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Hepatitis C: Knowledge and awareness of private dental practitioners of a tricity in India

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Abstract:

BACKGROUND: Dental health-care personnel are at an increased risk toward infections caused by various microorganisms including hepatitis B and hepatitis C viruses (HCV). A dentist can play an important role in the prevention of HCV by considering every patient as a potential carrier for hepatitis. Therefore, the present study was conducted to assess the knowledge and awareness of dental health-care professionals regarding various aspects of HCV.

MATERIALS AND METHODS: A cross-sectional study was conducted among 247 private dental practitioners of tricity. A close-ended self-structured questionnaire was administered which contained 12 questions on knowledge and awareness regarding HCV infection keeping in view the time constraints. Categorization of knowledge scores was done at three levels - poor, moderate, and good. Statistical analysis was done using ANOVA and Student's *t*-test.

RESULTS: Nearly 96% (102) of postgraduates and 84% (117) of graduates had heard about HCV. 45.5% (112) had poor knowledge scores, 33.6% (83) had moderate knowledge scores, and only 21% (52) of participants had good knowledge scores. On the opinion of treating an HCV-infected patient by a dentist, only 61% (65) of postgraduates and 46% (64) of graduates agreed. There was statistically significant association of mean knowledge scores with gender, education level, and experience ($P < 0.05$).

CONCLUSION: Majority of the dental professionals lacked knowledge regarding HCV infection and were not fully aware regarding certain aspects. Therefore, there is an urgent need for modification of the existing dental curriculum so that knowledge regarding these diseases can be imparted during graduation.

Keywords:

Awareness, hepatitis C, infection, prophylaxis, vaccination

Introduction

Today, viral hepatitis (hepatitis B and C [HBC]) has become a silent epidemic worldwide. The virus primarily affects liver cells and can lead to severe inflammation of the liver with long-term complications. The main symptoms of the disease include anorexia, abdominal discomfort, nausea and vomiting, fever, and fatigue which can proceed to jaundice in 25% of patients.^[1]

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There is a significant burden of hepatitis C virus (HCV) infection to public health worldwide. Every year 3–4 million new cases are diagnosed as a result of chronic infection. More than 150 million people are chronically infected and are at the risk of developing cirrhosis of liver and liver cancer. More than 4 lakh deaths occur each year due to all HCV-related causes.^[2] However, there is incomplete understanding regarding exact mechanisms by which the HCV causes liver damage. Research suggests that a person's own immunological response to the HCV contributes significantly to this process.

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HCV (HBC) infection has been one of the major cause of morbidity and mortality among health-care workers including dental health-care professionals.^[3] In the dental operatory, HCV infection can spread through several routes which include direct contact with blood, indirect contact with contaminated instruments, and other airborne contaminants which are present in droplet splatter or aerosols of oral and respiratory fluids.^[4,5]

Prevention as a safeguard against the epidemic of viral hepatitis is highly recommended. By knowing facts, having proper awareness and attitudes, the menace of this disease can be prevented to a great extent.^[6] As health-care workers remain at a high risk of transmission through various routes, it is very important for them to follow proper measures of infection control and prevention.

Individuals infected with HCV may sometimes experience discrimination and stigmatization in the workplace, by members of their family or by people living in their community. In addition, they may face discrimination from health-care professionals.^[7,8] These discriminatory practices may be a result of lack of knowledge and awareness which may lead to the development of negative attitudes toward these kinds of diseases, which could interfere with their willingness to treat these patients because of a fear of contracting the infection. Although fewer studies have been conducted to assess the awareness of hepatitis C in specific populations, the literature suggests that knowledge about this disease is poor.^[9] Therefore, the present study was conducted to:

- Assess the knowledge and awareness of dental health-care professionals regarding various aspects of HCV
- Suggest possible measures to increase knowledge among dental professionals if required.

Materials and Methods

Ethical clearance and informed consent

The present study was conducted after obtaining ethical clearance from the Institutional Ethics Committee. Anonymity of participants was assured, and written informed consent was obtained from the participants before data collection and after clear description of study objectives.

