Assessment of Infection Control Process at Hemodialysis Units in Kurdistan Region

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الخلاصة

الهدف: تقييم السيطرة على العدوى في وحدات الديلزة الدموية مع إيجاد العلاقة بين ممارسات الممرضين المتعلقة بالسيطرة على العدوى و بعض الصفات الديموغرافية للممرضات و الممرضين.

المنهجية: أجريت دراسة وصفية في وحدات الديلزة الدموية في مستشفى هه ولير ومستشفى ازادي دهوك من الخامس عشرة من كانون الثاني ٢٠٠٢ الى نهاية مايس لعام ٢٠٠٥. العينة غرضيه مكونة من (٤٠) ممرض وممرضة من وحدة الغسل الدموي من مستشفى هه ولير و ومستشفى ازادي دهوك، وكذلك من (٦٣) مريض معتمد على الغسل، وشمل البحث ايضا اخذ مسحاة من مناطق مختلفة مثل منطقة Fistula،Shunt)^^ .(استخدمت استمارة خاصة تشمل الجزء الأول، الجزء الثاني ويتضمن ا- المعلومات الديموغرافية للممرضات و الممرضين و المرضى، ب- استمارة رصد خاصة بالاحتياطات الشاملة للسيطرة على العدوى في وحدات الديلزة الدموية للممرضات و الممرضين الجزء الثالث وتضمن أ ■ المعلومات الديموغرافية و السريرية للمرضى ب- استمارة رصد خاصة بالاحتياطات الشاملة للسيطرة على العدوى، الجزء الرابع ويتضمن اخذ مسحات من مختلف مناطق الوخز. ثم تم التحقق من مصداقية استمارات البحث من خلال عرضها على مجموعة من الخبراء من ذوي الاختصاص وتم التحقق من الثبات من خلال المراقبة من قبل الباحث و شخص آخر لممارسات السيطرة على العدوى للممرضات و الممرضين و أيضا من خلال الاختبار الأولي و الثاني لممارسات السيطرة على العدوى تمرضي وكان معامل الارتباط مقبولة إحصائيا (٠,٩٥ ،٠,٩١) و ([= =٠٢(

النتائج: أظهرت نتائج انحث وجود غرفة العزل للمرضى المصابين بالتهاب الكبد الفايروسي في وحدة الديلزة الدموية. أما الاحتياطات الشاملة حول بيئة البلزة أضيرت النتائج بأن تهوية وحدة الديلزة و طريقة تعقيم جهاز الغسل وتنظيف الأرضية و الجدران كانت كافية و مرضية و أثارت النتائج ايضا بأن الممرضين أكثر من الممرضات و الغالبية منهم تتراوح أعمارهم ما بين (٢١,٠)٣ سنة و أكثرهم من خريجي المعاد (٥٠ %) وكذلك (٦٧-٥ %) من الممرضين و الممرضات لديهم خدمة من (٣-١) سنة في الغسل الدموي، و إن (٩٥ %) منهم لم يشاركوا في اى دورة تدريبية للسيطرة على العدوى متعلقة بوحدة الديلزة، بينت النتائج أيضا أن الممارسات التمرنضية كانت غير كفية. أما مارت الممرضين و الممرضات و ربط مع الصفات الديموغرافية كانت النتائج ذات دلالة معنوية بما يرتبط مع مكان العمل و ان الكوادر ذوي الخدمة يطبقون الممارسات التمريضية أكثر من الكوادر الجدد، و كذلك عدم وجود علاقة بين ممارت الممرضين و الممرضات وصفاتهم الديموغرافية مثل) الجن، العمر، الحالة الزوجية، المستوى التعليمي، سنوات الخبرة في الديلزة ونما يتعلق بالعرضى فان نصف المرضى هم الرجال و معدل أعمارهم بين (٥١,٠)٦ (سنة و تأريخ بدأ العجز الكلوي ذى الأكثرية منهم كان ق من (١) سنة أما بالنسبة لممارسات المرضى كانت كافية حول إجراء النحوصات المختبرية.

التوصيات: أوصت الراة بانقيم الوري لممارسات الكوادر اكمريضية المتعلقة بالسيطرة على العدوى و تخصيص مسؤوليات السيطرة على العدوى في توصيف الوظيفي و فتح دورات مستمرة لكوادر اكمريضية والمتعقة بالسيطرة على العدوى في وحدة الديازن الموية.

