Analysis of Health Care Professionals' Knowledge, Attitudes and Behaviours about Hepatitis B, Hepatitis C and HIV/AIDS: A Cross-sectional Clinical Study

Araştırma Research

Sağlık Çalışanlarının Hepatit B, Hepatit C ve HIV/AIDS Konusundaki Bilgi, Tutum ve Davranışlarının Analizi: Kesitsel Bir Klinik Çalışma

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Abstract

Objective: The aim of this study was to determine the level of knowledge about hepatitis B virus (HBV), hepatitis C virus (HCV) and Human Immunodeficiency Virus (HIV), their approaches to patients and the deficiencies that need to be corrected among health care workers including physicians and nurses in a training and research hospital.

Methods: Healthcare professionals were surveyed on 30.07.2023 for this cross-sectional clinical study. Questions were asked to the respondents about HBV, HCV, and HIV/AIDS (transmission routes, perspectives on the disease, prevention methods, prophylaxis, etc.) via Google Forms. A chi-square test was performed for statistical analysis of the obtained data.

Results: A total of 165 healthcare professionals, 77 (46.7%) physicians and 88 (53.3%) nurses, filled out the questionnaire and participated in the study. 89 (53.9%) of them were women. Based on the results of this study, the lack of knowledge about HBV, HCV and HIV/AIDS was less in physicians than in nurses. In addition, as the years of work in the profession increased, the level of knowledge increased with the experience. The majority of the respondents correctly stated that all three viruses were transmitted through blood. However, the percentage of correct answers was low in questions about breastfeeding, vertical transmission, and post-exposure prophylaxis. The most common measure to prevent transmission from infected patients was the "use of gloves" (70.9%).

Conclusion: It is necessary to increase the knowledge level of health workers about HBV, HCV, and HIV by periodically organizing in-service trainings. This will help ensure effective infection control.

Keywords: healthcare workers; hepatitis; HIV

Özet

Amaç: Bir eğitim ve araştırma hastanesindeki hekim ve hemşirelerden oluşan sağlık çalışanlarının hepatit B virüsü (HBV), hepatit C virüsü (HCV) ve İnsan İmmün Yetmezlik Virüsü (HIV) hakkındaki bilgi düzeylerini, hastalara yaklaşımlarını ve düzeltilmesi gereken eksiklikleri belirlemek amaçlanmıştır.

Yöntem: Bu kesitsel klinik çalışma için sağlık çalışanlarına 30.07.2023 tarihinde anket uygulanmıştır. Katılımcılara HBV, HCV ve HIV/AIDS hakkında (bulaşma yolları, hastalığa bakış açıları, korunma yöntemleri, profilaksi vb.) Google Formlar aracılığı ile sorular sorulmuştur. Elde edilen verilerin istatistiksel analizi için ki-kare testi yapılmıştır.

Bulgular: 77'si (%46,7) hekim ve 88'i (%53,3) hemşire olmak üzere toplam 165 sağlık çalışanı anketi doldurarak çalışmaya katıldı. Bunların 89'u (%53,9) kadın idi. Bu çalışmanın sonuçlarına göre, HBV, HCV ve HIV/AIDS hakkındaki bilgi eksikliği hekimlerde hemşirelere göre daha az oranda tespit edildi. Ayrıca meslekte çalışma yılı arttıkça deneyimle birlikte bilgi düzeyinin de arttığı görüldü. Katılımcıların çoğunluğu her üç virüsün de kan yoluyla bulaştığını doğru olarak ifade etmiştir. Ancak emzirme, vertikal bulaş ve temas sonrası profilaksi ile ilgili sorularda doğru cevap yüzdesi düşüktü. Enfekte hastalardan bulaşmayı önlemek için en yaygın önlem "eldiven kullanımı" idi (%70,9).

Sonuç: Sağlık çalışanlarının HBV, HCV ve HIV hakkındaki bilgi düzeylerinin periyodik olarak hizmet içi eğitimler düzenlenerek artırılması gerekmektedir. Bu durum, enfeksiyon kontrolünün sağlanmasına katkıda bulunacaktır.

