



Nurses' Knowledge Regarding Patients Safety After Diagnostic Cardiac Catheterization in Azadi Teaching Hospital in Kirkuk City

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Abstract

The present study aims to assess Nurse's Knowledge about Patient Safety after diagnostic Cardiac Catheterization at Azadi Teaching Hospital in Kirkuk City. A descriptive study survey approach was carried out from the period of 1st March 2017 up to 1st October 2017. A non-probability (purposive sampling) method was used to select the sample of the study. The study includes the (45) nurses who are working in medical ICU and cardiac medical ward at Azadi Teaching Hospital in Kirkuk City. The instrument of the study is Self structured questionnaire which is developed to assess the knowledge of nurses who are working in ICU and cardiac medical ward. The analysis of the data was used descriptive statistics (frequencies, percentages, mean, S.D), and inferential statistical (ANOVA and t- test). The results of the study showed that (48.9 %) of samples were in the age group between (23-27) year, and with a mean & SD of 2.13 ± 1.12 . (64.4%) of study sample were female, (37.8 %) of the sample were graduate from Nursing institute, (75.6%) of them having (1-5) years of experience in the nursing profession, (95.6%) of the nurses had no training session in cardiac catheterization. The socio-demographic characteristic of the sample of the study has no significant relationship with knowledge at (P value < 0.05). The results of the questionnaire demonstrated that the nurses who are working in medical ICU and cardiac medical ward nurse's knowledge towards Patient Safety after diagnostic Cardiac Catheterization were far from optimal. The researcher recommends the establishment educational training programs for staff working in cardiac catheterization and establishes specialized centers for cardiac catheterization.

Keywords: Cardiac Catheterization; Knowledge; Patients Safety; Nurses.

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معارف الملاك التمريضي حول سلامة المريض بعد قسطرة القلب التشخيصي في مستشفى آزادي التعليمي في مدينة كركوك

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الملخص

الهدف الرئيسي من هذه الدراسة هو تقييم معارف الملاك التمريضي حول سلامة المريض بعد قسطرة القلب التشخيصي في مستشفى آزادي التعليمي في مدينة كركوك. أجريت الدراسة الوصفية خلال الفترة الممتدة من الأول من آب 2016 إلى الأول من شباط 2017. و شملت عينة البحث (45) ممرض/ممرضة مأخوذة بطريقة العينة الغير احتمالية (الملائمة) يعملون في ردهات العناية الحرجة وردّهات القلبية في مستشفى آزادي التعليمي في مدينة كركوك. ويتكون الاستبيان من جزئين.

الجزء الأول: الصفات الاجتماعية والديموغرافية، والتي تشمل (6) متغيرات (العمر، الجنس، ومستوى التعليم، وخبرة الممرضات منذ سنوات، دورة تدريبية في قسطرة القلب).

الجزء الثاني: الاستبانة لتقدير معرفة الممرضون/ الممرضات الذين يعملون في وحدة العناية المركزة وردّهات القلب حول سلامة المريض بعد القسطرة التشخيصية.

تم اجراء صدق اداة البحث من خلال عرضها على (17) خبيرا من الاختصاصات التمريضية والطبية ومن ثم تطبيق (اخبار- اعادة اختبار) لقياس ثبات الاستبيان من خلال حساب معامل الارتباط بيرسون (0.79). ان البيانات التي جمعت في البحث تم تفسيرها من خلال استخدام الاحصاء الوصفي والاحصاء الاستدلالي.

من خلال تحليل البيانات تبين ان (48.9%) من المرضى كانوا ضمن الفئتين العمرتين (23-27) سنة مع وسط حسابي وانحراف معياري 1.12 ± 2.13 ، و (64.4%) منهم كانوا من الإناث، (37.8%) منهم خريج معهد تقني طبي، (75.6%) منهم لديهم خبرة من (1-5) سنوات في مجال مهنة التمريض، (95.6%) منهم ليس لديهم دورات تدريبية في

قسطرة القلب، اظهرت النتائج للاستبانة للممرضين الذين يعملون في وحدات العناية المركزية ووحدات الانعاش القلبي حول معارف تجاه سلامة المريض بعد القسطرة القلبية بانه بعيد عن المثالي. و عدم وجود فروقات بين الصفات الديموغرافية مع المعرف حول سلامة المريض بعد القسطرة القلبية بمستوى معنوية (0.05). استنتجت الدراسة أن معارف حول سلامة المريض بعد القسطرة القلبية ليست بالمستوى المطلوب.

الكلمات الدالة: القسطرة القلبية، المعرف، سلامة المريض، الممرضين.