Study population and study sample

The present descriptive cross-sectional study was carried out among dental health professionals who are engaged in private practice in the tricity (Chandigarh, Panchkula, and Mohali). Local Indian Dental Association (IDA) bodies provided the list of all practicing dentists in the tricity. A pilot study was done on 35 participants to check the feasibility of the study. The required sample size

was determined based on the results of the pilot study. After doing all the calculations, a sample size of 275 was obtained. The response rate was 90%; therefore, the final sample size of the study was 247. Simple random sampling methodology was employed to pick the study participants from the list provided by the local IDA bodies.

Research instrument

A self-designed questionnaire written in English was made specifically for the study. The questionnaire was corrected and modified based on the assessments of the supervisor and a methodologist. The questionnaire was pretested for validity and reliability. The reliability of the questionnaire was good (0.82). The questionnaire was divided into two sections - Section A was "general section" containing sociodemographic details of the participants (gender, educational status, type of practice, and experience). Section B comprised on 12 questions depicting knowledge and awareness regarding HCV (heard about HCV, route of transmission, affected organs, long-term effects, preventive protocol, source of information, availability of vaccine, etc.). The questionnaire was made in brief so that the dentist could fill the questionnaire without disturbing his or her patients' appointments. A visit was made to the practicing dentists in the tricity. The questionnaire was handed over with exigent instructions for the same. The data collected was maintained under strict confidentiality. Only valid responses were used for the analysis. Total knowledge/awareness score was calculated on the basis of each participant's response. Each positive response was scored as "1" and negative as "0." The total score of the participant was calculated by adding the sum of responses which ranged from 1 to 12, on a Likert scale. The final scores were categorized into three levels - Poor (0-4), moderate (5-8), and good (8-12).

Statistical analysis

Completed questionnaires were collected on the same day and prospectively analyzed. The present study conducted 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). Analysis of variance (ANOVA) was used to find the significance of study parameters between three or more groups of study participants, Student's *t*-test (two-tailed, independent) was used to find the significance of study parameters on continuous scale between two groups (inter-group analysis).

Results

Sociodemographic characteristics

The details of the participants regarding gender, level of education, and type of practice are mentioned in

Table 1. A number of male participants (163, 66%) were comparatively more as compared to the female participants (84, 34%). In addition, majority of the private practitioners were graduates (BDS) (140, 56.6%) and only 43.4% of the practitioners had a postgraduate qualification (MDS). Only 9.7% (24) of participants had an experience of more than 30 years.

Subjects’ response to various questions

Figure 1 depicts the response of participants to various questions regarding hepatitis C. A vast majority of participants (96% postgraduates and 84% graduates) had heard about HCV. When asked about the availability of vaccine against HCV, only half of the participants gave the correct answer. Only 12% of graduates and 14% of postgraduates asked about HCV in their patient’s medical history. Nearly 61% of postgraduates agreed to the fact that a dentist can treat HCV-infected patient as compared to only 46% of graduates. Need for updating their knowledge regarding HCV was felt by 84% of graduates and 81% of postgraduates.

Knowledge/awareness level

Among the study participants, 45.5% (112) had poor knowledge scores, 33.6% (83) had moderate knowledge scores, and only 21% (52) of participants had good knowledge scores [Table 2]. When education level of the study participants was compared with knowledge regarding hepatitis C, it was noticed that 54.3% of the graduates (BDS) were having poor knowledge scores. Astonishingly, good knowledge scores were seen only in 24.4% of postgraduates (MDS) [Figure 2]. Mean knowledge scores according to different sociodemographic variables are depicted in Table 3. There was statistically significant association of mean knowledge scores with gender ($P = 0.041$), education level ($P = 0.012$), and experience ($P = 0.035$). However, there was no statistically significant association of

mean knowledge scores with type of practice of participants ($P = 0.072$).

