

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



Shendi University



Faculty of Graduate Studies and Scientific Research

Research about:

**Assessment of Nurse's Knowledge and
Practice Regarding Care of Patient's with
Acute Coronary Syndrome in Elmak Nimer
University Hospital**

*A thesis Submitted in Requirements of Partial Fulfill for The
Master's Degree in Medical Surgical Nursing Science*

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الآيَة

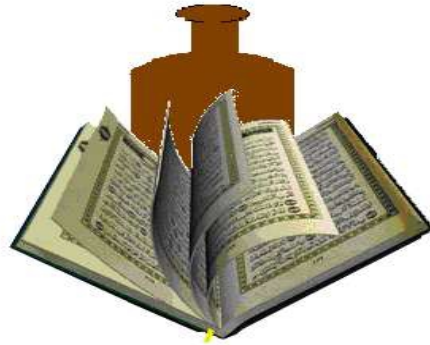
قال تعالى:-

﴿ إِنَّ فِي ذَٰلِكَ لَذِكْرَىٰ لِمَن كَانَ لَهُ قَلْبٌ أَوْ

أَلْقَى السَّمْعَ وَهُوَ شَهِيدٌ ﴾

صدق الله العظيم

سورة ق - الآية (37)



Dedication

*To the soul of my heart really you are terrific
and gentle thank you for supporting through
out the process of completing this degree*

My husband Hisham Younis

To My honor , strength, and my light,

My parents, sisters & brothers

To my children you are treasures from god and

I'm blessed

(Younis, Lamar)

To

My teachers, friends and Colleagues

To my enemies I well destroy you

Acknowledgement

*First the greatest thanks to God Almighty
Allah.*

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Dr. Sania Ahmed Mohammed Salih

*For her support, guideline and patience, thanks a lot
for her.*

*Finally I would like to thanks all of
the people who help me in this research*

List of abbreviations

Abbreviation	Term
ACS	Acute coronary syndrome
CAD	Coronary artery disease
CCU	Coronary care unit.
ECG	Electrocardiogram
ICU	Intensive care unit.
IV	Intravenous.
LA	Left arm
LDL	Low density lipoprotein.
LL	Left leg
LOC	Level of consciousness
MI	Myocardial infarction
NSAID	Non steroid anti-inflammatory drug.
NSTEMI	Non St elevation myocardial infarction.
UK	United kingdom
RA	Right arm
STMI	St elevation myocardial infarction.

ملخص البحث

متلازمة الشريان التاجي هي متلازمة سريره تشمل الذبحة الصدرية غير المستقرة واحتشاء عضلة القلب بسبب نقص الأكسجين لعضلة القلب. وبالرغم من التطور في معرفة أمراضية المتلازمة إلا أنها في ازدياد. أجريت هذه الدراسة الوصفية بمستشفى المك نمر الجامعي بمدينة شندى قى الفترة من يوليو إلى نوفمبر 2016م لمعرفة وممارسة الممرضين عن الرعاية لمرضى متلازمة الشريان التاجي الحاد. تم جمع المعلومات بواسطة استبيان يحتوى على 14 سؤال وقائمتا تحقق وتم تحليل النتائج بالحزم الإحصائية للعلوم الاجتماعية وعرضها في جداول. أظهرت الدراسة أن الغالبية العظمى من مجموعة الدراسة هم من حملة البكالوريوس وعملهم في العناية المركزة.

وأوضحت الدراسة أن معظم الممرضين لديهم معرفة جيدة عن متلازمة الشريان التاجي الحاد، ألم متلازمة الشريان التاجي الحاد، وإرشادات للمريض عن نشاطه اليومي وغذائه ومتابعته مع الطبيب. كما أوضحت الدراسة أن معظم معرفة ونشاط الممرضين ضعيفة عن تخفيف وإزالة ألم متلازمة الشريان التاجي الحاد وطرق تقليل وإزالة التوتر من المريض.

كذلك أوضحت الدراسة أن معظم الممرضين لديهم ممارسة جيدة عن جهاز مراقبة القلب كما أن الغالبية العظمى من الممرضين لديهم معرفة وممارسة جيدة عن مضاعفات متلازمة الشريان التاجي الحاد.

وأوصت الدراسة بأن على المدير الطبي، الميترن، ورئيس القسم عمل كورسات نظرية و عملية مستمرة خاصة العاملين في وحدة العناية بأمراض الشريان التاجي عن مرض متلازمة الشريان التاجي الحاد باستخدام الرسوم البيانية، ووسائل الإعلام، وورش العمل، حول مرض متلازمة الشريان التاجي الحاد.

كما انه تم توصية الميترن ورئيس قسم العناية بزيادة فترة توزيع الممرضين على وحدة العناية لمرضى الشريان التاجي الحاد لعدة شهور لزيادة التوعية عن الرعاية المقدمة لمرضى متلازمة الشريان

Abstract

Acute coronary syndrome (ACS) is clinical syndrome encompassing unstable angina& myocardial infarction ,caused by lack of oxygen to heart muscle ,management of (ACS)was improved as understanding of pathological process, behind condition has grown. this was descriptive study conducted to assess nurse's knowledge and practice about care of acute coronary syndrome disease in Elmek Nimer university hospital in Sudan Shendi city during period extended from July to November 2016. The data collected by using questionnaire and tow checklists and analyzed by statistic package for social science then presented in form of table the study showed the majority of nurses had bachelor education level and work in CCU,. Had good knowledge about definition of acute coronary syndrome, good knowledge and practice about pain assessment of ACS patient (site, onset) also most of nurses had poor knowledge and practice about reliving factors of ACS pain and reduce anxiety, and to assess nurses practice about teaching to patient for post ACS self- care(daily activity, dietary therapy, medication use, risk factors and chronic diseases, follow up care). The study showed most of nurses had good practice about application of cardiac monitoring , most of study nurses had good knowledge and practice about complication of ACS disease, the study recommended that the hospital manager, nurse director, and senior nurse to make continuous theoretical and training courses about Acute coronary syndrome by using charts, real object and media and workshop. , study recommended that nurse director and senior nurse by increasing period of rotation to CCU UNIT to improve nurses awareness about care of ACS disease.

