Original Article

Nurses Knowledge about Care of Patient with Acute Coronary Syndrome

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Conflicts of interest

There are no conflicts of interest

Abstract

Introduction: Acute coronary syndrome (ACS) is life-threatening condition associated with coronary heart disease.

Study aim: Aim of the study was**To assess nurses' knowledge about care of patient with ST-Segment Elevation Myocardial Infarction (STEMI)**as one categories of acute coronary syndrome at coronary care unit (CCU)and emergency room(ER) at public hospitals.

Methods: A descriptive study with a qualitative approach. Included professional nurses whoprovided patientscare at CCU and ERat Khartoum state, Sudan.Standardized administered questionnaire used for data collection and total participants were139.The data processed using statistical package software (SPSS), version 19for analysis. Chi-Square test usedP-value <0.05 considered statistically significant.

Results: It reflected that most of participants were female (84.0%), their ages ranged between 25 - 29 years, and single. There were (85.0%) of participants had an experience in nursing science more than nine years while (42.0 %)has nursing experience in CCU and ER from 1-3 years.Also, the result found more than (60%) ofparticipants had poor level of perception aboutcharacteristics of acute coronary syndrome,initial management, arrhythmias occurred at initial phase and factors may lead to ST segment elevation myocardial infarction,management, and only(42.0%) had a good perception about acute coronary syndrome categories.

Conclusion: Universally, the study population had poor level of perception aboutACS specifically myocardial infarctionwith ST segment elevationpatient.

Keywords: Acute Coronary Syndrome, Coronary care unit, Emergency room,Nurses, Perceptions, Patients.

Introduction

Acute coronary syndrome(ACS) refers to a range of potentially life-threatening conditions that affect the coronary artery blood supply to myocardium.These conditions include unstable angina, non - ST segment elevation myocardial infarction (NSTEMI) and ST segment elevation myocardial infarction (STEMI). ACS occurs due to atherosclerosis. The formation of an atherosclerotic plaque begins with low-grade inflammation the endothelial cells lining blood vessels sustain injury. They progress over time leading narrowing of the blood vessel and limiting blood flow, then rupture of an atherosclerotic plaque in the wall of a coronary artery; leading formation of a thrombus due to activation, adhesion and aggregation of platelets and the clotting systems. If completely occludes the coronary artery lead to myocardium starved of

oxygen, and necrosis. The typical ST elevation changes on an electrocardiogram .In addition, cardiac enzymes such as troponin I and T, creatinine kinase MB iso- enzyme released in the blood due myocardial cells damaged

Understanding the diagnostic approaches, as well as pharmacological and coronary interventions is crucial, given the prevalence of ACS. General priorities for patients are hemodynamic monitoring and close observation of vital signs; so is crucial to ensure all nurses caring for patients with ACS know the patients' clinical status[1,2,3,4,5].In addition, there are a number of risk factors known to predispose to the ACS. It is important for patients and providers, such nurses' practitioners, to recognize symptoms of acute coronary syndrome (ACS) promptly, timely medical treatment administered to reduce mortality and morbidity [6].

Initial therapy for ACS should focus on stabilizing the patient's condition, relieving ischemic pain, and providing antithrombotic therapy to reduce myocardial damage and prevent further ischemia. Morphine (or fentanyl) for pain control, oxygen, sublingual or intravenous (IV) nitroglycerin, soluble aspirin 162-325 mg, and clopidogrel with 300-600mg loading dose are given as initiallyand reperfusion therapy has greatest management and beneficial effects when performed soon after presentationfor acute ST-elevation myocardial infarction[7,8,9,10]. Management of patient with an acute ST-elevation myocardial infarction (STEMI) the beneficial effects of therapy with reperfusion are greatest when performed soon after presentation.

The nursing management involved in ACS is critical and systematic, and efficiency needed to implement the care for this patient.

Mostimportant aspects of care is to checks patient's signs and symptoms,vital signs ,assessment respiratorystatus , obtain 12 leads ECG , establish intravenous (IV) access and obtain serial cardiac troponin I or T levels at presentation and 3 to 6 hours after symptom onset.Takepatient's history of illness addition to a complete physical assessment to detect complications and changes in the patient's status ; then establish priorities of nursing diagnoses and plan of care, which focusing of relief of pain or ischemic signs and symptoms and reduced anxiety, attainment of adequate tissue perfusion and prevention of myocardial damage.

