Effect of Nursing Care Standards for Patients with Coronary Arteries Diseases on Patient Outcome

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ABSTRACT

The nursing care should be guided by clearly defined standards to ensure the high quality of care. Standards of care are definitive statements that describe a common or acceptable level of patients care or performance. **Aim:** to evaluate the effect of implementing Nursing Care Standards (NCSs) on the coronary arteries diseases (CADs) patients' outcome. **Design:** a quazi-experimental study design was used. **Setting:** The study was conducted in CICU Sohag University Hospital from(November 2010 to August 2011. **Study subjects:** data was collected from two groups, namely: a convenience sample of 34 nurses, and a purposive sample of 150 patients with CAD admitted in this time pre and post implemented NCSs. **Data collection tools:** nurses' socio-demographic data, nurses' performance observational checklists, and patients' outcome sheet. **Results:** This study indicates that majority of staff nurses at CICU performed nearly all represented items (criteria) of the designed NCSs, with highly statistically significant difference regarding CICU structure attribute post the designed NCSs applications ($P<0.001$). Regarding the nursing outcome indicators and patients outcome the results represented highly statistically significant difference between both groups study and control $P<0.001$. ***Conclusion:*** There are statistically significant differences between CICU structural attributes, nurses' performance, and outcome indicators post the designed NCSs applications; which statistically significant positive affect on patients' outcome in the study group including their length of hospital stay and complications. ***Recommendation:*** Based on the above results, the study recommends that, the procedure manuals, policies, guideline, protocols for caring of patient with CAD, should be available in each CICU in adequate number and in both Arabic and English language.

Keywords: Nurses Care Standards (NCSs), Coronary Arteries disease, (CADs), Outcomes, Complications, and Coronary Intensive Care Unit (CICU).

INTRODUCTION

Countries in Africa and the Middle East bear a heavy burden from cardiovascular diseases (CVDs). The prevalence of coronary heart diseases (CHDs) are promoted in turn by a high prevalence of cardiovascular risk factors, particularly smoking, hypertension, dyslipidemia, diabetes, and sedentary lifestyles. Patients in Africa and the Middle East present with myocardial infarction (MI) at a younger age, on average, compared with patients elsewhere. Cardiovascular diseases remain the No.1 cause of death worldwide. It is estimated that by 2030, 25 million people will die from cardiovascular diseases, with 80 percent of deaths taking place in low-to-middle income countries like those in the Middle East and North Africa region[2].

Recent research findings suggest that morbidity and mortality in cardiac patients can be improved with a comprehensive treatment plan in which a nurse manages the patient based on actual plan and practical standards[3].

The nursing care providing by coronary intensive care nurses (CICN) to patients with coronary arteries diseases (CADs) should be guided by clearly defined nursing care standards (NCSs) to ensure the high quality of care. Standards of care are definitive statements that describe a common or acceptable level of patient's care or performance. They also define the

professional practice. Thus, NCSs are basic in determining the level of care delivered and for quality improvement within the organization.

In 2009, Arun defined the NCSs as the benchmark of achievement, which is based on a desired level of excellence. It reflects a desired and achievable level of performance against which actual performance can be compared. It provides a guide to the knowledge, skills, judgment, and attitudes that are needed to practice safely and help to ensure high quality care[5]. Mohamed et al.[6] added that, standards of care are critically important and are the first steps of a quality improvement program. Standards are the level of excellence that must be followed and practiced.

Formulation of standards is the first step toward efficient nursing care delivery. It provides the required knowledge and skills that can be used to orient new staff and guide nurses in clinical practice. Moreover, standards serve as a base by which the quality of care can be judged[7]. Different types of standards are used to direct and control-nursing actions are the structure, process, and outcome. The structure standard refer to the essential support necessary for providing nursing care[8] , the process is the second component of the standard and focus on specific nursing activities necessary to achieve the desired patient's care goals such as: procedures, practice guidelines, plans, and documentation[9]. While the outcome is the end-results of care and performance, the effect of care on the patient, people significant to him/her, and the community.

Significance of the Problem

In Arab Republic of Egypt, the incidence of CAD, are 4.41 /1000 as a result of [11]. In Coronary Care Unit of Sohag University Hospital, 1200 patients with CADs admitted from 2010-2011 years, 40% of them with AMI, 20% angina pectoris, 15% ischemic cardiomyopathy and valvular heart diseases, and the rest proportion was other causes for CADs[12]. Cardiac patients are facing many problems, which affect the quality of life; these problems can be overcomed with proper NCSs in addition to the therapeutic regimen. And although of these problems, the nursing staff caring for patients with CAD in CICU at Sohag University Hospital didn't follow NCSs for caring of such group of patients to help them providing qualified care and deal safely with such condition. Hoping, formulating NCSs could help nurses in promoting the quality of nursing care and decreasing morbidity and mortality for this patients. Therefore, the aim of this study is to evaluate the effect of implementing NCSs on the coronary arteries diseases (CADs) patients' outcome.

Research hypothesis:

The incidence of complications and length of hospital stay in the study group post NCSs applications were less than pre NCSs applications in the control group.

Subjects and methods

Research design and Setting:

A Quazi-experimental research design was conducted in two intensive care units: intensive care unit and coronary care unit, which is affiliated to the intermediate care, at Sohag University Hospital; from (November 2010 to August 2011).

Subjects:

A convenience sample of all available nurses(n=34) working in selected units at the time of the study, in addition to purposive sample of one hundred and fifty adult males and females patients who had CAD, pre and post implemented NCSs at the time of the study. The studied patients were

divided into two equal groups study and control (75 patients in each group). The patients in control group were received actual nursing care by nurses before application of the designed NCSs, while patients in study group received the designed NCSs. Patients selected according to the following:

Inclusion criteria: newly diagnosed adult patients with CAD (AMI and angina pectoris) their ages ranged from 18 year and above.

