

Research Article

Knowledge, attitude and behavior of primary health care workers about hepatitis C, Kuwait.

Suhair A. Yaghi¹, Ebtihal S. Al-Habib², Alia A. Sadik³, Ghizayel R. Almutairi⁴, Gamal Makboul⁵ and Medhat K. El-Shazly^{6*}

¹MRCGP, West Salmiya Center, PHC, MOH, Kuwait

²MRCGP, Khalid Saleh Al-Ghunaim Medical Center, PHC, MOH, Kuwait

³MRCGP, Khalid Saleh Al-Ghunaim Medical Center, PHC, MOH, Kuwait

⁴MRCGP, South Fardosse Center, PHC, MOH, Kuwait

⁵MD, Department of Community medicine, Faculty of Medicine, Alexandria University, Egypt
&Department of Health Information and Medical records, Ministry of Health, Kuwait.

⁶MD, Department of Medical Statistics, Medical Research Institute, Alexandria University, Egypt.
&Department of Health Information and Medical records, Ministry of Health, Kuwait.

Authors Emails: juju.heart@hotmail.com¹, Dr.ealhabib@gmail.com², drhaham@hotmail.com³,
dr.ghizayel@live.com⁴, gamalmakboul@hotmail.com⁵,

*Corresponding Author's E-mail: medshaz@yahoo.com, Mobile: 0096566612524.

ABSTRACT

Background: Hepatitis C virus (HCV) infection can lead to much morbidity and mortality, and health care workers (HCWs) are at high-risk for acquiring infection and transmission to their patients and close contacts.

Objective: The aim of this study is to reveal HCWs' knowledge, attitudes and behavior towards HCV transmission and protection.

Methods: This study was a cross-sectional survey that was conducted in all primary health centers located in two randomly selected health regions in Kuwait. An anonymous self-administered questionnaire was distributed to all currently working health care workers in the selected centers.

Results: The overall percentage knowledge score was 44%. The study revealed that about three-quarters of the respondents (72.7%) were aware that HCV infection can be acquired from patient to HCW compared to 54.5% knew that infection can be transmitted from HCW to patients. Correct knowledge about blood and blood products as well as needles and sharps as modes of transmission were above 90%. However, 30.0% and 25.7% respectively claimed that avoiding drinking contaminated water and food not well cooked were ways of preventing HCV.

Participants' knowledge was reflected on their attitude as 35.2%, 22.1%, 19.3%, 11.4% respectively believed that wearing of goggles, avoidance of diagnosed patients, use of multivitamin/blood tonic, and use of antibiotics after contact are measures taken to protect them against HCV infection. Although more than 90% of participants were aware that blood and needles and sharps are routes of infection and that avoiding these sharps is a protecting measure, only 80% of them believed in wearing gloves and proper disposal of sharps. Female physicians older than 30 years were better informed about HCV.

Conclusions: Knowledge, attitudes and practices about hepatitis C among primary HCWs were fair, with important gaps which need to be strengthened especially among those with unsound knowledge.

Key words: hepatitis C, knowledge, attitude, primary health care workers

INTRODUCTION

Infection caused by hepatitis C virus (HCV) is an important health problem worldwide with a high morbidity and mortality. (Fejza et al. 2009, Di Bisceglie, 1998) The prevalence of antibody against HCV (anti-HCV) in serum in most developed countries range between 1% and 2%. (Di Bisceglie, 1998) While hepatitis B is a vaccine-preventable disease, HCV infection has no effective vaccine, once infection with HCV occurs it leads to increases in the chronic condition of the case up to 85%. (Alavian et al. 2009, Perlman, 2004, Stoll-Keller et al. 2009) According to a World Health Organization (WHO) estimate, there are about 170 million people infected chronically with HCV. (Alavian, 2009, WHO, 1999) Up to 70% of chronically infected individuals develop active liver disease that can lead to cirrhosis, hepatocellular carcinoma and liver failure. (Ozarasand Tahan. 2009, Zein, 2003) HCV is a leading cause of end-stage liver disease and the most common indication for liver transplantation. (Alavian, 2009) Although HCV has been less prevalent since the 1990s in the western world, it is still endemic in some African and Asian countries. (Ozarasand Tahan. 2009).