The nursing interventions should be anchored on the goals in the nursing care plan such as continuous cardiac monitoring,initial intervention administer oxygen to patients with arterial saturation less than 90%,relief of ischemic pain by administer sublingual NTG every 5 minutes; administer IV NTG for persistent ischemia, heart failure, or hypertension. IV morphine should avoid unless patient has an unacceptable level of pain and discontinue non-steroidal anti-inflammatory drugs (NSAIDs), except aspirin, because of increased risk of adverse cardiac events.In addition, the nurses encouragebed rest to decrease chest discomfort and dyspnea, change of positions frequently to help keep fluid from pooling in the bases of the lungs. Frequently check skin temperature and peripheral pulses to monitor tissue perfusion and monitor the patient closely for changes in cardiac rate and rhythm, heart sounds, blood pressure, chest pain, respiratory status, urinary output, changes in skin color, other complications. Check laboratory values and provide information in an honest and supportive manner[11, 12,13.]

Some complications may occur immediately following the heart attack [14, 15] sudden cardiac death (SCD) in the setting of an acute myocardial infarction (MI) is most frequently the result of a ventricular tachyarrhythmia, such as ventricular tachycardia (VT) or ventricular fibrillation (VF), in the early, elevated sympathetic tone or increase in circulating catecholamine, or an electrolyte

disturbance such as hypokalemia. In-hospital mortality approaches 20 percent or more in patients who develop VT or VF following an MI. As such, rapid identification and treatment of these arrhythmias can be lifesaving[16].

Standards care for acute and critical care nurse build upon American nursing Association (ANA); isnursing scope and standards of practice to delineate expectations in this specialty environment. Nursing process used as the framework, which includes assessment, diagnosis, outcomes identification, planning, implementation, and evaluation[17].

World health organization (WHO) statistical 2011, reported the rate of death per 100,000 due to coronary artery diseases was 238.5 in Yemen, 212.0 in Sudan, 203.7 in Bangladesh, 199.3 in Libya and 162.5 in Jordan [15]. While 114.000 people in the UK admitted to hospital with acute coronary syndrome (ACS) annually[18].

Overall, the aim of this study was to assess the perception of nurses about ACS during care of patient with St Segment elevation myocardial infarction at CCU and EM.

General objective:

To assess nurses knowledge about care of patient with ST-Segment Elevation Myocardial Infarction (STEMI)

Specific objectives:

1. Assess participants' level of knowledge aboutcharacteristic and component of the ACS.
2. To assessparticipants' knowledge about AMI (initial management, thrombolytic, dysthymias and factors that lead to delay of management).
3. To identify the effect of the training which the received on their levels of knowledge**.**

Study Method

Study design

A descriptive study with a qualitative approach. Included professional nurses who provided patients care at CCU and ER at Khartoum state, Sudan.

Study setting and population

This study conducted at five teaching public hospitals at Khartoum state. The study populations were entire nurses, who responsible and provided patient care at CCU and ER.

InclusionCriteria

The study included all nurses'form both genders,withexperience more than three months at emergency and critical care andwho employed at five teaching public hospitals at Khartoum state.

Exclusion Criteria

The study exclude all nurses who unemployed and withexperience less than three months at emergency and critical care at these hospitals.

Sampling and data collection technique

A total coverage was taken and sample size was 139 participants who fulfilled the inclusion criteria was adopted to draw the sampled nurses as the total census was less than 200 was drawn of small populations to achieve a desirable level of precision[17].Using standardized administered questionnaire as tool for data collection during interviewing of participants. The questionnaire composed of close-ended questions, some questions were multiple choice,A pilot test carried out prior data collection.

Data Analysis

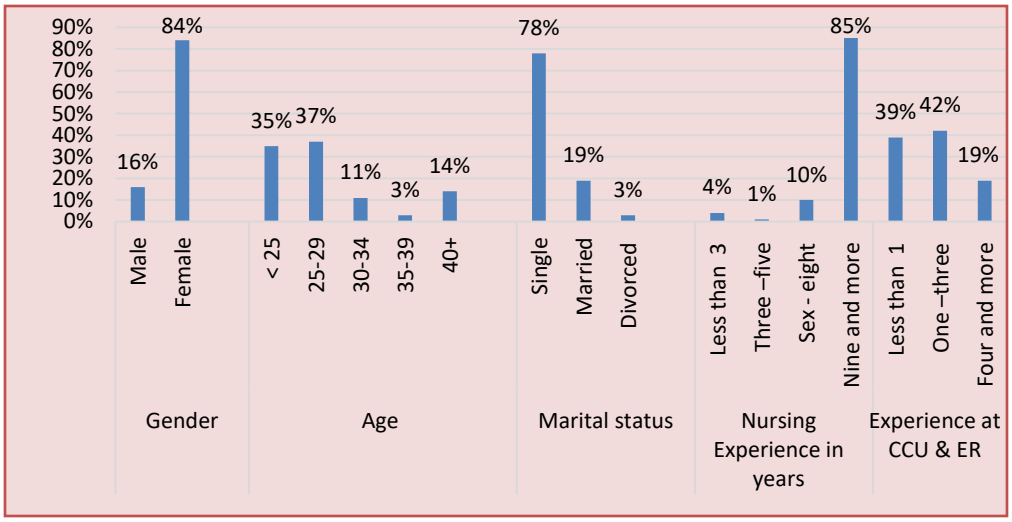
The data collected, cleaned, coded and analyzed using statistical package software (SPSS) version 19 statistical computer software program used for analysis. Descriptive statistic wastaken and an excel Microsoft program used to present data in form of graphs. Knowledge or participants analyzed based on Likert scale; modified from very poor to very