Exclusion criteria: chronic diseases patients such as DM, liver cirrhosis, cancer, post open heart surgery, COPD, renal diseases, and arthritis diseases.

Tools:

Data for the present study was collected using the following tools:

1.Nurses socio-demographic data: It was contain information related to demographic characteristics of the CICU studied nurses (e.g., age, gender, educational level and years of experience).

2.Observational checklists tool: It is based on the designed NCSs. It is concerned with structure, process and outcome indicators of NCSs for patients with CAD in CICU. It aimed at assessing the applicability of the content items of the designed NCSs. It included structure items that should be presented in the CICU, performed items that should be carried-out by the nurses in the CICU and outcome indicator items that should be carried out by the nurses to patients with CAD admitted in CICU. The designed observation checklist was divided into three parts:

Part 1: This part included the initial list of structure developed for assessing structure items of CICU. The items of this part of the checklist were checked as (present or absent). It consisted of (136) criteria (items).

Part 2: This part was developed to determine the designed NCSs applicability by staff nurses at CICU through nurses' performance observation. The items of this part of the checklist were checked as (done or not done). This part consisted of (452) criteria (items) under main six headings that identify the specific nursing activities for patients with CADs.

Part 3: This part was designed by the researcher to determine the outcome indicator standards, based on the application of practice of NCSs, and observed nurses activity on patients outcome. It aimed at assessing the applicability of the content items of the practical standards on patients with CADs. It included the performed items that should be carried out by the nurses in the CICU. The items of this part were checked as (Yes/No) and it consisted of (49) criteria (items) under (15) heading.

The scoring system of observational checklist:

The structure standards score (part I): The possible response was present and absent. The score of present (satisfactory) =1 and the score of absent (unsatisfactory) =0

The process standards score (part II): One mark was given if the step was done correctly and zero if the step was not done. It was evaluated as follows: ≥ 80 % considered satisfactory level of performance, < 80 % considered unsatisfactory level of performance.

The outcome indicator standards score (part III): One mark was given if the step was (Yes) correctly and zero if the steps was (No). It was evaluated as follows: ≥ 26 satisfactory level of performed outcome, < 26 unsatisfactory level of performed outcome. Total score=52.

3. *Patients outcome sheet:* This sheet was developed and modified by the researcher based on relevant recent related nursing and medical literature used to assess the effect of designed NCSs on patients'

outcome including complications and length of hospital stay. The assessment patient outcome sheet covered the following parts:

Part 1: This entailed demographic data of the patients' such as: age, gander, marital status, and level of education.

Part 2: This part was the initial list of complications developed for patients admitted in CICU. It consisted of (88) criteria (items) under main nine headings that covered all body systems of patients with CAD.

Part 3: This part was developed for assessing the length of hospital stay for patients with CAD.

The scoring system of patients' outcome sheet (part 2): The possible response of complication was present and absent. The score of present = "1" means unsatisfactory and absent score = "0" means satisfactory.

Operational Design:

The study to be completed has passed through different phases as follows: The preparatory phase, implementation phase, and evaluation phase.

I. Preparatory phase: This phase taken period of time from November 2010 to May 2011,and included the following steps:

1.Reviewing the national and international standards of nursing care for CAD patients.

2.Actual routine of nursing care was observed by the researcher to identify the nursing procedures most frequently implemented in the CICU.

3.The researcher designed the NCSs for patient with CAD to be applicable by staff nurses working at CICU based on nurses needs assessment, extensive literature review and different studies related to research problem and adopted from[13-18]. These standards were divided according to work of Donabedian`s model[13] into 3 components structure, process, and outcome in order to determine indicators of quality. It NCSs were made and prepared in two forms: English and Arabic language. Simplified one and detailed handout (Booklet) about NCSs for nurses caring for patients with CAD.

Face validity:

It was ascertained by a jury of (35) experts from coronary and intensive care units, medical surgical nursing staff and head nurse mangers. Their opinions were elicited regarding the tool format layout, consistency and scoring system and minor modification were done though a jury.

Testing reliability:

Reliability testing for the proposed tools was done by Cronbach's alpha test.

A pilot study:

The study tools were pilot on 10% of the study subjects, who were excluded from the main study. It was done to ensure clarity, applicability, feasibility, and time consuming, some modifications were done according to the pilot study findings. Some questions and items were omitted, added, or rephrased, and then the final forms were developed.

2. Implementation phase: Data collection was carried out from middle of March 2011 to middle of August 2011, through the following steps:

First step: assessment of the structures standards items by the researcher through checking the presence of the written policies and procedures in the study setting three times pre and post designed NCSs applications for a period of two to three hours per shift. **Second step :** The researcher observed the nursing performance by using observational checklists post designed NCSs applications 3 times during different days for each nurse, which caring of

patients with CAD at CICU to check the performance during the three shifts, and the mean was taken. Each nurse has been under observation until all items of observational checklist were fulfilled. Filling the observation checklist for each nurse ranged from one to two hour and the total time of performance observations checklists for all staff nurses took about 45 days. **Third step:** The outcome indicators observation,was done by the researcher to evaluate the nursing care outcome on patients with CAD pre and post NCSs application. It was filled by the researcher following the same technique as performance observational checklist. **Fourth step:** Filling the patients' outcome sheet, it was done by the researcher including the complications of patients with CAD at CICU resulting from outcome of nursing activities given for such group of patients and their length of hospital stay pre and post the designed NCSs application and completed the sheet by observing each patient individually, from their files or from the responsible physician.

Implemented of the standards has taken 16 weeks for all nurses in the study setting, morning, afternoon, and night shift. Total number of training hours for the staff nurses on the designing NCSs application were (60 hours) 8 hours for theoretical part, 52 hours for practical part plus teaching on spot in addition to 4 sessions (8 hours) 4 hours for orientation at the NCSs, and other (4 hours) at the end of revision. The program consisted of 30 sessions for theoretical and practical; it took about 12 weeks (3 sessions\week) for each group, which included 5 nurses. After that, the researcher asked the staff nurses to implement the designed NCSs during their work at CICU. The researcher repeated visits to CICU for training of the nurses on using the designed NCSs, and to facilitate the implementing of the designed NCSs for patients with CAD, the researcher prepared the training places, teaching aids and media (pictures, handouts).