Discussion

Viral hepatitis is considered one of the serious health problems, especially in the developing countries as it can lead to fatal consequences of liver cirrhosis and hepatocellular carcinoma.^[10] Dental and other health-care professionals are one of the most vulnerable groups for work related HCV transmission. Majority of the studies conducted on health-care professionals focus on hepatitis

Table 1: Sociodemographic characteristics of study participants

| Characteristics | n (%) |
|-------------------------------|------------|
| Gender | |
| Male | 163 (66) |
| Female | 84 (34) |
| Education level | |
| Graduate (BDS) | 140 (56.6) |
| Postgraduate (MDS) | 107 (43.4) |
| Type of practice | |
| Private | 88 (35.6) |
| Combined (private + academic) | 159 (64.4) |
| Experience (years) | |
| 0-10 | 116 (47) |
| 10-20 | 68 (27.5) |
| 20-30 | 39 (16) |
| >30 | 24 (9.7) |

Table 2: Knowledge scores regarding study hepatitis C among study participants

| Knowledge level | Number of participants (%) | 95% CI |
|-----------------|----------------------------|-------------|
| Poor | 112 (45.3) | 55.12-53.56 |
| Moderate | 83 (33.6) | 24.65-32.47 |
| Good | 52 (21) | 18.61-24.62 |
| Total | 247 (100) | |

CI: Confidence interval

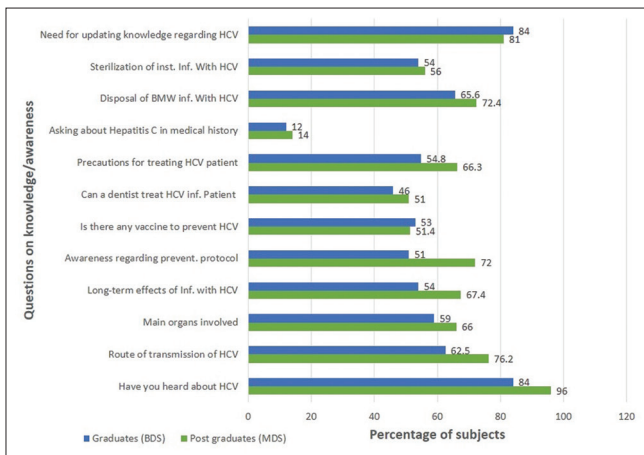


Figure 1: Subjects’ response to various questions regarding hepatitis C infection

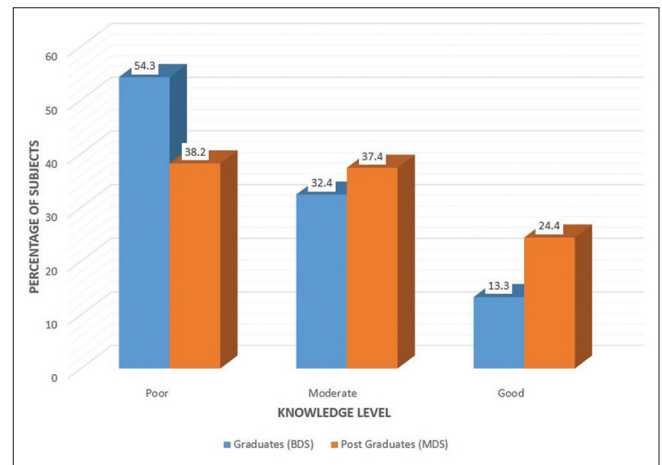


Figure 2: Knowledge level regarding hepatitis C among graduates (BDS) and postgraduates (MDS)

Table 3: Mean knowledge scores of participants according to different sociodemographic variables

| Sociodemographic variable | Knowledge score | | P |
|---------------------------------|-----------------|------|-------------|
| | Mean | SD | |
| Gender | | | |
| Male | 5.24 | 2.52 | $F=2.642$ |
| Female | 4.26 | 2.26 | $P=0.041^*$ |
| Total | 5.16 | 2.71 | |
| Education level | | | |
| Graduate (BDS) | 4.51 | 1.26 | $t=1.484$ |
| Postgraduate (MDS) | 6.12 | 3.45 | $P=0.012^*$ |
| Total | 5.87 | 2.23 | |
| Type of practice | | | |
| Private | 4.18 | 3.23 | $F=1.712$ |
| Combined (academic and private) | 6.71 | 2.62 | $P=0.072$ |
| Total | 5.74 | 1.98 | |
| Experience (years) | | | |
| 0-10 | 3.65 | 2.12 | $F=2.653$ |
| 10-20 | 4.56 | 5.23 | $P=0.035^*$ |
| 20-30 | 5.78 | 3.12 | |
| >30 | 5.81 | 4.12 | |
| Total | 5.06 | 3.68 | |

