Effectiveness of an Educational Program on Patients' Knowledge Concerning care of Vascular Access of Hemodialysis in Al-Muthana Teaching Hospitals

فاعلية البرنامج التعليمي في معارف المرضى المتعلقة بالعناية بتوصيلات الاوعية الدموية للانفاذ الدموي في مستشفيات المثنى التعليمية

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المستخلص
الأهداف: تهدف الدراسة الحالية لتقييم معارف المرضى حول العناية بتوصيلات الانفاذ الدموي التعرف على تأثير البرنامج التعليمي على معارف المرضى حول العناية بتوصيلات الانفاذ الدموي ، ايجاد العلاقة بين معارف المرضى والمعلومات الديموغرافية .
المنهجية: دراسة شبه تجريبية اجريت في وحدات الانفاذ الدموي في مستشفيات المثنى التعليمية ابتداء من 11/ تشرين الاول / 2018 لغاية 19/ اذار / 2019.
اختبرت عينة غرضية (غير احتمالية) مؤلفة من 50 مريض مقسمة الى مجموعتين (25) مجموعة الحالة ، (25) المجموعة الضابطة
تم استخدام الاستمارة لجمع المعلومات من المريض وتتكون من ثلاثة اجزاء، المعلومات الديموغرافية تتألف من 6 اسئلة ، التاريخ المرضي ويتكون من 7 اسئلة ، المعلومات الصحية واختبار معارف المرضى المتكون من 29 سؤال.
ولقد تم التاكيد من مصداقية الاستبانة من خلال عرضها على 13 خبير في مجال الاختصاص.
وتم استخدام تحليل الاحصائي الوصفي(التكرار، النسبة المئوية ،متوسط النقاط) والتحليل الاحصائي الاستنتاجي (تي تيست ،الانوفا) التي استخدمت لتحليل البيانات المجموعة بواسطة طريقة المقابلة مع المرضى.
النتائج : اثبتت نتائج الدراسة الحالية اكثر من نصف عينات البحث من الذكور ، معدل الاعمار 41- 50 ، الحالة الاجتماعية لغالبية العينات متزوج ومستوى التعليم لمعظم العينة يقرأ ويكتب ، وجود نقص في معلومات المرضى للمجموعتين قبل الاختبار حول العناية بتوصيلات الاوعية الدموية للأنفاذ الدموي بينما اظهرت النتائج بعد التعرض للاختبار ان معارف المرضى لمجموعة الحالة قد تحسنت بسبب التاثير الايجابي للبرنامج التعليمي عليهم 0 وتوصلت الدراسة بعدم وجود علاقة بين فاعلية البرنامج التعليمي والمعلومات الديموغرافية ماعدا علاقة ذات دلالة احصائية بين فاعلية البرنامج التعليمي والمستوى التعليمي في مستوى دلالة P≤0.05.
التوصيات:
اوصى الباحث بأقامة برنامج تعليمي صحي خاص على وسائل الاعلام من اجل زيادة معارف المرضى حول مخاطر امراض الكلى، برنامج تعليمي مستمر وخاص بمرضى النفاذ الدموي داخل الردهات لكل المرضى ، اشراك المرضى للمساهمة في الفعاليات الخاصة التي تزيد من معرفتهم.
الكلمات المفتاحية:فاعلية،البرنامج التعليمي،عناية المريض،منفذ الانفاذ الدموي

Abstract

Objectives: The study aims to identify the effects of an educational program on patients' knowledge about vascular access care and to find out the relationship between patients knowledge scores and their selected demographic variable.

Methodology: A quasi –experimental design of study was carried out at hemodialysis units of AL-Muthana teaching hospitals started from October 11th, 2018 through March 19th 2019. Non-probability purposive sample of (50) patients,who were in hemodialysis units, was selected from AL-Muthana teaching hospitals. The data were collected through the use of constructing a questionnaire, which consisted of three parts (1) Demographic data form that consisted of (6) items and (2) patient history consisted of (7) items, (3) patients' -care Knowledge consisted of (29) items. Reliability of the questionnaire was determined through a pilot study and the validity through a panel of (13) experts. Descriptive statistical analysis procedures (frequency, percentage, mean of score) and inferential statistical analysis procedures (T-TEST) and (ANOVA) were used for the data analysis Data is collected by a structured interview with patients.

Results: The results of the study indicated that more of half of the study sample were male, their age within 41-50 years, most of them were married and most of the level of education were read and. The study results of pre-test for the case and control groups revealed that there is knowledge deficit for the patients' regarding care toward vascular access for hemodialysis . While the results of post-test showed that the knowledge of case group patients were improved due to the positive effect of the educational program upon them. There is no significant association between the effectiveness of educational program and demographic data involved age, gender, level of education, occupation and family number, except the level of education there is significant association with effectiveness of an educational program at P≤0.05 level.

