

HEPATITIS B: KNOWLEDGE, ATTITUDE AND PRACTICES OF DENTAL HOUSE OFFICERS

¹SHAMILA, ²NOUMAN NOOR, ³AISHA GUL, ⁴MANZOOR AHMED

ABSTRACT

Hepatitis B is a virus of great concern for healthcare providers, with an increasing prevalence in Pakistan. Dentists are blamed for this as negligence in infection control procedures (improper instrument sterilization, reuse) has led to this surge. The study was aimed to collect information regarding knowledge, attitude as well as practices about Hepatitis B infection by 200 house officers in dental colleges of Rawalpindi and Islamabad.

A KAP survey was done in Dec 2017 with pretested questionnaire having queries regarding knowledge, attitude and protective measures to prevent transmission of Hepatitis B. SPSS 16.0 software was utilized for data analysis. There were 136 (68%) female participants and 64 (32%) males were participants with mean age of 23.6±1.2. The results showed that the dental professionals were quite aware of Hepatitis B and its transmission (62.5%). 92.5% responded that without proper infection control measures one can acquire it. They were well informed about Hepatitis B vaccination (89.5%), precautions and droplet isolation procedures. However, continuous educational programs on isolation precautions and infection control measures can reduce the chances of cross infection.

Key Words: Dental house officers, Hepatitis-B, Preventive measures.

INTRODUCTION

Dental professionals are vulnerable to variety of blood or air borne infections due to many micro-organisms which include but are not restricted to M. tuberculosis, hepatic viruses like Hep B and C, type 1 HSV, mumps, rubella, influenza and HIV. The health workers should be vaccinated against these.¹ There can be several routes of infection transmission in dental operatory such as direct contact with blood and saliva, indirect contact through operative environment and soiled instruments as well as airborne toxins through oral and respiratory fluids.²

Establishment of infection requires certain factors such as presence of active disease in a patient, adequate levels of viral load, non-vaccinated individuals and a channel for causative agents to penetrate in the host.

Effective planning is done to prevent establishment of chain of these associations in order to set up a safe environment.³

Viral hepatitis previously known as “serum hepatitis” is caused by a DNA virus (HEP B).⁴ HBV is known to be a leading global cause for acute and chronic liver conditions, every year it acutely affects two billion individuals and also results in 350 million chronic cases.⁵ It is approximated that annually one million people lose their life due to consequences related to HBV such like cirrhosis and cancers of liver.⁶ Worse, 75% of these cases are from the Asian continent where an estimated 8% are suspected to be active carriers of this virulent virus. Moreover, 80% of the infections are subclinical which means that their disease remains undiagnosed. In this latent form, HBV is potentially 50 to 100 times more infectious than HIV.⁷

In Pakistan the burden of disease ranges between 7-20% in different regions, prevailing more in rural areas (30-35%) than in urban areas (2.5-5%).⁸ The highly infectious nature and consequences of the disease makes it a major public health risk. Results of a past study revealed that general dentists have 3-fold risk and non-immunized surgical specialists have 6-fold greater chances of catching the infection than general population.⁹

The dental guidelines for infection control were updated by the Center for Disease Control and Prevention in 2003 which specifically suggested to wear face mask, protectors for eyes, protective cloths and

¹ Dr Shamila, FCPS part II Resident Operative Dentistry, Rawal Institute of Health Sciences, College of Dentistry, Lethrar Road Khana Dak, Islamabad Email address: shamila.maqsood6@hotmail.com **For Correspondence:** H. 133, Lane 7, Askari 12, Rawalpindi Cantt

² Dr. Nouman Noor, Assistant Professor, Operative Dentistry, Rawal College of Dentistry Email address: Nur.noman@gmail.com Phone number: 03335283003

³ Dr. Aisha Gul, FCPS part II Resident Operative Dentistry, Rawal Institute of Health Sciences, Operative Department, Islamabad Email address: pisces_eye777@hotmail.com

