatitis B infection focuses on the detection of the hepatitis B surface antigen HBsAg whereas anti HCV antibodies for hepatitis C in blood.

Vaccination for hepatitis B is the mainstay for prevention with efficacy of 90-100%, where as no effective vaccine is available for hepatitis C. Furthermore, reducing the risk of exposure to virus in healthcare settings and in high risk population is part of primary prevention. For dentists it is a major concern as they are exposed to blood and saliva frequently. Literature suggests that about 14.4% of HBV infection rates are reported in HCWs with highest prevalence among dentists.^[8-12]

Studies suggest that knowledge, attitude and safe practices regarding HBV and HCV is inadequate among healthcare professionals.^[9,11,13,14] Therefore, this study was aimed to assess and correlate the knowledge, attitude and practices towards HBV and HCV infection among healthcare interns in Hyderabad city.

MATERIAL AND METHODS

A cross-sectional questionnaire based study was conducted among healthcare interns including medical, dental and nursing from randomly selected tertiary level health care institutes providing training in undergraduate and postgraduate courses in Hyderabad city to assess and correlate their knowledge, attitude and practices towards hepatitis B and C infections.

Ethical clearance for study was obtained from Institutional Review Board of Panineeya Mahavidyalaya Institute of Dental Sciences and Research Centre (PMVIDS&RC/IEC/PHD/PR/0349-2019) (Annexure I).

A convenient sample of 150 healthcare interns, 50 from each specialty were taken based on inclusion and exclusion criteria. After getting permission from respective institutional heads data was collected from students who were pursuing their internships in different medical, dental and nursing colleges in and around Hyderabad city.

The aim and procedure of study was explained priorly to all the participants to obtain their verbal consent. Data was collected during the college hours and they were instructed to fill questionnaire completely in front of examiner to avoid any respondent bias. Study subjects were assured for maintenance of anonymity regarding their personal and institutional identity. We excluded hesitant participants and discarded partially filled questionnaires forms.

Survey Tool

A pre-validated, close-ended questionnaire containing 24 items in four sections were used to evaluate healthcare interns knowledge, attitude and practices regarding HBV and HCV infection. The demographic section comprised of 3 questions (Q1-Q3) to find details about their gender, age and respective departments. Whereas the knowledge section included, twelve questions (Q4-Q15) to assess their basic awareness regarding HBV and HCV infection. Each correct answer was given one point whereas incorrect response was given zero. The total score for knowledge ranges from 0-12, in which 0-6 was considered as low knowledge, 7-12 as good knowledge. Four questions (Q16- Q19) were asked to determine their positive or negative attitude regarding these diseases. To access the attitude, score 0-2 was considered as negative attitude and 3-5 score as positive attitude. Whereas practice section included, five questions (Q20- Q24) regarding the practical behaviour they show towards HBV and HCV infection. They were asked about their vaccination status against hepatitis B, screening for hepatitis B and C, any needle prick injury while attending patients, and their practice of following sterilization protocols. For practice, score 0-3 was considered as poor practice and score 4-5 indicates good practical approach.

Statistical analysis was done for total 156 samples which included 52 responses from medical, 54 from dental and 50 from nursing students using SPSS software version 23.0. Completely filled questionnaires were segregated based on departments and their responses were scored. The results were statistically analysed using t-test, post hoc test and Pearson's correlation. The level of significance was set at p- value <0.05.

RESULTS

In this study equal participation was observed from each group i.e medical (33.4%), dental (34.6%) and nursing (32%) and majority of participants (89.7%) belong to age group of 20-24 years with a female predominance (82%).

The mean knowledge towards Hepatitis B and C was significantly different ($p\text{-value} < 0.001$) among healthcare interns, with high mean knowledge among medical interns (11.19 ± 0.849), followed by dental interns (10.81 ± 1.001) and nursing interns (9.84 ± 1.650). On a positive note, almost all the subjects had knowledge about Hepatitis B and C, its modes of transmission and availability of Hepatitis B vaccine but only 73% of them knew about non- existence of Hepatitis C vaccine and post exposure prophylaxis for HBV and HCV. More than 80% of the subjects knew that the HBV and HCV causes liver cancer and the infection can be cured/ treated. About 90% interns reported that the HCWs are at higher risk of developing infection and people who are carriers are more likely to infect others whereas 96% study participants were aware of preventing these diseases by proper disposal of sharps, needles and blood products as well as they know how easily it spreads from open wound/cuts.

Attitude was satisfactory as 97.4% participants think that wearing of gloves should be made mandatory during the procedures involving exposure to blood and body fluids likewise 92.3% interns had opinion that patients should be screened for Hepatitis B surface antigen (HbsAg) and HCVAg before undertaking them for any procedure involving exposure to blood. Although 94.9% participants believe that following infection control guidelines will protect them from being infected with HBV and HCV at work but still 74.3% of them do not feel comfortable to take care of people infected with HBV.

Vaccination status of study participants revealed that out of 89.7% of them who received vaccine against Hepatitis B only 56.4% have completed all the three doses.

As a common miscue (47.4%) had a needle prick injury while working on patients but only 20.5% had been screened for Hepatitis B and C. On a positive note almost all the participants (97.4%) change gloves and check for proper sterilization of instruments for each patient while doing any procedure involving blood and body fluids.

Categorical analysis of study subjects showed high knowledge levels regarding HBV and HCV among all the participants. On a positive note, more than 90% of participants were having positive attitude (medical-92.3%, dental-100%, nursing-98%). But, comparable percentages of participants were having negative practices towards hepatitis B and C viral disease (medical-36.5%, dental-33.4%, nursing-32% respectively). All the above comparison were

statistically significant with $p\text{-value} < 0.05$.

