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Research Article

KNOWLEDGE, ATTITUDE AND PRACTICE SURVEY OF HEPATITIS B AND C INFECTIONS AMONG DENTAL STUDENTS OF MANSOURA UNIVERSITY, EGYPT

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A B S T R A C T

Background: Dental health professionals are posed to the risk of hepatitis B and C infections secondary to accidental exposure to blood.

Purpose: This study was undertaken to determine the level of knowledge, attitude and practices (KAP) of the final year dental students selected from Faculty of Dentistry, Mansoura University, Mansoura, Egypt as regard to hepatitis B and C infections.

Subjects and methods: A cross-sectional survey was conducted over a period of two months involving 300 dental students. A 20-item questionnaire was distributed among the participants.

Results: A response rate of 100% was obtained. Only 37.3% of the students were fully vaccinated against hepatitis B. A total of 61% knew that presently there is a treatment available for hepatitis B and C. Almost half of the students had a positive attitude towards hepatitis B or C- infected patients. An overall good practice was perceived in respect to hepatitis B and C infections.

Conclusion: This study realized lapses in knowledge among the dental students in relation to viral hepatitis B and C infections. Upgraded education in this respect is critical for dental students to minimize the likelihoods of being infected as well as discrimination against hepatitis B or C-infected patients.

INTRODUCTION

Infections with hepatitis B virus (HBV) or hepatitis C virus (HCV) contribute to significant morbidity and mortality and are a major public health concern globally [1]. While a safe and effective vaccine against HBV is available [2], so far, no approved vaccine has been developed against HCV [3]. According to the World Health Organization (WHO), an estimated 240 million people are chronically infected with HBV with more than 686.000 annual deaths due to complications of hepatitis B such as cirrhosis and liver cancer [4]. On the other hand, about 130-150 million people worldwide have chronic HCV infection with approximately 700.000 annual deaths resulting from HCV-related liver diseases [5].

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Dentists, surgeons, nurses and laboratory workers encompass a high risk group for acquisition of infection by blood-borne pathogens through contact with blood and other body fluids [6]. Among those health-care workers, HBV and HCV can be transmitted by percutaneous injuries with contaminated needles and syringes or through accidental inoculation of small amounts of blood during surgical or dental manipulation [7].

Knowledge, attitudes and practices (KAP) surveys are representatives of a specific population to collect information on what is known, believed and done in relation to a particular topic (in this case, hepatitis B and C infections) and are the most frequently used study tool in health-seeking behavior research [8]. Knowledge is usually assessed to see how far community knowledge corresponds to biomedical concepts. Practices in KAP surveys often investigate the preventive measures or different health-care options [9].

Because dental students who comprise future health staff encounter the threat of needle stick injuries with subsequent risk of contracting infections with HBV or HCV, we

organized this study to assess the knowledge level, attitude and practices (KAP) of the final year dental students from Faculty of Dentistry, Mansoura University, Egypt towards hepatitis B and C infections.

SUBJECTS AND METHODS

A cross-sectional survey was performed over a period of two months among the final year dental students selected from Faculty of Dentistry, Mansoura University, Egypt. The students were randomly sampled and voluntary participated in the study and the subjects were fully informed about the design and purpose of the study and benefits of their contribution in it. A signed informed consent was obtained from each participant and anonymity was assured throughout the study.

Questionnaire

A structured self-completed questionnaire was distributed among the enrolled dental students to collect information about their KAP regarding hepatitis B and C infections.The average duration of the questionnaire was 20 minutes. It consisted of 4 sections: (i) socio demographic data including participants' age, gender, hepatitis B vaccination history, family history of hepatitis B or C infections and history of needlestick injury; (ii) knowledge about HBV and HCV infections; (iii) attitude towards hepatitis B and C infections; (iv) practices concerning hepatitis B and C infections. To explore the level of knowledge, 12 questions were used and answered as correct, incorrect and uncertain. Students who answered ≥70% from the knowledge items correctly were regarded to have satisfactory knowledge, while those who answered <70% were considered to be of poor knowledge. For attitude, 4 questions were used and answered as yes and no. Positive attitude was recorded if the participants answered ≥70% of the attitude items properly. On the other hand, students who answered <70% of attitude items were considered to have a negative attitude. Concerning practice, there were 4 questions answered as yes and no. Those who answered ≥70% of the practice items correctly were considered to have a good practice, whereas those who were unable to answer 70% of the practice items correctly considered to have a malpractice.