Recommendations: The researcher recommended to establish special health education programs for the patient through mass media about the danger End Stage Renal Disease, Special and continuing education program should be applied to all patients in hemodialysis ward, Engaging patients to participating in special activity to increase patients' knowledge.

Keywords: Effectiveness, Education Program, Patient, Care, vascular access of hemodialysis.

Introduction

Chronic kidney disease (CKD) is an international health trouble, with the contra result of kidney failure, coronary artery disease (CAD) and early death, with raising incidence and prevalence [1].

A patient with end-stage renal disease (ESRD) affects 1500 people per million populations in a community with a great result of prevalence, such as Japan and United State [2].

End-stage renal disease (ESRD) has increased rate of morbidity and mortality, In the United State the expecting are increasing the prevalence of 40 % consequently 85%from 2000 to 2015, the economic and staff effort is essential for these patients [3].

Hemodialysis is a therapy to remove waste and fluid from the body [4].
Hemodialysis is a temporary cure for patient who are claiming for kidney transplantation and resident cure for the end-stage renal disease patient with no choice to transplant [5].
Hemdialysis is need for vascular access to reach the blood flow [3].
Vascular access of hemodialysis is a device used to connect the patient with chronic kidney disease (CKD) to the hemodialysis machine [2].
The vascular system is done to allow blood to be travel , removed, cleansed, and return back to the patient's circulation, the rate must be between 200 and 800 mL/minute. Various kinds of vascular access are found [6].

Patients who are needed for hemodialysis is a need for vascular access to achieve dialysis, the appropriate vascular access is an arteriovenous fistula, then arteriovenous graft [7]. Nevertheless ,when the vascular access are not available the central venous line is used for dialysis, the major problem with patients dialyzing use central venous line they more risk for infection ,central line related infections are consider with great morbidity , mortality , and economic cost [8].

Methodology

A quasi –experimental design of study has been used in the present study to evaluate effectiveness of an educational program on patients' knowledge concerning care of vascular access of hemodialysis in Al-Muthana Teaching Hospitals during the period from October 11th 2018 to February 19th 2019.

A sample consisting of 50 patients was chosen, divided into two groups; 25 patients as case group were exposed to the educational program considered as the case group, and another 25 patients were not exposed to the program considered as the control group and 10 patients considered as a pilot study were excluded from the study sample.

To accomplish the study, a skill checklist is used the content of the format based on the review of related literature and subjective experiences of the skills checklist of the researcher. The checklist is consisting of (3) parts **Part I, II: Self-administered questionnaire sheet related to demographic characteristics of the patients:** First part which is consist of 6 items concerned with the collection of basic socio-demographic data, this part was filled by the patients (age, gender, level of education, occupation, monthly income and social status) The second part which consist of 7 items were concerned

with the collection of patient health status was filled by the researcher (H.T, D.M, cardiovascular disease), urinary system disease (recurrent renal stone, acute renal shock caused by bullet injury. The history of smoking and family history of renal diseases. Causes of use the vascular access devices, did the patient receive enough information about medical and pharmacological condition, source of information, source of getting drugs.

Part III: Part III: Self-administered Questionnaire Associated with (patients' -care Knowledge toward access line for hemodialysis).

It was education to assess patients' -care knowledge toward vascular access for hemodialysis. The questionnaire was completed by the patients and the study purpose was explained while to get questionnaire. The contributors were demanded to answer the questionnaire in 30 min.

The knowledge test is composed of (29) multiple choice questions including (3) domains (First domain: anatomy and physiology of the urinary system 9 questions, Second domain: vascular access for hemodialysis 10 questions, third domain: nutrition and instructions 10 questions. The test was covered with the relevant points from the major content area of the educational program. For the purpose of this study, the number of correct responses of the knowledge questionnaire was used as the measure of the level of knowledge. Each question was scored as the correct answer gets 2 points and the incorrect answer get 1 point.The educational program was carried out in the hemodialysis wards lasts for three months and consist of three sessions 1st session (Anatomy and physiology of urinary system), 2nd session (Vascular access Devices Of Hemodialysis), 3rd session (Nutrition ,instruction and advice and good health habit).

The content validity of the program and the study tools were determined by the panel of (13) experts, who have more than 10 years, skill in their field to investigate the content of the educational program and questionnaire about patients' -care knowledge toward vascular access of hemodialysis.

