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Research Article

Knowledge and Awareness toward Hepatitis C Infection among Dental Students in Qassim University, Saudi Arabia

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Abstract

Background: Hepatitis C virus is a major health problem. It is spread by direct contact with blood of infected person. Health practitioner including dental students who work in clinic are at high risk of getting such an infection.

Objective: The main purpose of this study is to assess knowledge level and awareness toward HCV among dental students in Qassim University, Saudi Arabia.

Materials and Methods: A Standardized questionnaire with close-end questions have been distributed for both clinical and preclinical dental students at Qassim University. Questionnaire comprised questions about Nature of Virus and Mode of Transmission, Sign/Symptoms and Complications, Prevention and Treatment options. The data collected has been run into SPSS program. Analysis of variance Chi-square was performed for each variable to assess whether significant differences were observed between each level.

Result: A total of 140 students had participated in the study with response rate 70.5%. Students scored good knowledge regarding to nature of virus, with no significance difference between groups. Regarding to route of transmission students show good knowledge that transmission could be by blood contact. However, students with unsatisfactory knowledge fair to poor for other routes of transmission with statistical difference between groups. Students were not aware about complication with statistical difference p = 0.0001. Students scored poor knowledge for the Sign and symptoms and the availability of treatment options.

Conclusion: The overall awareness of HCV diagnosis, how infected person may appear, and the availability of vaccine and treatment was fair, Continuous education for both preclinical and clinical students is needed.

Keywords: *Hepatitis C Virus (HCV); Knowledge; Attitude; Students; Health Practitioner*

Introduction and Background

Hepatitis is an inflammation of the liver which is normally caused by one of the five hepatitis virus types; A, B, C, D, and E [1] and these viruses differ significantly. Among these, hepatitis C has become a significant burden to public health worldwide [2], particularly, there is no vaccine available [3]. Infection by HCV can lead to significant morbidity and mortality [4]. The prevalence and incidence of the hepatitis in the Arabian Gulf countries have been investigated, resulting in large number of HCV infection in Saudi Arabia compared to other population [5].

Dental health personnel (DHP) including dental students are at high risk of exposure to cross-infection with blood-borne pathogens [6]. Searching in international databases that have conducted on the viral infection in Saudi context using keywords "hepatitis C", "dental student", "liver disease" and infection control". In electronic databases such as PubMed, Medline, Google Scholar. The Manual search of various journals and books was also carried out to confirm facts in this viral infection.

Recently in 2017, Dental students at King Saud University, Riyadh reported many injuries with a used instrument. The most frequently injuries have been reported is by needles and burs [7]. Such injuries increase risk of getting blood to blood borne infection [8].

Hepatitis C virus is primarily spread by direct contact with human blood. However, transmission through blood transfusions and use of unsterilized needles or syringes, or through needle sharing is efficiently acknowledged [1]. It is believed that HCV can be transmitted sexually, yet, transmission through sexual intercourse is very low as proved by many empirical studies [9]. Other modes of transmission such as social, cultural, and behavioral practices using percutaneous procedures (namely ear and body piercing, circumcision, tattooing) can occur if inadequately sterilized equipment is used. Yet, sneezing, hugging, coughing, food or water, sharing eating and/or casual contact do not spread HCV [9,10].

According to the WHO, up to 80% of HCV-positive patients do not show symptoms. Thus, symptoms could not be used as specific indicators for HCV infection. At present, it is difficult to isolate and culture HCV using clinical specimens. Furthermore, anti-HCV IgMs could be detected not only in 50% - 93% of patients with acute hepatitis C but also in 50% - 70% of CHC patients [10]. Therefore, anti-HCV IgM cannot be used as a reliable marker for the acute HCV infection, and IgM assays have not been used in clinical practice [11,12]. At present, diagnostic assays for anti-HCV total antibody, viral core antigen, and viral genomic RNA are used in clinical practice [14-17]. Although there is no vaccine for HCV, current treatment regimens can cure more than 90% of cases [17,18].

Many surveys have been administered to evaluate knowledge, attitudes, and practices pertaining to infection control measures among population and other health practitioners. In KSA specially Qassim region few studies have been carried out. By searching in international research databases, no single study has been published among dental students in Qassim province to the best of the author's knowledge. Therefore, the main purpose of this study is to assess knowledge level and awareness toward HCV among dental students in Qassim University, Saudi Arabia. Findings of this study will show if there will be a need to raise awareness to improve the students' performance.

Materials and Methods

The study protocol was reviewed by the ethical committee in the College of dentistry at Qassim University. A Standardized questionnaire with close-end questions have been distributed in July 1st 2018 for all dental students at Qassim University.

Questionnaire comprised questions about Nature of Virus and Mode of Transmission, Sign/Symptoms and Complications, Prevention and Treatment options. Awareness level was scored as ≥ 75 Good, < 75 Fair and ≤ 50 Poor.

