Evaluation of nurses practices toward patients who undergo cardiac catheterization

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الخلاصــة

الهدف: معرفة تقويم ممارسات الكادر التمريضي وعلاقتها ببعض المتغيرات
المنهجيه: اجريت دراسة وصفية خلال الفترة من ١٥ / كانون الثاني / ٢٠٠٢ ولغاية ١٥ / نيسان / ٢٠٠٢ ، لتقويم ممارسات الكادر التمريضي للمرضى المعرضين للقثطرة القلبية لثلاث من المستشفيات العراقية العامة . اختيرت عينه غرضيه لخمسة وستون من الكادر التمريضي من هذه المستشفيات ومن الذين يعملون في ردهات القثطرة وداخل صالات القثطرة ، تم تصميم استمارة استبيانية لغرض الدراسة والتي شملت على ثلاثة اجزاء رئيسية تضمنت (٤٥) فقرة.
تم تحديد مصداقية وثبات الاستمارة الاستبيانية من خلال اجراء دراسة استدلالية. جمعت البيانات الاستمارة المصممة كاداة للملاحظة وتقنية الملاحظة كوسيلتين لجمع البيانات . تم تحليل البيانات من خلال استخدام اسلوبين للتحليل الاحصائي :
١ - التحليل الاحصائي الوصفي الذي يشمل الوسط الحسابي للقيم والتكرارات والنسب المئوية .
٢ - التحليل الاحصائي الاستنتاجي والذي يشمل ، معامل الارتباط ومربع كاي.
النتائج : اشارت نتائج الدراسة الى عدم وجود علاقات ذات دلالة نوعية ما بين ممارسات الكادر التمريضي تجاة العناية التمريضية للمرضى المعرضين للقثطرة القلبية ومستواهم التعليمي وجنسهم .
استنتجت الدراسة الحالية بان جميع الملاك التمريضي قد انجز تقريبا مستوى ثابت من الممارسات بغض النظر عن جنسهم ومستواهم التعليمي والملاك التمريضي ذوي التعيين الجديد قد قدموا ممارسات افضل من الاخرين .
التوصيات : اوصت الدراسة الى اعداد لائحة جيدة من المعايير التي يجب وضعها في كل المواقع التي يتم فيها انجاز هذه الممارسات . تصميم وبناء برامج تدريبية خاصة للملاك التمريضي في هذا المجال وذلك لتعزيز مهاراتهم وتحسين خبراتهم .

Abstract

Objective: To evaluate the nurse's practices and it's relationship between with thier demographic characteristic.
Methodology: A descriptive study was carried out , from January 15th 2002 to April 15th 2002 , to evaluate the nurse's practices toward patients who undergo cardiac catheterization . A purposive sample of (65) nurse , was selected out of three teaching hospitals in Baghdad city . These nurses were worked at the catheterization units and catheterization labs .A questionnaire was constructed for the purpose of the study , which comprised of three major parts in which there were (45) items . Reliability and validity of the questionnaire were determined through the conduct of a pilot study .
Data were collected through the use of the constructed questionnaire as an observational tool and the observation technique as means of data collection .
Data were analyzed through the use of two statistical analysis approaches :
1 - Descriptive statistical analysis that included frequencies and percentages .
2 - Inferential statistical analysis that include mean of scores , Alpha correlation coefficient and Chi square .
Result: Findings of the study indicated that there were no significant associations between the nurse's practices toward patients who undergo cardiac catheterization and their educational level and the nurse's sex. The present study concluded that all staff nurse had performed almost an equal level of practices regardless to their sex and education and newly employed nurses had presented better practices that other .
Recommendation: The study recommended that a well – formulated bill of standards should be created and presented to all sites in which such practices are performed . Special training programs should be designed and constructed for nurses in this area to reinforce their skills and promote their experience
Keyword : cardi**c** patients cardiac catheterization

Introduction

Cardiac catheterization is perhaps one of the most diagnostic and interventional tools available to the cardiologist today , while many of these diagnostic and treatment procedures have become retained for most cardiac nurses . It is incumbent to educate the patient and to

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have understanding of what happens to the patient before , during , and after their procedure [1].

