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Awareness Regarding Hepatitis C among Dental Students in Bangalore, India: A Cross-Sectional Survey

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Abstract

Background and Objective: Hepatitis C virus infection is a major cause of chronic liver disease and cirrhosis. The infection is transmitted by exposure to blood or body fluids. Since dental healthcare professionals have numerous patients and are exposed to blood, they are likely to have the maximum risk. The present study was conducted to assess the level of awareness and knowledge of Hepatitis C among third year and fourth (final) year dental students of various dental colleges in Bangalore city, Karnataka, India. ***Materials and Methods***: A descriptive cross-sectional study was conducted among 400 students studying in third year and fourth (final) year in various dental colleges of Bangalore city. A close-ended structured questionnaire was administered which contained 11 questions. The responses were analyzed to evaluate the level of awareness regarding Hepatitis C, its mode of transmission, steps to prevent infection, associated complications and status of availability of vaccine against HCV. ***Results:*** The results of our study revealed that most of the students (72.5%) were aware of Hepatitis C vaccine but have less knowledge in terms of its mode of spread of infection, steps to prevent spread of Hepatitis C infection, associated complications and status of availability of vaccine against Hepatitis C virus. ***Conclusion:*** The present study shows that the students had poor level of awareness regarding Hepatitis C indicating need for education about HCV infection among dental students.

Key words: Awareness, Complication, Dental students, Hepatitis C infection, Transmission.

INTRODUCTION

Hepatitis C is a blood borne infectious disease that primarily affects the liver. It is caused by the Hepatitis C Virus (HCV) which was identified in 1989 and classified under the domain of family, Flaviviridae [1]. It is characterized by inflammation of the liver and in many cases permanent damage to liver tissue [2]. HCV spread primarily by blood-to-blood contact commonly associated with intravenous drug use, poorly sterilized medical equipment, and blood transfusions. The existence of Hepatitis C (originally identifiable only as a type of non-A, non-B hepatitis) was suggested in the 1970s and proven in 1989 [3].

Previous global burden of disease estimates published by the World Health Organization (WHO) include only burden from acute HCV infection [4]. The major burden from HCV infection comes from chronic infection [5]. Hepatitis C is the leading reason for liver transplantation, though the virus usually recurs after transplantation. No vaccine against Hepatitis C is available [6]. Without an effective vaccine, primary prevention against Hepatitis C focuses on reducing risks of infection through safe injections and blood safety. With new and promising drugs recently available and more in the pipeline, hepatitis C is now considered curable in upto 70% of treated patients [7].

Physicians, dentists, nurses, laboratory staff, and chair side assistants are at high-risk of acquiring infection via the contact with blood (and other body fluids) in the course of their work [8]. Among the health care personnel, HCV is transmitted by the skin prick with an infected, contaminated needles and syringes or

through accidental inoculation of minute quantities of blood during the surgical and dental procedures [9]. Even after many publications about programs and strategies to prevent transmission, HCV infections still remains a major public health issue for mankind [10]. Enough literature is not present regarding the awareness of HCV among dental professionals. Therefore the present study was designed to assess the level of awareness and knowledge of third year and fourth (final) year dental students regarding Hepatitis C, its mode of transmission, steps to prevent infection, associated complications and status of availability of vaccine against HCV.

MATERIAL AND METHODS

A descriptive cross-sectional study was conducted between May and October 2016 for a period of 6 months among third year and fourth (final) year students enrolled in Bachelor of Dental Surgery (BDS) course in various dental colleges of Bangalore city, Karnataka, India. The aim of the study was to assess the level of awareness and knowledge regarding Hepatitis C, its mode of transmission, steps to prevent infection, associated complications and status of availability of vaccine against Hepatitis C virus. List of dental colleges in Bangalore city was obtained from Rajiv Gandhi University of Health Sciences (RGUHS) [11], Bangalore and list of third year and fourth (final) year students was obtained from each dental college.