Most persons with HCV are asymptomatic, although some experience fatigue or other nonspecific symptoms. (Hoofnagle, 1997, Cotler et al. 2007) The Clinical course of the chronic hepatitis caused by HCV is generally insidious. About 70% of these cases have no discernible symptoms and signs where as 10–20% of these cases have non-specific symptoms such as anorexia, malaise or abdominal pain and the remaining small number of these cases may be present with jaundice. (Umar et al. 2000)

HCV have common routes of transmission, such as occupational exposure among health care workers (HCWs), unprotected sexual contact, pre-natal transmission, intravenous drug use or through blood products and contamination during medical procedures. (Alavian, 2009, Alavian et al. 2007, Pourkarim et al. 2009) The prevalence of hepatitis C is remarkable in high-risk groups such as thalassemic, chronic hemodialysis, and intravenous drug user patients, physicians exposed to needle stick injuries and rarely user of double gloves. (Alavian, 2009, Mirmomen et al. 2006, Gurubacharya et al. 2003)

Studies indicated that 61% of HCWs were unaware that HCV can be transmitted by needle stick injuries. (Mirmomen et al. 2006, Gurubacharya et al. 2003) In some countries, despite the decrease in HBV prevalence, there has been no decrease in hepatitis C. (Alavian, 2009) As hepatitis C can lead to much morbidity and mortality, and HCWs are high-risk group for acquiring HCV infection and for transmission to their patients and close contacts, the aim of the present study is to reveal HCWs knowledge, attitudes and behavior towards HCV transmission and protection in primary health care in Kuwait.

SUBJECTS AND METHODS:

Setting:

The health care system in Kuwait is divided into five regional health authorities. Primary health care (PHC) is provided through 92 centers distributed in the health regions proportionate to their population. This study was a cross sectional descriptive survey that was conducted from March to December 2011 in all PHC centers located in two randomly selected health regions (Capital and Farwaniya). All HCWs (physicians, nurses, pharmacists and laboratory technicians) currently working in all primary care centers in the selected health regions were invited to participate.

Data collection:

The data of this study was collected through a specially designed questionnaire that was derived from other published studies dealing with the same topic as well as from our own experience. It consisted of four sections. The first one was related to socio-demographic and occupational characteristics, the second was designed to test participants' knowledge about the risks of acquiring and/or transmitting HCV from/to a patient and precautions for prevention, the third and fourth sections contained questions related to participants' attitudes toward perception of the risk of acquiring HCV infection and practice of precautions. Correct answers to each item were based on a review of the available literature as well as policies and guidelines. (25,26) (Brinsley et al. 2005, Greig, 2011).

A positive answer was assigned one point, whereas a negative answer was given zero. Participants were divided according to their answers into two groups. The first groups contained those with low knowledge level (<50% knowledge score) and the second one includes participants with satisfactory level ($\geq 50\%$ knowledge score).

All the necessary approvals for carrying out the research were obtained. The Ethical Committee of the Kuwait Ministry of Health approved the research. A written format explaining the purpose of the research was prepared and signed by the physician before filling the questionnaire. In addition, the purpose and importance of the research were discussed with the director of the health center. A pilot study was carried out on 30 physicians and nurses (not included in the final study). This study was formulated to test the clarity, applicability of the study tools, identify the difficulties that may be faced during the application. Also, the time needed for filling the questionnaire by the staff was estimated during this pilot study. The necessary modifications according to the results obtained were done.

Statistical analysis

The Statistical Package for Social Sciences (SPSS-17) was used for data processing. Simple descriptive statistics were used (mean \pm standard deviation for quantitative variables and frequency with percentage distribution for categorized variables). A 5% level is chosen as a level of significant in all statistical significance tests. The association between associated factors and level of knowledge were expressed in terms of odds ratios (OR) together with 95% confidence intervals (95% CIs) using a multiple logistic regression model. All the explanatory variables included in the model were categorized into two or more levels (R = reference category): age groups: <30^R, 30-49, ≥ 50 ; gender: male^R, female; marital status: single^R, married, divorced or widow; years on current job: <10^R, 10-, 20-, ≥ 30 ; nationality: Kuwaiti^R, non-Kuwaiti, Arabs, non-Arabs; education: secondary^R, university, higher; jobs: nurse^R, physician, laboratory technician, pharmacist, other; income: <500 KD^R, 500-999, 1000-1499, 1500-1999, ≥ 2000 ; smoking: no^R, yes; family history of HAV: No^R, yes; family history of HBV or HCV: No^R, yes.

