Effectiveness of Nursing Education Program on Nurses Practices Toward Arrhythmia in Kirkuk's Teaching Hospitals

فعالية برنامج تعليم التمريض على ممارسات الممرضات نحو اضطراب ضربات القلب في المستشفيات التعليمية في كركوك

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الخلاصة:
هدف الدراسة :تقويم اثر البرنامج التمريضي التثقيفي على ممارسات الملاك التمريضي ازاء عدم انتظام ضربات القلب في المستشفيات التعليمية في مدينة كركوك.
طريقة ألبحث : اجريت دراسة شبه تجريبية في مستشفيات آزادي , كركوك التعليمية للفترة من 17 كانون الثاني 2011 إلى 10 حزيران 2012. تم بناء وتطوير البرنامج والأداة من قبل ا لباحث لغرض انجاز الدراسة. عينة الدراسة عينة غرضيه تكونت من(80) من الملاك التمريضي قسمت العينة إلى مجموعتين، مجموعة الدراسة وتكونت من(40) من الملاك التمريضي استلموا البرنامج التعليمي ومجموعة ضابطة تكونت من(40)من الملاك التمريضي لم يستلموا البرنامج التعليمي. لقياس اثر برنامج التعليمي على ممارسات الملاك التمريضي استخدم الباحث استمارة رصد للممارسات التمريضية المتعلقة بورقة تخطيط القلب الكهربائي المتضمنة (25) فقرة .تم تحديد ثبات اداة القياس من خلال الاختبار وإعادة الاختبار وتحديد مصداقية الاداة من خلال مجموعة الخبراء.
النتائج :اظهرت نتائج الدراسة اثر ايجابي وواضح للبرنامج على ممارسات الملاك التمريضي ازاء اضطراب نظم القلب . وأظهرت نتائج الدراسة ايضا بان هناك تحسن جيد مع وجود اختلافات ذات دلالة معنوية عالية في مجموعة الدراسة بين الاختبار القبلي والاختبار البعدي في الجوانب الرئيسية التي لها علاقة بفقرات الممارسات التمريضية .
الاستنتاج: أغلب الممرضين كانت لديهم معلومات زممارسات غير كافية قبل اجراء البرنامج التثقيفي وزادت بعد اجراء البرنامج التثقيفي.
التوصيات: اوصت الدراسة بتصميم وبناء برنامج تعليمي للملاك التمريضي حيث يتم من خلال البرنامج التأكيد على توجيههم وتعريفهم على قراءة تخطيط القلب الكهربائي ازاء اضطرابات نظم القلب ,وتشجيع الملاك التمريضي للمشاركة في برامج تدريبية لتغطية حاجاتهم المختلفة المتعلقة بالإخفاقات والمعوقات لممارساتهم وإقامة علاقات تعاونية مابين وزارة الصحة والتعليم العالي لتهيئة هذا البرنامج

Abstract
Objective: to evaluate the effectiveness of nursing educational program on nurse's practice toward arrhythmia in Kirkuk's teaching hospitals
Methodology: A quasi-experimental design was carried out at Azady and Kirkuk teaching hospitals from 17th January, 2011 to 10th of Jun, 2012. The program and instruments constructed were developed by the researcher to measure the purpose of the study. Purposive sample comprised of (80) nurses was divided into two groups, study group consisted of (40) nurses exposed to the nursing educational program and control group consisted of (40) nurses were not exposed to the program. The measurement of effectiveness of nursing educational program through the observational checklist includes (25) items concerning ECG. Reliability of instrument was determined through the use of test and retest and the instrument validity was determined through a panel of experts.
Results: The results of the study showed that the effectiveness of educational program regarding nurses' practice toward arrhythmia is a positive and clear. It is also shows that there is good improvement with highly significant differences in study group in overall main domains related to nurses' practice
Conclusion: the majority of nurses' has un satisfactory knowledge and practice toward Arrhythmia before implementation of educational program and after applying it, there were improvement.
Recommendation: The study recommended that an educational program can be designed and constructed for nurses through the program ,an emphasis can be directed and oriented in ECG toward arrhythmias ,the nurses can be encouraged for being participated in a special training programs designed and constructed to fulfill the nurses needs concerning defects and limitation in their practices and collaborative work can be issued between the ministry of health and higher education to provide such program.

