

Universal Precautions Observed by Dental Personnel against Hepatitis B & C- A Survey

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Abstract

Objective: The aim of this study is to gauge the Universal precautions observed against hepatitis B and C, by dental personnel practicing in Altamash institute of Dental medicine, Karachi. This survey was conducted because dental personnel are at an increased risk of exposure to hepatitis B and C and, so it is imperative to know their knowledge in this regard.

Design: Cross sectional study.

Place and duration of study: This survey was conducted in the Altamash Institute of Dental Medicine, Karachi. The survey was initiated on the 3rd of November 2017 and was concluded on the 20th of January 2018.

Methodology: A structured questionnaire was administered through convenience sampling to undergraduate, graduate, and postgraduate dental personnel of all departments in Altamash institute of Dental Medicine in Karachi. The results of the questionnaire were calculated and analyzed via the SPSS software version 20.

Discussion: This survey observed that graduates and post graduates had better knowledge regarding hepatitis B and C as compared to undergraduates. Some of the results were similar to studies done in the past in different countries. As per our knowledge this is one of the first survey to see the extent of knowledge of dental personnel regarding hepatitis B and C.

Conclusion: Dental personnel on each level should be educated regarding hepatitis, risks, precautions, and treatment.

Keywords: Universal precautions, Hepatitis B and C, Dental Personnel.

Introduction

Bloodborne viruses such as HIV, hepatitis B, and hepatitis C have increased chances of spread in health care settings and dental setups, and as they continue to endanger the lives of many, they tend to present challenges to hospitals, dentists, health care workers and patients. There are around two billion people in the world who have been infected by HBV and around 350 million people are chronic carriers [1]. It is important to know that HBV is 50-100 times more infectious compared to HIV as quoted by the WHO [2]. This survey signifies the observation of universal precautions by Dental Personnel against the spread of Hepatitis B and C.

Dental personnel are at an increased risk of exposure approximately 4 times greater than the general population [3] to blood and other body fluids during treatment procedures performed in the clinic and so that makes them susceptible to other blood borne viruses including Hepatitis B and C virus. Occupational transmission of Hep B and C to dental personnel is documented [4,5]. World's second highest prevalence of Hepatitis C is in Pakistan [6].

Due to conditions of limited accessibility and poor visibility during invasive procedures, a close contact is likely to occur between patients, dental professionals and sharp instruments. These procedures may cause bleeding and contamination as the oral cavity harbor's a diverse, abundant and complex microbial community. This work environment exposes Dental Healthcare Workers (DHCWs) to the risk of acquisition of blood-borne pathogens, including hepatitis B, hepatitis C and other potentially serious infectious diseases [7].

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Also, Patients nowadays are aware of the methods of cross infection prevention that should be adopted by the dentist or dental personnel even when they are pre-occupied with pain. Hence it is necessary for the dental personnel to have adequate if not plenty knowledge regarding the universal precautions and the skill to practice them [8].

Universal precautions comprise of treating every patient as though she or he is potentially carrying an infectious disease. Therefore, it emphasizes on the fact that the same standards of personal protection must be used when dealing with any patient.

Universal precautions are concerned with body fluids that may or may not contain blood. The key elements of universal precautions consist of (1) hand washing after patient contact (2) the use of barrier precautions/cross infection control measures [e.g. gloves, lab coats/scrubs and facial protection] (3) minimal manual manipulation of sharp instrument and devices [9].

Cross-infection control measures carried out by dentists and healthcare workers have been studied widely, and the study mainly focused on gloves, masks, safety glasses, proper attire, sterilization of instruments and surgery disinfection [10] and so this study has emphasized on the knowledge and practice regarding these measures among dental personnel.

Methodology

This is a survey that is based in one of the leading dental institution and was conducted from September 2017 to December 2017 to determine the awareness of hepatitis precautions among dental students, house officers and residents at Altamash Institute of Dental Medicine (AIDM). Data was collected using a self-administered structured questionnaire and analyzed by using SPSS version 20.

The questionnaire that was given had two main parts. The first consisted of questions about the candidate's socio-demographic status mainly age, gender, and qualification. The second consisted of fourteen questions on the candidates' knowledge about HBV infection-related issues (ten yes/no questions, and four questions with multiple options for participants to evaluate their own knowledge of standard universal precaution methods).