Reliability Coefficient for pilot study a for the reliability assessment is (0.984)for the knowledge. They are obtained by evaluating 10 patients selected from hemodialysis wards.

Data were analyzed through the use of SPSS application version 20.0. Descriptive data analysis including Mean of score (M.S) with their Standard Deviation (S.D) and frequency (f). Inferential data analysis contain, t t-test, Chi-square and ANOVA.

Ethical considerations

The Institutional Review Board (IRB) in college of nursing /university of Baghdad reviewed contents of program and questionnaire before conducting a study. Informed consent was taken orally before participating in the study. After that information regarding study title and objectives had been given. Two official requests were submitted through the College of Nursing / University of Baghdad to medical city directorate/ Ministry of Health (MOH) to take approval for data collection from Iraqi center for cardiac disease and Al-Karkh health directorate/ Ministry of Health (MOH) to take approval for data collection from Ibn-Albetar specialist center for cardiac surgery in Baghdad city.

Results

Table (1): Distribution of Socio-Demographic Characteristics for both Study & Control groups

Demographic Data	Groups	Study Group		Control Group		Sig Difference		
		Freq.	%	Freq.	%	T-Value	D.F.	P-Value
Age / Years	30 to 40	3	12	6	24	-1.214	48	.231 Ns
	41 to50	15	60	7	28			
	51 to 60	5	20	7	28			
	61 to 70	2	8	5	20			
	Total	25	100	25	100			
Gender	Male	13	52	15	60	.560	48	.578 Ns
	Female	12	48	10	40			
	Total	25	100	25	100			
Education level	Primary school graduate	8	32	9	36	-.679	48	.500 Ns
	Intermediate school graduate	2	8	2	8			
	Secondary school graduate	6	24	1	4			
	No read and write	9	36	13	52			
	Total	25	100	25	100			
Occupation	Employer	1	4	4	16	.531	48	.598 Ns
	Free-Jobs	20	80	16	64			
	Retired	4	16	5	20			
	Total	25	100	25	100			
Income status	Adequate	3	12	3	12	3.665	37.709	.001 S
	Barely Adequate	6	24	21	84			
	Inadequate	16	64	1	4			
	Total	25	100	25	100			

Freq: frequency, %: percentage, DF: degree of freedom, Ns: non-significant, S: significant

Table (1) reveals that the high percentage of both groups participant at age groups (41-50) years, (60%) in the study group and (28%) in the control group In addition, the table shows that the high percentages of participant in both groups are males , (52%) in the study group and (60%) in the control group. Regarding education level the table show that high percentage no read and write (36%) in the study group and (52%) in the control group concerning occupation the study show most of the sample free jobs (80%) in the study group and (64%) in the control group regarding income status the study show that (64%) of study group are inadequate and (84%) of control group are barely adequate

Furthermore, the study results indicate that there is a significant difference between the study and control group in income status at p-value less than 0.05. (.001).

Table (2): Distribution of Health Status for both Study and Control Groups

Demographic Data		Groups	Study Group		Control Group		Sig Difference		
			Freq.	%	Freq.	%	T-Value	D.F.	P-Value
Previous operation		Yes	7	28	14	56.0	2.049	48	.046 S
		No	18	72	11	44.0			
		Total	25	100	25	100.0			
Past medical history	**Cardiovascular disease**	Yes	5	20	6	24	4.542	48	.009 S
		No	20	80	19	76			
		Total	25	100	25	100			
	Hypertension	Yes	1	4	18	72			
		No	24	96	7	28			
		Total	25	100	25	100			
	D.M	Yes	13	52	14	56			
		No	12	48	11	44			
		Total	25	100	25	100			
	Urinary system disease	Yes	5	20	6	24			
		No	20	80	19	76			
		Total	25	100	25	100			
	Recurrent renal stone	Yes	1	4	0	0			
		No	24	96	25	100			
		Total	25	100	25	100			
	Renal shock caused by bullet injury or other causes	Yes	0	0	0	0			
		No	25	100	25	100			
		Total	25	100	25	100			
Causes of using vascular access devices		Chronic Renal Failure	5	20	2	8.0	6.584	48	.008 S
		Acute Renal Failure	2	8	4	16.0			
		Hemodialysis	18	72	19	76.0			
		Total	25	100	25	100.0			