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Chapter One

Introduction
Rational
Objectives

1.1 Introduction

Acute coronary syndromes – the clinical syndromes encompassing unstable angina and evolving myocardial infarction (MI) – are a major health care problem and result in a large number of hospital admissions each year. In recent years, management of patients with ACS has improved as understanding of pathological processes behind the condition has grown. Are a group of the conditions that are caused by a lack of oxygen to the heart muscle. These conditions may include unstable angina, non-Q wave myocardial infarction, and ST-segment elevation myocardial infarction. Patients with acute coronary syndromes are at high risk for myocardial infarction and death. ⁽¹⁾.

All manifestations of ACS carry substantial mortality risk but treatment options vary according to ECG presentation, indicating the underlying pathophysiology. Thrombolytic treatment saves lives in patients with persistent ST segment elevation or left bundle-branch block (LBBB) but appears to worsen outcomes in patients with isolated ST-segment depression therefore NSTEMI patients are not given this treatment. Guidelines for the assessment, risk stratification and treatment of patients with ACS have been published by the American College of Cardiology and the American Heart Association and the European Society of Cardiology. In England, the National Service Framework (NSF) for CHD set national standards for improved prevention and treatment. Other British countries have set similar standards for cardiac care. There are an estimated 268.000 episodes of acute myocardial infarction (AMI) in the UK each year. ^(2, 3)

In England and Wales there are an estimated 700 000 attendances at hospital emergency and accident (A&E) departments because of acute chest pain and associated symptoms. The burden on patients, the NHS and society from acute coronary syndromes (ACS) – whether confirmed or suspected – is therefore substantial. death rates from coronary heart disease (CHD) have been falling over

recent decades, mostly because of reductions in important risk factors, especially smoking. About 40% of the fall in CHD deaths in England and Wales in recent years has resulted from advances in clinical care. In patients with ACS, treatment – defibrillation, aspirin, thrombolytic treatment and secondary prevention medication – has made an important contribution. Further advances in emergency cardiac care, such as very early increasingly pre-hospital – administration of thrombolytic treatment, and increased availability of percutaneous coronary intervention (PCI) for ACS patients are expected to improve outcomes further.^(4, 5)

1.2 Rational

Acute coronary syndromes – the clinical syndromes encompassing unstable angina and evolving myocardial infarction (MI) – are a major health care problem and result in a large number of hospital admissions each year. In recent years, management of patients with ACS has improved as understanding of pathological processes behind the condition has grown. Are groups of the conditions that are caused by a lack of oxygen to the heart muscle. These conditions may include unstable angina, non-Q wave myocardial infarction, and ST-segment elevation myocardial infarction. ⁽¹⁾

Patients with acute coronary syndromes are at high risk for myocardial infarction and death, the care of patient with symptom suggestive of an ACS require a combination of clinical assessment skill and knowledge, compassion and communication and speed, Patient risk of death from arrhythmia is high in early hours from symptom onset in ACS. ⁽¹⁾

1.3 Objectives

1.3.1 General objective:

Assessment of nurse's knowledge and practice about care of the patients with ACS (acute coronary syndrome).

1.3.1 Specific objectives:

- ❖ To determine nurses knowledge and practice about assessment of pain of ACS.
- ❖ To determine nurses knowledge and practice about relief of anxiety.
- ❖ To assess nurses knowledge and practice about teaching of patient for post ACS self care.
- ❖ To assess nurses application of cardiac monitoring.
- ❖ To assess nurses knowledge and practice about complication of ACS.

2. Literature Review

2.1 Anatomy and physiology of the heart:

The heart is a hollow, muscular organ located in the center of the thorax, where it occupies the space between the lungs (mediastinum) and rests on the diaphragm. It weighs approximately 300g (10.6oz), although heart weight and size are influenced by age, gender, body weight, extent of physical exercise and conditioning and heart disease. The heart pumps blood to the tissues, supplying them with oxygen and other nutrients. The heart is composed of three layers, the inner layer or endocardium consists of endothelial tissues and lines the inside of the heart and valves. The middle layer or myocardium is made up of muscle fibers and is responsible for the pumping action. The outer layer of the heart is called the epicardium. The pumping action of the heart is accomplished by the rhythmic contraction and relaxation of its muscular wall, during systole (contraction of the muscle) the chambers of the heart become smaller as the blood is ejected, and during diastole (relaxation of the heart) the heart chambers fill with blood in preparation for the subsequent ejection. A normal resting adult heart beats approximately 60 to 80 times per minute. Each ventricle ejects approximately 70 ml of blood per beat and has an output of approximately 5L per minute.⁽⁶⁾

The four chambers of the heart constitute the right and left sided pumping system. The right side of the heart, made up of the right atrium and right ventricle distributes venous blood (deoxygenated blood) to the lungs via pulmonary artery. The right atrium receives blood returning from the superior vena cava (head, neck, and upper extremities), inferior vena cava (trunk and lower extremities) and coronary sinus (pulmonary circulation). The left side of the heart composed from left atrium and left ventricle distributes oxygenated blood to the remainder of the body via the aorta (systemic circulation). The four valves in the heart permit blood

to flow in only one direction, atrioventricular valve (the tricuspid valve) and semi lunar valve.⁽⁷⁾

The left and right coronary arteries and their branches supply arterial blood to the heart. These arteries originate from the aorta, the coronary arteries are perfused during diastole. Patients particularly those (CAD) can develop myocardial ischemia when the heart rate accelerates. The left coronary artery has three branches. The right side supplied by the right coronary artery. Superficial the coronary arteries are the coronary veins. ⁽⁷⁾