Statistical analysis

Data were analyzed using SPSS version 22.0 for windows (IBM SPSS Inc., Chicago, IL, USA). Data were described in the form of numbers and percentages or as mean ± standard deviation (SD).The Chi-square (χ^2) test was used to define the statistical significance of data. *P*-values < 0.05 were considered to be statistically significant.

RESULTS

A total of 300 dental students belonging to the final year participated in this survey, making a response rate of 100%. The mean age was 22 ± 1.17 years. Out of the 300 study participants, 56.3% were females and 43.7% were males. Almost 77.3% of the students were from urban areas. Nearly one third of the students gave a positive history of complete vaccination against hepatitis B. On the other hand, 17.3% reported accidental needlestick injuries (Table 1).

Knowledge of the study participants about viral hepatitis B and C

In general, most of the surveyed students had acceptable level of knowledge in this context, though some weakness was deduced. Of the study respondents, 40% gave a correct answer regarding whether HCV is a mutation of HBV. Remarkably, only 19% of the students understood that genetic backgrounds can determine the outcome of HBV and HCV infections. Concerning the mode of transmission of these viruses, 97%, 87.3%, 59% and 54.3% were aware that HBV and HCV can be transmitted by blood transfusion, sharing sharps and tooth brushes and by sexual contact, respectively.

Table 1 Sociodemographic characteristics of the involved group of dental students

Parameters	Number (percentage)
1.Age	22 ± 1.17 years
2.Gender	
-Males	131 (43.7%)
-Females	169 (56.3%)
3.Residence	
-Urban	232 (77.3%)
-Rural	68 (22.7%)
4.Family history of hepatitis B infection	
-Yes	30 (10%)
-No	270 (90%)
5.Family history of hepatitis C infection	
-Yes	37 (12.3%)
-No	263 (87.7%)
6.Hepatitis B vaccination history	
-Yes	112 (37.3%)
-No	188 (62.7%)
7.Needlestick injury history	
-Yes	52 (17.3%)
-No	248 (82.7%)

Data are expressed as number (%), or as mean ± standard deviation (SD).

As for the clinical presentations and complications of hepatitis B and C infections, 44.3% of the included students knew that jaundice is a manifestation of viral hepatitis B or C and 40% agreed that cancer can be a sequela of viral hepatitis B or C. About two thirds of the respondents were knowledgeable that currently there is a pharmaceutical treatment available for hepatitis B and C, though 16.3% were not sure about this fact. Low proportion of the students (9.3%) were aware that, to date, there is no approved vaccine against hepatitis C. Answers of the participating students in relation to their knowledge are shown in Table 2.

Attitude of the dental students towards hepatitis B and C infections

Table 3 depicts different attitudes of the enrolled dental students towards viral hepatitis B and C. About 43.3% of the students answered that they feel worried upon carrying out dental manipulations for patients infected with HBV or HCV. Almost two thirds of the participants believed that it is compulsory for any patient undergoing a surgical dental procedure to perform prior testing for hepatitis B and C.

Practices of the study participants in relation to hepatitis B and C infections

In the current work, 39% of the study group were ignorant of the first aid measures in the event of accidental work-related exposure to HBV or HCV infections. Concerning the proper use of personal protective equipment (PPE), 10% of the

students said that they do not change gloves between different patients and 10.7% never change face masks amongst patients as well (Table 4).

Table 2 Knowledge of the dental students about viral hepatitis B and C

Parameters	Correct answer	Incorrect answer	Uncertain
HCV is a mutation of HBV.	120 (40%)	50 (16.7%)	130 (43.3%)
Genetic predisposition can affect the outcome of hepatitis B or C infections.	57 (19%)	132 (44%)	111 (37%)
HBV or HCV can be transmitted by blood transfusion.	291 (97%)	6 (2%)	3 (1%)
HBV or HCV can be transmitted by sharing sharps.	262 (87.3%)	20 (6.7%)	18 (6%)
HBV or HCV can be transmitted by sharing toothbrushes.	177 (59%)	53 (17.7%)	70 (23.3%)
HBV or HCVcan be transmitted by faeco-oral route.	136 (45.3%)	83 (27.7%)	81 (27%)
HBV or HCV can be transmitted by sexual contact.	163 (54.3%)	78 (26%)	59 (19.7%)
HBV or HCV can be transferred from mother to fetus.	90 (30%)	37 (12.3%)	173 (57.7%)
Hepatitis B or C can manifest as jaundice.	133 (44.3%)	124 (41.3%)	43 (14.4%)
Hepatitis B or C can cause cancer.	120 (40%)	37 (12.3%)	143 (47.7%)
There is currently approved vaccine for hepatitis C.	28 (9.3%)	131 (43.7%)	141 (47%)
There is currently available treatment for hepatitis B and C.	183 (61%)	68 (22.7%)	49 (16.3%)