Anahtar Sözcükler: sağlık çalışanları; hepatit; HIV

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Introduction

Hepatitis B virus (HBV) and hepatitis C virus (HCV) represent a global public health problem, causing chronic infection in approximately 257 million and 71 million people worldwide, respectively (1). Human Immunodeficiency Virus (HIV) affects an estimated more than 37 million people and can lead to Acquired Immunodeficiency Syndrome (AIDS) when left untreated (2). Untreated HBV, HCV, and HIV infections pose a risk to both society and healthcare workers. There are common transmission routes, such as unprotected sexual intercourse, intravenous drug use, medical procedures (surgery, dialysis, etc.), percutaneous injury, and maternal transmission. In case of contact with an infected patient's blood, there is a risk of transmission of approximately 30%, 0.5% and 0.3%, respectively (3, 4). In a study from Somalia, it was found that the prevalence of sharps and needlestick injuries in healthcare workers was 8.6% (5). In a review from Asia, the seroprevalence of HBV and HCV infection in healthcare workers was 14.4% and 1.4%, respectively. The highest prevalence was among dentists, dialysis unit staff, nurses, laboratory staff, and other physicians, in that order (6). Some studies in our country and abroad have shown that healthcare professionals have insufficient knowledge about infection control principles, precautions, and transmission routes (3, 7, 8).

This study aims to share the results of a questionnaire to evaluate the knowledge, attitudes and behaviours of physicians and nurses working in our hospital about HBV, HCV, and HIV/AIDS.

Methods

Healthcare workers in a training and research hospital were surveyed on 30.07.2023 for this cross-sectional clinical study. Questions were asked to the respondents about HBV, HCV, and HIV/AIDS (views on the disease, transmission routes, prevention methods, etc.). They were prompted to answer some of the questions in the questionnaire as "yes", "no", or "I don't know". Answers to 29 questions include attitudes and behaviors. The accuracy of the answers to the questions was analyzed.

An online questionnaire was sent to all 280 healthcare professionals in our hospital and the entire sample was reached. The data of 165 physicians and nurses who agreed to participate in the study were analyzed.

Approval for this study was obtained from the Ethics Committee of Gaziantep Islam Science and Technology University on 20.07.2023 with decision number 290.27.21.

Data Collection Form

Data were collected using an online questionnaire (Google Forms) to allow faster data collection. Questionnaires were sent to physicians and nurses working in the same center via WhatsApp. The questionnaire form was prepared based on the literature information, by modifying as necessary. The questionnaire asked questions about the approach to an infected patient, standard precautions, isolation measures, preventive measures, ways of protection, transmission routes, and what to do in case of contact with an infected patient. The answers to the questions were recorded and analysed.

Statistical Analysis

As descriptive statistical methods in the evaluation of data, mean ± standard deviation was used for normally distributed continuous data, median (minimum and maximum) for variables with non-normally distributed continuous data, and number and percentage (%) for categorical data. The fit of the data to normal distribution was examined with the Shapiro-Wilk test. The chi-square ($\chi 2$) test was used for ratio comparisons and correlation analysis between categorical variables. Opinions of the respondents were analysed by grouping them by occupational group (physician/nurse) and years of experience in the profession (≤10 years and above). Statistical analysis was performed using IBM SPSS 20.0 version (IBM SPSS, Chicago, IL, USA). A significance level of $p<0.05$ was adopted.

Results

Of the respondents, 89 (53.9%) were female, and 76 (46.1%) were male. 165 physicians and nurses with a mean age of 35.27 ± 8.95 years participated. 62.3% were married, and 37.7% were single. 99 (60%) had ≤10 years, and 66 (40%) had >10 years of experience. 77 (46.7%) were physicians, and 88 (53.3%) were nurses.