good[21].Chi-square test was used, P-value <0.005 was considered statistically significant.

Ethical considerations

An ethical consideration obtained from the institutional review board and ministry of health mangers, leaders of the hospitals as well an informed written consentsobtained fromall participants prior interviewed.

Result



Figure(I):Background and professional characteristics of the study population(n=139)

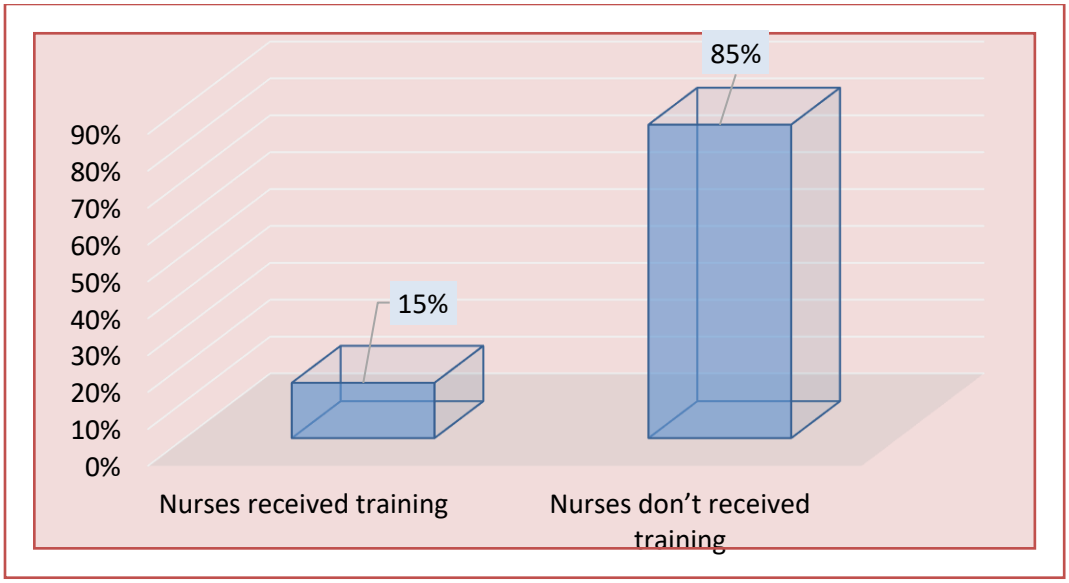
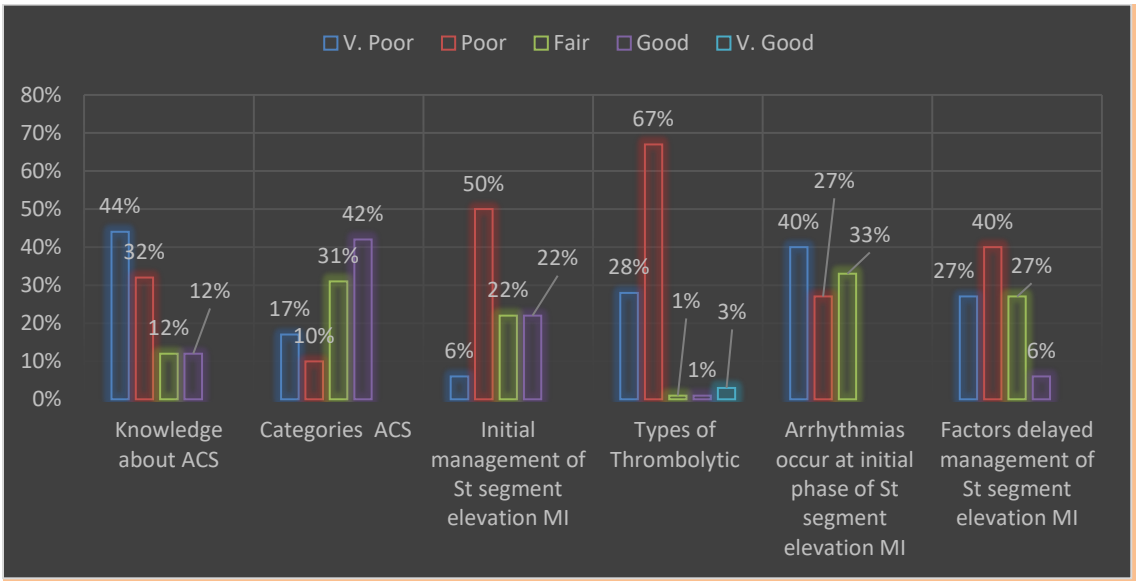


