

Infection Control Measures for Nurses Staff Concerning with Hepatitis B and C at Hemodialysis Unit in Hilla Hospitals

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Abstract

Hepatitis an infection in the liver is very contagious and is caused by the hepatitis virus. Objectives: The study aims to evaluate nurses performance concerning infection control practices, and to determine the relationship between nurses performance and their demographic characteristics. As well as, to determine the relationship between nurses performance and patients clinical data. A quantitative descriptive design was conducted in Hilla City Hospital for the period of from September 2018 to March 2019. A checklist was used as a means of data collection from those who works at Hemodialysis unit. Non probability sampling (purposive) has been performed on (30) nurses and (30) patients in dialysis unit. direct observation as mean of data collection. Nurses were observed three times while they are working in the dialysis unit. The data were analyzed through the application of descriptive and inferential data analysis. The study results reveals that (80%) sometime applied hand washing, (76.7%) were sometime apply uniform, and (66.7%) were always apply gloves, (53.3%) never wearing gown, and (86.7%) never wearing mask. A majority of (63.3%) of nurses were partially performed infection control measures. There is insignificant association with nurses demographic characteristics at $p\text{-value} > 0.05$.

Keywords: Infection, Control, Nurses, Hepatitis.

Introduction

One of the most challenges is health care-associated infections, or infections acquired in health-care settings are the most frequent adverse event in health-care delivery worldwide. Hundreds of millions of patients are affected by health care-associated infections worldwide each year, leading to significant mortality and financial losses for health systems¹. The World Health Organization (WHO) estimates an average of 9 million individuals are affected by nosocomial infections and approximately 1million patients die each

year because of these diseases². Patient safety is one of the most important aspects in evaluating the quality of healthcare. However, healthcare associated infection is a major cause of morbidity and mortality in the critical care units. It is imperative for health care administrators to ensure implementation of the infection control program in healthcare facilities³. Control measures is a set of specific practices and procedures performed under carefully controlled conditions with the goal of minimizing contamination by pathogens⁴. It is well known that patients undergoing dialysis treatment, and in particular hemodialysis (HD), are at increased risk for contracting viral infections. This is due to their underlying impaired cellular immunity, which increases their susceptibility to infection. In addition, the process of HD requires blood exposure to infectious materials through the extracorporeal circulation for a prolonged period. Moreover, HD patients may require blood

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transfusion, frequent hospitalizations and surgery, which increase opportunities for nosocomial infection exposure⁵. After the identification of HCV in 1989 and HEV in 1990, there were still unexplained cases of post transfusion and “community-acquired” hepatitis, implying that cryptogenic hepatitis and cirrhosis may be related to viruses other than hepatitis A, B, C, D or E. By the mid-1990s, between 3% and 4% of anti-HCV-negative patients on chronic HD had elevated serum aminotransferase levels with no apparent etiology^{6,7}.

Methodology

Study Design:

A quantitative descriptive design was conducted to evaluate nurses performance concerning infection control practices, and to determine the relationship between nurses performance and their demographic characteristics. As well as, to determine the relationship between nurses performance and patients clinical data in has been carried out in Hilla City Hospital.

Instrument Construction:

The checklist (observation tool) include three part. They are: Nurses demographic data, patients clinical data, and observation tool. The last part consists from 55 items divided (8) section; includes: hand washing, uniform, gloves, gown, mask, instruments and equipment, intra venous iv fluids and medication, medical waste management and sharp disposal.

Participants Sample:

Non probability sampling (purposive) has been performed on (30) nurses who work in dialysis unit and (30) patients.

Data Collection:

The researcher has gathered the objective’s responses through an application of direct observation as mean of data collection. Nurses were observed while they are working in the dialysis unit . The researcher observed each nurse three observations and among each observation (10) days’ time period. Three correct practices out of 3 episodes were rated as always , 2-1 correct practice out of 3 episodes were rated as sometimes, and no correct practice out of 3 episodes was rated as never.