Results

A total of 150 questionnaires were distributed among undergraduate, graduate and post graduate dental personnel through simple random sampling. Among the questionnaires that were returned a total of 135 questionnaires were used to form this survey as the rest were either blank or wrongly marked. The respondents included 3rd and 4th year students together with House officers, FCPS Residents and Practicing Dentists of all departments of the Institute. Majority of the respondents 54(40%) were in the age group of 21-25 years while some 44(33%) were in the range of 31-45 years and the rest 37(27%) were in the range of 25-30 years. Majority of the respondents 81(60%) were females and 54(40%) were males. The education level of the respondents is mentioned in Table 1.

For Question 1 80(59%) respondents had adequate awareness while the rest had plenty 50(37%) and none 5(4%). For Question 2 128(95%) respondents knew the Universal Precautions while 7(5%) did not. For Question 3 134(99%) respondents answered Yes and 1(0.7%) answered No. In Question 4 129(96%) agreed while 6(4%) disagreed. Table 2 describes the Frequency for Question 5. In Question 6 121(90%) answered Yes and 14(10%)

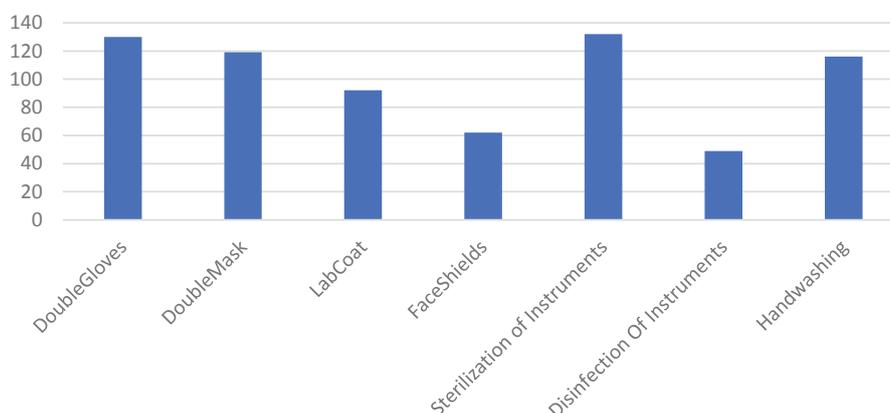
Respondents Education Level	Frequency
Undergraduate	42
Graduate	65
Postgraduate	28
Total	135

Table 1: The table above shows number of respondents representing three different education levels.

Route at a higher risk for spread of Hepatitis (Q5)	Frequency
Saliva	17
Blood	123
Vomit	2
Sweat	1
Instruments	87
Total	230

Table 2: The table above shows frequencies of responses regarding spread of hepatitis (multi-response question)

Precautions preferred Frequencies(Q9)



Graph 1: The graph above shows frequency of preferred precautions by respondents (multi-response question)

answered No. For Question 7 125(93%) respondents went with Yes and 10(7%) went with No. Question 8 is a multiple choice in which 45(33%) responded Yes, 1(0.7%) answered Only Hepatitis C, 109(81%) responded Only Hepatitis B and 3(2%) answered No. Graph 1 describes the results for Question 9. In Question 10 and 11 all the respondents 135(100%) marked Yes. In Question 12 130(96%) answered Yes and 5(4%) marked No. Graph 2 presents the results for Question 13. For Question 14, 94(70%) responded in a Yes and 41(30%) responded in a No.

Discussion

It was observed that graduates and postgraduates had better knowledge regarding Hepatitis. Secondly undergraduates had a weak response regarding hepatitis transmission through saliva as compared to other groups. The same trend was observed in India and this can be explained by the fact that dental students in both of these countries enter the clinical setting in their fourth year and then experience such situations [11]. This survey found that majority of the respondents including students knew that hepatitis has treatments and post exposure prophylaxis unlike one study conducted in Ethiopia [12]. However, that was not limited to dental personnel.