Sample size of 400 was calculated based on a similar study conducted by Sharma R *et al.*, 2015 [3]. To meet the sample size, five dental colleges were randomly selected by simple random sampling. The required sample of third year (n=200) and fourth (final) year (n=200) was drawn using systematic sampling method from each of the selected colleges till the desired number was achieved. An ethical clearance was obtained from the Institutional Ethical Committee of Rajarajeswari Dental College and Hospital, Bangalore. Permission to conduct the study was obtained from the head of the institutions of five dental colleges that participated in the study. The participants who were 18 years and above and consented for the study were included in the survey.

A close-ended structured questionnaire was administered which contained 11 questions to assess the awareness of Hepatitis C. The questionnaire consisted of questions related to Socio-demographic profile, Hepatitis C awareness related questions, questions related to mode of transmission, steps to prevent infection, associated complications and vaccination against Hepatitis C virus. The responses were analyzed to evaluate the level of awareness and knowledge regarding Hepatitis C. Awareness level was scored as ≥ 75 Good, < 75 Fair and ≤ 50 Poor.

STATISTICAL ANALYSIS

The data collected in the present study was subjected for descriptive statistical analysis. Number and percentages were used to compute results on categorical measurements. Results were statistically analyzed using SPSS package version 15.0 (SPSS, Chicago, IL, USA). The difference in the level of awareness with respect to gender was evaluated using chi-square test. The level of significance was kept as $P<0.05$.

RESULTS

Data collected from 400 dental students studying in third year and fourth (final) year in various dental colleges of Bangalore city was analyzed. Out of the total students, 68.3% (n=273) were female and 31.7% (n=127) were male. Most of the participants, 96.5% (n=386) said that they have heard about Hepatitis C.

Awareness level regarding Hepatitis C according to gender is depicted in Table 1. Overall 91% of participants said that Hepatitis C infection is preventable which reflected good level of awareness. Poor level of awareness was seen when asked whether Hepatitis C is asymptomatic and also for Hepatitis C being a temporary infection. Female participants showed better level of awareness about Hepatitis C comparatively than male counterpart.

There was statistically significant association of awareness level with gender (P = 0.029), regarding hepatitis C being an asymptomatic infection .However, there was no statistically significant association of awareness level with hepatitis C infection being a temporary infection (P = 0.421), hepatitis C infection being preventable (P=0.096), hepatitis C infection being treatable (P=0.932) and hepatitis C infection being life threatening (P=0.268).

Table-1: Awareness level of dental students according to gender

Awareness Related Questions	Yes n (%)			P-value	Awareness Level
	Male	Female	Total		
Hepatitis C is asymptomatic	48 (12)	135 (33.8)	183 (45.8)	p=0.029	Poor
Hepatitis C infection is a temporary infection	58 (14.6)	113 (28.2)	171 (42.8)	p=0.421	Poor
Hepatitis C infection is preventable	120 (30)	244 (61)	364 (91)	p=0.096	Good
Hepatitis C infection is treatable	88 (22)	188 (47)	276 (69)	p=0.932	Fair
Hepatitis C infection is life threatening	76 (19)	179 (44.8)	255 (63.8)	p=0.268	Fair

*Statistically significant (P<0.05).

Regarding the mode of spread of Hepatitis C infection (Figure 1), 8.25% participants were said that Hepatitis C infection can spread by touching an infected person, 78.75% participants said that the infection can spread by coming in contact with the blood and also through needles sharing, 59.25% participants believed that the infection can spread through saliva, 56% participants were of the view that the infection spread via sexual contact, 61% participants thought that the infection spreads from mother to child through placenta and 16% participants were of the notion that Hepatitis C can also spread by consuming contaminated food or water.