Data Analysis: Through the used descriptive

statistical (SPSS) version XX analysis approach that includes, frequencies, percentages, mean of scores, standard divagation and graphical presentation of data; and inferential statistical data analysis approach that include Chi-squared test.

Results and Discussion

In light of frequencies and percent, results depicts that the nurses were female within age groups (19-29) years old and single state residences in urban areas. Concerning education, (53.3%) were bachelor in nursing graduated, works for (1-3) years in nursing field and in Hemodialysis unit without training in-outside of country. This results come because most of them are new appointments at the same time that unity needs effort. These results agree with study deals with case control educational program on nurses knowledge find that the majority of nurses at 20-29 years⁸. Also, study conducted in Baghdad City has been evaluate the nurses’ practice concerning infection control. Finds that the high percent of nurses have 1-5 years of experiences in nursing⁹. Finding reveals that 96.7% of patients with hepatitis C is for duration (1-2) years diagnosed after dialysis for a two dialysis times per week . In light of these results, a study has been assessed the “Hepatitis B and C infection in hemodialysis patients in Libya, the results indicated that the patients on maintenance HD in Libya have a high incidence and prevalence of HCV infection and lower rates of HBV infection¹⁰. Also, in another study (Yousifetal., 2018), the result indicated that the prevalence of HBV, HCV, and coinfection in the studied subjects was 1.8%, 9.2%, and 0.2%, respectively¹¹. The results reveals that the majority of nurses measures regarding hand washing and uniform were sometime apply. In contrast a study conducted in Turkey , they found that the majority of nurses have a partially level of practices concerning quality of hand washing¹². Also in another study in Al-Najaf AL-Ashraff City Hospitals, their findings indicate that 72.5% of study sample are not applying the practices of hand washing¹³. While another study in Palestine, show that the high percentage of nurses are wearing the special uniform¹⁴.

Concerning with personal protective equipment, the results reveals that the majority of nurses were always apply gloves, and never apply gown, and mask. In another study done by (Cason and others, 2007), which reported that 75% of nurses are wearing gloves. The researcher believes that the present result related to not available of sterile gloves, but they can be used clean

gloves during the nursing intervention ¹⁵. These results supported by (Chan et al., 2008), show that the nurses have negative attitudes and practices toward standard precaution. These results may be to not the availability of sterile gown in the hospital ¹⁶. In another study done by (Nichol et al., 2013), their study showed that the 56% nurses reported adherence to recommended use facial mask ¹⁷.

Concerning with nurses measures deals with instruments and equipment the results depicts that the majority of nurses measures regarding instruments and equipment were sometime apply. In another study done by (Kandeel et al., 2012), which revealed that high percent of nurses were used a sterile technique in preparing the instrument in critical care units ¹⁸.

Concerning with nurses measures deals with dialysis Catheters and port catheter systems, intravenous fluids and medication and medical waste management and sharp disposal, the results show that the majority of nurses were always applied. The present results disagree with (Alkubati et al., 2015), they founded that the majority of nurses had poor compliance with the standard strategies for prevention PVC infection ¹⁹. In addition the results agree with (Dolan et al., 2010), they confirmed in their study that an infusion, safe injection, and medication vial practices in health care needed to adhere sterilization technique during the administration of intravenous fluids and medication for the patient ²⁰. The present result also disagrees with (Ferreira et al., 2010), they founded in their study that a healthcare worker was inadequate practice and knowledge related to the correct separation of wastes and sharps disposal ²¹. Findings of present study demonstrated that there demographic characteristics of nurses have been not affected their control measures at *p-value* >0.05. The present finding agree with study done by (Bakey, 2012), which indicated that there was no significant relationship at *p-value* (0.464) level between nurses' practice and their age, level of education, years of experience in

hemodialysis unit ²². Also the present finding disagree with study done in Korea, they found that there were significant relationship between nursing practice concerning infection control and age and significant between the type of units and nurses practices ²³. Results demonstrated that there were non-significant association between nurses control measures and patients their clinical data at *p-value* >0.05. The result disagree with study of (Alashek, 2012), which indicated that their is a significant relationship between duration of hemodialysis and prevalence of HCV, and longer dialysis times increase the probability of hepatitis C in Libya ¹⁰. Also in another study done by (Sarhan et al., 2015), the result show that the prevalence of HCV antibody (HCV Ab) at the start of dialysis was 45.2%, and the prevalence of HCV Ab by the time of data collection was 51%; the incidence rate of seroconversion was 10.7% after a mean duration of dialysis of 3.35±2.048 years ²⁴.