3. Evaluation phase:

This phase included evaluation of the nursing performance, nurses' outcome indicator and patients' outcome by comparing the changing pre and post designed NCSs application.

Administrative and ethical aspects:

After having, the proposed approved, official letters were issued from the Faculty of Nursing, Sohag University to get permission from the hospital administration, and the nursing director. The purpose of the study and its procedures were explained to them to get their consent and cooperation. The researcher also obtained study subjects' approval after explaining the purpose and method of data collection. Confidentiality of the obtained information was assured and they were informed about their right to refuse participation or withdraw at any time. Then, the implementation phase started.

Limitation of the study:

1. The study was conducted on CICU at the study setting only and included adult patients with selected criteria.
2. The small number of nursing staff under studies so; it does not allow generalization of the results.
3. Shortage of the equipment, teaching places and supplies in CICU my present difficulties for application of all standards criteria.

Statistical design

Data were grouped, categorized, analyzed, and presented in tables. Descriptive statistics were applied: by computer program SPSS (version 17.0).

Frequency and percentage distribution for different demographic variables such as age, years of experience, qualification and to test the agreement of the experts on the content items. Mean is the measure of tendency. Paired T-Test is used for identifying differences between means of observations. Spearman coefficient and Cronbach's-α coefficient is used to test the internal consistency of the data collection tools. Statistical significant test was considered at p value 0.05

Results:

Table 1. Shows the demographic data of staff nurses under study. As regards age of nurses the category 20- <25 years represented 64.7 % of the studied nurses. While 30 - <35 years represented 8.82%, with mean value of 22.31± 4.21 years. Regarding the marital status of the studied nurses 61.7% of them were single. The highest percentage of nurses educational level was diploma 94.9%, with 52.9% of them had experience ≥5years.

Table2. Illustrates the assessment of structure standards pre and post designed NCSs application in the CICU. It can be noted that, post NCSs application all items of the structured standards were improved, except fire hazards compared to pre NCSs application. With highly statistically significant difference between pre and post NCSs application (P<0.001).

Table 3. This table indicates the staff nurses' performance regarding assessment, diagnosis, planning, implementation, and evaluation. It can be noted that, most of the staff nurses showed high percentage of performance in initial assessment, related to cardiovascular system and genitourinary system and ranged between 82.35% to 88.23%. While the lowest percentage of nurses' performance 41.17% to 42.82% was detected in assessing respiratory system and reviewing laboratory data with reference to acceptable levels. Moreover, the study showed that most of nurses' performance for the planning and diagnosis was 61.76%. Concerning staff nurses performance regarding nursing activities implementation and evaluation, it can be noted from this table that, all nurses under study performed nearly all nursing activities and evaluation items ranged between 14.7% to 100%. On the other hand, none of the entire sample was assessing endotracheal intubations, caring of chest tube drainage system, assisting with cardio version, monitoring arterial blood pressure, and removing arterial catheter.

Fig 1. Shows the outcome indicators of nursing performance for patients with CAD in the study and control groups. Regarding study group, it can be noted that, high percentage outcome indicators in nurses performance of all representative items (criteria). While the lowest percentage of nurses' performance in the control group. With highly statistically significant difference between two groups (P<0.001).

Table 4. Describes the demographic characteristics of the patients with CAD in the study and control groups. Regarding age, about one third of the patients in both groups were 40 - <50 years (34.6% and 33.3%) respectively. Regarding their gender, about two third of the patients in both groups were males (66.6% and 65.3%) respectively. While around half of patients in both groups was illiterate (50.6% and 49.3%)respectively, unemployed (56.0% and 52.0%) respectively and married (49.3% and 48.4%) respectively. The differences between the two groups were statistically insignificant P>0.05.

Table 5. Shows the effect of NCSs on the patients complications, the same table illustrates that, there is statistically significant difference between patients in both study, and control groups regarding complications in majority of items in cardiovascular system with P≤0.05. Also,

there is statistically significant difference regarding complications related to respiratory system, gastrointestinal, integumentary, urinary system, and psychosocial functioning between both groups except musculoskeletal and nervous system $P \leq 0.05$.

Table 6. Shows comparison between the patients in study and control groups regarding length of hospital stay at CICU, regarding study group more than half of the patients 54.6% their length of hospital stay was less than a weak 50.7% of them discharged with complications while 52.0% discharged to hospital department. Regarding control group, 45.3% of patients their length of hospital stay was less than a weak, 61.3% discharged with complications and 45.3% discharged to the hospital department. With statistically significant difference between both groups regarding length of hospital stay one a weak, un discharged with complications and discharged to hospital department $P<0.00$.

Table 7. Shows the relation between nursing outcome indicators standards for patients with CAD and occurrence of complications. It can noted from this table that, 83.3 % of patients with unsatisfactory outcome indicators had complications, in comparison to 51.2% of patients with satisfactory outcome indicators had no complications $X^2 = 18.97$ at $P<0.0001$.

Fig 2. Portrays the relation between length of hospital stay and patient discharged with or without complications in the studied groups. It was found that there is a statistically significance relation between the length of hospitals stay and patients discharged with or without complication in the study and control groups ($P< 0.00$).

Table (1): Frequency and percentage distribution of staff nurses demographic characteristics. (no=34).