Abstract

Objective: to assess the infection control process in hemodialysis units and to find out the relation ship between nurses practices and some of the demographic characteristics.

Methodology: ٨ descriptive study was conducted at hemodialysis units in Hawler hospital and Azad hospital in Duhok Governorate, from 15th of January2004 to the end of May 2005

Non-probability Sampling was performed, a purposive sample of (40) Nurses who worked in hemodialysis units, a purposive sample of (63) patients who were attending to the hemodialysis unit at time of the data collection ,and taking swab from different site of vascular access (fistula, shunt). ٨ checklist was constructed by investigator in regard to the purpose of the present study which included the different tools were used through the data collection.

part one: -٨ checklist for environmental precaution concerning infection control.

Part two: A-questioner for Sociodemographic characteristic for nurses. B - observational checklist form for nursing practice concerning infection Control.

Part three: -٨ questioner for socio and clinical demographic of ([559) patient B- patient practice concerning infection Control.

Part four: Swab specimens were also gathered from vascular access site. Content validity of the checklist was responses through panel of (16) experts. Reliability of checklist was determined through use of inter-observer questionnaire for nursing practice and the test- retest for patient practice.

Results: The results of the study revealed that the presents of isolate room at hemodialsis unit for patients with HBV. The result also revealed that the standard precaution that was applied in dialysis unit concerning infection control was adequate application of standard precaution of ventilation with

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grand mean of Score (2.00), sterilization of the dialysis machine, and walls and floor cleaning with grand mean of score (1.85). The data analysis indicated that the majority of nurses were male, with age group (21-30) years. And more than half of them graduated from institute. The result also indicated (82.5%) of nurses had (1-3) years of experience in hemodialysis (95%) had no training session after graduation.

Concerning nurse's practice, the data revealed inadequate practices related to cleaning patient's bed and linens management, fistula care and instrument preparation, isolation room, sharp equipment management, drugs administration management and instruction. Significant differences were found between nurse's practices and place of work, and no significant differences were found between nurse's practice concerning infection control and certain variables such as sex, age, marital status, level of education and years of experience in hemodialysis and peritoneal dialysis.

The result shows that the half of patients of dialysis were male, their age ranged between (51-60) years and had (1-5) years history of renal failure. Regarding patient practice, the patient had high mean of score for doing laboratory tests.

Recommendation: The study recommended that the periodic evaluation for the environmental nurse's practices concerning infection control at dialysis unit and continuous training and education should be conducted for all the nursing staff.

Keywords: Infection Control Process, Hemodialysis dialysis

Introduction

Dialysis is a treatment that performs the functions of natural kidney when the kidneys fail .Most patients begin dialysis when their kidneys have lost 85-90% of their ability to function and will continue dialysis for the rest of their lives ,this is called end -stage renal disease (ESRD) (1)

Infection is still a major cause of morbidity and mortality' in patients with end stage renal disease (ESRD) treated with hemodialysis (HD, or peritoneal dialysis (PD) (2). Infection is second only to cardio vascular diseases causes of death in (ESRD) among hemodialysis patients (34). Bacteremias accounts for more than 75% of morbidity causes in hemodialysis patients. Staphylococcus aureus has previously been the primary etiologic agent implicated in causing approximately half of the bacteremic episodes (5).

Infection control is not new problem, yet it is at least as essential today as it was in 18405 .It is one of major problem in hospital management today. More than 300,000 patient in the United states who have reached end- stage renal disease (ESRD) ,hemodialysis has become a routine therapy , however it should not be forgotten that this life saving treatment has been routinely applied for ESRD only for past 30 years(6).

The population of patients with ESRD is increasing approximately 8% each year. The incidence of ESRD is disproportionately higher in African Americans (758 per million populations as compared with white Americans. 180 per million populations per year) (7).

The survival rate on dialysis depends on the underlying disease process. Over all 5-years survival is currently estimated at 36% patients under going dialysis have an average life expectancy of 3-4 years, but survival for as long as 25 years is seen depending on the disease entity(8).

Methodology

The descriptive design was adapted in Kurdistan Region. Starting from 15th of January 2005 up to the end of May 2005

The study is carried out at two teaching hospitals. Hawler Teaching Hospital. Duhok Teaching Hospital (Azadi). Sulaimania Teaching Hospital (dialysis unit) was

excluded because the unit was under reconstruction. The cases refer to Hawler and Kerkuk for hemodialysis.