Smoking		Yes	9	**36**	**9**	**36.0**	**1.419**	**48**	**.162 NS**
		No	16	**64**	**16**	**64.0**			
		Total	25	**100**	**25**	**100.0**			
The patient receives information about his condition		Yes	22	**88**	**15**	**60**	**-5.842**	**48**	**.003 S**
		No	3	**12**	**10**	**40**			
		Total	25	**100**	**25**	**100**			
Source of information	**Nurse**	Yes	**24**	**96**	**5**	**20**	**-24.000**	**48**	**.001 S**
		No	**1**	**4**	**20**	**80**			
		Total	**25**	**100**	**25**	**100**			
	Doctor	Yes	**24**	**96**	**17**	**68**			
		No	**1**	**4**	**8**	**32**			
		Total	**25**	**100**	**25**	**100**			
	Other	Yes	**0**	**0**	**5**	**20**			
		No	**25**	**100**	**20**	**80**			
		Total	**25**	**100**	**25**	**100**			
How to get medications	**Private clinic**	Yes	**0**	**0**	**0**	**0**	**-2.683**	**48**	**.010 S**
		No	**25**	**100**	**25**	**100**			
		Total	**25**	**100**	**25**	**100**			
	Hospital	Yes	**25**	**100**	**20**	**80**			
		No	**0**	**0**	**5**	**20**			
		Total	**25**	**100**	**25**	**100**			
	Popular clinic	Yes	**18**	**72**	**19**	**76**			
		No	**7**	**28**	**6**	**24**			
		Total	**25**	**100**	**25**	**100**			

Freq :frequency, %:percentage, DF :degree of freedom, Ns: non-significant, S:significant

Table (2) shows that high percentage(72%) of study group without previous operation while (56%) had Previous operation, regarding past medical history the study show that high percentage for both groups without Cardiovascular disease (80%) in the study group and (76%) in the control group While (96%) of study group without hypertension and (72%) of the control group with hypertension regarding diabetic majority of both groups without diabetic (52%) in the study group and (56%) in the control group also study show that most of the results to both groups had no Urinary system diseases (80%) in the study group and (76%) in the control group Regarding Recurrent renal stone table show that (96%) of study group without stone and all(100%) of control group also with out of stone With regard to Renal shock caused by bullet

injury or other causes study show both group (100%) did not Exposed to fire . the Causes of using vascular access devices study show most of study for both groups are hemodialysis (72%) in the study group and (76%) in the control group . Concerning Smoking the results show (64%) don't smoking for both groups. The most of Patients receive information about his condition for both groups (88%) in the study group and (60%) in the control group. Regarding Source of information most of study group received information from nurses and physicians in same percentage (96%) while control group (68%) of them received information from physicians. The majority of study group gets medications in hospital (100%) and control group get medication also in hospital in (80%) of them. Furthermore, the study results indicate that there is a significant difference between the study and control group to their Previous operation p value (0.04) , Past medical history p value (0.009) at p-value more than 0.05. (.001)., Causes of using vascular access devices p value (0.008), Patient receive information about his condition p value (0.003) and Source of information p value (0.001) at p-value less than 0.05

Table (3): The Relationship between Knowledge for both Study and Control Group (Pre and Post – Tests):

	Items	Mean	SD	T-Test	Df	p-value	Sig.
Control	**Knowledge (post-Test)**	**30.44**	**2.200**	**11.854**	**24**	**0.000**	**S**
Study	**Knowledge(post-Test)**	**37.04**	**1.549**				
Study Group	**Knowledge(Pre-Test)**	**27.80**	**3.367**	**13.610**	**24**	**0.000**	**S**
	Knowledge (Post-Test)	**37.04**	**1.594**				

SD: standard deviation, T-test at 0.05, df: degree of freedom, p-value, sig.:significant

Table (4.5) Shows that there was statistical significant association difference between pre and post –test of study sample and post- test for both study and control groups concerning knowledge

Table (4): Statistical Distribution of the Study Group by their Overall Responses with Significant Difference between Pre-Test and Post-Test Scores

Overall assessment for study group	Pre-test				Post-test			
	Freq.	%	M.s.	Sd	Freq.	%	M.s.	Sd
Fail	100.0	25	1.2955	.14315	0	0	1.7862	.05076
Pass	0	0			100.0	25		
t-value (-15.993), d.f. (24), p-value (.000) HS								

MS: mean of score, SD: stander deviation, Ns: Non-significant, S: significant , T value: t-test, Df: degree of freedom

This table show that high Significant mean difference among study group concerning to their pre-test and post-test scores at p-value (0.001)

Table (5): Statistical Distribution of the Control Group by their Overall Responses with Significant Difference between Pre-Test and Post-Test Scores

Overall assessment for control group	Pre-test				Post-test			
	Freq.	%	M.s.	Sd	Freq.	%	M.s.	Sd
Pass	0	0	1.2703	.13306	1	4.0	1.2634	.15861
Fail	25	100			24	96		
t-value (.177), d.f. (24), p-value (.861) NS								

(M.s) mean of score 1.5 , (SD) stander deviation ,(Ns): Non-significant (S): significant , (T value): t-test, (D f): degree of freedom

The results of this table show that non-Significant mean difference among control group concerning to their pre-test and post-test scores at p-value (0.001).