The data collected has been run into SPSS program. Analysis of variance Chi-square was performed for each variable to assess whether significant differences were observed between each level.

Result

A total of 140 students had participated in the study with response rate 70.5%. Of these participants, 89 (62.6%) students were male and 53 (37.3%) were female.

Nature of virus

About 95.1% of students were aware that hepatitis C was a viral infection. Only 4.9% of students thought it was a bacterial infection, obtaining no statistically significant difference (P = 0. 08). In responses to the affected organ, 96.5% were aware that liver was the affected

organ, 2.1% selected the lung and 1.4% of student chose stomach, which were from 1st academic year. Responses showed no significant difference (p > 0.05) among the various academic years. Obviously, at this part students demonstrated good knowledge about the nature of the virus.

Route of transmission

Most of students scored good knowledge regarding to route of transmission. Responses summarized in table 1.

Mode of transmission	Yes %	No %	Awareness Score	P-Value
Blood transfusion	93.7	6.3 %	Good	P = 0.5213
Air in closed environment	19.7	80.3	Good	p = 0.6979
Barbers blades	55.6	44.4	Fair	p = 0.0066*
Sexual intercourse	66.2	33.8	Poor	p = 0.1177
Contact to open wound/cuts	52.1	47.9	Poor	p = 0.0001*
Sharing injecting equipment such as needles and operation tools	74.6	25.4	Good	p = 0.0169*
Sharing dishes with positive HCV patient	21.8	78.2	Good	p = 0.4673
From mother to her fetus	43.7	56.3	Fair	p = 0.0438*

Table 1: *Students' answers to the route of transmissions of HCV.*

**Significant (P-value < 0.05).*

Diagnosis of HCV

Only 43% of students were aware about HCV diagnosed by antibody test. Majority of students 54.2% did not know that Hepatitis C cannot be diagnosed by antigen test. Only 14.1% of students responded with No for antigen test. There was a significant difference at (p = 0.05) among the students from different levels. Correct responses are summarized in table 2. Afterall, Student scored as "poor "regarding to test available to diagnose HCV.

	Correct responses (N%)	Awareness Score
Diagnoses by antibody test	43%	Poor
Diagnoses by antigen test	41.1%	Poor

Table 2: *Awareness score regarding to HCV diagnosis.*

Signs and symptoms

Responses regarding to HCV can be acute infection in which signs and symptoms resolve completely. Half of students did not know that. Answers with yes reached 25.4% then no 24.6% respectively. There was a statistically significant difference (p > 0.05) among the students. Most of students 48.6% knew that patients with chronic infection would be asymptomatic. Surprisingly 40.8% did not know that. Only 10.6% answered with no. There was a statistically significant difference (p > 0.05) among the students. All responses regarding to sign and symptoms are summarized in table 3.

	Answers with Yes	Answers with No	Answers with Don't know	Awareness Score	P value
HCV can cause acute infection	25.4%	24.6%	50%	Poor	p = 0.2030
Patient with chronic would be asymptomatic	48.6%	10.6%	40.8%	Poor	p = 0.3480

Table 3: *Responses regarding to sign and symptoms.*

Complications

Figure A showing students response, Whether HCV could end up with hepatocellular carcinoma.

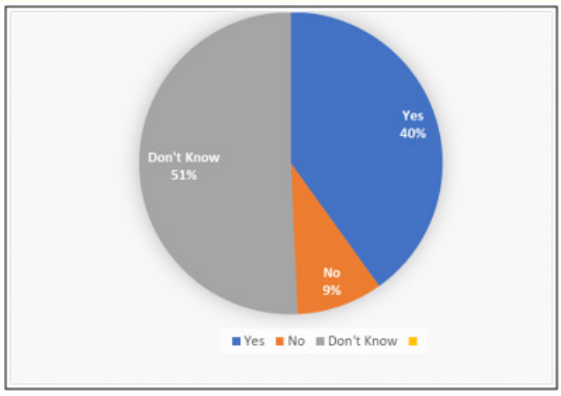

Figure A

Most of students knew HCV would lead to Liver Cirrhosis. There was no statistically significant difference between the Groups at (p > 0.05). Figure B shows Students responses, If Hepatitis C could lead to Liver Cirrhosis.

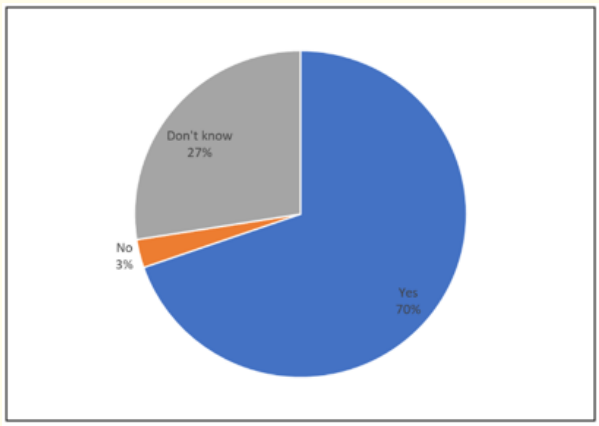

Figure B

"Gastric malignancy" have been added as a miss leading option. Only 21.1% replied with No with no significance difference among the groups (p = 0.0700). Generally, students showed insufficient knowledge - poor to fair - regarding to complications.