The population consists of all the nurses who work in peritoneal and Hemodialysis units at (2) hospitals, Non-probability, a purposive sample of (40) Nurses who worked in hemodialysis and peritoneal dialysis units, and comprised of (27) nurses from Hawler Teaching Hospital and (13) nurses from Duhok (Azadi) Teaching Hospital who were actually working at dialysis unit at the time of data collection. ٨ purposive sample of (63) patients who were attending to the dialysis unit at time of the data collection, dialysis environmental precautions concerning infection Control, also swabs samples gathered from access site and peritoneal catheter site.

٨ checklist was constructed by researcher, which included the different tools were used through the data collection,

Part one: Environmental standard precaution concerning infection control which included:

1-A: Demographic information concerning dialysis unit.

1-B: Standard environmental precautions questionnaire concerning infection control. This part consist of (14) Section. The total number of items in this questionnaire was (104) items. Items were rated on a scale of the two level scales (yes, no), which were scored as (2, 1) for each level respectively. So the cut of point (1.5) and the low limit for acceptance environment precaution was less than (75). moderate (75 to 87.5) and high (87.6 to 100) these calculated according to following formula (100-75)72= 12.5 then this score added to 75 +12.5 = moderate , over than 87.5 =high

Part two:

2-٨: Demographic nurses data

2-3: Check list of nurses' practice concerning infection control at dialysis units. The over all number of items of observational tool were (71) for hemodialysis and peritoneal dialysis. Each item in the observational tool was measured, scaled and scored on 3 level types like scales (always, some time, never) scored (3) for always, (2) for sometime, and (1) for never. So the cut of point (2) and the low limit for acceptance nursing practices was (66.67), calculated through the relative sufficiency formula (cut of point x 100)/ (No of scale)

Low (66.67 to 77.78) , moderate (77.79 to 88.89) and high (88.90 to 100) these calculated according to following formula (100-66.67)7 3= 11.11

Then this score added to 66.67 +11.11=77.87 moderate, 77.78-11.11. =high 88.89 + 11.11

Part Three:

3-٨: patient demographic information which includes Socio-demographic and clinical data..

3- B: Questionnaire was concerning with patients practices related infection control.

This questionnaire was divided into 3 subdivisions. The total number of items in this questionnaire was (14) items.

Part four:

Swabs specimen was obtained to evaluate the impact of practice on patients at dialysis unit. Sterile disposable cotton swabs moistened with sterile nomial saline were used to obtain the specimens, the swabs were placed in (1 ml) of nonnal saline and immediately transferred from the unit to bacteriology laboratory for culturing the results were obtained after 3 days.

The validity of instrument was established through a panel of (16) experts. ٨ pilot study was carried out on (10) nurses and (10) patients with hemodialysis from Hawler

Teaching Hospital. The study was carried out through the period of 15 December to 25 December 2004. In order to determine the test retest reliability for patient practice related to infection control, and the reliability of observational check list was determined through the use of inter- observer reliability. The correlation coefficient was for patients was [-91% and for nurse was r = 0.95.

Data were collected through application of constructed, observational checklist for nurse's practice checked by the researcher and nurses were observed, while they were performing their work, each of them was observed on individual basis with out being informed ʌ total of (3) episode of events were observed for each responded practice as means of data collection ,(3) correct practice out of (3) episodes were rated a!ways(2) corrected practice out of (3) episodes were rated as sometime and un correct practice out of (3) episodes were rated as never. Also check list questioners asked patients during dialysis procedure. Also sterile disposable cotton swabs specimens were gathered out of the different patient's access sites and peritoneal catheter site.

Data were analyzed through the application of a descriptive statistical analysis (Frequency, percentage , mean of score) and inferential statistical analysis (025011 correlation coefficient, Chi- square:

After arranging sum of nursing practice ascending (120... 151) quartile of nursing calculated as following:

QI l/4n, 02-2/4• , 03-3/41 (Munro & Page, 1993)

According to relation ship between nurses' practices and some of the demographic characteristics, Calculated Percentage of each scales (good, fair, low) as following

The researcher used Cut off point and levels of nurse's practice as following:

Nurse's practice	No. of Nurses	Minimum of nursing practice	Maximum of nursing practice	Levels of Nurse's practice	Cut-off point
	40	120	151	Low	120- 130.75
				Fair	130.76-134.5
				Good	135-151

Results:

Part I: Environmental standard precautions concerning infection control.