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1. Introduction:

Coronary Artery Disease (CAD) is the main causes of death in both men and women [1]. Cardiac catheterization is considered the effective diagnosing, evaluating, and treating method of Cardiac diseases problems. Although it has decreasing mortality and morbidity for cardiovascular disease, this procedure has many of complications [2]. Cardiac catheterization is selected to evaluate valvular heart disease, coronary artery disease(CAD), congestive heart failure, and/or certain congenital (present at birth) heart conditions, such as Ventricular Septal Defect or Atrial, Septal Defect , when other less invasive types of diagnostic tests indicate the presence of one of these conditions. It is a common medical procedure that rarely causes serious problems [3].

Coronary Cardiac Disease is in general caused by atherosclerosis, when cholesterol (plaque) accumulate on the arteries walls in circulatory system, resulting in narrowing, then resulting in decreased blood flow to the heart. Coronary Cardiac Disease commonly causes angina pectoris (chest pain), heart attack (myocardial infarction), shortness of breath and other symptom [4]. The common approach of cardiac catheterization is trans-femoral puncture. Because of vascular disorders occurs as complications with (0.43–5.8%) of trans-femoral cardiac catheterization cases, immobilization of the catheterized leg of the patients and firmly bed rest have been considered critical to reduce the risk of their progression. Although cardiac catheterization can be inserted through the radial, brachial, or femoral arteries [5]. After transfemoral cardiac catheterization, the recommended bed rest duration varies from 3 hours to 24 hours. Several patients find it complaint to use the urinal, or bedpan in the dorsal



position at bed rest; moreover, studies indicated that the severity of back pain aggravated by longer period of time of bed rest after cardiac catheterization [6].

Nursing staff instructions for the patients on the importance of maintaining the both leg straight, and the head of the bed no more than 45 degrees. The nursing staff plays vital role in observing and evaluating angina pectoris that repeated soon after a percutaneous coronary intervention procedure. Any chest pain demands immediate and careful attention because it may indicate either the start of vasospasm or impended occlusion of the arteries [7]. The intensive care nurse must monitor, laboratory analysis, such as, serum electrolytes, cardiac enzymes, and coagulation tests (prothrombin time, and partial thromboplastin time PTT), Creatinine, serum potassium, and blood urea nitrogen are particularly important [8].

The intensive care nurse, after cardiac catheterization plays a vital role in noting and evaluating the patient's status by general physical examination from head to toe, observing the generally temperature, color of the skin and accurate observing the level of consciousness (LOC). The patient is transferred after to the bed and attach to the monitor, the nurse listens directly to heart sound and breathing sounds. The nursing staff assesses the circulation peripherally and centrally by observing body temperature and color of skin of the dorsal pedals and posterior tibial pulses [9]. Focusing on the early priorities for nursing staff care for patients after Percutaneous Coronary Intervention, that include determining physiological stability and patients comfort, by combining bed side, assessment and use of monitoring technology. Therefore, cardiac-nurses knowledge and competency regarding the effectiveness of measures used to prevent post-percutaneous Coronary Intervention, complication considered a quality indicator issues. Cardiac nurses are needs to identify that various techniques can be used to manage post Percutaneous Coronary Intervention, complications [10].

Cardiac Catheterization that inserted by radial artery access represent an alternating plan that don't need long time bed rest, and related with reductions, in puncture site complications, and hospitalization period of stay [11]. Given the existing style toward radial access and the evidence supporting early ambulation of the patient following without complication femoral artery catheterization, early movement following cardiac catheterization may be the future typical of care.

Objectives of Study:

1. To assess the knowledge level of cardiac nurses related to patient safety after cardiac catheterization.
2. To find out relationship between the nurse's knowledge and their demographic characteristics.

2. Methodology:

Design of the study: A descriptive ~study

Sample of the study: The sample was selected non~probability (purposive) of (45) nurses' who are working in medical ICU and cardiac medical ward from Azadi Teaching Hospital in Kirkuk City.

Setting of the study: Azadi Teaching Hospital in Kirkuk City, and collected data from 30th of March to 10th of May 2017.

Instruments: The instrument of the study is Self structured questionnaire which is developed to assess the knowledge of nurses who are working in ICU and cardiac medical ward. Several journals and textbooks worldwide helped to develop the tool and experts in college of nursing and Kirkuk hospitals approved it. The Instruments

Consisted three parts:-

Part I: Socio-demographic data, which includes (6) items (Age, Gender, Level of Education, Years of experience, Training session included in Cardiac Catheterization).