Key words: nursing ;education; program; practice ;arrhythmias

INTRODUCTION

A cardiac arrhythmia refers to the disorders of the heart rhythm (arrhythmias) are problems that affect the electrical system, or "wiring," of the heart muscle. Heart arrhythmias are very common and nearly everyone will experience an abnormal heart rhythm some time during their lives[1] .According to American Heart Association and Stroke Statistics (2008) [2] estimated 80,700,000 American adults (one in three) have one

or more types of cardiovascular disease (CVD). The types of CVD include hypertension, heart failure, coronary artery disease, arrhythmias, stroke, and congenital heart defects .[3]reported that, much more dangerous arrhythmias may cause cardiac arrest (sudden death) and in the United States, more than half of all deaths from heart disease occur suddenly. In total, it is estimated that more than 300,000 Americans die each year from sudden death related to heart disease.[4] reported that many nursing students have difficulty understanding ECG through classroom lecture. Consequently, they have limited ability to interpret ECG recordings. This may be due to the lecture format, which does not allow reiterative learning opportunities. [5] stated that nurses should know about ECG and be able to interpret ECG recordings because, in the clinical setting, they are responsible for monitoring ECG recordings to assess heart condition. In addition, ECG is taught in one of the core courses for most nursing students in Korea, and includes electrophysiology of the heart, all arrhythmias, and 12- lead ECG recording interpretation. The objective of the study is to evaluate the effectiveness of nursing educational program on nurse's practice toward arrhythmia in Kirkuk's teaching hospitals.

METHODOLOGY

A descriptive design was carried out during the period from 17th January 2011 to 1st June 2012.A Purposive sample comprised of (80) nurses was divided into two groups, study group consisted of (40) nurses exposed to the nursing educational program and control group consisted of (40) nurses were not exposed to the program. Those who met the criteria for selection were nurses who were working at the teaching hospitals. (1) Nurses that should have at least one year of experience or more. (2) Nurses who worked in the morning and night shift.(3)Nurses who worked in the medical department (CCU, clinical unit, Emergency department, ECG unit). The nursing educational program was designed to provide nurses information related to preparation the ECG machine; Location of chest electrodes placement. ;nursing care during the ECG application . In addition, identification of any change in ECG trace as cardiac arrhythmias. The study instrument was observation chick list developed by the researcher for the purpose of this study. It was consisted of (2) parts .Part I: Self-administered questionnaire sheet related to demographic characteristics of the nurses. Part II: An observational checklist for nurses' practice regarding (ECG implementation, nursing intervention).

It was developed to evaluate nurses' observation checklist for nurses carried out during the morning and afternoon shift. An observational checklist of nurses' practice was consisted of (25) items and divided into four parts; Part one: Principles performed by nurses related to preparation the ECG machine. It was consisted of five items. Part two: Principle performed by nurses related to Location of chest electrodes Placement. It was consisted of six items. Part three: Principle of the ECG application .It was consisted of nine items. Part four: Principles followed by nurses identification of any change in ECG trace as cardiac arrhythmias. It was consisted of (5) items. These items were rated according to the liker scale (always (3); sometimes (2) and never (1) the levels of scale which were scored

as a total of three episodes of events were observed for each respondent. Practices as mean of data collection (3) or (2). Correct practices out of (3) episodes were rated as sometimes and uncorrected practices were rated as never. Observational checklist was used for pre education and after education immediately. The nurses in the control group were given observational checklist at the same time that be given to the study group. Evaluation of the nurses' observational checklist were based on their responses to the questionnaire format items. Scores of the response were categorized according to the following High high (75-100):4; high low (50-74):3; low high (25-49):2: low low (0-24):1.

Nurses in the control group had regular methods and information by the nurses or other staff members who may have verbalized to nurse. They also include brief instructions which are provide by the physician , if the nurses in the control group ask the researcher questions , they are instructed to refer their questions to appropriate member of the health team e.g nurse or physician .

Statistical Analysis

The data of present study were analyzed through the application of two statistical approaches. A descriptive statistical approach that includes Frequency, Percentage, $\bar{x} \mp S.D.$=Arithmetic Mean ($\bar{x}$) and Std. Dev. (S.D.). and an Inferential statistical approach that includes Chi-Square test , t.test , Fisher Exact Probability test (F.E.P.T.), Levene's test and ANOVA ,for testing a non-restricted frequency and Wilcoxon Signed Ranks test for testing two category nominal scale variables Results were determined as highly significant at ($P<0.01$)significant at ($P<0.05$) and non significant at ($P>0.05$).