Figure II: Participants who received training about care of patient with Acute Myocardial Infarction (AMI) (n=139).



Figure(III): level ofparticipants'knowledge about acute coronary syndrome and St Segment myocardial infarction.

Table (1): Compression between Level of participants' knowledge about thrombolytic agent for management of St -Segment elevation myocardial infarction againsttrainingreceived(n=139).

Training	Level of knowledge		Total
	Good level	Very poor	
Participants who received training	43.0%	57.0%	100.0%
Participants who didn't received training	41.0%	59.0%	100.0%
Total	41.0%	59.0%	100.0%

P value = 0.517(insignificant differences)

Table (2):Compression between Level of participants'knowledge about with St- Segment elevation myocardial infarction
andtraining(n=139)

Items	Training for participants	Level of knowledge					Total	P-value
		Very poor	Poor	Fair	Good	Very Good		
Characteristics of ACS	Received training	38.0%	29.0%	19.0%	14.0%	0.0%	100.0%	0.660
	Didn't received training	45.0%	33.0%	10.0%	12.0%	0.0%	100.0%	
Component of ACS	Received training	0.0%	10.0%	14.0%	76.0%	0.0%	100.0%	0.005
	Didn't received training	20.0%	10.0%	34.0%	36.0%	0.0%	100.0%	
Initial drugs for AMI management	Received training	0.0%	38.0%	33.0%	29.0%	0.0%	100.0%	0.214
	Didn't received training	8.0%	53.0%	19.0 %	20.0%	0.0%	100.0%	
Thrombolytic types	Received training	0.0 %	85.0%	5.0%	5.0%	5.0%	100.0%	0.003
	Didn't received training	33.0%	63.0 %	1.0%	0.0%	3.0%	100.0%	
Arrhythmias occur at initial phase of AMI	Received training	20.0%	33.0%	47.0%	0.0%	0.0%	100.0%	0.042
	Didn't received training	45.0%	26.0%	29.0%	0.0%	0.0%	100.0%	
Factors lead to delay AMI management	Received training	24.0%	43.0%	33.0%	0.0%	0.0%	100.0%	0.570
	Didn't received training	28.0%	40.0%	25.0%	7.0%	0.0%	100.0%	

Discussion

This study revealed that all participants thatprovidecare of patients with St-Segment elevation myocardial infarction at (CCU) and (ER) are nurses.Mostof themwere females; their ages between (25 to 29 years),singleand have an experience in nursing science more than nine yearsand approximately half of them their nursing experience in CCU and ER between 1-3 years (Fig.I).Majority of participants did not received any training about care of patients thateffecton their level of knowledge.(Fig. II).Nevertheless, the scope of training is universally drawing the attention of specialized and academic centers to improve the quality of service provided; the evaluation and management of acute coronary syndromes intended

to define the scope of training for healthcare providers who treat patients with suspected or definite ACS within the first hours after onset of symptoms[22].

All health professionals face the daily challenge of incorporating a vast and rapidly evolving body of medical knowledge .Policy of access to evidence based clinical resources for clinicians in all settings is an important component of improved health care delivery. Enhancing access may include removal of cost barriers as well as technological barriers, such as Internet connectivity[23].

Respiratory compromise, manifested by oxygen desaturation, can occur during ACS, most often because of either acute pulmonary edema or chronic pulmonary disease. Supplementary oxygen previously considered as standard therapy for the patient suspected of ACS, even in patients with normal oxygen saturation. The rationale for oxygen therapy was a belief that maximization of oxygen saturation may improve delivery of oxygen to the tissues and thus reduce the ischemic process and related negative outcomes. In other patient groups, such as resuscitated cardiac arrest patients, hyperoxia has been associated with worse outcomes as compared with normoxia[1.24].