Staff nurses characteristics	Frequency	Present%
I. Age (years)		
20 - <25	22	64.7
25 -<30	7	18.24
30 - <35	3	8.82
35 -≤40	2	5.8
Total	34	100.0%
Mean ± SD 22.31± 4.21		
2. Marital status		
Single	21	61.7
Married	12	35.2
Divorced/Separated	1	2.9
3. Education level		
Nursing diploma	32	94.9
Technical institute	2	5.8
4. Occupation		
Bed side nursing	32	94.9
Registered nurse	2	5.88
5. Experience :		
<5 years	16	47.5
≥5 years	18	52.9

SD= standard deviation

Table(2): Assessment of the structure component pre and post designed NCSs application in the CICU as observed. (no=3)

Structure standards	Pre Application	Post Application	T- Test	
1. The CICU have an organizational attribute: **1. The CICU have mission statement which is consistent with that of the Sohag university hospital**	**Mean score**	**Mean score**	**T**	**P-Value**
	0.00	12.7	-----	-----
2. The CICU have philosophy and objectives	0.00	22.6	-----	-----
3. The CICU have rules and regulations	0.00	42.82	-----	-----
4. The CICU have appropriate qualified staff to provide care on a 24-hr basis	29.4	52.6	32.51	0.03*
5.The CICU have infection control strategy: 1. Hand washing procedure	42.82	97.5	41.43	0.001*
2. Gloving	58.8	80.42	48.95	0.001**
3. Masking	0.00	76.4	-----	-----
4. Gowning	0.00	60.21	-----	-----
5. Patient care equipment and supplies	42.82	75.00	29.31	0.01*
6. Environmental control	14.7	80.2	47.25	0.001**
7. Linens	29.4	69.6	52.73	0.001**
2.The CICU have essential human resources	42.82	55.3	17.38	0.375
3.The CICU have facilities resources: 1. Patient care items	14.7	58.8	29.31	0.001**
2. Equipment	29.4	39.7	13.52	0.274
3. Emergency medication	58.8	90.2	28.31	0.001**
4. Emergency equipment	42.82	80.00	45.92	0.001**
5. Financial resources	14.7	22.7	24.38	0.003*
4. The CICU have protocol and operate to protect all personnel from: 1. Biological hazards	0.00	58.8	-----	-----
2. Electrical hazards	0.00	58.8	-----	-----
3. Fire hazards	0.00	0.00	-----	-----
5. The CICU l have a health record - keeping system	0.00	58.8	-----	-----
6. The CICU have job description for all nursing staff	0.00	29.4	-----	-----
7. The CICU have performance appraisal system for nursing staff	0.00	29.4	-----	-----

Insignificant P>0.05 * Significant p<0.05 **highly significant p< 0.001

Table(3): Staff nurses performance observation regarding nursing assessment, diagnosis, planning implementation and evaluation components of the designed NCSs for patients with CAD at CICU (no=34)

Process standards	Done		Not done	
	No.	%	No.	%
1. The initial assessment				
1. Reviewing laboratory data with reference to acceptable levels	15	42.82	19	51.94
2. Assessing hematological system	24	70.58	10	29.4
7. Assessing cardiovascular system	30	88.23	4	11.76
4. Assessing gastrointestinal system	22	64.81	12	35.29
5. Assessing respiratory system	14	41.17	20	58.8
6. Assessing genitourinary system	28	82.35	6	17.64
8. Assessing neurological system	24	70.58	10	29.4
9. Assessing integumentary system	27	79.41	7	20.0
2. Nursing diagnosis	21	61.76	13	38.23
3**. Nursing planning**	21	61.76	13	38.23

Cont. table(3)

Process standards	Done		Not done	
	No.	%	No.	%
4. Nursing activities implemented according to the priority of identified problems/needs.				
1.Connecting patient to monitor	32	94.11	2	5.88
2. Administering oxygen therapy	34	100.0	0.00	0.00
3. Monitoring pulse oximetry continuously	34	100.0	0.00	0.00
4. Inserting oro-pharyngeal airway	30	88.23	4	11.76
5. Assessing endtracheal intubations	0.00	0.00	34	100.0
6. Performing endotracheal tube care	30	88.23	4	11.76
7. Assessing tracheostomy tube insertion	5	14.7	29	85.29
8. Assessing tracheostomy Tube/ Endotracheal Tube Suctioning	30	88.23	4	11.76
9. Managing patient on mechanical ventilation	29	85.29	4	11.76
10.Careing of chest tube drainage system	0.00	0.00	34	100.0
11. Assessing chest tube removing	8	22.85	26	76.47
12. Monitoring ECG continuously	34	100.0	0.00	0.00
13. Monitoring lead Electrocardiogram	34	100.0	0.00	0.00
14. Assisting with cardio Version	0.00	0.00	34	100.0
15. Assisting with defibrillation	12	35.29	22	64.81
16. Monitoring Arterial Blood Pressure	0.00	0.00	34	100.0
17. Removing arterial catheter	0.00	0.00	34	100.0
18. Insertionin central venus catheter	22	64.81	12	35.29
19. Monitoring central venous pressure	30	88.23	4	11.76
20. Monitoring pulmonary artery pressure	00.0	00.00	34	100.0
21. Assessing transvenous pacing	20	58.8	14	18.67
22. Assisting with Pericardiocentesis	15	42.82	14	82.35
23. Managing of Post-Operative coronary Angioplasty (PTCA)	22	64.81	12	35.29
24. Cardiopulmonary resuscitation 1. Opening air way	30	88.23	4	11.76
2. Assessing for breathing	30	88.23	4	11.76
3. Assessing circulation	30	88.23	4	11.76
4. Monitoring cardiac arrest team activities	0.00	0.00	34	100.0

5. Caring of patient post- resuscitation	32	94.11	2	5.88
5. Advising patient regarding health life style and prevention issues	29	85.29	5	14.7
6.Nursing evaluation standards 1. Evaluating the patient's progress toward attaining expected outcomes.	22	64.81	12	35.29
2. The critical ill nurse shall communicate effectively with: patients, and family of the patient.	30	88.23	4	11.76
3. Documenting the interventions of the patient in the permanent record	32	94.11	2	5.88