Karl pearson correlation revealed a negative correlation between knowledge, attitude and practices among medical interns. Nonetheless, the correlation was weak and not significant. Whereas practice showed positive correlation with knowledge and attitude among dental interns and nursing interns, but not significant.

DISCUSSION

HBV and HCV are deep rooted endemics in developing countries and India is in intermediate endemicity zone. Generally we assume that HCWs by virtue of their vast academic curriculum and access to health facility should have good knowledge and awareness regarding these infectious diseases, but few studies demonstrated unsatisfactory KAP related to HBV and HCV among health science student which deserves a serious attention.^[13,15-17]

Majority of participants in the present study had shown adequate level of knowledge related to hepatitis B and C like other reported studies from Malaysia,^[3,18] Ethiopia,^[19] India^[20,21] and Iran,^[22] where students from these three courses showed good degree of knowledge with significant variation across professions. Respondents in present study had capacetic information regarding transmission of disease, their vulnerability to get the infection, liver damaging consequences of these viruses, preventive protocols to be followed by them and safe disposal of biowaste to prevent cross contamination. But in contrast to this, few studies showed lack of knowledge and awareness about HBV and HCV infection among medical,^[10,23,24] dental,^[13,25,26] and nursing students.^[10,27] WHO targeted 90% reduction in incidence of viral hepatitis by 2030 as a part of "Sustainable Development Goal", but lack of knowledge in HCWs regarding these diseases will be main barrier to achieve this.

Hepatitis B and C are major public health problems and a culpable occupational hazard for healthcare workers. They are at higher risk of receiving as well as transmitting the infection. Studies reported that incidents of needle prick injury and accidental exposure to blood and body fluids among healthcare professionals are as high as 47%^[6] and risk of exposure is highest among dentists mainly dental students, i.e upto 66-80%^[28,29] due to their underdeveloped manual skills, limited clinical experience, working without an assistant and practicing variety of tasks and treatments new to them. Paradoxical to this, only 74.3% of study participants had knowledge about post exposure prophylaxis. A prompt treatment strategy, use of IgG and other drugs could serve as an efficient therapeutic modality to prevent development of infection. Findings of the present study is in line with studies done by Gupta et al^[30] and Stewardson et al^[28] who reported casual approach of health professionals towards the universal precautions, occupational injuries and institutions not following OSHA guidelines strictly. So, there is an urgent need to alleviate the gap of knowledge, negative attitude and risky practices by regular health education programs focusing more on occupational risk of HBV and HCV as well as mandatory screening and vaccination facility should be there in health institutions for HCWs.^[31]

Although hepatitis B vaccine has got 90-100% proven efficacy only 56.4% of study participants had completed their three doses of vaccination which is an alarming concern. Similar to this, other studies also reported poor compliance for hepatitis B vaccine among healthcare workers in different countries.^[14,29,32-34] Thereby, it is responsibility of health institutions to ensure that students are protected against hepatitis B before they are placed in clinical settings. As vaccine for Hepatitis B is very cost effective, enforcement of vaccination drive can be promoted in general population too.

A study by Jaykrithunga et al^[35] and sachidananda et al^[36] suggests that although medical students had good knowledge but attitude and practice scores were not sufficient which is analogous to present study.

A greater part of study population (92.3%) believes that people who are carriers of hepatitis B and C are at risk of infecting others. This may be the reason why 74.3% of respondents were not comfortable in treating people infected with HBV, it signifies the presence of stigma and negative attitude related to the disease. Few studies demonstrated similar attitude of HCWs and pointed that students attitude were positively correlated with their mean knowledge score and willingness to provide care is significantly associated with their confidence in protecting themselves. The overall attitude of health professionals

condition them for behaviour modification and acquiring safe medical practices which can come only by adequate knowledge. Dental students had shown their better attitude regarding HBV and HCV in the studies conducted by Mubarak et al.^[37] and Malhotra et al.^[38] parallel to present study. Whereas, Mane et al.^[20] and Dineshbhai et al.^[27] revealed that medical and nursing students had negative attitude and discriminating practice regarding HBV and HCV.

Present study showed negative correlation between knowledge, attitude and practices among medical interns, similar to the study done by Raza W et al.^[39] indicating that they were having good knowledge through their wide academic exposure but lack in practice. Contrast to this, dental and nursing students had positive correlation between their knowledge, attitude and behaviour, indicating their good practical approach and assertive demand of their profession.

Limitations of the present study include small sample size from different tertiary health institutions in and around Hyderabad city which inhibits to generalize findings of research. Furthermore, self reporting of vaccination status, screening and occupational exposure may lead to over/ under reporting of data. Whereas strength comprise of involvement of participants from three different health specialties graduating to serve the humanity next.

To control hepatitis B and C regular orientation and sensitization programme should be conducted in all healthcare institutions to increase knowledge and awareness in HCWs, so that they strictly adhere to universal protective guidelines, manage safe practices and follow complete sterilization at workplaces.

Present study concludes that, all the participants from medical, dental and nursing background were having high knowledge levels and positive attitude regarding HBV and HCV but comparable percentages of participants were having negative practices towards prevention of these viral diseases. Therefore, there is a need to improve baseline knowledge and attitude among HCWs.

CONCLUSION

Job demand of HCWs put them at higher risk of not only HBV and HCV but other viruses too; therefore every healthcare facility should have infection control committee for maintaining infection prevention and control, its monitoring, surveillance, reporting and education. Health education and promotion by regular academic activities, periodic orientation, sensitization programmes, mandatory vaccination and screening should be made compulsory for all health personnel preferably at the commencement of respective courses. Apart from this, catch up vaccination programme should be promoted by government for general population which refers to screen – enroll – vaccinate – check for serum titres of HBsAg to help in elimination of hepatitis B.

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