Table (1): distribution of bed, occupied bed, in Hawler and Duhok dialysis units.

N	Items	Hawler				Duhok			
		a		No		•ى		No	
		F	%	F	%	F	٥/٠	F	%
1-	Number of beds in HBV,HCV (+ve) room	3	100.0					0	0.
2-	Number of daily occupied beds in HVB,HCV(+Ve) room	1	33.0					0	0.
3-	Number of beds in HBV,HCV(-Ve)r00m	5	100.0			3	100.0		
4-	Number of morning occupied bed in HBV. !((-/ε room	5	100.0			3	100.0		
5-	Number of evening occupied beds in HBV, HCV(-Ve)room	2	40.0			2	66.66		

HBV = Hepatitis B Viruses, HCV (+) ve= Hepatitis **C** Viruses

Table (1) showed that the Hawler hospital had (3)beds of HBV+ve, HCV-ve room in hemodialysis unit, and 33% was a number of daily occupied beds, while Duhok hospital hadn't have, HVB+ve room. Regarding present of HBV, HCV (-٧٤), both Hawler and Duhok hospital have beds, and the number of occupied beds in each hospital were 100%.

Table (2): Distribution of Environmental Precautions practices concerning infection control at Hemodialysis Dialysis unit

n =2Hemodialysis unit at Hawler hospital while Azad hospital (Duhok) only one unit

No	Items	MS	RS	grade
1-	Ventilation of dialysis units :	2.00	100	high
2-	Bath room, Sink, and Toilet cleaning :	1.37	68.5	low
3-	Solution and substance for cleaning:	1.5	75	moderate
4-	Bed management:	1.31	65.5	low
5-	Walls and floor:	1.85	92.5	high
6-	Linen Management :	1.4	70	low
7-	Sharp equipment Management	1.0	50	low
8.	Hand washing and gloving	2.0	100	high
9-	Dressing :	1.33	66.5	low
10-	Protect and storage instrument	1.43	71.5	low
11-	Fistula site care:	1.25	62.5	low
12-	Sterilization of the dialysis machine	2.0	100	high
13-	Isolation room	1.4	70	low
14-	General precautions concerning infection control	1.3	65	low

Low acceptance of environment precaution practices was lessthan75, M0derate(75 – 78.5), high (78.6 -100)

Table (2) indicated that the high acceptance of environment precaution practices was for items related Ventilation of dialysis units, Hand washing , walls and floor and gloving, and Sterilization of the dialysis machine. While the low relative sufficiency for acceptance of environment precaution practices was 9 items out of 14 items

Part 2

Tabic (3) Socio-demographic Characteristic of the nurses at dialysis units:

Characteristics of the dialysis nurses		F	00
Works location of nurse:	Hemodialysis (Duhok)	13	32.5
	Hemodialysis(Hawler)	27	67.5
	Total	40	100.0
Sex:	Male	24	60.0
	Female	16	40.0
	Total	40	100.0
Age:	21-30 Years	29	72.5
	31-40 Years	5	12.5
	41-50 Years	3	7.5
	560-! Years	3	7.5
	Total	40	100.0

Table (3) continued

Characteristics of the dialysis nurses		F	٠/٥
Marital status	Married	24	60.0
	Single	16	40.0
	Total	40	100.0
Level of education:	Intermediate school	9	22.5
	Preparatory of Nursing	9	22.5
	Institute of Nursing	22	55.0
	Total	40	100.0
Number of training session regarding dialysis care especially infection control:	No	38	95.0
	One training	2	5.0
	Total	40	100.0
Year of employment in nursing:	1-3 years	27	67.5
	4-6 years	4	10.0
	7-9 years	0	0.0
	10-12 years	1	2.5
	13-15 years	2	5.0
	! ك ا ع ن	6	15.0
	Total	40	100.0
Year of experience in nursing hemodialysis:	1-3 years	33	82.5
	4-6 years	5	12.5
	7 ≤ years	2	5.0
	Total	40	100.0

Table (3) demonstrates the distribution of Socio-demographic characteristics of the dialysis nurse, the table showed that the majority of the nurses (60%٥) were males, those at age group (21-50)3٧٤٥[were (72.5%) of nurses, and (60%) of nurses were married. More than half of them graduated from Institute of Nursing, and appears that the higher percentage, (67.5%) of the nurses was related to (1-3) years of employment. The table present also the period of nurse's experience in dialysis unit (82.5%) of nurses had period of (1-3) years experience at dialysis, concerning to the number of training session (95%) ha\e no training sessions related to infection control at dialysis unit.