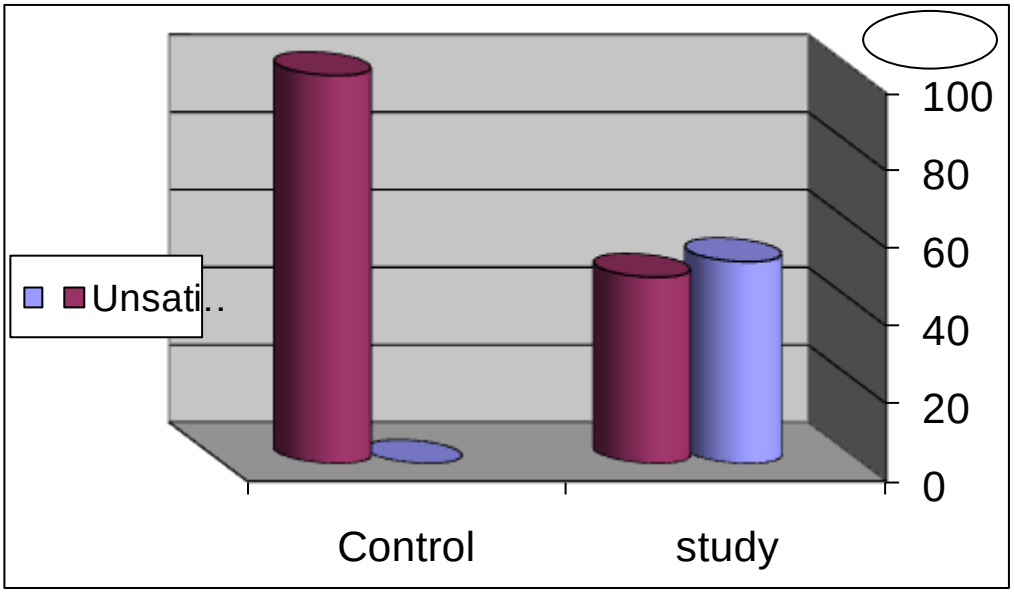


Fig1:Nurses outcome indicators standards for patient with CAD in the study and control group(no=75 in each group)

Table (4): Demographic characteristic for patients with CAD in the study and control groups. (no=75 in each group)

Patients characteristic	Study group No= 75		Control group No= 75		X2	P-value
1. Age (years)	**No**	**%**	**No**	**%**		
↓20	2	2.6	3	4.0		
20 - <30	19	25.3	18	24.0		
30 - <40	18	24.0	19	25.3	14.25	0.493
40 - <50	26	34.6	25	33.3		
50 - <60	9	12.0	8	10.7		
>60	1	1.33	2	2.7		
Mean +SD = 43.52± 11.80			**44.86 ± 12.38**			
2. Gender						
Male	50	66.6	49	65.3		
Female	25	33.3	26	34.1	17.25	0.628
3. Education level						
Illiterate	38	50.6	37	49.3		
Preparatory	20	26.6	21	28.0	19.38	0.521
Second school	8	10.7	9	12.0		
University	9	12.0	8	10.7		
4.Occupation						
Employee	17	22.6	19	25.3	21.49	0.425
Unemployed	42	56.0	39	52.0		
Skilled worker	16	21.3	17	22.6		
5. Marital status						
Single	29	38.6	31	40.6		
Married	37	49.3	36	48.4		
Widowed	9	12.0	8	10.7		

Insignificant P>0.05 * Significant p<0.05 **highly significant p<0.001

Table (5): Assessment of the patients complications in the study and control groups at CICU (no=75 in each group)

Items	Study group n=75		Control group n=75		Test X^2	P-value
	No	%	No	%		
1.Cardiovascular system:						
1. Cardiogenic shock	9	12.0	9	12.0	14.81	P=1.00
2. Failure of cardiac reperfusion	18	24.0	19	25.3	11.59	P 0.425
3. Nurogenic chock caused by sever chest pain	5	6.7	5	6.7	13.85	P=1.00
4. Dysrrthemia	29	38.7	29	38.7	12.85	P1.00
4.Anaphylactic shock caused by some medications	5	5.33	7	9.3	19.31	P<0.02*
5. Congestive heart failure	6	8.0	6	8.0	13.85	P=1.00
6. Pulmonary embolism	3	4.0	5	6.7	15.91	P<0.03*
7. Cardiac catheterization complications	5	6.7	8	10.7	16.25	P<0.01*
8. Deep veins thrombosis or thrombus and embolus formation	18	24.0	26	34.6	17.84	P<0.04*
9. Post infarction angina	2	2.7	2	2.7	10.38	P= 1.00
10. Fluid and electrolyte imbalance	8	10.6	13	17.3	11.68	P<0.03*
2. Respiratory System	9	12.0	16	21.3	18.31	P<0.000 **
3. Musculoskeletal System	5	6.7	6	8.0	14.85	P=0.325
4. Nervous System	4	5.3	6	8.0	14.92	P=0.293
5. Gastrointestinal System	11	14.6	20	26.7	35.21	P<0.000 **
6. Integumentary System	18	24.0	27	36.0	28.41	P=0.000 1**
7. Urinary System	8	10.6	21	28.0	32.41	P<0.000 **
8. Psychosocial Functioning	12	16.0	29	38.0	28.35	P<0.000 **
Total :	**38**	**50.60%**	**54**	**72%**	**X=19.84**	**P<0.01**
Mean & SD= 37.96±5.45			**26.47± 4.21**			

Insignificant P>0.05 * Significant p<0.05 **highly significant p<0.001

Table (6): Comparison between patients in the study and control groups regarding length of hospital stay at CICU (no=75 in each group)