The incidence of procedure related death is now approximately (0.08 %) , the risk of death varies with age ; patients older than (60) years have an increased mortality rate from catheterization . patients with valvular heart disease , renal insufficiency , insulin – dependent diabetes mellitus , peripheral vascular disease , cerebrovascular disease , or pulmonary insufficiency also have an increased incidence of death and major complication . Mortality is especially high in those with preexisting renal insufficiency who have further deterioration of renal function within (48 hours) after the procedure , particularly when dialysis is required [2].

Nurses working in cardiovascular units must be responsible and highly competent to meet the demands of their profession .Hospitals that hire nurses for cardiovascular units also must assume responsibility for the competency of nurses hired [3].

Nurses play a major role in providing nursing care to patients who undergo cardiac catheterization , such care is presented into three different episodes that include precatheterization , intra catheterization , and post catheterization . nurses practice is so critical concerning this procedure in order to reduce the risk and prevent complications that may be associated with this catheterization [4].

According to the stated facts , the present study attempts to evaluate practices of nurses directed toward patients who have undergone cardiac catheterization. Objective of the study are to evaluate nurses practices toward patient who undergone cardiac catheterization and to describe the relationship between practices and nurses demographic characteristic (level education and number of years experiences) .

Methodology

Adescriptive evaluation study design was conducted at three hospitals in which cardiac catheterization was performed and permission was obtained. These hospitals include Ibn Al - Bettar for cardiac surgery , Iraq Center for Cardiac Surgery and Ibn Al – Nafees Hospital . A purposive sample of (65) nurse , Of these nurses,(45) nurses who performed precatheterization and postcatheterization practices and the remaining performed intracatheterization practices , the data collection carried out through the period of January 15th , 2002 to April 15th , 2002 . nurses were observed while they worked in cardiac catheterization units to provide patients who undergone cardiac catheterization , each of them was observed on an individual basis . The questionnaire consisted of (45) item which concerning the nurses practices , these items were measured , scored and rated on 3 level type likert scale (3) for always , (2) for sometimes and (1) for never cut off point(2) . The first part concerned with determination of the demographic characteristics of these nurses through designated sheet which include three items , sex , educational level , and the number of years of experience , the second part of the checklist include (45) items concerning practices that should be provided to the patient in cardiac catheterization unit , which are presented into (3) sections , the 1st section includes (21) items which presents the practices of cardiac catheterization nurses before cardiac catheterization , the 2nd section include (6) items , which presents the practices of cardiac catheterization nurses during cardiac catheterization , the 3rd section includes (18) items , which presents the practices of cardiac catheterization nurses after cardiac catheterization , a pilot study was conducted on a purposive sample of (10) nurses to determine the reliability and the validity of the questionnaire , internal consistency reliability was employed for the determination of the questionnaire reliability , Alpha correlation coefficient was computed and indicated that the correlation coefficient was (r = 0.89) for the pre catheterization practices internal scale ; (r = 0.92) for the intra catheterization practices internal scale ; and (r = 0.91) for the post

catheterization practices internal scale , content validity was determined for the questionnaire through the use of panel of experts .

The data analysis was determine the objectives of the study through the use of descriptive data analysis included the percentages , frequencies and means of score and information data analysis included chi – square .

Results

Table (1) : Distribution of the nurses demographic characteristics .

Demographic characteristics	Frequency	Percentage
Sex		
Male	49	75.4%
Female	16	24.6%
Total	65	100%
Educational level		
High school of nursing graduate	10	15.4%
High institute graduate	34	52.3%
College graduate	21	32.3%
Total	65	100%
Number of years of experience		
< 1 year	4	6.2%
1-10	44	67.7%
11-20	14	21.5%
21-30	3	4.6%
Total	65	100%

This table revealed that majority of these nurses male 75.4% , high institute graduates 52.3% and having (1-10) years of experience in cardiac catheterization .