2.2 Acute coronary syndrome:

(ACS) refers to any group of symptoms attributed to obstruction of the coronary arteries. The most common symptom prompting diagnosis of ACS is chest pain, often radiating to the left arm or angle of the jaw, pressure-like in character, and associated with nausea and sweating. Acute coronary syndrome usually occurs as a result of one of three problems: ST elevation myocardial infarction (30%), non ST elevation myocardial infarction (25%), or unstable angina (38%). These types are named according to the appearance of the electrocardiogram (ECG/EKG) as *non-ST segment elevation myocardial infarction* (NSTEMI) and *ST segment elevation myocardial infarction* (STEMI). There can be some variation as to which forms of myocardial infarction (MI) are classified under acute coronary syndrome. ACS should be distinguished from *stable* angina, which develops during exertion and resolves at rest. In contrast with stable angina, unstable angina occurs suddenly, often at rest or with minimal exertion, or at lesser degrees of exertion than the individual's previous angina ("crescendo angina"). New onset angina is also considered unstable angina, since it suggests a new problem in a coronary artery. Though ACS is usually associated with coronary thrombosis, it can also be associated with cocaine use. Cardiac chest pain can also be precipitated by anemia, bradycardias (excessively slow heart rate) or tachycardia (excessively fast heart

rate). The spectrum of ACS conditions can be subdivided on the basis of clinical, ECG and biomarker release findings:

- ST elevation MI (STEMI): symptoms suggestive of acute myocardial ischemia with persistent ST-segment elevation on the 12-lead ECG, with release of markers of myocardial necrosis.
- Non-ST elevation MI (NSTEMI): symptoms suggestive of acute myocardial ischemia without persistent ST-segment elevation on the 12-lead ECG (but typically with ST-segment depression or T-wave inversion, or transient ST elevation), with release of markers of myocardial necrosis.
- Unstable angina (UA): symptoms suggestive of acute myocardial ischemia without persistent ST-segment elevation on the 12-lead ECG (but typically with ST-segment depression or T-wave inversion, or transient ST elevation), and without release of markers of myocardial necrosis.^(1, 4)

2.3 Path physiology:

ACS begins when a disrupted atherosclerotic plaque in a coronary artery stimulates platelet aggregation and thrombus formation. It's the thrombus occluding the vessel that prevents myocardial perfusion. In the past, researchers supposed that the narrowing of the coronary artery in response to thickening plaque was primarily responsible for the decreased blood flow that leads to ischemia, but more recent data suggest that it's the rupture of an unstable, vulnerable plaque with its associated inflammatory changes—,“most cases of infarction are due to the formation of an occluding thrombus on the surface of the plaque.” Myocardial cells require oxygen and adenosine tri phosphate (ATP) to maintain the contractility and electrical stability needed for normal conduction. As myocardial cells are deprived of oxygen and anaerobic metabolism of glycogen takes over, less ATP is produced, leading to failure of the sodium-potassium and calcium pumps and an accumulation of hydrogen ions and lactate, resulting in acidosis. At this point, infarction—cell death—will occur unless interventions are begun that limit or

reverse the ischemia and injury. During the ischemic phase, cells exhibit both aerobic and anaerobic metabolism. If myocardial perfusion continues to decrease, aerobic metabolism ceases and eventually anaerobic metabolism will be significantly reduced. This period is known as the injury phase. If perfusion is not restored within about 20 minutes, myocardial necrosis results and the damage is irreversible. Impaired myocardial contractility, the result of scar tissue replacing healthy tissue in the damaged area, decreases cardiac output, limiting perfusion to vital organs and peripheral tissue and ultimately contributing to signs and symptoms of shock. Clinical manifestations include changes in level of consciousness; cyanosis; cool, clammy skin; hypotension; tachycardia; and decreased urine output. Patients who have experienced an MI are therefore at risk for developing cardiogenic shock.⁽⁴⁾

In an attempt to support vital functions, the sympathetic nervous system responds to ischemic changes in the myocardium. Initially, both cardiac output and blood pressure decrease, stimulating the release of the hormones epinephrine and nor epinephrine, which in the body's attempt to compensate increase the heart rate, blood pressure, and after load, ultimately increasing myocardial demand for oxygen. As oxygen demand increases at the same time that its supply to the heart muscle decreases, ischemic tissue can become necrotic. Low cardiac output also leads to decreased renal perfusion, which in turn stimulates the release of rennin and angiotensin, resulting in further vasoconstriction.

Additionally, the release of aldosterone and antidiuretic hormone promotes sodium and water reabsorption, increasing preload and ultimately the workload of the myocardium.^(3, 4)

2.4 Mastering the concepts of preload and after load:

Will guide the nurse in understanding the pharmacologic management of ACS. Preload, the blood volume or pressure in the ventricle at the end of diastole, increases the amount of blood that's pumped from the left ventricle (the stroke

volume). Ischemia decreases the ability of the myocardium to contract efficiently; therefore, in a patient with ACS an increase in preload hastens the strain on an already oxygen-deprived myocardium, further decreasing cardiac output and predisposing the patient to heart failure. As I'll describe in further detail below, medications such as nitroglycerin, morphine, and β -blockers act to decrease preload. These medications, along with angiotensin-converting enzyme (ACE) inhibitors, also decrease after load, which is the force the left ventricle has to work against to eject blood. In myocardial ischemia, the weakened myocardium cannot keep up with the additional pressure exerted by an increase in after load. ⁽⁶⁾

2.5 Risk factors of ACS:

No modifiable factors that influence risk for coronary artery disease include age, sex, family history, and ethnicity or race. Men have a higher risk than women. Men older than age 45, women older than age 55, and anyone with a first-degree male or female relative who developed coronary artery disease before age 55 or 65, respectively, are also at increased risk. Modifiable risk factors include elevated levels of serum cholesterol, low-density lipoprotein cholesterol, and triglycerides; lower levels of high-density lipoprotein cholesterol; and the presence of type 2 diabetes, cigarette smoking, obesity, a sedentary lifestyle, hypertension, and stress. ^(2, 4)

2.6 Acute coronary syndrome include:

1- Unstable angina:

Unstable angina occurs in patients with worsening CAD and is noted by its changing pattern. Rest does not decrease the chest pain of unstable angina. This pain may even occur when the patient is at rest. The episodes of chest pain with unstable angina increase infrequency and severity, placing the patient at risk for myocardial damage or sudden death. Symptoms of angina usually occur when an artery is narrowed by at least 60% to 70%. Women may experience angina pain as chest pain, jaw pain, or heartburn or have symptoms different than those thought of

as being typical of angina. These symptoms include fatigue, nausea, and breathlessness.⁽¹⁾

2-acute myocardial infarction (MI):

Commonly known as a heart attack, results in the death of heart muscle. An MI occurs from a partial or complete blockage of a coronary artery, which decreases the blood supply to the cells of the heart supplied by the blocked coronary artery. The extent of the cardiac damage varies depending on the location and amount of blockage in the coronary artery. This is a potentially devastating condition. The ability of the heart to contract, relax, and propel blood throughout the body requires healthy cardiac muscle. When the patient has an MI, part of the heart muscle no longer functions as it should. Cardiac conduction, blood flow, and function can be dramatically altered by an MI.

Those with MIs are typically men over 40 with atherosclerosis development. Although MIs can occur at any age in men or women, women who smoke and use oral contraceptives are at greater risk for MI.⁽⁸⁾

2.7 Characteristics of pain ACS:

A-Character: substernal chest pain, pressure, heaviness or discomfort. Other sensations include a squeezing, burning.

- May produce numbness or weakness in arms, wrists or hands.
- Associated symptoms include diaphoresis, nausea, indigestion, dyspnea, tachycardia, and increase in blood pressure.

B-Location: behind middle or center of chest (sub sterna)

C-Radiation: usually radiates to neck, jaw, left shoulders, left arms, hands. Pain occurs more commonly on the left side than the right.

D-Duration:- usually lasts longer than 10 to 20 minutes is unrelieved by rest or sublingual nitroglycerin.⁽⁹⁾

2.8 Signs and symptoms of ACS according to effect systems:

Cardiovascular: chest pain or discomfort, palpitation, increased jugular vein distention if caused by heart failure, pulse deficit may indicate atrial fibrillation and ST segment and T-wave changes.

Respiratory: shortness of breath, dyspnea, tachypnea and crackles if MI has caused pulmonary congestion, pulmonary edema may be present.

Gastrointestinal: nausea and vomiting.

Genitourinary: decreased urinary output may indicate cardiogenic shock.

Skin: cool, clammy, diaphoretic, and pale appearance due to sympathetic stimulation from loss contractility may indicate cardiogenic shock.

Neurologic: anxiety, restlessness, headache, visual disturbances, altered speech and motor function and change LOC may indicate cerebral edema if patient receiving thrombolytics.

Psychological: fear with feeling of impending doom, or patient may deny that anything is wrong' ⁽⁶⁾

2.9 Diagnostic evaluation of ACS:

- Characteristics chest pain and clinical history
- The ECG and serum cardiac markers are the primary tests used to establish the diagnosis of ACS. Serum cardiac markers, proteins released from injured and necrotic heart muscle ,can be measured.
- Cardiac muscle troponins, cardiac- specific troponinT and cardiac- specific troponin I are sensitive indicators of myocardial damage. Troponins may be elevated in ACS *or may be* within normal limits if chest pain is due to unstable angina.(9)
- Creatine kinase (CK) and CK-MB(specific to myocardial muscle)levels are are likely to be within normal limit or demonstrate transient elevation, returning to normal levels within 12 to 24hours.

The ECG, particularly when done during the acute episode of chest pain, is a valuable diagnostic tool for ACS. ST-segment changes (elevation or depression) during chest pain that resolve when the pain abates usually indicate acute myocardial ischemia and severe underlying CHD.⁽⁹⁾

2.10 Management of Acute coronary syndrome:

2.10.1 Medical management:

The goals of medical management are to minimize myocardial damage, preserve myocardial function, and prevent complication. These goals may be achieved by reperfusion of the area with the emergency use of thrombolytic medications or by PCI. Minimizing myocardial damage is also accomplished by reducing myocardial oxygen demand and increasing oxygen supply with medications, oxygen administration, and bed rest. The resolution of pain and ECG change indicate that demand and supply are in equilibrium, they may also indicate reperfusion.⁽⁹⁾

2.10.2 Drug therapy:

- Nitroglycerin (nitro sat, nitro-bid): short term and long reduction of myocardial oxygen consumption through selective vasodilatation.
- Beta-adrenergic blocking agents (beta blockers): Metoprolol, Atenolol. Blocking stimulation of the heart. Anti platelet medications: aspirin (in MI 162-325mg) prevention of platelet aggregation.
- Anti-coagulants: heparin (un fractionated): prevention of thrombus formation.
- Analgesics: the analgesic of choice for MI is morphine in IV boluses to reduce pain and anxiety. It also reduces preload and after load.⁽²⁾
- Angiotensin-converting enzyme inhibitors: prevent the conversion of angiotensin I to angiotensin II, in absence of angiotensin II the blood pressure decreases and the kidneys excrete sodium and fluid (diuretics), decreasing the oxygen demand of the heart.

- Thrombolytics: to dissolve the thrombus in a coronary artery (re infusion) and contra indicated in bleeding disorder.

Nursing considerations: minimize the time of the patients skin is punctured and avoid I.M injection.

Emergent percutaneous coronary intervention.

Cardiac rehabilitation: to limit progression and effects of atherosclerosis⁽²⁾

2.11 Life style modification:

- Cessation of smoking
- Control of high blood pressure
- Lowering of blood cholesterol level
- Dietary modifications.⁽¹⁾

2.12 Complications of Acute coronary syndrome:

Numerous complications can occur and increase morbidity and mortality.