Table (4); Distribution of Nurses Practice Concerning Infection Control.

No	Items	[ى	RS	Grads
1-	Follow up ventilation system b~nurses	2.25	83.3	moderate
2-	cleaning patient bed and linen management	1.71	57	Low
3-	Hand washing	2.21	747	Low
4-	Dressing procedure	1.96	65.3	Low
5-	Fistula care and instrument preparation	1.75	58.3	Low
6-	Isolation room	1.52	50.7	Low'
7-	Storage of sterile instrument and substance:	1.90	63.3	Low'
8-	sharp management	1.42	47.3	low'
9-	Drugs administration management	186	62	Low-
10-	Nursing Instruction	1.56	52	Low'
1,-	Sharing 8 follow up practice infection control	1.36	45.3	Low-
12-	Taking vaccination as needed.	2.88	96	Low

Table (4) indicated that the high grad of relative sufficiency only for taking vaccination as needed ؛ moderate grad of relative sufficiency for follow up ventilation system by nurses and most items of nurses practice concerning infection control was grad low of relative sufficiency.

Table (5): Association between the nursing practice concerning infection control and the some demographic characteristic.

Place of work	Nursing Practice						Total	
	Good		Fair		Low			
	F	%	F	0/	F	0/	F	٠/٥
HD (Duhok)	2	15.4	3	23.1	8	61.5	13	100
HD (Hawler)	18	66.7	5	18.5	4	14.8	27	100
Total	20	50	8	20	12		40	100
2-11.092			df=2			Pvalue: .004		
Male	9	37.5	7	29.2	8	33.3	24	100
Female	11	68.7	1	6.3	4	25.0	16	100
Total	20	50	8	20	12	30.0	40	100
X2 = 4.618			df=2			Pvalue = 099.		
Marital status of Nurse								
Single	9	37.5	6	25.	9	37.5	24	100
Married	11	68.8	2	12.5	5	18.75	16	100
Total	20	50	8	20	12		40	100
/2 = 3.750			df = 2			Pvalue = .153		
Years of experience in Hemodialysis								
1-3	15	55.5	5	18.5	1	25.9	27	100
4-6	2	50.	0	0.0	2	50.	4	100
7≤	3	33.3	3	33.3	3	33.3	9	100
Total	20	50	8	20	12		40	100.
x2 = 3.701			df=2			=Pvalue 448.		

HD= Hemodialysis

Table (5) presented that there is a significant differences between nurses practice related to infection control and their place of work (p< 0.05) and no significant difference between nurses performance with their sex distribution , with their marital status distribution, with their level of education distribution, year of employment, their years of experience in hemodialysis and peritoneal dialysis (p>0.05).

Part Three: Socio-demographic and Clinical Characteristics for (ESRD) patient's, practice concerning Infection Control.

Table (6): Socio-demographic and clinical Characteristics of (63) patient undergoing dialysis.

Socio Characteristics n = 63				Clinical Characteristics n = 63			
		F	0/			F	٠/٥
gender	Male	32	50.8	patient history of renal failure	Less than 1 year	29	41.3
	Female	31	49.2		1-5 years	26	46.0
age	≤20	5	7.93		6-10 years	6	9.5
	21-30 years	5	7.93		11-15 years	2	3.2
	31-40 years	9	14.2	first time of dialysis	Less than 1 year	38	60.3
	41-50 years	13	20.6		2 -3 years	18	28.6
	5 1-60 years	20	31.7		5 -6 years	4	6.3
	61-70 years	7	11.1		7 -8 years	1	1.6
	71-80 years	4	6.3		9 -10 years	2	3.2
educational status	Unable to read and write	23	36.5	number of dialysis	once weekly	11	17.5
	read and write	24	38.1		Twice weekly	42	66.7
	Intermediate school graduate	7	11.2		3 times w'eekly	3	4.8
	Institute $ college graduate	8	14.3		Once monthly	4	6.3
marital	Married	47	74.6		other	3	4.8
	Single	16	25.4	Dose patients get good services from health institution	yes	61	96.8
Occupational status prior to end stage: renal disease	Government employee	16	25.4		No	2	3.2
	Seif -employee	17	27.0				
	House wife	28	44.4				
	Retired	2	3.2				

Table (6) that the (50.8) of patients were males, It also shows that the age ranged (51-60) was (31.74%) of patient and (20) was lowest ranged of patients. According to the level of education most of the patients (35.1%) were read and write, and (74.6%) of patients were married.