⁴ Brig® Prof Manzoor Ahmed, Principal Rawal College of Dentistry, Rawal Institute of Health Sciences, Islamabad Email address: rihsprincipal11@gmail.com, brigmanzoorahmed@yahoo.com Phone number: 051-2617831-4

Received for Publication: March 2, 2017

First Revision: May 29, 2017

Approved: May 30, 2018

take special care of other cautionary materials that can be laundered in an in-house laundry.¹⁰ HBV is a major occupational hazard which transmits from patient to health care workers and vice-versa, as well as families of the affected HCWs. According to some estimates HBV affects 14.4% of hospital workers.⁴ HBV in dental practice is transmitted via blood, saliva, and nasopharyngeal secretions. Intra orally, gingival sulcus has greatest concentration of hepatitis B virus.

The virus is highly concentrated in most of the body liquids including blood, saliva, serous exudates, serum, semen and vaginal fluid. However, transmission through parenteral route is the most significant mode². It is easily transmitted via the parenteral route, even if the serum is 100,000,000 times diluted. Saliva, body fluids and semen gets infected when contaminated with blood and then contacting lacerated skin or mucous membrane.² The only preventive measures include strict adherence to precautionary methods like prevention of exposure of blood and other body fluids to skin and mucous membrane and also by getting vaccinated.⁴ This study aimed at assessing the knowledge and attitude of graduate dentists regarding hepatitis B infection.

METHODOLOGY

During December 2017, a cross sectional (KAP) survey was conducted using structured questionnaire among dental house officers working in dental colleges of Rawalpindi and Islamabad. Inclusion criteria included dentists doing house job, where as undergraduate students as well as post graduate residents were excluded. In the questionnaire, under knowledge section, three domains were identified: General information, transmission, vaccination. Under the attitude section, two domains were identified: Perception toward hepatitis B patients and treatment modalities. The sample was conveniently selected. Before conducting the study, ethical approval was taken from Institutional Ethics Committee. The participants were administered written informed consent. Data were entered and analyzed in SPSS software version 16.0. Using descriptive analytics the categorical parameters such as gender and questions about knowledge and practices were measured in term of frequency and percentages whereas the continuous parameters were analyzed as means and range.

RESULTS

There were 200 study participants (aged 21–26 years old) with mean age of 23.6+1.2 including 64 males and 136 females. Majority (62.5%) admitted to having adequate knowledge of the HBV subject. In response to query on scaling, majority (68.5%) replied that they would do it in a HepB positive patient. Most of the respondents 89.5% believed that they are ethically and morally responsible to treat a HEP B patient. Forty six percent thought that aerosols have role in transmission of HEP B.

DISCUSSION

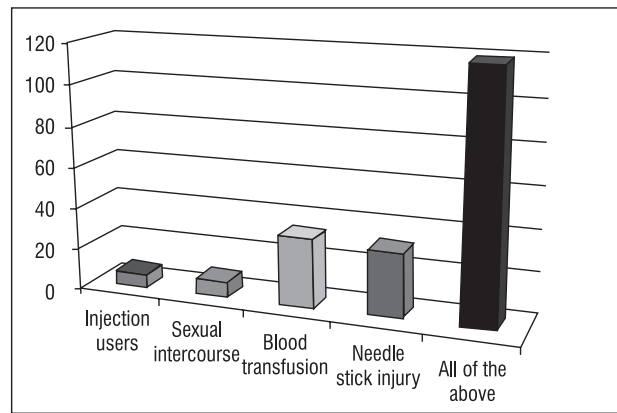


Fig 1: Frequency distribution of common methods of transmission of HEP B

TABLE 1: GENDER DISTRIBUTION

Male	Female	Total number (%)
64(32%)	136(68%)	200(100%)

TABLE 2: DISTRIBUTION OF ANTIBODIES EVALUATION AFTER VACCINATION

Yes	No	Total
37(18.5%)	163(81.5%)	200(100%)

TABLE 3: RISK DISTRIBUTION WHEN TREATING HEP B POSITIVE PATIENT

Yes	No	don't know	Total
118(59%)	53(27%)	29(15%)	200(100)