They can be roughly categorized as:

1. Electrical dysfunction.
 - Conduction disturbance.
 - Arrhythmias.
2. Mechanical dysfunction:
 - Heart failure.
 - Myocardial rupture or aneurysm.
 - Papillary muscle dysfunction.
3. Thrombotic complications:
 - Recurrent coronary ischemia.
 - Mural thrombosis.
4. Inflammatory complications.^(3, 4)

2.13 Priorities of nursing care of ACS:

- Total rest and put the patient in semi-fowler's position.
- Assess the severity, location and duration of pain (report).
- Administer oxygen.
- Establish venous access.
- Monitor vital signs (Blood pressure, heart rate, respiration, temperature).
- Obtain 12 lead ECG during pain.
- Treat pain nitrate therapy is not reliable for diagnostic purposes.
- Non-steroidal anti-inflammatory drugs other than aspirin should not be administered as they may be harmful in patients with suspected ACS.
- Anti-coagulant therapy (aspirin and I.V heparin).
- Monitor patient response to drug therapy. ⁽⁵⁾

2.13.1 Factors about pain that need to be assessed:

P: -position/ location/ provocation: assessment questions: where is the pain? Can you point to it? What were you doing when the pain began?

Q: - Quality/Quantity: assessment questions: how would you describe the pain? It is like the pain you had before? Has the pain been constant?

R: - Radiation/ Relief: assessment questions: can you feel the pain any where else? Did any thing make the pain better?

S: - Severity: assessment questions: how would you rate the pain on a 0-10 scale with 0 being no pain and 10 being the most amount of pain? (or use visual analog scale or adjective rating scale).

T: - Symptoms/ Timing: assessment questions: did you notice any other symptoms with the pain? How long ago did the pain start? ⁽⁶⁾

2.13.2 Nursing interventions for ACS:

Relieving pain and other signs and symptoms of ischemia:

Balancing myocardial oxygen supply with demand is the top priority in the care of the pt with an ACS. Oxygen should be administered along with medication therapy to assist with relief of symptom. administration of oxygen, even in low doses, raises the circulating level of oxygen to reduce pain associated with low levels of myocardial oxygen. the route of administration usually by nasal cannula ,and oxygen flow rate are documented. A flow rate of 2to4lL/min is usually adequate to maintain oxygen saturation level of 96% to100% unless chronic pulmonary disease is present.

Vital signs are assessed frequently as long as patient is experiencing pain .physical rest in bed with the backrest elevated or in supportive chair helps decrease chest discomfort and dyspnea.(6)

2.13.3 Improving respiratory function:

Regular and careful assessment of respiratory function detects early signs of pulmonary complication .the nurse monitors fluid volume status to change prevent overloading the heart and lungs and encourage the patient to breathe deeply and change position frequently to help keep fluid from pooling in the bases of the lung. Pulse oximetry guides the use of oxygen therapy.(6)

2.13.4 Promoting adequate tissue perfusion:

Bed or chair rest during the initial phase of treatment helps reduce myocardial oxygen consumption .this limitation on mobility should remain until the patient is pain free and hemodynamic ally stable. It is important to check skin temperature and peripheral pulses frequently to monitor tissue perfusion (9).

2.13.5 Reducing anxiety:

Alleviating anxiety and decreasing fear are important nursing function that reduce the sympathetic stimulation decrease the workload of the heart, which may

relieve pain and other signs and symptom of ischemia. Providing information to the patient and family in an honest and supportive manner encourages the patient to be a partner in care and greatly assists in developing a positive relationship.

Other interventions that can be used to reduce anxiety include ensuring a quiet environment, preventing interruptions that disturb sleep, using a caring and appropriate touch, teaching relaxation techniques, using humor, and providing spiritual support consistent with the patient's beliefs are other nursing interventions that can be used to reduce anxiety. Frequent opportunities are provided for the patient to privately share concerns and fears. An atmosphere of acceptance helps the patient to know that these concerns and fears are both realistic and normal. Music therapy, in which the patient listens to selected music for a predetermined duration and at a set time, has been found to be an effective method for reducing anxiety and managing stress.⁽⁹⁾

2.13.6 Monitoring and managing potential complications:

Complications that can occur after acute MI are caused by the damage that occurs to the myocardium and to the conduction system as a result of the reduced coronary blood flow. Because these complications can be lethal, close monitoring for and early identification of the signs and symptoms is critical.

The nurse monitors the patient closely for changes in cardiac rate and rhythm, heart sounds, blood pressure, chest pain, respiratory status, urinary output, skin color and temperature, sensorium, ECG changes, and laboratory values. Any changes in the patient's condition are reported promptly to the physician, and emergency measures are instituted when necessary.⁽²⁾

2.13.7 Promoting home and community –based care:

Teaching Patients Self-Care. The most effective way to increase the probability the patient will implement a self-care regimen after discharge is to identify the priorities as perceived by the patient, provide adequate education about heart-healthy living, and facilitate the patient's involvement in a cardiac

rehabilitation program. Working with patients in developing plans to meet their specific needs further enhances the potential for an effective treatment plan. ⁽²⁾

2.13.8 Patient education for ACS:

- Emphasize the importance of rest and relaxation alternating with activity and take pulse before and after activity.
- Advise eating three to four small meals per day rather than large, heavy meals.
- Teach patient about medication regimen and side effects:
 - Carry nitroglycerin at all times.
 - Place nitroglycerin under tongue at first sign of chest discomfort.
- Counsel on risk factors and life style changes.
- Design an individualized activity progression program for patient as directed and give patient specific activity guidelines with evaluation such as: walk daily gradually increasing distance and time as prescribed and avoid activities that tense muscles.
- Avoid physical exercise immediately after a meal. ⁽⁶⁾

3. Material and Methodology

3.1 Study design:

This study was descriptive, cross sectional, hospital based research.

3.2 Study duration:

Done in period extended from August to November 2016 to assess nurses knowledge and practice about acute coronary syndrome.

3.3 Study area:

The study was done in Sudan Shendi town which is located 172 Km North to Khartoum city, it is the southern part of the River Nile state, lies in the east of the River Nile and covering area of 30Km square. Most of the people in Shendi working in agriculture, simple in industrial works, employers, and trading. The town considered as center of Galieen tribe and some other tribes. There are different centers for general services, also there Shendi university with its different faculties. Shendi has two big hospitals, the teaching hospital, and Elmek Nimer university hospital.