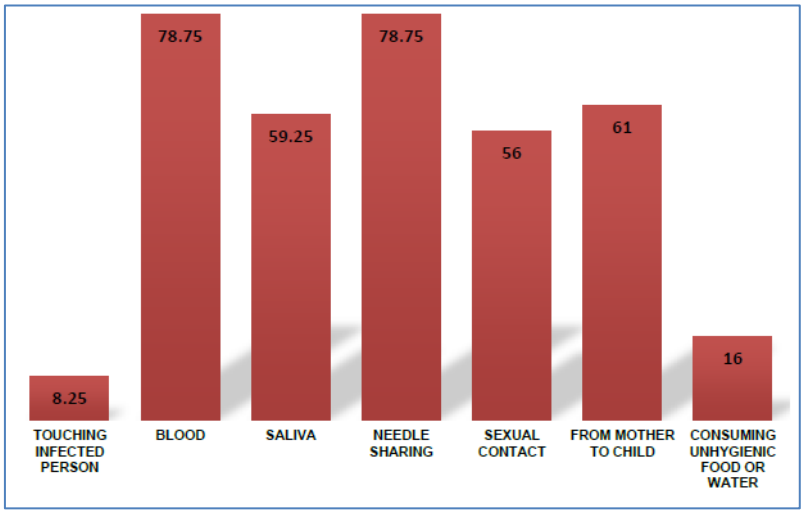

Fig-1: Mode of spread of Hepatitis C infection according to the participants

On being asked about the steps to prevent the spread of Hepatitis C infection (Figure 2), 75.25% participants said that the infection can be prevented by not sharing the needles, 87.25% participants believed that Hepatitis C infection can be prevented by vaccination, 72.25% participants said that screening for HCV prior to blood transfusion can prevent the infection, 7.25% participants believed that the spread of Hepatitis C infection can be prevented by not sharing food or water with the infected person and 37% participants said that the infection can be prevented by practicing safe sex using condoms.

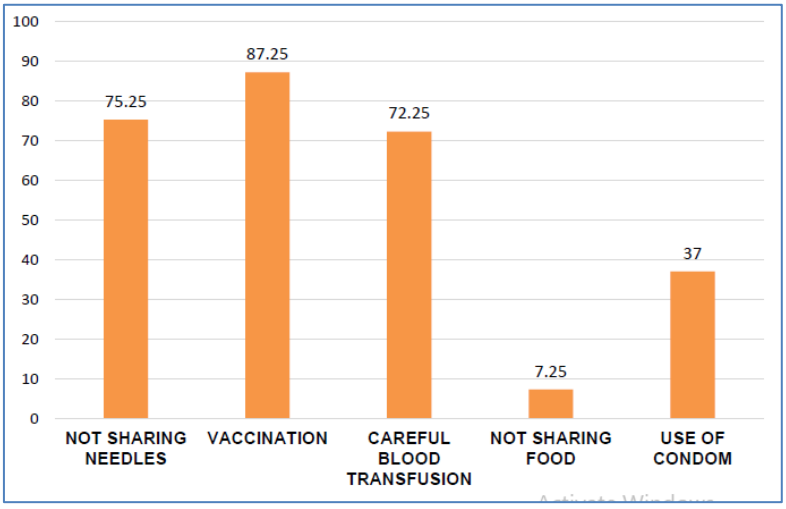

Fig-2: Steps to prevent the spread of Hepatitis C infection according to the participants

Regarding Hepatitis C vaccination, 72.5% participants were aware of the Hepatitis C vaccination. When asked about the complications of Hepatitis C infection, 75.5% and 63.75% of participants said that Hepatitis C infection may lead to liver failure and cirrhosis respectively. 28% participants said that Membranous glomerulonephritis is a complication of Hepatitis C and 43.75% participants believed that Hepatitis C infection might cause carcinoma of liver (Figure 3).

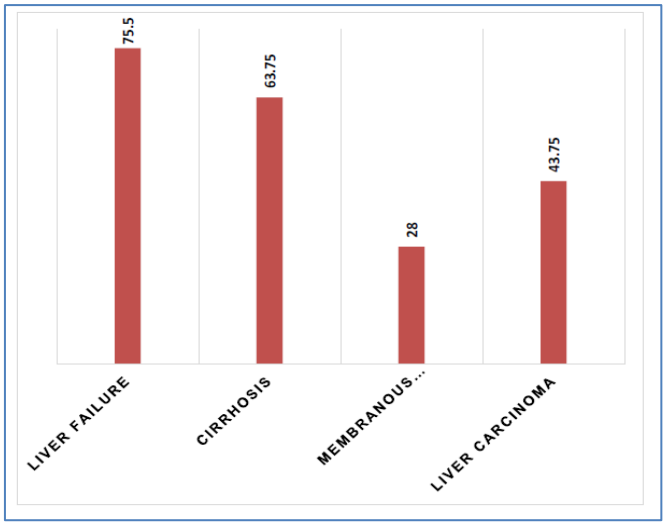

Fig-3: Complications that can result due to Hepatitis C infection according to the participants