Table (2) : Mean of score for items of the pre catheterization practices

Items	Always	Some times	Never	M.S
1. Explains the procedure to the patient	-	-	45	1
2. Explains the risk and complication of the procedure	-	-	45	1
3. Asks the patient about allergies	38	4	3	2.7
4. Inserts I.V line	19	2	24	1.88
5. Explains that patient will be wake during procedure	-	-	45	1
6. Makes routine investigation for the patient	38	7	-	2.8
7. Allows the patient to ask questions and provides answers	15	30	-	2.3
8. Instructs the patient for relaxation techniques	-	-	45	1
9. Shaves the skin over catheter insertion site	-	-	45	1
10. Explains what will be experienced during the procedure	-	-	45	1
11. Instructs the patient to be nothing by mouth before at least 6 hours	45	-	-	3

12. Informs the patient that participation can be expected during the procedure	-	-	45	1
13. Orients the patient to expect a warm , tingling sensation when dye is injected	-	-	45	1
14. Administers mild sedative	-	-	45	1
15. Assesses vital signs	-	36	9	1.8
16. Records patient weight and height	21	-	24	1.9
17. Administers the prescribed medication	-	-	45	1
18. Informs the patient that procedure will be carried in a special room	-	-	45	1
19. Instructs the patient that there is little or no pain associated with the procedure	-	7	38	1.1
20. Asks the patient to empty the bladder	23	12	10	2.25
21. Restricts medications (6-8) hours before the procedure	40	4	1	2.86

The mean of score for items of the pre catheterization practices revealed that nurses have a good practices on items 3,6,7,11,,20and 21 .

able (3) Association between the nurses level of education and pre catheterization practices:

Educational level	**Pre catheterization practices**			**Total**
	Always	**Sometimes**	**Never**	
High school of nursing graduate	33	23	112	168
High institute graduate	118	55	310	483
College graduate	89	24	181	294
Total	240	102	603	945
X2 obs = 8.93	df = 4	X2 crit = 9.488		P<0.05

No significant association was presented in this table between the nurses pre catheterization practices and their educational level .

Table (4):Association between the nurses years of experience and pre catheterization practices

Number of years of experience	**Pre catheterization practices**			**Total**
	Always	**Sometimes**	**Never**	
< than 1 year	6	18	60	84
1-10	176	60	394	630
11-20	44	16	108	168
21-30	14	8	41	63
Total	240	102	603	945
X2 obs = 24.142	df = 6	X2 crit = 12.592		P< 0.05

Significant association was found between the nurses pre catheterization practices and their years of experience

Table (5) : Mean of scores for items of the intra catheterization practices questionnaire .sample (20) nurses

Items	Always	Sometimes	Never	M.S
1. Prepares all the equipment prior to the procedure	20	0	0	3
2. Assess the patient for allergy	0	15	5	1.75
3. Administers appropriate analgesics as necessary if the patient experiences chest pain	15	5	0	2.75
4. Cleans all catheters and guide wires	20	0	0	3
5. Monitors vital signs	20	0	0	3
6. Notices any change in the patient emotional or physical status	14	6	0	2.7

The findings out of this table indicated that mean of scores for all items reveald that nurses have a good practices except that of item (2).

Table (6) . Association between the nurses level of education and intra catheterization practices .

Educational level	Intra catheterization practices			Total
	Always	Sometimes	Never	
High school of nursing graduate	10	2	0	12
High institute graduate	49	13	4	66
College graduate	32	9	1	42
Total	91	24	5	120
X2 obs = 1.641	df = 4	X2 crit = 9.488		P< 0.05

No significant association was manifested out of this table between the nurses intra catheterization practices and their level of education .

Table (7).Association between the nurses years of experience and intra catheterization practices .

Number of years of experience	Intra catheterization practices			total
	Always	Sometimes	Never	
1-10	64	16	4	84
11-20	27	8	1	36
Total	91	24	5	120
X2obs = 0.367	df = 2	X2crit = 5.991		P< 0.05

No significant association was presented out of this table between the nurses intra catheterization practices and their years of experience .