RESULTS:

Table (1): Distribution of Demographic Date in the Study and Control Groups from Medical Department Nurses.

Variables	Groups	Study			Control			C.S. P_{-value}
		Freq.	%	Cum. %	Freq.	%	Cum. %	
Age Groups	20 - 24	4	10	10	6	15	15	t-test P=0.612 NS
	25 - 29	17	42.5	52.5	15	37.5	52.5	
	30 - 34	9	22.5	75	11	27.5	80	
	35 - 39	9	22.5	97.5	1	2.5	82.5	
	40 >	1	2.5	100	7	17.5	100	
	$\bar{x} \mp S.D.$	29.98 ∓ 4.83			30.63 ∓ 6.47			
Gender	Male	31	77.5	77.5	34	85	85	FEPT P=0.568 NS
	Female	9	22.5	100	6	15	100	
Work Place	CCU Unit	12	30	30	10	25	25	χ^2-test P=0.838 NS
	Medical ward	14	35	65	18	45	70	
	Emergency department	13	32.5	97.5	11	27.5	97.5	
	ECG Unit	1	2.5	100	1	2.5	100	
Work Time	17 hrs.	19	47.5	47.5	20	50	50	FEPT P=1.000 NS
	7 hrs.	21	52.5	100	20	50	100	
Education level	Nursing college	11	27.5	27.5	6	15	15	χ^2-test P=0.389 NS
	Nursing Institute	15	37.5	65	17	42.5	57.5	
	Secondary Nursing School	14	35	100	17	42.5	100	

Freq.=Frequencies, %=Percentages, Cum. = cumulative percents, C.S. : Comparison Significant $\bar{x} \mp S.D.$=Arithmetic Mean ($\bar{x}$) and Std. Dev. (S.D.)., P=P-value, t. test= Student (t-test), χ2-test=Chi-Square test. , NS : Non Significant at P >0.05 ,CCU: coronary care unit, ECG: Electrocardiograph

Table-1: revealed that the majority 17(42.5%) of nurses in the study group are within the age group (25 - 29) while 15(37.7%) of nurses in the control group and 31(77.5%) of nurses in the study group were male and 34(85%) of nurses in the control group ware male. According to the educational level, 15 (37.5%) of nurses in the study and 17(42.5%) of nurses in the control groups are nursing Institute. Statistically, there is no significant difference between study and control groups related to age group, gender, and educational level when analyzed by chi-square and Student (t-test**).**

Table (2): Comparative Significant between Study and Control Groups Concerning Expert years & Kind of Training for Medical Department Nurses

Expert years & Kind of Training	Groups	Study		Control		C.S. P_{-value}
		Freq.	%	Freq.	%	
Expert years	< 5 yrs.	18	45	17	42.5	χ^2-test P=0.539 NS
	5 - 9 yrs.	14	35	14	35	
	10 - 19 yrs.	7	17.5	5	12.5	
	20 > yrs.	1	2.5	4	10	
Expert year in CCU	None	23	57.5	27	67.5	FEPT P=0.489 NS
	Yes	17	42.5	13	32.5	
Expert year in medical ward	None	20	50	13	32.5	FEPT P=0.173 NS
	Yes	20	50	27	67.5	
Expert year in emergency department	None	19	47.5	22	55	FEPT P=0.655 NS
	Yes	21	52.5	18	45	
Expert year in ECG unit	None	37	92.5	36	90	FEPT P=1.000 NS
	Yes	3	7.5	4	10	
Trainings in cardiac care	None	23	57.5	28	70	FEPT P=0.352 NS
	Yes	17	42.5	12	30	
training - CCU	None	34	85	37	92.5	FEPT P=0.481 NS
	Yes	6	15	3	7.5	
training - CPR	None	24	60	30	75	FEPT P=0.232 NS
	Yes	16	40	10	25	
training - ECG	None	40	100	37	92.5	FEPT P=0.241 NS
	Yes	0	0	3	7.5	

Freq.=Frequencies, %=Percentages, Cum. = cumulative percents, C.S. : Comparison Significant , $\bar{x} \mp S.D.$=Arithmetic Mean ($\bar{x}$) and Std. Dev. (S.D.)., P=P-value, t. test=student (t-test), χ^2-test=Chi-Square test. , NS : Non Significant at P >0.05 , CCU: coronary care unit, ECG: Electrocardiograph, CPR: cardiopulmonary resuscitation