Table 1. Standard precautions						
In your practice, do you treat each patient as if they have an infectious disease agent such as HBV, HCV, or HIV?			**Yes**	**No**	**I don't know**	**p value**
	Occupation	Physician	65 (84.4%)	12 (15.6%)	0 (0%)	0.099
		Nurse	81 (92.0%)	7 (8.0%)	0 (0%)	
	Years of experience	≤ 10	88 (88.8%)	11 (11.2%)	0 (0%)	0.515
		> 10	58 (87.9%)	8 (12.1%)	0 (0%)	

Table 2. Approach to an infected patient						
If you have to care for a patient infected with HBV, HCV, or HIV, will there be any changes in your behaviour and attitudes towards the patient?			**Yes**	**No**	**I don't know**	**p value**
	Occupation	Physician	23 (29.9%)	44 (57.1%)	10 (13.0%)	0.061
		Nurse	14 (15.9%)	65 (73.9%)	9 (10.2%)	
	Years of experience	≤ 10	23 (23.2%)	62 (62.6%)	12 (12.2%)	0.893
		> 10	14 (21.2%)	45 (68.2%)	7 (10.6%)	

Table 3. Prevention of transmission to the baby during pregnancy						
Are there any preventive treatments for the baby in HBV, HCV, or HIV-infected pregnant women?			**Yes**	**No**	**I don't know**	**p value**
	Occupation	Physician	48 (62.3%)	7 (9.1%)	22 (28.6%)	0.001
		Nurse	32 (36.4%)	3 (3.4%)	53 (60.2%)	
	Years of experience	≤ 10	44 (44.4%)	7 (7.1%)	48 (48.5%)	0.417
		> 10	36 (54.6%)	3 (4.5%)	27 (40.9%)	

52.1% worked in internal medicine, 42.4% in surgery and 5.5% in basic sciences units.

When asked, "In your practice, do you treat each patient as if they have an infectious diseases agent such as HBV, HCV or HIV?", the majority of the respondents answered "yes". No significant difference was found in the answers by occupation and years of experience (p=0.099, p=0.515, respectively) (Table 1). To the question, "If you have to care for a patient infected with HBV, HCV or HIV, will there be any changes in your behaviour and attitudes towards the patient?", more nurses answered "no" than physicians. More respondents with >10 years of professional experience answered "no" than those with fewer years of experience. However, no significant difference was found by occupation and years of experience (p=0.061, p=0.893) (Table 2).

Significantly more physicians, at 62.3%, answered "yes" to the question, "Are there any preventive treatments for the baby in HBV, HCV, or HIV-infected pregnant women? (p=0.001). A higher proportion of respondents with >10 years of experience answered "Yes" (p=0.417) (Table 3). When asked, "What kind of precautions do you take when intervening, treating or providing care to patients infected with HBV, HCV or HIV?", 70.9% responded as "I use gloves", and 56.9% as "I wear a mask". Those who answered "I wear goggles" were at the lowest rate (37.6%) (Table 4). To the question, "Is there any prophylaxis in case of contact with an HIV/AIDS patient?", more physicians gave the "yes" answer. On the other hand, nurses were more likely to answer "I don't know" than physicians. The percentage of those who answered correctly in those with >10 years of experience was 93.9%. For those who worked for ≤10 years, the proportion of those answering "I don't know" was 21.2%. There was a statistically significant difference in the answers by occupation and years of experience (p=0.001

Table 4. What kind of precautions do you take when intervening, treating, or providing care to patients infected with HBV, HCV or HIV?	
	n (%)
I use gloves	117 (70.9%)
I wear an apron	79 (47.9%)
I wear a mask	94 (56.9%)
I wear goggles	62 (37.6%)

and p=0.008) (Table 5).

To the question, "What do you do when you have contact with blood and body fluids from someone infected with HBV, HCV or HIV?", 81.2% of respondents answered, "I wash the injured/contact area with plenty of water and soap". None of the respondents said, "I do nothing" (Table 6).

As the answer to the question about the ways of transmission, "sexual transmission" was given for HIV, HBV, and HCV infections by 94.6%, 58.8% and 47.9%, respectively. 84.2%, 93.3% and 90.3%, respectively, answered, "contamination by blood". "Transmission through breastfeeding" was selected by 35.2%, 27.3% and 26%. Around 20% chose the option "Contaminated by mosquito and insect bites" for all three infections (Table 7).