Table (1): Distribution of Patients by their Clinical Data about Hepatitis

Demographic data	Rating	No	Percent
Type of hepatitis disease	C	29	96.7
	B	1	3.3
Duration of disease	<1 years	1	3.3
	1-2 years	26	86.7
	>3years	3	10.0
When the disease was diagnosed	Before dialysis	3	10.0
	After dialysis	27	90.0
Number of dialysis times per week	One	4	13.3
	Two	17	56.7
	Three	9	30.0

Table (2): Infection Control Measurement Concerning Hepatitis B and C in Hemodialysis Unit

	Rating	No	%	M.S.	S.d.	Evaluation
Hand Washing Domain	Never	6	20.0	1.80	0.40	Sometime
	Sometime	24	80.0			
	Always	0	0.0			
Uniform Domain	Never	4	13.3	1.96	0.49	Sometime
	Sometime	23	76.7			
	Always	3	10.0			
Gloves Domain	Never	0	0.0	2.67	0.47	Always
	Sometime	10	33.3			
	Always	20	66.7			
Gown Domain	Never	16	53.3	1.56	0.67	Never
	Sometime	11	36.7			
	Always	3	10.0			
Mask Domain	Never	26	86.7	1.17	0.39	Never
	Sometime	3	10.0			
	Always	1	3.3			
Instruments and Equipment Domain	Never	1	3.3	2.03	0.32	Sometime
	Sometime	27	90.0			
	Always	2	6.7			
Catheters and port catheter systems	Never	0	0.0	2.73	0.45	Always
	Sometime	8	26.7			
	Always	22	73.3			
IV fluids and medication Domain	Never	7	23.3	2.40	0.85	Always
	Sometime	4	13.3			
	Always	19	63.3			
Medical waste management and sharp disposal	Never	2	6.7	2.70	0.59	Always
	Sometime	5	16.7			
	Always	23	76.7			

Table (3): Overall Infection Control Measurement Concerning Hepatitis B and C in Hemodialysis Unit at Hilla Hospitals

	Rating	No	%	M.S.	S.d.	Evaluation
Overall Measures	Never	1	3.3	2.30	0.53	Sometime
	Sometime	19	63.3			
	Always	10	33.3			
	Total	30	100			

Table (4): Statistical Relationship between Nurses Infection Control Measurement and Patients Clinical data about hepatitis.

Demographic data	Rating	Nurses Measures			Total	d. f	
		Never	Sometime	Always			
Type of hepatitis disease	B	1	19	9	29	2	obs.=2.069 crit.=5.991 P-value= 0.355→NS
	C	0	0	1	1		
	Total	1	19	10	30		
Duration of disease	<1 years	0	1	0	1	4	obs.=2.672 crit.=9.488 P-value= 0.614 →NS
	1-2 years	1	15	10	26		
	>3years	0	3	0	3		
	Total	1	19	10	30		
When the disease was diagnosed	Before dialysis	0	1	2	3	2	obs.=1.696 crit.=5.991 P-value=0.428 →NS
	After dialysis	1	18	8	27		
	Total	1	19	10	30		
Number of dialysis times per week	One	0	3	1	4	4	obs.=1.024 crit.=9.488 P-value=0.906→NS
	Two	1	10	6	17		
	Three	0	6	3	9		
	Total	1	19	10	30		

Conclusions

Most of nurses new appointments young adults nurses partially performed infection control measures in the dialysis unit not affected by their demographic data, and not influence the results of patients. An intensive training courses and provide possibilities for personal protection with activate principle of reward and punishment.

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Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the College of Nursing, Babylon University, Babylon Province, Iraq, and all experiments were carried out in accordance with approved guidelines.

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