3.4 Study setting:

Elmek Nimer university hospital was established in July 2002.and consist of the following department: theater, male/female surgery wards, male/female medicine wards, obs /gynecologic wards, pediatrics wards, laboratory, x-ray, u/s, renal part, radiation and chemotherapy, dialysis, endoscope, ICU and CCU. There are 130 nurses in the hospital.

CCU/ICU was specific setting for the study, the CCU unit composed of (13) beds,(8)beds in CCU and (5)beds in intermediate CCU, the total number of staff (17) nurses (5) of them in morning shift while (12)nurses were distributed to three groups in afternoon and night shift each group composed of (4) nurses.

ICU unit composed of(9)beds ,and total number of staff(13) nurses(4)of them in morning shift, while (9) nurses were distributed to three groups to after noon night shift each group composed of (3) nurses.

3.5 Study population:

All nurses' work in CCU, ICU in Elmek Nimer university hospital during period of study.

3.6 Sampling technique:

All nurses whom worked in CCU, ICU were enrolled in the study.

3.7 Sample size:

(30) nurses were participated.

3.8 Data collection tool:

The data was collected by questionnaire, two check lists designed by the researcher to fulfill the purpose of knowledge and practice assessment of the study based on literature review.

3.9 Layout questionnaire and checklists:

3.9.1Questionnaire:

Composed of (14) closed ended questions to fulfill the purpose of knowledge assessment of the study .The questions from(1-4) about demographic data, questions (5) about definition of acute coronary syndrome, question(6) about causes and risk factors of ACS, question(7) about cardinal clinical feature of ACS, question(8) about diagnostic test question(9) about assess patient pain with ACS question (10) about obtain ECG, question(11) about common methods used to reduce anxiety ,question(12) about common medication used, question(13) about role of nursing in management, question(14) about common complications of ACS.

3.9.2 Performance check lists:

First check list: to assess nursing practice regarding promoting health and patient self-education post acute coronary syndrome five items about health education of(dietary therapy, risk factor and chronic disease, medication use, daily activity, follow up care)three items about assessing nurses performance for(reducing pain, anxiety, and assessing and managing complication).

The second check list about cardiac monitoring application composed of three item (preparation for connection ,connection ,reading and documentation) .

3.10 Scoring system:

3.10.1 Questionnaire:

Scoring system was established by researcher which the data was distributed three categories to measure the level of nurses knowledge about ACS, if the nurse respond to (4, 3) choice it consider good knowledge, (2) choice consider fair knowledge, (1, 0) choice consider poor knowledge.

3.10.2 Performance check list scoring:

First check list:

- (1) Assessing and reducing pain(7) steps. (7 – 6 good, 5- 4 fair, 3-0 poor).
- (2) Health education about(risk factor and chronic disease ,daily activity, dietary therapy 4 steps (4 – 3 good, 2 fair, 1-0 poor).
- (3) Health education about medication use 6 steps (6 – 5 good,4 – 3 fair, 2-0 poor).
- (4) Monitoring and managing potential complication ,method used to reducing anxiety ,and health education about follow up care 5 steps (5 – 4 good, 3 – 2 fair, less than 2 poor).

Second check list cardiac monitor application:

- (1) Preparation of cardiac monitor connection, and monitoring reading and documentation: 8 steps (8 – 6 good, 7 – 4 fair, less than 4 poor).
- (2) Monitoring connection 6 steps (6 – 5 good, 4 – 3 fair, less than 3 poor).

3.11 Data collection technique:

The data was collected within one week during morning and afternoon and night shift. Every questionnaire takes 3-5 minutes and the practice check lists vary between 10 – 15 minutes.

3.12 Data analysis:

The data was analyzed by statistical package for social sciences (SPSS version 21) and presented in forms of tables and figures.

3.13 Ethical consideration:

The study was approved by ethical committee of research in faculty of graduate and scientific research, before conduction the study. Verbal Permission have been taken from original director of the hospital and then head nursing.

The researcher was explained the purpose of the study to the nurse's participant and has assured them that data collected from questionnaire and check lists will remain confidential and it is not allowed for any person to identify it.

4. Results

Table (1): Distribution of study population according to their Education level:

Education level	Frequency	Percent
Diploma	4	13%
Bachelor	20	67%
Master	6	20%
Total	30	100%

Above table illustrated that, 13% of nurses have diploma, 67% bachelor and 20% have master degree.

Table (2): Distribution of study population according to their years of Experience:

Experience level	Frequency	Percent
Less than 2 years	7	23%
2 -5 years	9	30%
More than 5 years	14	47%
Total	30	100%

Above table illustrated that, 23% of the study group were less than 2 years their experience, while 30% of them were experience 2-5 years, while 47% of them were experience more than 5 years.

Table (3): Distribution of study population according to their previous training program:

Previous training program	Frequency	Percent
Yes	13	43%
No	17	57%
Total	30	100%

Above table illustrated that, 43% of the study group had previous training program, while 57% of them had no previous training program.

Table (4): Distribution of study population according to their working department:

Department	Frequency	Percent
ICU	13	43%
CCU	17	57%
Total	30	100%

Above table illustrated that 43% of nurses working in ICU unit 57% of nurses working in CCU.

Table (5): Distribution of study population according to their knowledge about definition acute coronary syndrome:

Definition of ACS	Frequency	Percent
Unstable angina	5	16%
acute myocardial infarction	8	26%
Unstable angina and myocardial infarction	17	58%
Total	30	100%

Above table illustrated that, 16% define ACS as unstable angina and myocardial infarction, 26% unstable angina & myocardial infarction 58%.

Table (6): Distribution of study population according to their knowledge to Causes and risk factors of ACS:

Risk factors & causes	Frequency	Percent
Good knowledge	17	57%
Fair knowledge	12	40%
Poor knowledge	1	3%
Total	30	100%

Above table illustrated that 57% of nurses had good knowledge and 40% had fair knowledge and 3% had poor knowledge.