Part II: Self-prepared structured questionnaire was developed to assess the knowledge of nurses who are working in ICU and cardiac medical ward. This questionnaire was developed and translated to Arabic language; the questionnaire was consisted 17-items (17 multiple choice questions). To score the results of questionnaire, each correctly answered item has assigned with score of (1). Incorrectly answered items have assigned with score of (0); total scores are summed and ranged from (0 to 17).

The instrument Validity and Reliability: - content validity was determine through a panel from Nursing and medical specialties of (17) experts. The questionnaire was translated from English to Arabic and opposite under language supervision. Reliability of questionnaire was determined during (test re-test) of pilot study ($r = 0.79$).

Statistical methods: Descriptive statistics (Frequency, Percentage, Mean, S.D), and Inferential statistical analysis (ANOVA and t- test) was used for data analysis.

3. Results and Calculations:

Table 1: Demographic Characteristics of Nurses.

Variable n= 45	F	%	Variable n= 45	F	%
1-Age/ years Mean&(SD)=2.13± 1.12			5- Years of experience in the Nursing profession		
18-22	13	28.9	1-5	34	75.6
23-27	22	48.9	6-10	5	11.1
28-32	4	8.9	11-1 5	1	2.2
33-37	3	6.7	16-20	1	2.2
38years and more	3	6.7	21 and more	5	11.1
2-Gender			5- training session in cardiac catheterization		
Male	16	35.6	Yes	2	4.4
Female	29	64.4	No	43	95.6
3-Level of Education					
Secondary Nursing School	14	31.1			
Nursing institute	17	37.8			
College of Nursing	14	31.1			

Table 1 demonstrates the demographic characteristics of the whole study sample. The results show that the majority (48.9 %) of nurses in the sample are within the age group (23-27 years) and with a mean of 2.13 ± 1.12 . Most of them (64.4%) were female. Most of nurses were Nursing institute (37.8 %), and the highest of sample rang (1-5) Years of experience in the Nursing profession were (75.6%). With regard to training sessions in cardiac catheterization were (95.6%) of the nurses had no training session in cardiac catheterization.

Table 2: Frequencies and Percentages Distribution of Correct and incorrect Answers of Nursing Knowledge (17 questions)

No.	Items Content	Correct Answer		Incorrect Answer		Assess
		F	%	F	%	
1	What are locally complications, that happening in patients after Cardiac Catheterization?	29	64.4	16	35.6	M
2	Pseudoaneurysm occurs after cardiac catheterization how will you detect?	12	26.7	33	73.3	L
3	When should you check after cardiac Catheterization the serum creatine level of patients?	23	51.1	22	48.9	M
4	What is the delayed complication of sheath removal?	17	37.8	28	62.2	L
5	Development of contrast-induced nephropathy occurs	30	66.7	15	33.3	M
6	After cardiac catheterization developing renal failure risk for?	17	37.8	28	62.2	L
7	After cardiac catheterization thrombus formation sign is?	24	53.3	21	46.7	M
8	How should the patient after cardiac catheterization have affected extremity to be reserved immobilized?	7	15.6	38	84.4	L
9	Who is at risk after cardiac catheterization, to developing pulmonary edema?	15	33.3	30	66.7	L
10	When you notice after cardiac catheterization, a hematoma at the puncture site, you should avoid :	11	24.4	34	75.6	L
11	After Cardiac Catheterization, from femoral artery site which of the activities by the professional Nurse required intervention by the charge nurse?	20	44.4	25	55.6	L
12	Which of the findings After cardiac catheterization, should the nursing staff report to the physician?	14	31.1	31	68.9	L
13	Which of the following is the best initial nursing staff intervention for a patient with chest pain that admitted to the emergency department and he reported that his pain was not relieved after taking 3 nitroglycerine tablets at home?	29	64.4	16	35.6	M

No.	Items Content	Correct Answer		Incorrect Answer		Assess
		F	%	F	%	
14	What is it essential for the nurse to do for an adult have just returned following a left heart catheterization?	34	75.6	11	24.4	H
15	What is the best answer for the nurse to give for a client asks the nurse if she will be asleep during the cardiac catheterization?	41	91.1	4	8.9	H
16	Cardiac Catheter common insertion site is?	36	80.0	9	20.0	H
17	Cardiac catheterization provides information about	39	86.7	6	13.3	H

n= number of samples, **F**= frequency, **%**=percentage, **Ass**=assessment=low<50%, **M**=moderatr50-70% **H**=high>70%

Tables 2 showed that items correctly answered in the questionnaire for all nurses; the average correct response rate is (23.41%), ranging from (15.6% to 91.1%). The highest percentages of correct answers were for items (15, 17 and 16) were Constituted (91.1%, 86.7% and 80.0%). Also incorrect answers reported by study sample were found in items (8, 10 and 2) were constituted respectively (15.6%, 24.4% and 26.7%).