Regards occupational status of patients prior to (ESRD), the majority of them (44.44%) were house wives.

According to patient history of renal failure the table shows that most of them (46%) were among (l-5)years. The first time of dialysis with (60.3%) of patients was with (1ك) year. Regarding the number of dialysis majority of patient (66.7%6) had dialysis twice weekly, According to patient satisfactory from dialysis services (95.23%) were satisfied from dialysis services.

Table (7): Mean of score for Dialysis patient practice concerning infection control.

No	Items	Always	Sometime	Never	Mean of score	SD
	Did you receive instruction about					
1-1	Avoiding exposure to crowded areas	1	18	44	1.30	0.50
1-2	Maintain care of body hygiene especially access sites	1	43	19	1.70	0.50
1-3	Avoiding infectious persons	1	42	20	1.67	0.51
1-4	Pay attention to important signs such as fever and chilling	1	9	53	1.21	0.45
1-5	The times of vaccination	1	8	54	1.19	0.43
1-6	The time of laboratory' investigation	1	44	19	1.71	0.46
					1.31	
2-1	Gets instructions from nurse	1	60	3	1.95	0.21
2-2	Others like doctors.	1	51	12	1.81	0.40
					1.83	
3-1	Vaccination get on of hepatitis B viruses vaccine	8	47	8	2.11	0.36
3-2	vaccine of influenza viruses	1	1	62	1.00	0.00
3-3	vaccine of tetanus and diphtheria	1	1	62	1.00	0.00
3-4	vaccine of pneumonia	]	1	62	1.00	0.00
					1.22	
4-	Doing laboratory testing for patient s every 3 months	50	12	1	2.81	0.40

Table (7) Indicated that the low mean of score in all items for patients, who didn't receive instructions, about infection control.

Concerning responsibility for instruction, the data revealed that the mean of score was low. Related to vaccination, were low mean of score for all items except item (1) was high mean of score. For laboratory testing the item recorded high mean of score also high mean of score for taken described food.

Part four:

Table (8): The incidence of infection in vascular access site.

Bacterial growth		growth		No growth		Total	
Swab Culture Site		F	O	F	0/◦	F	O
Access Site	Fistula	13	68.4	25	73.5	38	71.7
	Shunt	2	10.5	3	8.8	5	9.4
	Jugular vein	2	10.5	3	8.8	5	9.4
	Femoral vein	2	10.5	3	8.8	5	9.4
Total		19	35.8	34	6-1.2	53	100

Table (8) shows the incidence of infection in access site.

(68.4%) Bacterial growth from fistula site of access

(10.500) Bacterial growth from shunt site of access

(10.5%0) Bacterial growth from Jugular vein site of access

(10.5%) Bacterial growth from femoral vein site of access

Discussion

Part one

As a result of data analysis it had been realized that the number of beds in HBV and HCV(·)ve room were 5 beds, and (3) beds in HVB and HCV (-t)ve room (tablel)) The patients who are HBsAG(+)ve ideally should be isolated in separate room or unit designated for HBsAG (+)٧٤ patients only(9' (Table 1)

Study finding had confirmed that the environmental precaution practice's was adequate provided (high relative stuffiness) for items related to the ventilation of dialysis unite, cleaning walls and floor, Hand washing and gloving, and sterilization of dialysis machine.(Table 2)

The walls whether painted or covered , should be washable , and should be flushed with a smooth water-resistant, disinfection of floors and other environmental surfaces may also be included in cleaning policies for specific areas (e.g. clean rooms isolation units, dialysis unit, operation rooms (1011)

The health care workers should wash their hands properly with soup and water following contact either with blood, body fluids, execration and any items contaminated with such fluids. This is indicated that both dialyses HD, with good provision instrument relating hand washing and machine sterilization directly after dialysis, and the chemical methods of disinfection should be used according to the manufacture's instructions. ')١'2'٠د