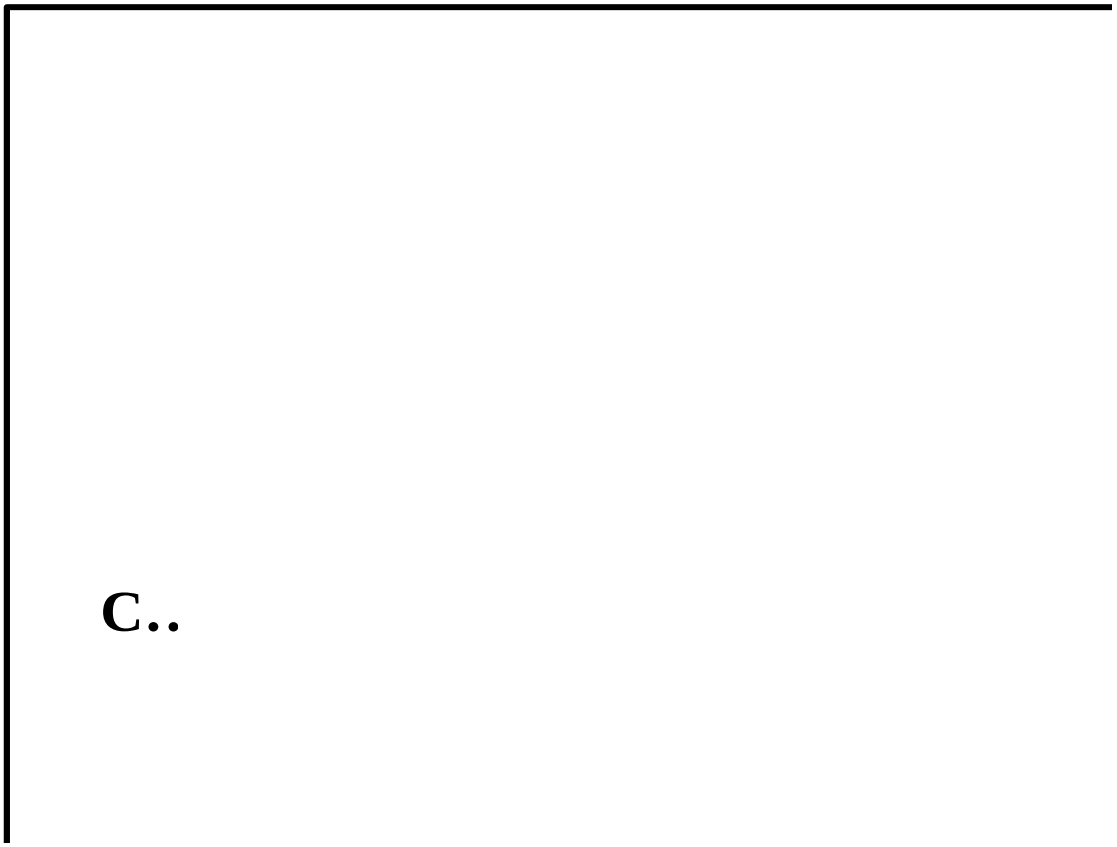
Items	Study group		Control group		Test X^2	P-value
	No	%	No	%		
1. Length of hospital stay: 1. Less than a weak	41	54.6	34	45.3	14.25	P=0.425
2. One a weak	21	28 %	19	25.3	24.38	P<0.02*
3. More than one weak	13	17.3	22	29.3	12.51	P=0.648
2. Discharged with complications: 1. Yes	38	50.7	46	61.3	13.81	P=0.621
2. No	37	49.3	29	38.6	21.41	P<0.04*
3. Discharged to: 1. Hospital department	39	52.0	34	45.3	20.48	P<0.03*
2. Home	14	17.9	16	42.1	11.85	P=0.84
3. Die	22	29.3	25	33.3	12.37	P=0.742

Insignificant P >0.05 *Significant P< 0.05 **Highly significant P<0.001

Table (7): Relation between nursing outcome indicators and patients complications in the study group (n=75).

Outcome indicators				
Patients Complication	**Unsatisfactory (n=36)**		**Satisfactory (n=39)**	
	No	**%**	**No**	**%**
Yes	30	83.33	19	48.17
No	6	16.67	20	51.28
P-value	X^2 = 18.97		P< 0.001**	

*P-value =< 0.05



*P-value =< 0.05

Fig: (2):Relation between length of hospital stay and patient discharged with or without complications in the study and control groups

Discussion:

The discussion will cover the main result findings as follow:

Demographic characteristic of nurses.

Concerning the demographics characteristics of staff nurses at CICU, the majority of the nurses' ages ranged from 20-25 years, females and have diploma of secondary nursing school, and their experience was more than 5 years. These results insured through research done by Al-Ftlawy[19]who noticed that, most of the nurses working in the CCU, ICU, and Medical wards graduate from secondary nursing school and the age swing between (22-27) years. Ghanem and El-Khayat[20] added that, majority of nurses which working in the critical departments was females and nursing diploma was the highest proportion, less than half of them have an experience more than ten years, and all of them have no in service training courses.

Nurses′ performance to different nursing activities.

The applicability of the designed NCSs criteria by staff nurses at CICU based on observation of nurses' performance. The present findings showed that most of staff nurses performed initial assessment for some body system, performed nursing diagnosis, and planning. These results are supported by Flynn et al.[21] who stated that, nursing roles and responsibilities include the following: Assess the patient's individual risk profile and identify potential/actual treatment, follow-up adherence issues post discharge, develop a secondary prevention treatment plan in collaboration with the physician and other members of the multidisciplinary team, educate patients regarding evidence-based medication and assist them in establishing goals for therapeutic lifestyle and coordinate appropriate secondary prevention outpatient services before discharge. Winchester [22]added that, coronary care nurses play a very important role at different level: technical level, where the nurses carry out diagnostic examination and risk assessment; psychological level where the nurse informs, acts as a health counselor and helps in the patient self care process.