Table 3: Difference between Knowledge of Nurses of Sample and their Age (ANOVA).

Categories	S.O.V	S S	M S	F.Obs
Age	Between Groups	11.288	1.254	1.000 NS
	Within Groups	43.912	1.255	
	Total	55.200		

F critical = 2.00, df= 44

Table 3 shows that the significant differences between Knowledge and their Age of study sample where not significant at P value > 0.05.

Table 4: Comparison of Knowledge Score of Sample regarding to their gender.

items	Gender	No.	\bar{x}	S.D	t.obs	P≤ 0.05
Total Knowledge score	Male	16	22.3750	1.96214	0.991	NS
	Female	26	23.0690	2.38943		

t critical = 2.021, df=43

Table 4 showed that there were no significant differences between Knowledge Items according to Gender at P value > 0.05

Table 5: Difference between Knowledge of Nurses of Sample and their Level of Education (ANOVA).

Categories	S.O.V	S S	M S	F.Obs
Level of education	Between Groups	4.838	0.538	0.812 NS
	Within Groups	23.162	0.662	
	Total	28.000		

F critical = 2.00, **df** = 44

Table 5 shows that the significant differences between Knowledge and their Age of study sample where not significant at P value > 0.05

Table 6: Difference between Score of Knowledge for Sample and their Years of Experience in Nursing Profession.

Categories	S.O.V	S S	M S	F.Obs
Years of experience in nursing profession	Between Groups	12.567	1.396	0.811 NS
	Within Groups	60.233	1.721	
	Total	72.800		

F critical = 2.00, **df** = 44

Table 6: this table showed that there were no significant differences between Knowledge Items of Sample and their Years of Experience in Nursing Profession at P value > 0.05 .

Table 7: Comparison of Knowledge Score of Sample regarding to their Training session in Cardiac Catheterization.

items	Training sessions in cardiac catheterization	No.	\bar{X}	S.D	t.obs	$P \leq 0.05$
Total Knowledge score	Yes	2	23.5000	0.70711	0.432	NS
	No	43	22.7907	2.29449		

t critical = 2.021, **df** = 43

Table 7 showed that there were no significant differences between Knowledge Items according to Training session in Cardiac Catheterization at P value > 0.05.

4. Discussion:

The results of the questionnaire demonstrated that the nurses who are working in medical ICU and cardiac medical ward nurse's knowledge towards Patient Safety After diagnostic Cardiac Catheterization were inadequate knowledge. The correct answer rate for the total scale, on average, was (23.41%) ranging from (15.6% to 91.1%), only (8) items from all items of correct answer questionnaire were more than 50%, this mean that the knowledge of nurses were poor knowledge. These results disagree with the study conducted by Arathy .S.R. (2011), that show The knowledge level is higher in staff nurses who has experience more than 5 years compared to those whose years of experience is less than 5 years, and this is because in our country the system of the hospital for distribution of collegiate nurses at the hospital level is not appropriate and there is no Functional description for nurses [12]. On comparing these two, a significant p value of 0.015 was attained, regarding to complications in our results in items (8, 10 and 2) agree with a study conducted by Mario C. sang et al, (2010) that show that show (odds ratio=5.65, 95% confidence interval 2.58-12.3, p<0.001) [13]. Also other study agree with our results conducted by Koraen-Smith et al.(2016), that show no significant differences in the frequencies related to non-bleeding complications between Centre (1)and Centre (2). Patients on the vascular ward had a higher frequency related to minor bleeding (p = .002) but there was no difference in major bleeding (p = .12) [14].Also our study shows there is no significance between Knowledge Score of Sample and their Age, level of education, and Years of experience in nursing profession this is because there is no specialized center or hospital in our city for cardiac catheterization, also there are no specialized professional nurses that work in cardiac catheterization units. This is a reason in our city and in hospital system no nursing appointment setting as appropriate that work in each specialized field of nursing.

5. Conclusions:

- 1- The knowledge of nurses regarding Patient Safety After diagnostic Cardiac Catheterization was far from optimal.
- 2- The association between general nurses information regarding nurse's knowledge towards Patient Safety After diagnostic Cardiac Catheterization and nurses (Age, gender, Level of

Education, Years of Experience in Nursing Profession and Training session in Cardiac Catheterization) no statistically significant.

6. Recommendations:

1. Establishment educational training programs must be applied for nurses that working in cardiac catheterization.
2. Establishes specialized centers for cardiac catheterization.
3. Nursing faculty should pay more attention for cardiac catheterization and patient's safety after cardiac catheterization.
4. Establish postgraduate studies specialized in cardiac catheterization nursing.

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