It was observed that undergraduate students are at a higher risk of hepatitis and so there is even a greater need to educate them in this regard. It is recommended that all dental students, susceptible dentists, and dental auxiliary staff must get themselves vaccinated against hepatitis B before they start their clinical phase [13,14]. It was also observed that majority of the respondents preferred double gloves, double masks, sterilization of instruments and hand washing as the main precautionary measures which is a positive sign since HBV is a highly transmissible disease and requires serious steps to be taken to prevent its spread [15]. This study has also observed some of the post exposure prophylactic measures practiced and preferred by the respondents. Majority preferred applying antiseptic together with testing for Hepatitis surface antigen post exposure. The positive value is that both these measures are recommended by CDC [16]. However, CDC recommends some of the other measures as well for which the respondents did not have adequate knowledge. Further study in this regard can strengthen the results as that would negate the limitations of this study.

There are some limitations to this survey because of limited resources like time and money. Due to time constrain a sample of only 150 respondents were selected. Secondly this survey is limited to only one dental institute in Karachi as going to other institutes would take time and money. The results of this survey are only based on questionnaires as this data collection instrument is more time and cost effective. Moreover, convenience sampling method was used as we didn't have any sort of incentive to provide to the respondents. Since this survey used convenience sampling the numbers of respondents for each qualification group are not equally divided.

Conclusion

It is very important for dental practitioners at all levels to have good knowledge regarding hepatitis B and C, risks related to it, its precautions, and treatments. This survey highlights that undergraduate students need more attention in this regard as their knowledge is not sufficient.

Questionnaire

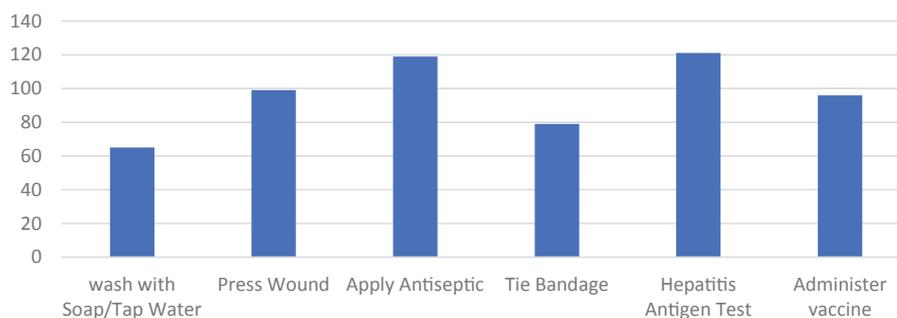
8.1 Demographic questions

- Age: _____ Gender: _____
- Qualification (undergraduate, graduate, postgraduate)
- Work under (government setup, private setup)

Survey questions

1. How much awareness do you have against hepatitis? (Plenty, Adequate, None)
2. Do you know what the universal precautions are? (Yes/No)
3. Is it important to take precautions when dealing with hepatitis patient? (Yes/No)
4. Dentists are at a higher risk of hepatitis than general population. Do you agree? (Yes/No)
5. Which of the following route is at a higher risk for spread of hepatitis?
Saliva (), Blood (), Vomit (), Sweat (), Instruments ()
6. Can hepatitis be cured or treated? (Yes/No)

Post exposure prophylaxis measures Frequencies(Q13)



Graph 2: The graph above shows post prophylaxis measures frequencies by respondents (multi-response question)

7. Do you think that all patients should be considered potentially infected with hepatitis? (Yes/No)
8. Can vaccine prevent hepatitis? (Yes, Only hep C, Only hep B, Not at all)
9. Which of the following precautions do you prefer?
 - a) Double gloves () b) Double masks() c) Lab coat() d) Face shields()
 - e) Sterilization of instruments () f) Disinfection of instruments() g) Handwashing()
10. Do you think that spillage of blood & body fluids should be dealt as quick as possible? (Yes /No)
11. Do you think that maintenance of medical records of a hepatitis patient is necessary? (Yes/No)
12. Does hepatitis have post exposure prophylaxis? (Yes/No)
13. If yes then please choose the post exposure prophylaxis measures you would take: -
 - a) Wash infected area with soap & tap water ()
 - b) Press the wound to squeeze out blood ()
 - c) Apply antiseptic/Disinfectant to the affected area ()
 - d) Tie a bandage/tourniquet around the wound ()
 - e) If previously vaccinated, test for anti-Hbs titre in the blood ()
 - f) If not vaccinated previously, administer hep vaccine immediately ()
14. Do you think that the precautions you have adopted are enough to protect from being infected with hepatitis at work? (Yes/ No)

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