Discussion:

1. Part-I: Discussion of Socio-Demographic Data of the Study Sample:

Regarding to the socio-demographic data in table (1).

The study shows there was no statistical significant differences between the study and control group regarding Socio-Demographic data in Table(1).

Throughout the course of the data analysis of the present study, the study uncover that the highest percentage were in the age group (40-60)   for both study and control with p-value (231). This result was supported byThe study was performed in NETHERLANDS on 103 hemodialysis patients using vascular access for dialysis in Iraq over a period 12 months (9). This result was   conducted in Iraq who state majority of age was 58 years old (10). as well as supported by study was conducted in Iraq on 216 patients using vascular access for hemodialysis age group was between (42 -52) years old. The researcher believes that most of the sample in this study was elderly patient aged between (40-60) years old (11).

The study results also find that there was a highly percentage was male in both study and control groups with p-value (578). This result was supported by study was conducting in Iran   the study was conducted on 85 hemodialysis patients 36 females and 49 males(9). Also supported by research was conducted in Iraq on 216 patients was 124 male (12). As well as supported by study conducted in Iraq on 80 patients mentioned male to female ratio was 2.8:1

The researcher opinion was that the male was more than female because they were

having diabetes and smoking more than female.

With respect to the level of education the study appeared that read and write with p-value (500) . The findings of the present study supportive evidence is available in the study that showed this study was conducted in Iraq on 80 hemodialysis patients found the majority of the study was no read and write (1).

This result confirms the poor level of education for patients' undergoing hemodialysis so that the educational program was important to improve their knowledge.

The result of the study shows that the highest percentage was a free job for the study and control group with p- value (598). This result similar to the research was conducted in Iraq on 80 hemodialysis patients who found in her study the highest percentage of the study and control group was unemployed (1).

The finding show income status, highest percentage of the study group was an inadequate and control group was barely adequate. This result supported by study was conducted in Iraq on 80 hemodialysis patients who found the highest percentage was insufficient income. This result confirms poor income status because most of the study sample did not work or did free job so they do not have a salary or monthly income

According to the results of the study of a patient's health status, the highest percentage was (72%) of the study group without Previous operation. This result supported study was conducted in Yemen on 219 hemodialysis patients using vascular access was mentioned 170 of them without previous surgery (9).

The finding of the study indicated that the past medical history the study score that high percentage for both groups without Cardiovascular disease (80%) in the study group and (76%) in the control group. The researcher opinion was no correlation between previous cardiovascular disease and End-Stage Renal Disease.

The study finding (96%) of the study group without hypertension and (72%) of the control group with hypertension regarding diabetic majority of both groups without diabetic (52%) in the study group and (56%) in the control group. This result supported by research was conducting in Netherlands on 27,129 hemodialysis patients was mentioned majority of them without diabetic(13).

also study show that most of the results for both groups had no urinary system diseases (80%) in the study group and (76%) in the control group regarding recurrent renal stone table show that (96%) of study group without stone and all(100%) of control group also without stone. With regard to renal shock caused

by bullet injury or other causes study show both group (100%) did not exposed to fire .

The study finding indicated that the highest percentage that the Causes of using vascular access devices for both groups are hemodialysis (72%) in the study group and (76%) in the control group. The researcher opinion was the most important uses of vascular access are used for hemodialysis in the first place.

about smoking the highest percentage (64%) don't smoking for both groups. This result was supported by research conducting in Netherlands on 27,129 hemodialysis patients was mentioned. Majority of them not smoking (14).

The finding of the study showed that the patients receive information about his condition the highest percentage (88%) receive information, and the source of information the highest percentage received information from nurses and physicians in the same percentage. The researcher believes that the receive information and source of the information is very important because early detection lead to early problem solving and disease control.

The study finding The majority of study get medications in hospital (100%) and control group gets medication also in hospital in (80%) of them. The researcher opinion was the best medication supply to

the patients but not enough yet to improve medical outcome

Recommendations

The researcher recommended to establish special health education programs for the patient through mass media about the danger end stage renal disease, special and continuing education program should be applied to all patients in hemodialysis ward, engaging patients to participating in special activity to increase patients' knowledge.

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