Table -2- indicated that the majority 23(57.5%) of nurses in the study and 27(67.5%) in the control groups hadn't expert year in the CCU ..According to training of ECG 40(100%) of nurses in the study group and 37(92.5%) of nurses in the control group hadn't training in ECG**.**

Table 3: Comparison Significant Between The Study and Control Groups Related to Nurses Observational Check List for Nurses' Practice at Post Test

Main Domains	Questions Related to Nurses Observational Check List for Nurses' Practice	No.	Study				Control				P_{-value}	C.S.
			M.S.	S.D.	R.S.%	Ass.	M.S.	S.D.	R.S.%	Ass.		
Nurses' Practice in preparation the ECG machine.	Check the electrodes are in date and that the gel sponge is moist, and check …	40	3.00	-	100	S	2.68	0.47	89	S	0.000	HS
	Observation the ECG machine variable include (filter , speed , sensitivity…	40	2.72	0.45	91	S	1.08	0.35	36	F	0.000	HS
	Try to minimize the effects of patient movement	40	2.88	0.33	96	S	2.08	0.57	69	S	0.000	HS
	Electrical interference, can make the ECG trace appear 'fuzzy' therefore, …	40	3.00	-	100	S	2.60	0.59	87	S	0.000	HS
	The recording equipment and other nearby electrical equipment should be…	40	2.80	0.41	93	S	1.45	0.64	48	F	0.000	HS
Location of chest electrodes Placement	V1: Right. 4th intercostals space	40	2.92	0.27	97	S	1.15	0.53	38	F	0.000	HS
	V2: Left. 4th intercostals space	40	2.95	0.22	98	S	1.15	0.53	38	F	0.000	HS
	V3: halfway between V2 and V4	40	2.83	0.38	94	S	1.00	-	33	F	0.000	HS
	V4: left 5th intercostals space, mid-clavicular line	40	2.93	0.27	98	S	1.00	-	33	F	0.000	HS
	V5: horizontal to V4, anterior auxiliary line	40	2.60	0.50	87	S	1.00	-	33	F	0.000	HS
	V6: horizontal to V5, mid-auxiliary line	40	2.83	0.38	94	S	1.10	0.30	37	F	0.000	HS
Nursing practice during the ECG application	Note current cardiac drug therapy on the test request form as well as any…	40	2.37	0.49	79	S	1.15	0.48	38	F	0.000	HS
	Ensure that the skin is dry and not greasy; then clean it with an alcohol swab..	40	2.92	0.27	97	S	1.88	0.56	63	S	0.000	HS
	Shave off any dense hair to improve contact and make it less uncomfortable…	40	2.85	0.36	95	S	2.28	0.55	76	S	0.000	HS
	Check the ECG electrodes to ensure that they are in date and that they are…	40	2.45	0.50	82	S	1.18	0.45	39	F	0.000	HS
	Remove the protective backing from the electrodes to expose the gel disc	40	2.78	0.42	93	S	1.03	0.16	34	F	0.000	HS
	Avoid applying pressure on the gel disc itself as this could result in a decrease..	40	2.43	0.50	81	S	1.03	0.16	34	F	0.000	HS
	Switch on the cardiac monitor and select the required monitoring ECG lead…	40	2.72	0.45	91	S	1.35	0.62	45	F	0.000	HS
	Make sure that all leads are represented in the tracing. If not, determine…	40	2.88	0.33	96	S	2.60	0.59	87	S	0.012	S
	Record in the patient's notes that ECG monitoring has commenced and note ...	40	2.25	0.44	75	S	1.50	0.55	50	S	0.000	HS
after identification of any change in ECG trace as cardiac	Call physician and notify any abnormal change in ECG trace	40	3.00	-	100	S	2.83	0.45	94	S	0.015	S
	Ensure the appropriate monitoring lead has been selected, try another…	40	2.63	0.49	88	S	2.17	0.68	72	S	0.001	HS
	Giving adequate O2 to decreases the burden of the heart work	40	2.83	0.38	94	S	1.75	0.63	58	S	0.000	HS
	Giving the drugs and medications as physician ordered	40	2.30	0.46	77	S	2.10	0.84	70	S	0.192	NS
	Preparation the equipment for CPR	40	2.07	0.35	69	S	1.15	0.36	38	F	0.000	HS

M.S. =Mean of score , SD = Standard Deviation ,R.S%=Relative Sufficiency , Ass.= assessment. ,C.S. : Comparison Significant , No.= Number ,
NS : Non Significant at P >0.05 , S : Significant at P < 0.05 , Hs : Highly Significant at P< 0.01, F : Failure ; S : Success , t.test=Paired (t-test)

Table -3 -shows that there is significant and high significant differences between study and control groups at post-test in all items Nurses' Practice in preparation the ECG machine; Location of chest electrodes placement; Nursing practice during the ECG application; Nursing practice after identification n ECG trace as cardiac arrhythmias when analyzed by Wilcoxon test.