To the questions about the ways of protection from HBV, HCV or HIV, "Avoiding contact with blood and body fluids" and "Washing hands"

Table 5. Antiviral prophylaxis

			Yes	No	I don't know	p value
Is there any prophylaxis in case of contact with an HIV/AIDS patient?	Occupation	Physician	75(97.4%)	0(0%)	2(2.6%)	0.001
		Nurse	62(70.4%)	3(3.4%)	23(26.2%)	
	Years of experience	≤ 10	75(75.8%)	3(3%)	21(21.2%)	0.008
		>10	62(93.9%)	0(0%)	4(6.1%)	

Table 6. What do you do when you have contact with blood and body fluids from someone infected with HBV, HCV, or HIV?

	n (%)
I bleed the injured/contact area	5 (3%)
I wash the injured/contact area with plenty of soap and water	134 (81.2%)
I wash the injured/contact area with an antiseptic	80 (48.5%)
I follow the work accident procedures of the institution	99 (60%)
I get vaccinated immediately (in case of contact with HIV)	16 (9.7%)
I take prophylaxis after contact with an HIV-infected individual	32 (19.4%)
I do nothing	0 (0%)

Table 7. What are the transmission routes of HBV, HCV, or HIV?

Transmission routes	HIV	HBV	HCV
Sexually	156 (94.6%)	97 (58.8%)	79 (47.9%)
Contact with body fluids (saliva, tears, sweat)	86 (52.1%)	97 (58.8%)	90 (54.5%)
Via blood	139 (84.2%)	154 (93.3%)	149 (90.3%)
Handshake-kiss	22 (13.3%)	24 (14.5%)	15 (9.1%)
Coughing-sneezing	20 (12.1%)	32 (19.4%)	25 (15.2%)
Shared use of cups, plates, spoons, forks	36 (21.8%)	57 (34.5%)	48 (29%)
Swimming in the same pool and using the same toilet	29 (17.6%)	33 (0.6%)	23 (13.9%)
Mosquito and insect bites	30 (18.2%)	36 (21.8%)	35 (21.2%)
Percutaneous injury	84 (50.9%)	90 (54.5%)	81 (49%)
From mother to baby through the umbilical cord	119 (71.2%)	105 (63.6%)	92 (55.8%)
Breastfeeding	58 (35.2%)	45 (27.3%)	43 (26%)

Table 8. Ways of protection from HBV, HCV, or HIV	
	n (%)
Separating personal items	109 (66%)
Getting vaccinated (for HBV)	147 (89%)
Avoiding contact with blood and body fluids	157 (95.2%)
Washing hands	150 (90.9%)
Using condoms	137 (83%)
Not bending or recapping used needles	148 (89.7%)
Not touching the infected patient	51 (30.9%)

Table 9. What isolation measures are used when providing care to an HIV/AIDS patient?	
	n (%)
Contact	92 (55.8%)
Droplet	29 (17.6%)
Respiratory	7 (4.2%)
None (I just apply standard precautions)	58 (35.2%)

were the answers that were given with the highest rates (95.2% and 90.9%). 30.9% of the respondents chose the option "Avoiding contact with the infected patient" (Table 8). To the question, "Which isolation measures are used when providing care for an HIV/AIDS patient?", 55.8% answered as "contact isolation" and 35.2% as "I only apply standard precautions" (Table 9).

Discussion

Standard precautions play the most crucial role in preventing the transmission of HBV, HCV, HIV etc., in health institutions. The management of healthcare personnel exposed to contact with infected patients is critical for preventing and controlling infection (9, 10). The results of this study showed that the level of knowledge about HBV, HCV and HIV in our hospital and the behaviour and approaches of healthcare professionals should be improved.

In this study, the percentage of those who thought that hepatitis and HIV could be transmitted through handshaking-kissing, coughing-sneezing was 9-15%. Those who believed they would be infected after shared use of goggles, plates, spoons, and forks were between 21-34%. Some respondents gave unacceptable numbers of wrong answers. Because, as is known, the above are not risky situations for HIV transmission. Some studies in the literature show that some people think these diseases can be transmitted in these ways (11, 12). In this study, almost all the respondents stated that HIV was transmitted sexually. In other studies, high rates of correct answers were given for sexual transmission. In a study involving 317 medical students in Syria, the correct answer percentage was 87.4% (13). In a study in which 46 healthcare workers working in the intensive care unit in our country were included, all gave correct answers (14). The results of this study and similar data in the literature suggest that people associate HIV infection with sexual intercourse. The possibility of sexual transmission of HCV infection is low, however the risk increases in those with risky sexual behaviour and men who have sex with men (15). In this study, almost half of the respondents thought HCV could be transmitted sexually. There is widespread misinformation about the transmission of HBV/HCV/HIV by mosquito bites. In a study involving 194 healthcare workers in Sub-Saharan Africa, 91.1% of the respondents thought mosquito bites could cause HIV transmission (16). In another study conducted in India involving 400 medical students, this rate was only 1.1% (17). In a study conducted in the United Arab Emirates involving 2294 university students, this rate varied between 20.3-26.6% (18). The differences in the literature may be related to the occupation and duration of employment, number of

respondents, level of knowledge and experience.