Abbreviations: HBV; hepatitis B virus, HCV; hepatitis C virus.
Data are expressed as number (%).

Table 3 Attitude of the participants towards hepatitis B and C infections

Parameters	Yes	No
Do you deliver the same standard of care to patients with hepatitis B or C as you do for other patients?	232 (77.3%)	68 (22.7%)
Do you feel confident while performing dental manipulations of hepatitis B or C infected patients?	170 (56.7%)	130 (43.3%)
Are you willing to treat people having hepatitis B or C infections?	153 (51%)	147 (49%)
Do you think that hepatitis B and C testing of the patients should be done mandatory before any surgical dental procedure is carried out?	186 (62%)	114 (38%)

Abbreviations: HBV; hepatitis B virus, HCV; hepatitis C virus.
Data are expressed as number (%).

Table 4 Practices of the participants in respect to hepatitis B and C infections

Parameters	Yes	No
Are you aware of the first aid measures and follow them in case of accidental exposure to HBV or HCV positive blood?	183 (61%)	117 (39%)
Do you accept to share sterilized syringes among examined patients?	Null	300 (100%)
Do you always use latex gloves and change them between patients?	270 (90%)	30 (10%)
Do you always use face masks and change them between patients?	268 (89.3%)	32 (10.7%)

Abbreviations: HBV; hepatitis B virus, HCV; hepatitis C virus.
Data are expressed as number (%).

DISCUSSION

Dental health-care workers (DHWs), including dental students, are prone to infection with HBV and HCV through occupational percutaneous injuries and eye exposure. Accordingly, we carried out this survey among the final year dental students of Mansoura University, Egypt to address their KAP in relation to hepatitis B and C infections prior to their practical carrier. The contemporary study explored that up to 17.3% of the study respondents had experienced at least one needlestick injury since the beginning of their practical sessions and most of them never reported these incidents. Accordingly, it is highly recommended that the two-handed recapping technique which puts dentists at a likely risk of needlestick injuries be discouraged and needle-protective devices should be used in place of ordinary syringes. Striking, higher incidence of needlestick injuries up to 40% was declared from a comparative study conducted in Palestine associated also with failure to notify about the incidents[10]. Lack of reporting unintentional exposure to blood increases the possibility of contracting blood-borne viruses, including HBV and HCV, as no post-exposure prophylactic measures will be taken into action to reduce the risk of infection.

Unfortunately, only 37.3% of the study participants received complete vaccination schedule against hepatitis B, though the majority were aware that they are at a higher risk of acquisition of infection than the general population. Concomitant with this finding, Sofola and his associates from another study conducted in Nigeria stated that 37.9% of their included dental students were adequately vaccinated against hepatitis B [11]. Furthermore, Schenkel and his collaborators announced that 41.2% of their vaccinated group had full hepatitis B vaccination doses [12]. Nonetheless, the result of our study is relatively better than that of another study performed in Cameroon where only 18% of the study participants were fully vaccinated [13].

When we asked about the reason for not getting vaccinated against hepatitis B, the most common etiology was shortage of enough information about the vaccine especially its safety concerns (38.2%), followed by lack of time to attend vaccination (19.1%) and fear of injection (7.4%). Data from an Italian survey denoted that most of dentists did not receive immunization against hepatitis B, since 42.8% supposed that it is useless and 33.3% were not sure about its safety [14].