Table -4- Comparison Significant Between The Study and Control Groups at Pre-Post Tests of Overall Main Domains Related to Nurses (Observational Check List for Nurses' Practice)

Overall Main Domains	Main Domains of (Check List for Nurses' Practice)	No.	Pre - Study			Post - Study			P. value	C. S.	Pre - Control			Post - Control			P-value	C.S.
			M.S.	S.D.	R.S. %	M.S.	S.D.	R.S. %			M.S.	S.D.	R.S. %	M.S.	S.D.	R.S. %		
Domains Related To Nurses Practice	Nurses' Practice in preparation the ECG machine.	40	1.81	0.24	60.33	2.88	0.18	96.00	0.000	HS	1.89	0.28	63.00	1.98	0.23	65.83	0.010	S
	Location of chest electrodes Placement :	40	1.11	0.34	37.09	2.84	0.21	94.72	0.000	HS	1.07	0.21	35.69	1.07	0.18	35.56	0.774	NS
	Nursing practice during the ECG application :	40	1.54	0.22	51.48	2.63	0.20	87.60	0.000	HS	1.60	0.22	53.33	1.55	0.22	51.76	0.012	S
	Nursing practice after identification of any change in ECG …	40	1.66	0.27	55.33	2.57	0.16	85.50	0.000	HS	1.96	0.31	65.33	2.00	0.30	66.67	0.135	NS

M.S. =Mean of score , SD = Standard Deviation ,R.S%=Relative Sufficiency , Ass.= assessment. ,C.S. : Comparison Significant , No.= Number , NS : Non Significant at P >0.05 , S : Significant at P < 0.05 , Hs : Highly Significant at P< 0.01, F : Failure ; S : Success , t.test=Paired (t-test)

Table 4 shows that there is improvement with significant between pre post tests of study group in overall domain related to nurses observational check list for nurses' practices in preparation the ECG machine ; Location of chest electrodes Placement; Nursing practice during the ECG application : Nursing practice after identification of any change in ECG).This table also shows that there is no significant differences between pre post tests of control group in in items (Location of chest electrodes Placement; Nursing practice after identification of any change in ECG).) when analyzed by Wilcoxon test.

Table (-5-): Suggested Score of Assessment Through the "Percentile Transformed" Among The Study and Control Groups at Pre-Post periods due to Nurse's Observational Check List for Nurse's Practice

Period	S.G.O.A.	Study		Control	
		Frequency	Percent	Frequency	Percent
Pre	(0 - 24) : 1	18	45	6	15
	(25 – 49) : 2	22	55	33	82.5
	(50 – 74) : 3	0	0	1	2.5
	(75 – 100) : 4	0	0	0	0
$\bar{x} \mp S.D.$		26.59 ∓ 7.56		31.51 ∓ 7.68	
Post	(0 - 24) : 1	0	0	5	12.5
	(25 – 49) : 2	0	0	35	87.5
	(50 – 74) : 3	2	5	0	0
	(75 – 100) : 4	38	95	0	0
$\bar{x} \mp S.D.$		86.43∓ 6.49		32.43 ∓ 7.10	

S.G.O.A. : Suggested Groups of Assessments, Freq.=Frequencies, %=Percentages, $\bar{x} \mp S.D.$=Arithmetic Mean ($\bar{x}$) and Std. Dev. (S.D.).

Table-5- shows that high percentile transformed 22(55%) of suggested group of assessment (25-49):2 for pre-test of study group with mean score and standard division (26.59 ∓ 7.56) , while 33(82.5%) percentile transformed of the same suggested group of assessment (25-49):2 for pre-test of control group with mean score and standard division(31.51 ∓ 7.68).