Regard knowledgeperception less than 50%, had good level of knowledge about categories of ACSS , and most of them their knowledgewere poor about characteristics of acute coronary syndrome, initial management, arrhythmias that occur at initial phase and factors that may lead to delay management of ST segment elevation myocardial infarction(Figure: III).As well as more than half of participants were not knew that, the thrombolyticis a drug of choice for management of St Segment elevation myocardial (Table: 1).

An illustrative study included 289 internal medicine generalists and specialists who had received board certification from the American Board of Internal Medicine (ABIM) within the previous five to 15 years and 82-questions multiple-choice exam had given. Knowledge declined over time, with a significant inverse correlation between examination scores and the number of years elapsed since ABIM certification. However, studies evaluating the relationship between clinical knowledge and experience have generally concluded that the decline in knowledgeis accompanied[21]. There are significant differences between effects of training on the level of perception among participants regard component of acute coronary syndrome (ACS), thrombolytic types and arrhythmias occur at initial phase of AMI P value <0.005. On other hand,there are insignificant differenceseffect of training on the level of perception of participants versus training about characteristics of acute coronary syndrome, initial drugs for AMI management and factors lead to delay management of St Segment elevation myocardial infarction P value>0.005 (Table: 2).

Conclusion

In conclusion, the study revealed that overall knowledge of participants were poor regard acute coronary syndrome, especially St Segment elevation myocardial. In addition,their knowledge about factors delayed management of acute myocardial infarction andinitial arrhythmias that can occurs was poor. There was insignificant differences and inverse correlation between level of knowledge and training as well as positive correlation with experience. This poor level of knowledgedid not enablethem to keep up with evolving medical knowledge which potentially serious and negativelyimpacted on quality of care and patients life.

In my opinion, the Sudanese nurses responsible, care for client patientlyand had ability to take a right decision critically at suitabletime; this group if

received small attention, continuous training and motivation they became pioneer a worldwide.

Acknowledgments

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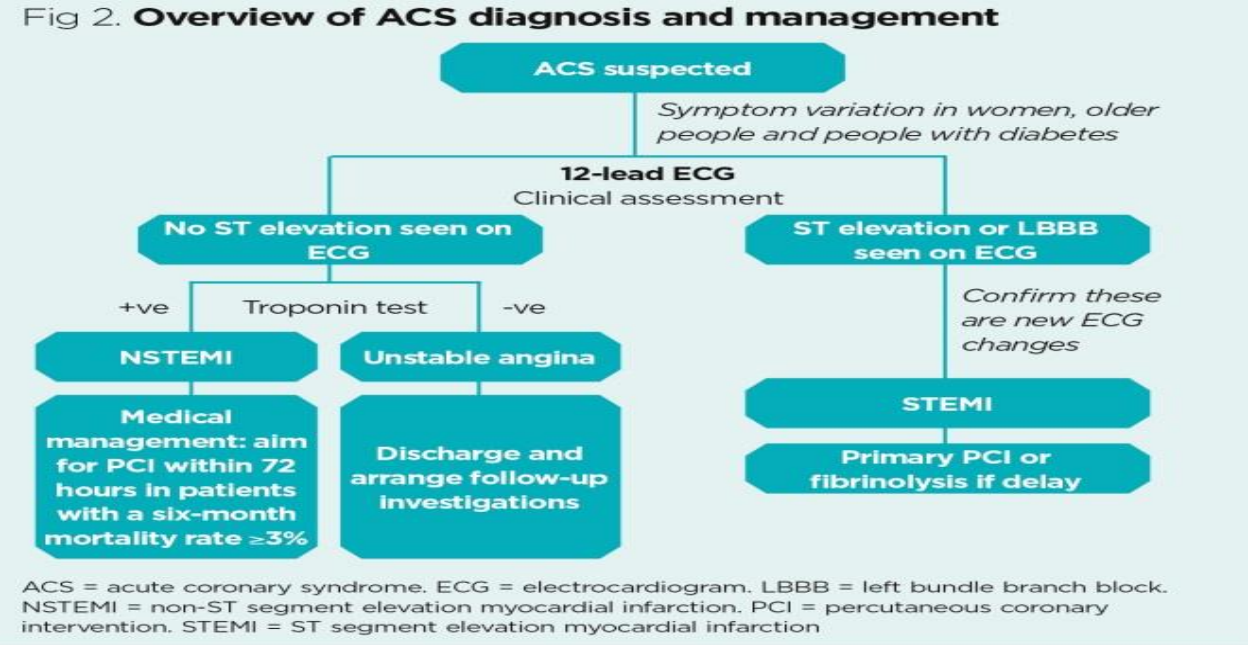
Annexes



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