Table (7): Distribution of study population about their knowledge according to cardinal clinical feature:

Cardinal clinical feature	Frequency	Percent
Good knowledge	19	63%
Fair knowledge	11	37%
Total	30	100%

Above table illustrated that 63% of nurses had good knowledge and 37% had fair knowledge.

Table (8): Distribution of study population about their knowledge according to common diagnostic test:

Common diagnostic test	Frequency	Percent
Good knowledge	23	77%
Fair knowledge	5	17%
Poor knowledge	2	6%
Total	30	100%

Above table illustrated that 77% of nurses had good knowledge and 17% had fair knowledge and 6% had poor knowledge.

Table (9.1): Distribution of study population according to their knowledge about assess site pain of ACS:

Assess pain of ACS Site	Frequency	Percent
Center of chest (sub sterna)	21	70%
Around umbilical	2	7%
Apex	7	23%
Total	30	100%

Above table illustrated that, 70% their knowledge of ACS pain site as Center of chest (sub sterna), 7% around umbilical, 23% apex site of pain.

Table (9.2): Distribution of study population according to their knowledge about nature of ACS pain:

Nature ACS pain	Frequency	Percent
Heaviness	10	33%
Stabbling	18	60%
Tingling	2	7%
Total	30	100%

Above table illustrated that, 33% their knowledge of ACS pain nature as heaviness, 60% Stabbling, 7% Tingling.

Table (9.3): Distribution of study population according to their knowledge about onset of ACS pain:

Onset of ACS pain	Frequency	Percent
Gradually	5	17%
Sudden	23	76%
Early before other S&S	2	7%
Total	30	100%

Above table illustrated that, 17% their knowledge of ACS pain onset as Gradually, 73% sudden, 7% early before other S & S, 0% Last sing of pain onset.

Table (9.4): Distribution of study population according to their knowledge about common aggravate factor of ACS pain:

Common aggravate factor	Frequency	Percent
Good knowledge	16	53%
Fair knowledge	12	40%
Poor knowledge	2	7%
Total	30	100%

Above table illustrated that 53% of nurses had good knowledge and 40% had fair knowledge and 7% had poor knowledge.

Table (9.5): Distribution of study population according to their knowledge about reliving factor of ACS pain:

Reliving factor of ACS pain	Frequency	Percent
Bed rest	18	60%
Nitroglycerin	8	27%
Not relive with bed rest and Nitroglycerin	1	3%
Medication	3	10%
Total	30	100%

Above table illustrated that, 60% their knowledge about reliving factor of ACS pain as bed rest, 27% nitroglycerin, 3% not relive with bed rest and nitroglycerin, 10% reliving by medication.

Table (10): Distribution of study population according to their knowledge about obtaining ECG form patient of ACS pain:

Obtaining ECG form patient	Frequency	Percent
Within first 10 minutes from report chest pain	23	77%
After 2 hours from pain	4	13%
After treatment	3	10%
Total	30	100%

Above table illustrated that, 77% their knowledge about obtaining ECG form patient of ACS within first 10 minutes from report chest pain, 13% after 2 hours from pain, 10% after treatment.

Table (11): Distribution of study population according to their knowledge about common methods used to reduce anxiety of ACS.

Methods of reduction anxiety	Frequency	Percent
Good knowledge	9	30%
Fair knowledge	14	47%
Poor knowledge	7	23%
Total	30	100%

Above table illustrated that 30% of nurses had good knowledge and 47% had fair knowledge and 23% had poor knowledge.

Table (12): Distribution of study population according to their knowledge about common medication used to treat ACS patient:

Common medication	Frequency	Percent
Good knowledge	10	33%
Fair knowledge	11	37%
Poor knowledge	9	30%
Total	30	100%

Above table illustrated that 33% of nurses had good knowledge and 37% had fair knowledge and 30% had poor knowledge.

Table (13): Distribution of study population according to their knowledge about role of nursing management:

Role of nursing management	Frequency	Percent
Good knowledge	19%	63%
Fair knowledge	6%	20%
Poor knowledge	5%	17%
Total	30	100%

Above table illustrated that 63% of nurses had good knowledge and 20% had fair knowledge and 17% had poor knowledge.

Table (14): Distribution of study population according to their knowledge about common complication of ACS:

Common complication	Frequency	Percent
Good knowledge	15	50%
Fair knowledge	13	43%
Poor knowledge	2	7%
Total	30	100%

Above table illustrated that 50% of nurses had good knowledge and 43% had fair knowledge and 7% had poor knowledge.

Table no: (15): Description of study population according to their performance for health education and self promotion post ACS disease about (dietary therapy, Daily activity, Risk factor /chronic diseases, Medication, Follow-up care, Monitor/mange complication, Pain assessment, Reducing anxiety).

Items or steps	Performance scaling						Total	
	Good		Fair		Poor			
	<i>F</i>	<i>P</i>	<i>F</i>	<i>P</i>	<i>F</i>	<i>P</i>	<i>F</i>	<i>P</i>
Dietary therapy	18	60%	8	27%	4	13%	30	100%
Daily activity	16	53%	13	44%	1	3%	30	100%
Risk factor /chronic diseases	19	63%	11	37%	0	0%	30	100%
Medication	23	77%	6	20%	1	3%	30	100%
Follow-up care	21	70%	9	30%	0	0%	30	100%
Monitor/mange complication	20	67%	10	33%	0	0%	30	100%
Pain assessment	22	73%	8	27%	0	0%	30	100%
Reducing anxiety	15	50%	11	37%	4	13%	30	100%

Above table showed that the majority of study group were good performance about health education of(dietary therapy (60%), daily activity (53), risk factors (63), medication (ment, reducing anxiey, monitoring and managing ACS complication. (77) and promoting health of hospitalized ACS patient by(pain assess.