Surprisingly, 40% of the participants erroneously thought that HCV is a mutant form of HBV, meanwhile 43.3% were not sure about this issue. A likely cause for the lack of knowledge among our students is the absence of an integrated system of education. So, scientific meetings should be held regularly to provide dental students with basic knowledge about hepatitis viruses. In response to the question on whether genetic determinants can influence the outcome of HBV and HCV infections, only 19% of the students gave a correct answer. Currently, it is well established that the genetic background of the infected individuals plays a crucial role in the disease outcome that varies from an asymptomatic infection to hepatocellular carcinoma [15]. The present survey demonstrated that most of the enrolled dental students knew that blood transfusion as well as sharing contaminated sharps are means of transmission of viral hepatitis B and C. However, knowledge about other modes of transmission was unsatisfactory. This finding is congruent with another report

emanating from India [16]. It is worth mentioning that only 44.3% of the involved students recognized that jaundice is a clinical presentation of B or C viral hepatitis, while 40% knew that cancer can be a complication. Essentially, hepatitis B or C-infected patients are not frequently confronted with in dental clinical setting which could contribute to such unawareness.

Remarkably, knowledge of the students about the absence of an approved vaccine against hepatitis C was low (9.3%). Recently, a similar assumption was perceived amongst a cohort of Brazilian dental students [17]. This point should be addressed to the dental students during their clinical courses to enhance implementation of infection control guidelines. Considerable proportion of the study participants (61%) were knowledgeable about the availability of therapy for hepatitis B and C. In contrast, a survey done in Pakistan to evaluate patients' knowledge and attitude towards hepatitis B and C revealed a substantial shortage of knowledge about the existence of treatment for these diseases [18].

The current study indicated that more than half of the participants had a positive attitude towards B and C viral hepatitis. Approximately, 77.3% *versus* 22.7% (*P*= 0.001) of our dental students answered that they deliver the same standard of care to patients having hepatitis B or C as that for other patients. On the other hand, 43.3% of the enrolled students held discriminatory attitudes towards hepatitis B or C-infected patients and said that they become restless when managing those patients. This negative attitude could be modified by improving knowledge in this context. Unexpectedly, 51% of our cohort expressed a desire to treat hepatitis B or C-infected patients, provided that further infection control measures are considered, like the use of two pairs of gloves when treating a bleeding patient positive for hepatitis B or C. This result is in accordance with the findings of previous studies [19, 20]. For safety concerns of the dentists, 62% *versus* 38% (*P*= 0.01) of the students thought that it is required for patients undergoing any surgical dental procedure to do prior screening for hepatitis B and C. However, according to the WHO instructions, standard precautions are recommended for all patients irrespective of their suspected or confirmed infectious state [21].

Fortunately, acceptable proportion of the respondents displayed good practices in relation to hepatitis B and C infections. Almost 61% were acquainted with the first aid measures and practice them in the event of accidental exposure to HBV or HCV positive blood including; immediate and thorough washing of the wound with soap and water, reporting of the incident to the health supervisor, identification and testing of the source patient and post-exposure prophylaxis according to the Centers for Disease Control and Prevention (CDC) recommendations [22]. In addition, almost all of the inquired students did not agree to share sterilized syringes among different patients, which is consistent with the findings of Razi *et al.* [23]. Nonetheless, about 10% of respondents said that although they wear gloves and face masks for safety purposes, they do not change these personal protective equipment between different patients due to lack of time. This malpractice is an issue that demands thoughtful consideration.

CONCLUSION

This study verified that the final year dental students of Mansoura University have a rather acceptable level of knowledge, positive attitude and good practices towards viral hepatitis B and C-related issues. However, shortage of knowledge was perceived in some aspects which need to be improved by continuous updating of the dental curricula as well as on going training. Moreover, stringent adherence to infection control precautions should be adopted to ensure innocuous working environments and thereby avoid discrimination against hepatitis B or C- infected patients. Finally, it is highly recommended that complete vaccination of all dental students against HBVinfection be made compulsory shortly after their enrollment into the Faculty of Dentistry.

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Conflict of interest
The authors declare no conflicts of interest.

Ethical approval

The protocol of this study was reviewed and approved by our institutional review board.