RESULTS

Recruitment efforts resulted in participation of 534 persons with a response rate of 55%. Table 1 showed their socio-demographic and personal characteristics. Their mean age was 36.8 ± 9 years. Females predominated male participants (69.7% versus 30.3%)

Nurses and doctors made up the majority of respondents interviewed accounting for 51.9% and 28.5% respectively whereas laboratory technicians, pharmacists, and other professions accounted for 19.6% of all respondents. Kuwaitis and non-Kuwaiti Arabs were more or less similarly presented, accounting for 31.6% and 30.4% respectively, while the non-Arabs constituted 38.0%. More than three-quarters of the respondents (81.8%) had university or higher educational level, 85.8% were married, less than 10% were current smokers, and 65.3% had monthly income <1000 KD whereas only 7.7% had > 2000 KD income .

The mean years spent by participants in the current job was 11.5 ± 8.6 years, with 48.7% of the them worked in their jobs for less than 10 years and the mean number of working hours / week ranged from 30 to 100 (42.5 ± 6.1 hours). Only 2.2% had a family history of hepatitis A infection and 3.0% of HBV or HCV infection.

The overall percentage knowledge score was 44%. Table 2 showed the proportions of participants with correct knowledge about each items in the different domains regarding HCV. It revealed that about three-quarters of the respondents (72.7%) were aware that HCV infection can be acquired from patient to HCW compared to 54.5% knew that infection can be transmitted from HCW to patients and 75.1% of the respondents considered hepatitis C as serious disease.

Generally, the level of knowledge about modes of transmission was high among the majority of the study participants. Correct knowledge about blood and blood products as well as needles and sharp objects as modes of transmission were above 90% (92.1% and 91.3% respectively). Moreover, 77.9% knew that HCV can be transmitted through sexual intercourse, 71.7% and 80.1% knew that faeco-oral and contaminated water respectively are not common routes of transmission, 85.2% knew that HCWs are at risk of HCV infection by virtue of their work, and 74.0% knew that HCV is also widely transmitted like HIV/AIDS. However, about one half of the respondents (49.5%) considered that HCV can be transmitted as a nosocomial infection.

When participants asked about ways of preventing HCV infection; 55.6% knew that vaccination against HCV is not a way of prevention and 44.4% claimed wrongly to know about a protective vaccine for HCV. However, the majority of the participants answered correctly about the main preventing ways, where 90.8%, 92.1% and 74.2% respectively knew that proper disposal of sharps, needles and blood; avoiding needle/sharps injury; and avoiding casual sex or/and multiple sexual partners are ways of prevention of the infection. On the other hand, 30.0% and 25.7% claimed wrongly that avoiding drinking contaminated water and avoiding food not well cooked were ways of preventing HCV.

Concerning HCWs behavior regarding measures taken to protect against HCV infection, 79.0% and 80.3% agreed that wearing of gloves and adequate disposal of sharps protect against infection. However, about less than a third of participants believed wrongly that wearing of goggles, avoidance of patients diagnosed with HBV, use of multivitamin/blood tonic, use of antibiotics after contact are measures taken to protect against HCV infection (35.2% , 22.1% , 19.3%, 11.4% respectively).(table 2)

Table 3 presents factors that could be associated with high level of HCWs' knowledge. Among these variables, older age (30 years and over) were significantly related to higher knowledge level (OR= 2.1& 95% CI: 1.2-4.7). Female HCWs showed significant better knowledge level than males (OR= 1.7& 95% CI: 1.2-2.7). Physicians have significantly higher knowledge score than nurses (OR= 1.4& 95% CI: 1.1-2.5), Similarly, non-Kuwaiti Arab HCWs showed significant better knowledge level as compared to Kuwaiti participants (OR= 3.0& 95% CI: 1.5-6.1). Other variables showed no significant association with knowledge level

Table 1: Socio-demographic characteristics of the respondents

Variable	No.	%
Age in years		
<30	124	23.2
30-	352	65.9
≥50	58	10.9
Gender		
Male	162	30.3
Female	372	69.7
Marital status		
Single	66	12.4
Married	458	85.8
Widow or divorced	10	1.8