Concerning the applicability of the nursing care activities and evaluation for CAD patients at CICU, the findings indicated that, most of staff nurses performed nearly all activities and evaluation items. The study carried out by[23] noticed that, before dissemination of the standards, the points of NCSs are very low percentages for adequate performance in all areas of nursing process, especially regarding planning, which was adequately performed by only one nurse. While after dissemination of the standards, statistically significant improvements were demonstrated in all area ($p<0.001$). The total adequate performance increased from 5.0% to 80%.

As for the outcome indicators of nursing performance for patients with CAD in the study and control groups. Regarding study group, it can be noted that, high percentage outcome indicators in nurses performance of all representative items (criteria). While the lowest percentage of nurses' performance in the control group. With highly statistically significant difference between two groups ($P<0.001$). These results are in agreement with [6,20] who reported presence of improvement in the practice score levels obtained by nurses after implementation of NCSs in all items. This has been concluded by the presence of significant differences between results of pre-test and post-test. In the same line

Braunwald[24,] said that, nurses working in CCU should be highly qualified and able to provide an effective care around-the-clock, with ratio of one nurse to one patient. The intention behind this statement is to ensure high quality performance and save as possible patient life.

Furthermore, the present study showed improvement in all items of the structure standards post application, compared to pre application except fire hazards. With highly statistically significant difference. This result is in agreement with information listed by [23]who reported that, after implementing the designing NCSs most items related to hospital structure such as human resources, procedures and standards, and work environment and safety were available. In this respect Ingersoll et al.,[25] reported that, an organization's mission, vision, and values statements are guiding force behind the health care institution's administrative strategic planning are evident in nurses' daily work life. Huber[26] recommended that, each hospital establish policies and procedures for all personnel to follow, based on standards and practice guidelines developed by professional organizations. Moreover, the policies should be consistent with regulatory and professional standards of practice.

Demographic and medical characteristic of patients.

Based on the results of the current study, the majority of the patients' their age ranged from (40 - <50) in both groups. As regards the gender, majority of the patients were male in control and study groups. These results are consistent with[27]who found that, sixty-one of the 1000 patients were younger than 45 years of age (range 26-44 years, mean 40.5± 3.7 years). (88.4%) were men and (11.6%) were women.

As regards to patients complications and length of hospital stay.

The current study revealed that, there is statistically significant difference between patients in both study, and control groups regarding complications in majority of items in cardiovascular system with $P \leq 0.05$. Also, there is statistically significant difference regarding complications related to respiratory system, gastrointestinal, integumentary, urinary system, and psychosocial functioning between both groups except musculoskeletal and nervous system $P \leq 0.05$. These results are agreement with the finding of information listed by[20,28] who stated that, the implementing the developed NCSs help in improving patients' condition and in reducing complications in studies patients. Also, improving nurses` knowledge and practice have a favorable effect in preventing or reducing patients' complications.

Also, the study indicated that following implementation of the NCSs the length of hospital stay and discharged without complications for patient's with CAD at CICU were significantly changed than pre application. These results were in agreement with the results reported by[28] who found that, 66.7% of the study group subjects stayed less than 5 days after implementation of the designed nursing care program as compared to control group majority 83.3% stayed from five to seven days, with a statistical significant difference between the two groups ($p=0.01$). And, in relation to occurrence of complications after implemented the designed nursing care program by[28] who found that, after implementation of the designed nursing care program the study

group subjects showed a lower mean of scores in relation to complications than the control one, with a statistical significant difference between the two groups (p=0.004).

Regarding relation between nursing outcome indicators and patients' complications in the study group. The findings indicated that 83.3% of patients with unsatisfactory outcome indicators had complications; in comparison to 51.2% of patients with satisfactory outcome indicators had no complications. These results is supported by Ferket et al.[29] who said that, skilled critical care nursing would reduce the risk of complications, the number of critical care bed days and improve patient outcomes. In the same line and in the studies done by[30,31] recommended that, each organization and profession must set standards and objectives to guide individuals and practitioners in performing safe and effective care. Also, not only must standards exit, but leader and managers also must see that subordinates know and understand the standards and employee must be aware that their performance will be measured in terms of their ability to meet the established standards. In this respect[32] recommended the importance for the nurse to follow recent advances and published literature and join nursing seminars for the improvement of her knowledge about individualized and structured patient care and to reduce process errors, mitigating overall risks education of the patient and the family, and eventually resulting in effective patient care. Keshk and Abd El Moneem[33] added that, nurses must be encouraged to use standard protocols in drug preparation and administration.

Conclusion:

In the light of the study finding, it is concluded that:

There are statistically significant differences between CICU structural attributes, nurses' performance, and outcome indicators post designed NCSs applications which statistically significant positive affect on patients' outcome in the study group including their length of hospital stay and complications.

Recommendations:

Based on the study findings the following points are recommended:

- The designed NCSs for patients with CAD in Sohag University Hospital at CICU should be applicable under continuous periodically administration monitoring with especial emphasis on newly nurses employees at CICU should be mandatory.
- Job description must be available for all nursing personnel and for workers in the CICU for better utilization of nursing capabilities to enhance the efficacy of the designed NCSs for patients with CAD at CICU.
- Procedure manuals, policies, guideline, protocols for caring of patient with CAD, should be available in each CICU in adequate number and in both Arabic and English language.
- The appropriate equipment and supplies necessary to adopt safe practice regarding caring of patients with CAD must be accessible for all nurses at CICU at all times.

Further studies is recommended to allow more generalization to the study results by its replication on larger sample/ and more CICUs setting at different hospitals.