It is recommended that mothers with hepatitis B or C breastfeed their babies. In addition, there are treatments that can be used during pregnancy to treat both chronic hepatitis B and chronic hepatitis C. Hepatitis B immunoglobulin and hepatitis B vaccine should be given to the baby born to a mother with chronic hepatitis B within the first 12 hours after birth (19, 20). However, 1 in 4 of the respondents in this study think that viral hepatitis can be transmitted through the mother's milk. Breastfeeding is not recommended for HIV-infected mothers, regardless of maternal viral load and antiretroviral therapy (ART) status (21). However, breastfeeding can be recommended for pregnant women living in low-income countries, taking into account 1-2% of perinatal transmission under ART (22). In the study of Akdoğan et al. in our country, 77.8% of nurses and 54.5% of physicians think that HIV can be transmitted through breastfeeding (23). In this study, however, the rate was found to be lower. Considering the literature data, it is necessary to increase the knowledge level of our hospital staff about breastfeeding and vertical transition.

In this study, the rate of those who knew that standard precautions were sufficient to prevent the disease during the follow-up of HBV, HCV or HIV-infected patients was found to be only 35.2%. The use of gloves is an essential protective method to prevent cross-contamination. This rate was 48.5% in the study of Sağlam et al., 80.2% in the study of Hosoglu et al., and 88.6% in the study of Parmeggiani et al (24-26). In this study, the most common precaution taken when approaching an infected patient was hand washing (90.9%). Correct answers for other standard measures were 70.9% for gloves, 47.9% for gowns, and 37.6% for goggles/face protection. In a study of 130 people in India, adherence to standard measures was poor, with 54.7%, 62.4%, 56.2% and 22.5%, respectively (10). The reasons why standard precautions could not be applied correctly may be due to the workload of healthcare professionals, lack of time, lack of knowledge, difficulty in wearing equipment, and incomplete understanding of infection control measures.

According to the study results, there are those who think they should have a vaccine against HIV in case of contact with HIV-infected individuals. In addition to this false information, the low rate of those who know they should take post-exposure prophylaxis indicates a lack of knowledge. For a long time, ART has been used for healthcare workers after contact with an HIV-positive individual due to occupational exposure. It is recommended to start ART for 28 days as soon as possible (first 72 hours) (27). A study that included 160 nurses in Africa showed that half of the respondents had insufficient knowledge about post-exposure prophylaxis with HIV (28). In İnce's study, which included 180 physicians, 47.2% of the respondents stated that they were aware of post-exposure prophylaxis (29). In a cross-sectional survey of 311 healthcare workers in Ethiopia, 22.4% of the respondents knew they should receive post-exposure prophylaxis, and 43.4% had a negative attitude towards prophylaxis (30). Unfortunately, this rate is below 20% in this study. Lack of knowledge/incorrect information on post-exposure prophylaxis for our hospital staff is another issue that needs to be corrected.

In this study, "hand washing" and "use of antiseptics" responses to questions about infection precautions in case of injury/contact were 81.2% and 48.5%, respectively. In another study, these rates were 84.6% and 67.7%, respectively (10). The level of knowledge on what to do in case of contact with an injured/contact patient should be increased.

Limitations

The major limitation of this study was that it was from a single center. The results of more data could be analyzed by adding participants from primary and secondary health institutions to the study.

Conclusion

A regular and planned training program should be organized to address the lack of knowledge, preventive methods, preventive measures and problems in approaching the patient. The results of this study also showed that as the experience increases, the level of education and the accuracy of information increase. Increasing the level of knowledge of all healthcare workers should be the main aim for effective infection control. Although this study was conducted in a tertiary health care institution, it may guide primary health care workers.

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