A great majority (95.2%) of the dentists in the current study felt that they can acquire hepatitis B from their patients if proper barrier techniques are not used with regard to the transmission of HBV. Previous scientific evidence suggest that frequency of exposure to HBV is very high in dental healthcare workers.¹¹

In the present study, 89.5% dentists knew about the vaccine and 88.5% were vaccinated. A survey conducted on medical students in Cameroon showed only 18% were vaccinated, reasons for this low percentage were inability to get vaccinated due to lack of time (38.5%), non-affordance to pay for vaccination (23.1%), lack of awareness regarding the vaccine (19.2%) and their perceptions that vaccine is not completely safe (49%).¹² Whereas a study conducted in Karachi, Pakistan showed 91.7% of subjects had vaccination.¹³ A study comparing medical and dental student's knowledge of a private medical university in Karachi showed (71.35%) were aware of vaccine.¹⁴

The present study result indicates that maximum dentists 55.5% dentists refused to treat Hepatitis B positive patient in a normal dental setting without proper sterilization protocols. Treating a known case of Hepatitis B positive patient or the risk groups caused stress in (88%) of dentists. Fresh graduates are apparently new at providing clinical treatment

lacking exposure. Their attitudes are shaped more by the prevailing myths. An Indian study compared awareness regarding Hepatitis-B between medical and dental interns and found that one-third of the interns were aware of the routes of transmission and the attitude regarding Hep-B. However, some misconceptions related to prophylaxis, vaccination and treatment of HBV were present.¹⁵

A study done in China revealed 97.5% 5th year undergraduate and 96.2% 6 to 8th year graduate thought they had the right to know their patients' HBV infection status¹⁶. In the present study, it was observed that the majority of dentists 95% felt that both patient and doctor should inform correctly about his Hepatitis B positive's status. However, many a times, the patients are unaware of HBV exposure. Therefore, irrespective of medical history, suspicion of potential carriers should be regarded in all patients, thus, proper infection control protocol such as barrier precautions (i.e. gloves, masks) proper instrument sterilization, vaccination should be followed for every patient.

A Brazilian study showed a high 59.8% prevalence of percutaneous injuries among dentists.¹⁷ Rapidly increasing prevalence in Pakistan according to W.H.O. is caused by transfusing non-screened blood, inappropriate instrumental sterilization, and reuse of needles. When attitude towards HBV infected patients was assessed, 60.3% medical students felt uncomfortable while making any physical contact.¹⁸ The proper infection control measures should be followed and while providing treatment to the HBV-positive patients the dentist should not have a discriminatory approach.

Routine wearing of gloves has not been established to prevent cross infection of blood borne viruses, it can prevent hands from directly contaminating when dealing with secretions like saliva, blood, mucous membrane and other materials, thus, reducing the chances of transmission of HBV from carrier to practitioners.¹⁹

CONCLUSION

Based on study findings it can be concluded that knowledge regarding infection control measures among fresh dental graduates is adequate, however, continuous refresher courses on cross infection control procedures should be mandatory.

REFERENCES

- 1 Rostetter C, Lübbers HT, Kruse AL, Metzler P. Preventive Vaccinations in dentistry. *Swiss Dent J*. 2015; 125:174-75.
- 2 Dahiya P, Kamal R, Sharma V, Kaur S. Hepatitis – Prevention