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تأثير تطبيق معايير الرعاية التمريضية علي مرضي شرايين القلب التاجية

انتصار جاد المولي [1] ,كامليا فواد عبد الله [2] , محمد علي الترك[3] ,غُني عبد الناصر علي[1]
تمريض باطني وجراحي كلية التمريض - جامعة سوهاج[1], تمريض باطني وجراحي كلية التمريض جامعة عين شمس [2],قسم الصحة العامة وطب المجتمع- كلية الطب- جامعة سوهاج[1،3]

تعد أمراض الشرايين التاجية لـلقلب هي السبب الرئيسي للوفيات بين عدد كبير من الرجال والنساء فضلا عن أنهم يحتاجون إلى رعاية فائقة، و مراقبة مستمرة من مقدمي الرعاية الصحية ذات الكفاءة العالية في التمريض ووحدات علاجية متميزة .كما تتطلب هذه الوحدات استعدادات عالية التقنية من أجل تمكينها من تلبية احتياجات المريض، والحالات التي تهدد الحياة ومن موضع اهتمامنا بهم وبالتمريض، تم تصميم معايير للعناية التمريضية مما يجعل الممرضة قادرة علي معرفة احتياجات المرضي والأعراض والعلامات واتخاذ الأجراءت السريعة والمناسبة ليتسنى لهم تقديم رعاية تمريضية على أساس علمي صحيح حتى يحصلو ا على الجودة في العناية التمريضية، ورفع كفاءة ومستوى أداء الممرضات، وكذلك للحد من حدوث المضاعفات إثناء وجود المرضى بالمستشفى أو بعد الخروج.

الهدف: تهدف هذه الدراسة إلي قياس مدي تأثير تطبيق معايير الرعاية التمريضية علي مرضي شرايي ن القلب التاجية.

مـادة وطـرق البـحث : تكونت العينة من مجموعين هما:

المجموعة الأولي: [الممرضات] كل الممرضات التي يعملن داخل العناية المركزة والقسم وعددهم (34).
المجموعة الثانية: [المرضي] كل مرضى شرايين القلب التاجية الذين تم دخولهم إلى العناية المركزة للقلب في الفترة قبل وبعد ستة اشهر من تطبيق المعيار وعددهم(150).

مكان البحث : تم تنفيذ هذه الدراسة في العناية المركزة للقلب، بمستشفيات جامعة سوهاج

(0.001 . كما أن فترة إقامة المرضي الذين خضعا لمعايير الرعاية التمريضية كانت أقل من العينة الضابطة.

التوصيات: أفضت نتائج هذه الدراسة إلى التوصيات التالية:

- أهمية تعميم معايير الرعاية التمريضية لمرضي شرايي ن القلب التاجية في جميع وحدات العناية المركزة للقلب بمستشفيات محافظة سوهاج.
- يجب أن تكون معايير الرعاية التمريضية لمرضى شرايين القلب التاجية متاحة في كل الوحد ات بعدد كاف وباللغة العربية والإنجليزية على حد سواء وذلك بالتعاون مع المؤسسة التعليمية مع ضرورة أجراء تقييم دوري ومستمر داخل هذه الوحدات مع التركيز علي أهمية توافر الأدوات والتجهيزات اللازمة لضمان عناية تمريضية أمنه وذو كفاءة عالية.
- . يجب استخدام طرق التدريس المناسبة لمستوى التعليم من كل فئة من فئات التمريض والعاملين فيها وتوفير المرافق التعليمية والكتب والمجلات والملصقات ونتائج البحوث في وحدات العناية المركزة للقلب وذلك بالتعاون مع المؤسسة التعليمية .

أدوات جمع البيانات:

1. استمارة البيانات الشخصية والاجتماعية للممرضات
2. استمارة ملاحظة وتقسم إلى ثلاثة أجزاء:

الجزاء الأول: ملاحظة تطبيق المعايير الهيكلية

الجزاء الثاني: ملاحظة تطبيق معايير الرعاية التمريضية من قبل الممرضات

الجزاء الثالث: ملاحظة عائد أو نتاج تطبيق المعايير علي المرضي

3. استمارة تقييم حاله المريض وتشتمل علي: المضاعفات و تقييم فترة الإقامة بالمستشفى).وقد تمّ التحقق من ثبات أدوات القياس من خلال استعمال معامل الارتباط بيرسون. أما بالنسبة لمراجعة أدوات القياس وتقويم درجة مصداقيتها فقد تحققت من خلال عرضها على مجموعة الخبراء والمكونة من (35) محكم من أعضاء هيئة تدريس بوحدة العناية المركزة للقلب والتخدير وأعضاء هيئة التدريس من كلية التمريض أيضا مديرات للتمريض و الذ ين لَهم خبرة في الرعاية التمريضية. كما تم عمل دراسة ميدانية على 10% من الممرضات والمرضى لاختبار مدى صلاحية وتطبيق أدوات الدراسة باستخدام معادلة ألفا. ثم تم تعديل الأدوات طبقا لنتائج الدراسة الميدانية المرشدة.

النتائج:

لقد أسفرت نتائج البحث عن الآتي:

- بالنسبة لنتائج فحص أداء التمريض في وحدة العناية المركزة للقلب، فأن معظم الممرضات ملتزمون بأداء جميع معايير الرعاية التمريضية بعد تطبيق المعايير.
- أيضا نتائج اختبار العائد أو نتاج تطبيق معايير الرعاية التمريضية على أداء الممرضات داخل وحدة العناية المركزة للقلب، فان معظم التطبيقات التمريضية على المرضى تم تحسينها بشكل ملحوظ بعد تطبيق المعايير من قبل الباحث.
- أما بالنسبة لقياس مدي تأثير تطبيق معايير الرعاية التمريضية علي مرضى شرايين القلب التاجية والذين تم دخولهم إلى وحدة العناية المركز للقلب في الفترة ما قبل وبعد تطبيق المعايير بستة شهور. فقد وجد الباحث أن المضاعفات اقل في عينة البحث بعد تطبيق المعايير مقارنتا بالعينة الضابطة والتي خضعت للعناية التمريضية فقط دون تطبيق معايير الرعاية التمريضية عليهم وذلك بفروق ذات دلالة إحصائية عالية ($P <$