Knowledge about treatment options

Comparison of year of study (1st, 2nd, 3rd, 4th, 5th) with responses to treatment options, more than ¾ of students answer with "don't know" about the possible treatment options of HCV including injection by gamma globulin, interferon and Ribavirin. Except for liver transplantation, responses with "yes" were acceptable, only 39.4% of students didn't know that, 14.8% answered with no. The students' responses were summarized in table 4.

	Injection of gamma globulin	Injection of interferon	Injection by Ribavirin	Liver transplantation	Lung transplantation
Yes (%)	18.3%	13.4%	14.1%	45.8%	4.9%
No (%)	4.2%	7.7%	9.9%	14.8%	43%
Don't know (%)	77.5%	78.9%	76.1%	39.4%	52.1%
P – value	p = 6630	p = 0.3020	p = 0.0040*	p = 0.0500*	p = 0.0150*
Score	Poor	Poor	Poor	Poor	Poor

Table 4: *Students' response to knowledge about the treatment.*

**Significant (P-value < 0.05).*

Discussion

Saudi Arabia has been classified as a country with an intermediate prevalence of hepatitis B and C, based on surveys using blood donors (2012) [19]. Of course, the more knowledge people have, the better attitude during clinical practice would be. This survey has been designed to determine the need of more continuous educational programs. The overall responses regarding to the type of infection and target organ showed good knowledge level. Hepatitis C is a blood-borne disease, 93.7% of responses had selected blood transfusion then sharing contaminated needle or instruments (74.6%). Similar findings have been obtained by Batool's., *et al*. study, revealing that among 98.5% dental practitioners agreed that blood contact was the major route of hepatitis C transmission [20] (512). In addition, a study by Tazeem S., *et al*. 2014, concluded that 80.7% of participants identified blood and blood products and almost the same number of participants voted for needles and sharps (80%) as route of transmission [21]. However, a study among 3rd year, final year, and interns by Peeran SW., *et al.* 2016 reported that only 51.5% participants identified blood and blood contact related to the major transmission route for HCV. Concerning the findings of the present study, high percent of the students stated that blood transfusion was more common route of transmission than sharing contaminated needles or unsterilized instruments. After all, A global review by *Journal of Hepatology* concluded that since the introduction of anti-HCV screening for blood donors, hepatitis C showed decrease in the incidence which caused by un-screened blood transfusion [22]. Also, WHO 2017 support the fact that sharing injection is more common to cause infection than blood transfusion [23]. According to WHO, sexual intercourse and fetus to mother could transmit the infection. However, these are less common.

In this study more than half of students believed that sexual intercourse could transmit the infection. About 43.7% response with yes regarding mother to fetus transmission. Similar results have been obtained which support the current study. For example, a study among medical students had been carried out in Lahore: Pakistan in 2014, About 53.6% of students believed that sexual intercourse could transmit the infection. Only 21.8% of students believed that spread was attributable to sharing food or drinks with an infected person in the current study. However, A different result has been found in Lahore: Pakistan, concluding that 43.2% of participants agreed that transmission was possible through contaminated water [21].

In 2014 a study published by Kołakowska., *et al.* reported that breastfeeding by mothers infected with HCV was safe and did not lead to transmission of infection to the baby [24].

Half of participants did not know that Hepatitis might lead to hepatocellular carcinoma. Majority of students were aware that it might end up with liver cirrhosis. Similarity, a study by Nicklin., *et al.* [25] that was conducted among health care worker, reported that half of the personnel indicated cirrhosis was caused by hepatitis C and only 37% thought it caused liver cancer [26]. Also, Farahnaz G., *et al.* reported that participants were insufficiently knowledgeable about the complications of hepatitis C. On the other hand, Sood., *et al.* [27] showed that more than half of the participants answered correctly to the questions about the complications [26].

Regarding to the treatment options, students showed poor knowledge level. High percent of students were not aware about gamma globulin, interferon or Ribavirin injections. Only 45% of students agreed that liver transplantation might be considered as a treatment option. Similar study had been conducted in Damam University (2017) among 4th year medical students reported that students' awareness was fair on whether hepatitis C patients can be treated [28].

Conclusion

Majority of the students showed acceptable knowledge regarding to HCV transmission. The overall awareness of HCV diagnosis, how infected person may appear, and the availability of vaccine and treatment was fair. A continuous education for both preclinical and clinical students is required.

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