Also, this table shows high percentile transformed 38(95%) of suggested group of assessment (75- 100)4 for post –test of study group, with mean score and standard division (86.43∓ 6.49), while 35(87.5%) percentile transformed for post –test of control group remain in the same (25-49):2 suggested group of assessment of pre-test of control group ,with mean score and standard division(32.43 ∓ 7.10) . due to of nurses Observational Check List for Nurse's Practice among the study and control groups at Pre-Post test when

analyzed by Levene's test and ANOV.

DISCUSSION

Electrocardiographic monitoring is becoming more common in both inpatient and outpatient care settings{6} Analysis of nurses' demographic characteristics ensured equivalence in both groups and there were no significant difference between study and control groups (table 1) .This result of the study was accept in the quesi experimental study. Our study revealed that the majority of nurses in the study group 31 (77.5%) were male and the majority of nurses in the control group 34 (85%) were male, (table-1).Researcher confirmed that the work in the medical department opportunity to male that job needs heavy work .Relative to their educational status ,most of the nurses in the study group 15(37.5%) and in the control group 17(12.5%) were nursing institute (table-1).Our study revealed that the majority of the nurses in the study group 18(45%)

and control group 17(42%) were (<5) years experiences in the medical department. Our results revealed that there is significant differences between the study and control groups related to the nurses' observation checklist for nurses' practice at post test in items concerning to {Nurses' practice in preparation the ECG machine location of chest electrodes placement Nursing practice during ECG application. Nursing practice after identification of any change in ECG .} (table-3). This mean that the study group are perfect in post test than the control group. This supported by other studies such as [7] assessed the effects of electrode placement error on the EASI-derived 12-lead electrocardiogram (ECG). Their study data set consisted of 744 body surface potential map (BSPM) recordings. The BSPMs, each of which was made up of 117 leads, were recorded from a mixture of healthy, myocardial infarction, and left ventricular hypertrophy subjects and it was found that when pericardial leads were moved up to ±3 cm vertically, the resulting 12-lead ECG more accurately resembled the original 12-lead ECG than a 12-lead ECG reconstructed from accurately positioned EASI leads. Our study shows that there is good improvement with highly significant differences in study group between pre post tests in overall main domains related to nurses observational check list for nurses' practice in the all items include [Nurses' Practice in preparation the ECG machine, R.S.% 96.00, Location of chest electrodes Placement: R.S.% 94.72, Nursing practice during the ECG application: R.S.% 87.60, Nursing practice after identification of any change in ECG R.S.% 85.50 , at ($P < 0.05$)](table -4). While there is no significant differences between two pre-post tests of control group in overall domain related to nurses Observational Check List for Nurses' Practice (table -4) researcher confirmed that the overall trend showed that the nurses in
medical department followed improper technique of the ECG. This may be explain as a lack of training for nurses plus a deficiency of knowledge of the importance of the ECG so that the nurses should be enforced in training knowledge and practice in ECG related to arrhythmias. Supported of this study [8]reported that educational interventions to improve nurses' judgments and decisions are complex and the evidence from comparative studies does little to reduce the uncertainty about 'what works'. Nurse educators need to pay attention to decision, as well as pedagogical, theory in the design of interventions. The researcher confirmed that the educational opportunities provided to medical department nurses with knowledge and practices base enable them to assess, plan, implement and evaluate individualized care. The score of practice after the program in the study group was ranged between low low 7(17.5%) and high high 32(80%) (table-5) .Researcher confirmed that all the nurses in the study group were having a good practice after the program .This result can be demonstrated in a way that the nurses had performed adequate practice concerning such as standard of care of patients with arrhythmias due to the nature of their application as routine type of work. Many studies, (7; 8; 9; 11), emphasized the educational program help the nurse to enhance and develop skills and information. The researcher confirmed that the change occurs in scores of practice occurs after the intervention educational program and found large differences between pre-post tests, these outcomes point to successful application

of the educational program in this study and can improve the nurses' practice through application the program frequency so that the investigator strongly asserts the need to enforce standard training of patients with arrhythmias

CONCLUSION

1. Nurses working in medical department having the minimum level of experience at ECG and need specific educational program and training session.
2. The study reveals that the majority of nurses' had unsatisfactory knowledge and practice toward arrhythmia before implementation of the educational program and after applying the education program, there were improvement.

RECOMMENDATION:

1. Specific educational program can be designed and presented to nurses who have minimum level of experience in order to improve their level knowledge and practice toward arrhythmia.
2. Written standards electrocardiogram and cardiac monitoring in Arabic language for nurses should be available in all coronary care units to be followed by them and should be up dated periodically.

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