Tests used Students' *t*-test, ANOVA. *Statistically significant ($P<0.05$). ANOVA=Analysis of variance, SD=Standard deviation

B,^[11,12] but very few studies have been concentrated on hepatitis C. Therefore, the present study was conducted to assess knowledge and awareness of dentists regarding HCV. To avoid recall bias, the study used a close-ended questionnaire as these are easy to analyze and may achieve a quicker response from participants.^[13]

More than 80% of participants in the present study had heard about HCV infection. Similar findings were reported in some other study conducted elsewhere among medical and dental health-care professionals.^[14] However, only 45% of participants reported having adequate knowledge regarding HCV in some other study conducted among graduating dentists in Libya.^[15]

Only 53% of both graduates and postgraduates were aware regarding the availability of vaccine against HCV. This was in congruence to findings of some other study conducted among medical professionals.^[15] Inadequate knowledge and false belief of the existence of vaccine against HCV are an issue that requires serious attention among health-care professionals. Less than 50% of participants agreed to the fact that a dentist can provide treatment to HCV-infected patient in the current study. We suggest that occupational experience and fear of contracting hepatitis C can also influence the willingness to treat people with HCV infection.

When a patient enters a dental clinic, it is vital to record his/her medical history. All patients with a history of hepatitis must be managed as they are potentially infectious. It was astonishing to note that <15% of

participants enquired about hepatitis C while taking patients' medical history in the current study. This may be due to the reason that hepatitis C patients are not regularly encountered within dental clinical setting, and the dental curriculum also does not provide continuous updating of knowledge and training.

Only 21% of participants in the present study had good knowledge scores regarding HCV. This finding is better to some extent than some other study conducted in Bulgaria where only 6% had good knowledge.^[16] Good knowledge scores were also observed in only 24.4% of postgraduates in the study. This could be the reason that more than 80% of both graduates and postgraduates felt the need for updating their knowledge regarding HCV.

Mean knowledge scores regarding HCV were more in case of males as compared to females in the study ($P = 0.041$). This finding is in contrast to results of some other study conducted in Pakistan where females comparatively reported better scores.^[17] Moreover, higher knowledge scores were reported among postgraduates, and the findings were statistically significant. Our finding that a higher level of qualification positively correlates with knowledge about hepatitis C fits with the current literature.^[18] In addition, participants who had experience of more than 30 years were more knowledgeable ($P = 0.035$), showing that greater experience can be associated with greater knowledge. This finding is in contrast to some other study conducted among health professionals in Iran.^[19]

The present study had some limitations also. A brief questionnaire was used in the study keeping in view the time constraints so that it should not interfere in the scheduled appointments of the dentist. Therefore, certain aspects related to hepatitis C could have been left behind. Second, the study relied on self-reported data; some participants could have given socially acceptable responses. Finally, the cross-sectional design of the study and small sample size limits the results to be used for establishing a cause-effect relationship. Therefore, the results of the study should be interpreted with caution.

Conclusion

The results of the present study showed that dentists' knowledge regarding HCV infection was poor and were not fully aware regarding certain aspects related to hepatitis C. However, this study could actually be an eye opener for the dental educational administrators who need to bring about a change in the dental curriculum such that stress should be given on making every student knowledgeable in handling patients with not only hepatitis C but any other medical condition also. Each dental clinic should develop a comprehensive written

program for preventing and managing occupational exposures.

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Conflicts of interest

There are no conflicts of interest.

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