The results in present study indicated low relative stuffiness was for items related to bath room, sink and toilet cleaning, solution and substance that used in cleaning the RS= 68.5, bed management the RS=65.5, Linen management the RS= 70, Sharp equipment management the RS= 50 ١ isolation room the RS=65 , dressing the RS= 66.5٠ protect and storage instrument the RS: 71.5٠ fistula sit care the RS=62.2 . (Table 2)

These results supported by other studies who stated that a number of factors influence hand washing frequently notably staff workload, shortage of sinks, lack of soap and quality of hand towels or water temperature controls. (15155

The nurses practice regarding cleaning bath, toilet, sinks, that should be cleaned at least once daily, and if practicable encouraged to cleaning those after each using . The safely disposal of waste especially sharps and cell infected sharps should throw them away in special puncture resistant container. (9 ١١ ,13,16, ٠7' 18 _ ١)

General precautions concerning infection control deficiency may de was due to:

1-poor monitoring policy.

2- Lack of an educational program.

3-importance of guideline and written instructions related to the infection. These practices act as a logical reason which direct to the negative attitude of dialysis environmental precautions.

Part two:

2-1 Socio-demographic Characteristics of the Nurses at Dialysis units.

The majority (67.5%) of nurses worked in hemodialysis unit, and most of them are males (Table 3) This result supported by other study who stated that the male nurses who worked at peritoneal dial ,sis unit are more than females (20»

Age group of nurse in dialysis unit was (72.5 %6) of them with (21-30) years. (60%) of them was married, (55%) was nursing institute graduated, the results of the study showed that 95% of the nurses did not attend any training course regarding dialysis care and especially infection control after their graduation. High percentage

(82.5%) of nurses had (1-3))'ears of experience in hemodialysis units, who have considerable periods of experience in other fields of nursing .This might be due to the attitude in the health administration to transform nurses from one field to another. (Table 3). These results disagree with (OOO) Recommendation that emphasis the patients and families should receive training with a standard curriculum that includes appropriate infection control procedures and these procedures should be evaluated regularly through home visits (1.)°

2-2 Hemodialysis nursing practice concerning infection control.

As a result of the data analysis, it had been realized that the dialysis nurses had performed inadequate nursing practice concerning infection control in most sections, such as (cleaning patient bed, and linen management, dressing procedure, fistula care and instrument preparation, isolation room, storage of sterile instrument and substance, sharp management, drugs administration, instructions, sharing in practice infection control (Table 4). all patients should have specific assignment for dialysis chairs or beds and machines, linen used on chairs and beds should be changed for each patient ı Chairs and beds also should be cleaned after each use (9■ I".

The items taken into the dialysis station should be disposed of, dedicated for use only on a single patient, or cleaned and disinfected before taking them to a common clean area or used on another patient. Non- disposable items that cannot be cleaned and disinfected (for example, adhesive tape-cloth-covered blood pressure-cuffs) should be dedicated (17، 21). The soiled linen should be handled with minimum of agitation to persons who handle bag of the linen; all soiled linen should be bagged at the location where it was used. (Otero and CDC, recommendation stated that sharps should be disposed of in a labeled, puncture-resistant container which should locate in vNjble place, away from patients, visitors, children and non-authorized persons.)

The result in present study revealed that the nursing practice was performed adequately respect to follow up ventilation system hand washing, peritoneal site care, and taking vaccination as needed.(table 4).

The health care workers should wash their hands with soup and water following contact with blood, body fluid, excretion and secretion and items contaminated with such fluids(12)

Concerning fistula site care and instrument preparation : nurses practice was inadequate presented through provision fistula instruments as one set, providing fistula instruments as collecting sterile field, washing fistula site by alcohol and iodine bofidin , cleaning site as a circular motion , protect fistula dressing continuously. This finding disagrees with other studies who emphasizes that the (wash of access site using an antibacterial soap or scrub (e.g. 2% chlorhexidine) and water and cleanse the skin by applying 70% alcohol or 10%6 povidone iodine using o circular rubbing motion)(ت.