- and management in dental practice. *J Educ Health Promot*. 2015;4:33
- 3 Ali MF, Hussain A, Maqsood A. Knowledge, attitude and practice concerning infection control measures among dental health care providers of Dow University of health sciences. *Pak Oral Dent J* 2014;34:452-56.
- 4 Setia S, Gambhir RS, Kapoor V. Hepatitis B and C infection: Clinical implications in dental practice. *Eur J Gen Dent* 2013; 2:13-19.
- 5 Alhawaish MA, Alhawaish JA, Alanazi YH, Alshammari MM, Alshammari MS, Alshamari NG, Alshammari AS, Almutairi MK, Algarni SA. Knowledge, attitudes and practices toward prevention of hepatitis B virus infection among medical students at Northern Border University, Arar, Kingdom of Saudi Arabia *Electron Physician*. 2017; 9: 5388-5394
- 6 AH Al-Hazmi. Knowledge, attitudes and practice of dentists concerning the occupational risks of hepatitis B virus in Al Jouf Province, Saudi Arabia *Nigerian Journal of Clinical Practice* 2015; 18: 276-287.
- 7 Reddy R S, Swapna L A, Ramesh T, Pradeep K. Knowledge, attitude and practice on hepatitis B prevention among dental professionals in India. *Braz J Oral Sci* 2011; 10:241-45
- 8 Ul Haq N, Hassali MA, Shafie AA, Saleem F, Farooqui M, Haseeb A, Aljadhey H. A cross-sectional assessment of knowledge, attitude and practice among Hepatitis-B patients in Quetta, Pakistan. *BMC Public Health* 2013; 13:448.
- 9 Peeran SW, Peeran SA, Al Mugrabi MH, Abdalla KA, Murugan M, Alsaid FM. Hepatitis B: Knowledge and attitude of graduating dentists from faculty of dentistry, Sebha University, Libya. *Dent Med Res* 2017;5:3-8.
- 10 Askarian M, Assadian O. Infection control practices among dental professionals in Shiraz Dentistry School, Iran. *Arch Iran Med* 2009; 12: 48-51.
- 11 Nagao Y, Matsuoka H, Kawaguchi T, Ide T, Sata M. HBV and HCV infection in Japanese dental care workers. *Int J Mol Med* 2008; 21: 791-9.
- 12 Noubiap JJ, Nansseu JR, Kengne KK, Tchokfe Ndoula S, Agyingi LA. Occupational exposure to blood, hepatitis B vaccine knowledge and uptake among medical students in Cameroon *BMC Med Educ*. 2013; 13: 148
- 13 Babar F R, Yar A, Rana M J A. knowledge, attitude and practice regarding hepatitis b & c among house officers — A study. *Pak Oral Dent J* 2016; 36: 289-92.
- 14 Shigri AA, Leghari MA, Mazhar S, Bano M. knowledge, attitude and practice of hepatitis b among dental and medical students of private medical university, karachi. *Pak Oral Dent J* 2015; 35: 111-15
- 15 Tirounilacandin P, Krishnaraj S, Chakravarthy K. Hepatitis-B infection: Awareness among medical, dental interns in India. *Ann Trop Med Public Health* 2009; 2:33-36.
- 16 Li X, Kang H, Wang S, Deng Z, Yang T, Jia Y, Yang Y. Knowledge, attitude, and behavior of hepatitis B virus infection among chinese dental interns. *Hepat Mon*. 2015; 15(5):e25079
- 17 Fabiana VF, Santana BP, Tarquinio SB, Demarco FF. Prevalence of percutaneous injuries and associated factors among dental surgeons. *Rev Odonto Ciênc* 2012; 27: 196-201
- 18 Ali A, Khan S, Malik SM, Haris Iqbal M, Aadil M. Comparison of Knowledge and Attitudes Regarding Hepatitis B Among Healthcare Professionals in Pakistan. *Cureus*. 2017;9(2):e1049
- 19 Mohiuddin S, Dawani N. Knowledge, Attitude and Practice of Infection Control Measures among Dental Practitioners in Public Setup of Karachi, Pakistan: Cross-sectional Survey. *J Dow Uni Health Sci Karachi* 2015; 9: 89-93.

CONTRIBUTIONS BY AUTHORS

- | | |
|-------------------------|-----------------------------------------------------------------------------------------|
| 1 Shamila: | Title, abstract writing, introduction, result compilation, data collection, references. |
| 2 Nouman Noor: | Methodology, data analysis, proof reading. |
| 3 Aisha Gul: | Discussion, result interpretation. |
| 4 Manzoor Ahmed: | Key words selection, conclusion, overall reviewing and helped with study concept. |