Table 1: Continues

Jobs		
Nurses	277	51.9
Physician	152	28.5
Laboratory technician	52	9.7
Pharmacist	28	5.2
Other	25	4.7
Nationality		
Kuwaiti	169	31.6
Arab	162	30.4
Non-Arab	203	38.0
Educational level		
2ry	97	18.2
University	287	53.7
Higher	150	28.1
Monthly income in KD		
<500	226	42.3
500-999	123	23.0
1000-1499	96	18.0
1500-1999	48	9.0
≥2000	41	7.7
Years on current job		
<10	260	48.7
10-	184	34.5
20-	62	11.6
≥30	28	5.2
Working hours/ week		
<40	192	36.0
40-59	330	62.9
≥60	6	1.1
Smoking / day		
Non	494	92.5
1-10	14	2.6
11-20	17	3.2
≥20	9	1.7
Smoking duration (smokers only)		
<10	12	30.0
10-19	14	35.0
≥20	14	35.0
Family history of hepatitis A		
No	522	97.8
Yes	12	2.2
Family history of hepatitis B Or C		
No	518	97.0
Yes	16	3.0
Total	534	100.0

Table 2: Proportions of participants answered correctly statements regarding general knowledge, routes of transmission, ways of preventing, measures taken to protect against hepatitis C infection

Knowledge	Number	%
General knowledge		
Hepatitis C can be acquired from patient to HCW	388	72.7
Hepatitis C can be transmitted from HCW to patients	291	54.5
Hepatitis C is a Seriousness of the disease	401	75.1
Routes of transmission of hepatitis C		
Blood and blood products	492	92.1
Needles and sharps	493	92.3
Sexual intercourse	416	77.9
Faeco-oral	383	71.7
Contaminated water	428	80.1
Hepatitis C can be transmitted as a nosocomial infection	265	49.6
Hepatitis C is also widely transmitted like HIV/AIDS	395	74.0
Health workers are at risk of Hepatitis C Infection by virtue of their work	455	85.2
Ways of preventing Hepatitis C infection		
Vaccination	297	55.6
Proper disposal of sharps, needles and blood	485	90.8
Avoid needle/sharps injury	492	92.1
Avoid casual sex or/and multiple sexual partners	396	74.2
Avoid drinking contaminated water	374	70.0
Avoid food not well cooked	397	74.3
Measures taken to protect against hepatitis C infection		
Wearing of gloves	422	79.0
Wearing of goggles	346	64.8
Adequate disposal of sharps	429	80.3
Avoid patients diagnosed With hepatitis B	469	87.9
Multivitamin/Blood Tonic	431	80.7
Use antibiotics after contact	473	88.6
Others	288	72.7
Total	534	100.0

Table 3: Factors associated with higher level of knowledge among health care workers.

Co-variants	Odds ratio	95% CI
Age groups		
<30	1	
30-	2.1	(1.2-4.7)
≥50	1.7	(0.6-4.9)
Gender		
Male	1	
Female	1.7	(1.2-2.7)
Jobs		
Nurses	1	
Physician	1.4	(1.1-2.5)
laboratory	1.0	(0.5-2.0)
Pharmacy	1.9	(0.7-5.3)
Other	1.0	(0.4-2.7)
Nationality		
Kuwaitis	1	
Arab	3.0	(1.5-6.1)
Non-Arab	1.6	(0.7-3.7)

DISCUSSION

The study indicated that participants' knowledge is fair (the overall percentage score was 44%) taking into consideration that physicians constituted only 28.5% of the study population. Concerning the various aspects of HCV infection, this study indicated that about three quarters of participants were aware that HCWs can acquire HCV from a patient and considered HCV as a serious disease. However, only 54.5% of them were aware that hepatitis C can be transmitted from HCW to patients, that indicated a wide gap of knowledge that need emphasis in educational health programs.

Regarding the routes of transmission and ways of protection against HCV, this study showed that the majority of participants were aware that blood and blood products, and needles and sharps can transmit. However a lesser proportion had sound knowledge about sexual intercourse and nosocomial infection as modes

of transmission. In a study conducted in Kathmandu, Gurubacharya found that 61% of HCWs were unaware of the routes of transmission of the disease. (Gurubacharya et al. 2003) Concerning the preventing ways of infection, the majority of the participants answered correctly about items related to "proper disposal of sharps, needles and blood", "avoid needle/sharps injury", and "avoid casual sex or/and multiple sexual partners. Another gap of knowledge appeared in this aspect among participants as 30.0% and 25.7% respectively claimed that avoiding drinking contaminated water and food not well cooked were ways of preventing HCV. This indicated that provision of information about HCV infection influence knowledge and behaviors. If HCWs received information from educational courses and scientific journals, they will be able to answer correctly and use appropriately HCV infection control measures.