Alter, Stated that unused medications including multiple dose vial containing diluents) or supplies (for example, syringes alcohol swabs) taken to the patient's station should be used only for that patient and should not be returned to a common clean area or used on other patients.(2)

All dialysis patients, except those who are HBsAG + positive or HBsAG (anti body) positive, should receive the hepatitis B-vaccine. (24) To make sure the permanent access will have good flow, the following restrictions should be followed: keep your access clean at all times, use your access site only for dialysis, protect access site from injury, don't let any one put blood pressure cuff on your access arm.

don't wear jewelry or tight clothes over your access site, don't left heavy objects or put pressure on your access arm and check the pulse in your access everyday [25].

This result in table 4 may be due to the:

1- Lack of written guidelines and educational programs.
2- Absence of workshops concerning infection control at dialysis unit.
3- Absence of regular review of infection control.
4- Responsibilities of infection control not clarified in job descriptions.
5- Standard universal precautions not defined and displayed for all staff.

Those are a logical reason (rational) which due to the negative attitude of dialysis nurses sharing in practice infection control.

2-3 Relation ship between nursing practice and same of demographic characteristics

The results shows that there is a significant differences between nurses practice related to infection control and their place of work the data indicated that the majority percentage (66.7%) of good nursing practice were in hemodialysis. The results revealed that there is no significant difference between nurses performance with their sex distribution. While (68.7%) of female nurses had good practice. The result indicated no significant association between nursing practices and their year of employment in nursing as general and in hemodialysis, while the highest percentage (55.55) of good nursing practice were with (1-3) year of experience in hemodialysis, (Table 5).

Part three

3-1 Socio Demographic and Clinical Characteristics of the patient with (ESRD)

Results shows that the half of patients were male (50.8%). with the age group from (51-60) years was (31.74%) of patients. The level of education most of patients (36.50%) were unable to read and write, and (74.6%) of patient were married. Regards occupational status of patient prior to (ESRD). majority of them (44.4%) were house wives.

According to patient history of renal failure the results shows most of them (46%) were with (1-5) years. The first time of dialysis with (60.3%) of patients was)اىئ less than one year, most of patient (54%) done hemodialysis , the number of dialysis majority of patient (66.7%) had dialysis 2 time a week , according to patients satisfactoriness from dialysis services (95.23%) were satisfied with dialysis services. Concerning medical previous history the majority of patients (47.6%) were with hypertension (Table 6).

This result agrees with (Henrich,) who emphases that hypertension is an important presenting feature of renal disease and its progression(^'.

3-2 Patient practices concerning infection control:

The results of the present study revealed that the dialysis patient didn't receive instruction about exposure to crowded area , body hygiene ,time of vaccination and laboratory investigation •This result disagree with previous study who stated that the training and education of patients regarding infection control practice such as personal hygiene, hand washing techniques also care of access , recognition of signs of infection and recommended vaccination should be eiven on admission to dialysis and at least annually (21'. To Support vaccination, the patients on hemodialysis should receive (3) dose of recombinant hepatitis B vaccine as early in the course of renal disease as possible (2 7'.Also other researcher stated that (all dialysis patients should undergo routine testing for Hepatitis ا B (HBV) and Hepatitis (HCV)infection, according to the described schedule '17', 21'.

Part four

Present of Bacterial gro١١th of vascular access site.

The result of the study revealed that the Sixty three patients (all patients) who attending for dialysis at time of data collection were included in the swabs study with (41.43%) of bacterial growth from access & peritoneal catheter site. This result agrees with (Daugirdas,) who Emphasis that the access site is the source of 50-80% of Bacteremias in hemodialysis patient (24).

Also the table shows bacterial growth from peritoneal catheter site was (50%), and the commonest causative organisms were staphylococcus aureus in fistula site, Staph-Epidermidis in peritoneal catheter site.

This result agree with (Lok,) who emphasis that staphylococcus aureus accounts for more than (70 %) of the vascular access site infection (28). Also the infection in (CAPD) is most commonly by skin organisms, particularly staphylococcus epidermidis (II). And in peritoneal dialysis patients, follows Staph-Epidermidis, S. aureus is the second most common cause of peritonitis, is often associated with a catheter infection (١٥).

Recommendations

!.Establishing a nettiT١٠١ standard for healthy en١'ironment and nurses practices policies regarding infection control at dialysis units.

2.Establishing, association of infection control, in Kurdistan Region Such Association ١١ould assist the hospitals in providing nettir'١١ publications, teaching and follo١ving up all setting concerning infection control with assist high and qualified nurses through uses new technology and internet.

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