Table (8) . Mean of score for items of the post catheterization practices questionnaire

Items	Always	Sometimes	Never	M.S
1. Explains the post procedure care	-	-	45	1
2. Remove the sheath	20	1	24	1.87
3. Observes the catheter insertion site for bleeding or hematoma	20	1	24	1.87
4. Assess skin color and temperature	10	13	22	1.73
5. Assesses vital signs for (15-30) minutes for (2) hours initially and less frequently	-	37	8	1.8
6. Assesses for stability of pain	13	23	9	2.08
7.Monitors the patient by EGG	-	-	45	1
8. Places the patient in a supine position on a padded table in the room	45	-	-	3
9. Encourages the patient to increased fluid intake	35	8	2	2.73
10. Observes for signs of hypersensitivity to the contract and other signs	-	-	45	1
11. Checks the patient output	-	-	45	1
12. Observes the extremity in which the catheter inserted straight for (4-6) hours after procedure	45	-	-	3
13. Immobilizes the arm on arm board , if the anticubital vessels are used	-	-	45	1
14. Instructs the patient to cough if there is a chest discomfort	-	-	45	1
15. Pressures dressing over the insertion site when catheters withdraw	20	1	24	1.87
16. Applies firm pressure over the site , if any bleeding occurs	45	-	-	3
17. Monitors intake and output after 24 hours following the procedure	-	-	45	1
18. Instructs the patient for self-management at home , before discharge	15	25	5	202

The mean of score for items of the post catheterization practices reveald that nurses have a good practices on items 6, 8,9,12,16 and 18 .

Table (9) : Association between the nurses level of education and post catheterization practices .

Educational level	Post catheterization practices			total
	Always	Sometimes	Never	
High school of nursing graduate	35	18	91	144
High institute graduate	126	64	224	414
College graduate	84	39	129	252
Total	245	121	444	810
X2obs = 5.661	df = 4	X2crit = 9.488		P< 0.05

This table had revealed that there are no significant association between the nurses post catheterization practices and their educational level .

Table (10) : Association between the nurses years of experience and post catheterization practices .

Number of years of experience	Post catheterization practices			Total
	Always	Sometimes	Never	
< than 1 years	13	4	55	72
1-10	177	85	278	540
11-20	42	23	79	144
21-30	31	9	32	54
Total	245	121	444	810
X2obs = 17.310		df = 6	X2crit = 12.592	P< 0.05

Significant association was reported out of this table between the nurses post catheterization practices and their years of experience .

Discussion

The study has revealed that the majority of these nurses were male (75.4 %) , high institute graduates (52.3 %) , and having (1-10) years of experience in cardiac catheterization (table 1) , these results can be interpreted in a way that due to the nature of the nursing profession , male nurses were accounted for most of the nursing staff , further , nurses with diploma degrees were considered the major proportion of staff nurses in health organization , in addition , their years of experience indicated that most of them had spent (1-10) years as an evidence for their employment history at the cardiac catheterization units , unfortunately , no supportive findings were available in the literature for the results of the present study with respect to the sample due to lack of studies in this area , the analysis of such concern indicated that nurses regardless to the educational level differences had performed inadequate per catheterization practices (table 4) , except those who had more than (1) year of experience , had performed better practices of such context to some extent than others (Table 4 and 5) . The inadequately performed pre catheterization practices that influenced the association in this context were obvious throughout the mean of score for non significant items of these practices , as a matter of fact , nurses did not explain the procedure ; the risk ; the complication ; being awake during procedure ; the what will be experienced during the procedure . they also did not insert the intravenous line due to the units policy , nurses did not perform shaving to the patients because all the patients were informed to shave at home prior to their admission to the unit and they did not tell the patients to participate during the procedure (table 2).The study mentioned that the experience of cardiac catheterization has included feeling of uncertainty , stress , fear and anxiety in many patients , however , conflicting findings from previous research have been reported , Chinese patients who undergo cardiac catheterization had experienced psychological distress in a different way to other culture as a result of traditional beliefs , in a study aimed to describe the relationship between uncertainty , psychological distress and coping strategy in men after cardiac catheterization , strong relationship between uncertainty and mood disturbance (r = 0.57 , p = 0.01) , trait – anxiety and mood disturbance (r = 0.65 , p = 0.01) and state – anxiety and external coping strategies (r = 0.50 , p = 0.05) were found [5] .

The effect of preparatory information and psychological support to distress of cardiac catheterization patients was tested on two groups , one group of patient's severed as a control , while the other group received the experimental nursing intervention , through the provision of information and support prior to the catheterization , the experimental group would be less distressed during the catheterization was supported [6] .