DISCUSSION

The emergence of the blood-borne pathogens and the increasing number of infected patients compel dental professionals to have thorough knowledge of contagious diseases along with the dental management of patients with such diseases. Hepatitis C viral infection is a developing epidemic of the new century which now has been connected to many diseases. There are very few studies in literature that have assessed the different categories of dental health care professionals and their attitude toward Hepatitis C Infection [12, 13].

400 third year and fourth (final) year students enrolled in Bachelor of Dental Surgery (BDS) course in various dental colleges of Bangalore city participated in the present study. It was found that only 96.5% participants have heard about Hepatitis C. In a study by Gambhir *et al*. [14] about 84% of the participants heard about Hepatitis C. The participants were not clear about the symptoms of HCV infection, as 45.8% were of the view that it is asymptomatic which is similar to a study by Sharma R *et al.* [3] where 57.12% participants believed that HCV infection is asymptomatic.

In the present study, 43.75% respondent believed that one of the complication of Hepatitis C infection is liver carcinoma whereas, in a study by Salama RE *et al.* [15] majority of study participant shared misconceptions that there are no devastating consequences or complications of the disease (e.g. liver cancer). Majority of the respondents of the present study demonstrated an adequate level of knowledge about hepatitis C infection. Majority of them said that the routes of transmission of the infection are mostly by needle sharing (78.75%), blood transfusion (78.75%) and through the infection from mother to child through placenta (61%). Similar findings was seen in a study by Ebtisam Ali Althawab *et al.* where majority believed blood transfusion (93.7%) as an important source of transmission followed by needle sharing (74.6%) and infection from mother to her fetus (43.7%) [16]. In contrast to the present study a study by Ramniwas *et al.* [8] and Ebtisam Ali Althawab *et al.* [16] stated that the infection can be transmitted by used razor blade. However regarding knowledge and awareness about Hepatitis C, respondent in this study were found to be more aware as compare to the another study conducted by Sharma R *et al*. [3] and Elkazeh *et al.* [17].

In a study done in Egypt, it was found that Hepatitis C is a new viral disease that primarily affects the liver but knowledge about risk factors for disease transmission was found to be poor [18]. The present study showed that the fate of viral hepatitis C infections accounts for both liver failure and cirrhosis which is similar to a study done by Prez *et al.* [5]. On being asked about the availability of a vaccine against Hepatitis C, 72.5% participants were aware of the Hepatitis C vaccination in the present study. Similar to this, in a study by Sharma R *et al.* [3] 74.04% participants were aware and in a study by Gambhir *et al.* [14] 53% participants were aware.

The present study shows poor level of awareness and highlights the need for implementing separate course in dental curriculum on communicable diseases. At the end of our data collection in each college, the students were given an awareness talk about Hepatitis C and various universal precaution methods were briefed that is important considering clinical aspect of dentistry. A study by Sharma R *et al.* [3] and Tripati S *et al.* [12] demonstrated the need for further education and awareness of dental students with regard to HCV infection in the dental settings. The students who were not vaccinated were also motivated for immediate vaccination. The present study used a brief questionnaire keeping in view the time constraints of the students. Therefore, to some extent certain aspects related to hepatitis C was left untouched.

CONCLUSION

Even though the participants of the present study were from third and fourth (final) year, they were not well aware of the Hepatitis C. They also harbored few misconceptions on the modes of Hepatitis C transmission. It is of utmost important to make the dental students aware about the disease due to the nature of the profession and close proximity to different kinds of patients.

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