References

1. Fejza H, Telaku S. Prevalence of HBV and HCV among blood donors in Kosovo. *Virol J* 2009; 6:21.
2. Al-Faleh F, Al-Shehri B, Al-Ansai B, Al-Jaeffri C, Almazrou Y, Shaffi A, *et al*. Long-term protection of hepatitis B vaccine 18 years after vaccination. *J Infect* 2008; 57(5):404-409.
3. Abdelwahab KS, Ahmed Said ZN. Status of hepatitis C virus vaccination: Recent update. *World J Gastroenterol* 2016; 22(2):862-873.
4. World Health Organization (WHO). Hepatitis B fact sheet. http://www. who.int/mediacentre /factsheets/ fs204/en/. (Accessed on August 30, 2016).
5. World Health Organization (WHO). Hepatitis C Fact Sheet.http://wwwwhoint/mediacentre/factsheets/fs164/ en/.(Accessed on August 30, 2016).
6. Kermode M, Holmes W, Langkham B, Thomas MS, Gifford S. HIV‐related knowledge, attitudes and risk perception amongst nurses, doctors and other healthcare workers in rural India. *Indian J Med Res* 2005; 122:258-264.
7. Askarian M, Yadollahi M, Kuochak F, Danaei M, Vakili V, Momeni M. Precautions for health care workers to avoid hepatitis B and C virus infection. *Int J Occup Environ Med* 2011; 2:191-198.
8. World Health Organization: Advocacy, communication and social mobilization for TB control: a guide to developing knowledge, attitude and practice surveys. http://whqlibdoc.who.int/publications/2008/9789241596176_eng.pdf.
9. ul Haq N, Hassali MA, Shafie AA, Saleem F, Farooqui M, Aljadhey H. A cross sectional assessment of knowledge, attitude and practice towards hepatitis B among healthy population of Quetta, Pakistan. *BMC Public Health* 2012; 12(692):1-8.
10. Al-Dabbas M, Abu-Rmeileh NM. Needlestick injury among interns and medical students in the occupied

palestine territory. *East Mediterr Health J* 2012; 18(7):700-706.
11. Sofola OO, Folayan MO, Denloye OO, Okeigbemen SA. Occupational exposure to bloodborne pathogens and management of exposure incidents in Nigerian dental schools. *J Dent Educ* 2007; 71:832-837.
12. Schenkel K, Radun D, Bremer V, Bocter N, Hamouda O. Viral hepatitis in Germany: Poor vaccination coverage and little knowledge about transmission in target groups. *BMC Public Health* 2008; 8:132.
13. 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.
14. Di Giuseppe G, Nobile CG, Marinelli P, Angelillo IF. A survey of knowledge, attitudes, and behavior of Italian dentists toward immunization. *Vaccine* 2007; 25(9):1669-1675.
15. Thursz M, Yee L, Khakoo S. Understanding the host genetics of chronic hepatitis B and C. *Semin Liver Dis* 2011; 31(2):115-127.
16. Setia S, Gambhir RS, Kapoor V, Jindal G, Garg S, Setia S. Attitudes and Awareness Regarding Hepatitis B and Hepatitis C Amongst Health–care Workers of a Tertiary Hospital in India. *Annals of Medical and Health Sciences Research* 2013;3(4):551-558.
17. Souza NP, Villar LM, Moimaz SA, Garbin AJ, Garbin CA. Knowledge, attitude and behaviour regarding hepatitis C virus infection amongst Brazilian dental students. *Eur J Dent Educ* 2016 Jul 21. doi: 10.1111/eje.
18. Talpur AA, Memon NA, Solangi RA, Ghumro AA. Knowledge and attitude of patients towards hepatitis B and C. *Pak J Surg* 2007; 23:162-165.
19. Hu SW, Lai HR, Liao PH. Comparing dental students' knowledge of and attitudes toward hepatitis B virus-, hepatitis C virus-, and HIV-infected patients in Taiwan. *AIDS Patient Care STDS* 2004; 18:587-593.
20. Joukar F, Mansour-Ghanaei F, Soati F, Meskinkhoda P. Knowledge levels and attitudes of health care professionals toward patients with hepatitis C infection. *World J Gastroenterol* 2012; 18:2238-2244.
21. World Health Organization (WHO). Prevention and Control of Viral Hepatitis Infection. Available from: http://www.who.int/csr/disease/hepatitis/GHP_Framework_En.pdf. [Last cited on 2014 Feb 10].
22. Centers for Disease Control and Prevention (CDC). Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Postexposure Prophylaxis. MMWR Recommendations and Reports 2001; 50 (RR11):1-42.
23. Razi A, Rehman R, Naz S, Ghafoor F. Knowledge, attitude, and practices of university students regarding hepatitis B and C. *ARPN Journal of Agricultural and Biological Science* 2010;5(4):38-43.

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