The study said that the search suggests that patients undergone cardiac catheterization might benefit from a taped preparatory massage that contains procedural and sensory information about the catheterization , the investigators decided to show the side and program the evening before scheduled day of the catheterization , the very positive results of the evaluation supported the decision to include the slide and tape program as a part of the pre catheterization teaching program [7] .

In fact , these nurses adequately performed intra catheterization practices determined throughout the degree to which significant and highly , significant mean of score for items of these practices , they had revealed that all nurses prepared all the equipment prior to the procedure , cleaned all the catheters and guide wires and monitored the patients vital signs most of the nurses administered appropriate analgesics as necessary if the patients experiences chest pain and noticed any change in the patients emotional or physical status , sometimes nurses assessed patients for allergy (table 5) , unfortunately , no evidence is available in the literature that can be supportive to the present study finding regarding these practices , this fact was documented due to lack of research studies of this respect the result of the data analysis that nurses with regardless to the educational level and number of years of experience differences had presented post catheterization practices (table 9 and 10) except these who had (11 – 20) years of experience had performed all most barely acceptable practices relative to the post catheterization once .Inadequately performed the post catheterization practiced is reported and evidenced through the mean f score for items of these practices as being not significant , they indicated that all staff nurses did not explain the post procedure care ; all patients were not monitored by ECG; did not observe for sign of hypersensitivity to the contract and other signs ; did not check the patient's output ; and not use the antecbital vessels because they used the femoral artery ; they did not instruct the patients to cough if there was chest discomfort , and they did not monitor the patients intake and output after (24) hours (table 8) , a study investigated nursing assessment of patient readiness for ambulation after cardiac catheterization .the study found that although nurses routinely perform activities that prevent or defect vascular complication following a cardiac catheterization , determining patient readiness for ambulation has received minimal research attention , educating nurses to determine patients readiness for ambulation is a safe , and effective way to promote patient comfort [8] .

As a matter of fact , nurses reduce the length of bed rest for patients after catheterization to minimize discomfort and increase the number of patients treated , no significant clinical changes explain the occurrence of haematoma formation or early bleeds as a result of shorter bed rest [9] .

Recommendations

1. Nurses , who are planned for employment in this area , should be hired with certain qualification , which are related to the performance of such high quality practices .
2. Special training programs should be designed and constructed for nurses in this area to reinforce their skills and promote their experience .
3. Cardiology oriented nursing curriculum should make an emphasis on these practices due to their significance .
4. A bill of standards for such practices should be created and presented to all ties in which such practices are performed .

5. Nurses who performed all means of cardiac catheterization should be rotated to gain variety of experience concerning pre, intra and post such catheterization

Reference

1. Black, J. and Jacobs, E. : **Medical – Surgical Nursing** 15th ed. Philadelphia : Saunders Company , 1997, P.P. 1230 – 1232 .
2. Gregory, J. ; George , A.; and Micheal, E.: **Cardiac Catheterization** , 3(3), 2002, p.p.1-12 .
3. Amidi, M.: **Cardiac Catheterization , Cardiology Fellowship Program**, USA : Virginia , 2002,.P. 3.
4. Holloway, N.: **Nursing the Critically Ill Adult** , 4th ed., California: Adison – Wesley Nursing , 1993 , P.P.272-274 .
5. Robinson, J. and Vassalo, A: **Left Heart Catheterization** , USA: Third Age Media, 2001, P.P.1.
6. Finesilver, C. : Perparation of Adult Patients for Cardiac Catheterization and Coronary Cineangiography . **International Journal of Nursing Studies** , 15(4), 1978,.P. 211-211 .
7. Cohen, J. and Hasler, M. Sensory Preparation for Patients Undergoing Cardiac Catheterization: **Critical Care Nursing** . 7(3), 1987, P.P. 68-73
8. Dadds, A. , Walsh, R, Beck, J, Demko, S. , and Kanaskie , M. : Nursing assessment of patient readiness for ambulation after Cardiac Catheterization , **Medical – Surgical Nursing** , 8(5), 1999, P.P. 309-314 .
9. Searle, M. and Hoff, L.: Bedrest after Elective Cardiac Catheterization, **Prof-Nurse Journal**, 15(9), 2000,P.P.588-591 .