Participants' knowledge in this study was reflected on their attitude as 35.2% , 22.1% , 19.3%, 11.4% respectively believed that wearing of goggles, avoidance of diagnosed patients, use of multivitamin/blood tonic, and use of antibiotics after contact are measures taken to protect them against HCV infection, It seems that HCWs, are not familiar with this changing epidemiology of viral hepatitis. (Alavian et al. 2009, Alavian et al. 2007, Mirmomen et al. 2006, Patterson et al. 1998, Gurubacharya et al. 2003, Charles et al. 2003, Alavian et al. 2010)

Another finding in this study was that although more than 90% of participants were aware that blood and needles and sharps are routes of infection and that avoiding these sharps is a protecting measure, only 80% of them believed in wearing gloves proper disposal of sharps. Health care providers who have occupational exposure to blood are at increased risk for acquiring blood-borne infections. The level of risk depends on the number of patients with that infection in the health care facility and the precautions the HCWs observe while dealing these patients. (Calver, 1997) Because the use of preventive measures such as double gloves, masks, and eye protection are mainly associated with particular specialties, the use of these measures could not be generalized to all PHC physicians and specialists. The finding that lower knowledge was linked to the underuse

of appropriate control measures confirmed the need to intensify educational programs. Moreover, the use of protective barriers was considerably lower than those observed in previous surveys. For instance, in other study in the United States, 96% and 99% used gloves at least 95% of the time for irrigation and incision and for drainage procedures, respectively. (Ellison et al. 2007) Similarly HCWs in Canada reported a high rate of wearing gloves when examining patients. (Parker and Goldman. 2006) This finding was in concordance with the results of McCormick and Maki perhaps who reflected this attitude to lack of formal training, careless attitudes and practices or the prolonged working hours and work load of doctors, (McCormick and Maki, 1981)

Because preventive measures for HCV based more on the behavior of both patients and health-care workers it is crucial to include and highlight this information in the academic education and continuous professional development of HCWs. (Alavian et al. 2009) HCWs and especially physicians should be empowered to not only protect themselves and their patients but also to promote knowledge of diseases within the community. A point of concern in studies like this is their focus on HCWs' knowledge of protecting themselves against viral hepatitis rather than the responsibilities of medical specialists on patient safety. (Alavian et al. 2008, Mahboobi et al. 2010)

Our results indicated that physicians were better informed about HCV as compared to other groups in agreement with Richmond who showed a significant relationship between medical groups and mean knowledge scores whereas doctors were the most knowledgeable group. (Richmond et al. 2007) In the study by Shehab et al. (2002), the knowledge level of physicians on hepatitis was suboptimal. However, the higher knowledge level of physicians was likely because of more advanced and professional education on gastrointestinal and liver diseases.

In contrary, Parmeggiani et al. (2010), in their investigation, reported that nurses were more likely to have a higher level of knowledge than physicians. Also, in another study the awareness from nurses in the handling and disposal of sharps was 88% in comparison to doctors where positive response was only 35%. (Afia et al. 2008)

In consistent with other studies, the present study showed that female physicians older than 30 years were more knowledgeable. In Richmond's (2007) study, HCWs who were 30-49 years old were the most knowledgeable and those above 40 were the least knowledgeable. This finding shows that older age and greater experience can be associated with greater knowledge. However, in elders, the efficacy of initial education decreases.

This information highlights the need of existing infection control programs for primary HCWs in Kuwait, together with regular educational activities and awareness sessions organized to PHC staff.

There are some potential limitations in this study that should be considered when interpreting the results. The potential reporting bias associated with the self-administered questionnaire with the possibility that HCWs tend to over-report compliance. Another limitation was that the response rate of 55% was disappointingly low that may affect the internal validity of the findings and may decrease the overall generalization of the results.

CONCLUSIONS

Knowledge, attitudes and practices about hepatitis C among HCWs were fair, with important gaps which need to be strengthened especially among those with unsound knowledge. Measures should be taken by health care managers as well as government by running awareness programs to avoid the occurrence of these problems.

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