Table no (16): Description of study population according their performance about cardiac monitor(Preparation ,connection, reading ,documentation):

Items or steps	Performance scaling						Total	
	Good		Fair		Poor			
	<i>F</i>	<i>P</i>	<i>F</i>	<i>P</i>	<i>F</i>	<i>P</i>	<i>F</i>	<i>P</i>
Preparation for monitor	20	67%	8	27%	2	6%	30	100%
Monitor connection	27	90%	3	10%	0	0%	30	100%
Monitor reading / documentation	20	67%	7	23%	3	10%	30	100%

Above table illustrated that (67%) of nurses were good performance about preparation for cardiac monitor connection, while majority of them were good performance about connection, and about two third (67%) were good performance about cardiac monitoring reading and documentation. Illustrate.

Table No (17) Correlation between education level and common methods used to reduce anxiety:

Education level		Common methods used to reduce anxiety			Total	p. value
		Good	Fair	Poor		
Diploma	Count	4	0	0	4	.000
	% of Total	13.3%	0.0%	0.0%	13.3%	
Bachelor	Count	5	14	1	20	.000
	% of Total	16.7%	46.7%	3.3%	66.7%	
Master	Count	0	0	6	6	.000
	% of Total	0.0%	0.0%	20.0%	20.0%	
Total	Count	9	14	7	30	
	% of Total	30.0%	46.7%	23.3%	100.0%	

P value < 0.05

Table No (18) Correlation between education level and common medication used:

Education level		Common medication used			Total	p. value
		Good	Fair	Poor		
Diploma	Count	4	0	0	4	.013
	% of Total	13.3%	0.0%	0.0%	13.3%	
bachelor	Count	15	5	0	20	.000
	% of Total	50.0%	16.7%	0.0%	66.7%	
master	Count	0	1	5	6	.000
	% of Total	0.0%	3.3%	16.7%	20.0%	
Total	Count	19	6	5	30	
	% of Total	63.3%	20.0%	16.7%	100.0%	

P value < 0.05

Table No (19) Correlation between education and role of nursing management:

Education		Role of nursing management			Total	p. value
		Good	Fair	Poor		
Diploma	Count	4	0	0	4	.005
	% of Total	13.3%	0.0%	0.0%	13.3%	
Bachelor	Count	11	9	0	20	.001
	% of Total	36.7%	30.0%	0.0%	66.7%	
Master	Count	0	4	2	6	.000
	% of Total	0.0%	13.3%	6.7%	20.0%	
Total	Count	15	13	2	30	
	% of Total	50.0%	43.3%	6.7%	100.0%	

P value < 0.05

Table No (20) Correlation between experience level and common methods used to reduce anxiety:

Experience level		Common methods used to reduce anxiety			Total	p. value
		Good	Fair	poor		
Less than 2 years	Count	2	4	1	7	.340
	% of Total	6.7%	13.3%	3.3%	23.3%	
2 – 5 years	Count	1	4	4	9	.340
	% of Total	3.3%	13.3%	13.3%	30.0%	
More than 5 years	Count	6	6	2	14	.436
	% of Total	20.0%	20.0%	6.7%	46.7%	
Total	Count	9	14	7	30	
	% of Total	30.0%	46.7%	23.3%	100.0%	

P value > 0.05

Table No (21) Correlation between experience level and common medication used:

Experience level		Common medication used			Total	p. value
		Good	Fair	Poor		
less than 2 years	Count	5	2	0	7	.114
	% of Total	16.7%	6.7%	0.0%	23.3%	
2 -5 years	Count	4	1	4	9	.108
	% of Total	13.3%	3.3%	13.3%	30.0%	
more than 5 years	Count	10	3	1	14	.830
	% of Total	33.3%	10.0%	3.3%	46.7%	
Total	Count	19	6	5	30	
	% of Total	63.3%	20.0%	16.7%	100.0%	

P value > 0.05

Table No (22) Correlation between experience level and role of nursing management:

Experience level		Role of nursing management			Total	P- value
		Good	Fair	Poor		
Less than 2 years	Count	4	3	0	7	.250
	% of Total	13.3%	10.0%	0.0%	23.3%	
2 -5 years	Count	3	4	2	9	.232
	% of Total	10.0%	13.3%	6.7%	30.0%	
More than 5 years	Count	8	6	0	14	.726
	% of Total	26.7%	20.0%	0.0%	46.7%	
Total	Count	15	13	2	30	
	% of Total	50.0%	43.3%	6.7%	100.0%	

P value > 0.05

Table No (23) Correlation between department and common methods used to reduce anxiety:

Department		Common methods used to reduce anxiety			Total	p- value
		Good	Fair	Poor		
ICU	Count	9	4	0	13	.000
	% of Total	30.0%	13.3%	0.0%	43.3%	
CCU	Count	0	10	7	17	.000
	% of Total	0.0%	33.3%	23.3%	56.7%	
Total	Count	9	14	7	30	.000
	% of Total	30.0%	46.7%	23.3%	100.0%	

P value < 0.05

Table No (24) Correlation between department and common medication used:

Department		Common medication used			Total	p-value
		Good	Fair	Poor		
ICU	Count	13	0	0	13	.007
	% of Total	43.3%	0.0%	0.0%	43.3%	
CCU	Count	6	6	5	17	.001
	% of Total	20.0%	20.0%	16.7%	56.7%	
Total	Count	19	6	5	30	.003
	% of Total	63.3%	20.0%	16.7%	100.0%	

P value < 0.05

Table No (25) Correlation between department and role of nursing management:

Department		Role of nursing management			Total	p. value
		Good	Fair	Poor		
ICU	Count	13	0	0	13	.000
	% of Total	43.3%	0.0%	0.0%	43.3%	
CCU	Count	2	13	2	17	.000
	% of Total	6.7%	43.3%	6.7%	56.7%	
Total	Count	15	13	2	30	.000
	% of Total	50.0%	43.3%	6.7%	100.0%	

P value < 0.05

5.1 Discussion

Acute coronary syndrome is a disease characterized by reduced blood flow in coronary artery, if the patient reports pain the nurse should direct the patient to stop all activities and sit or rest in a semi-fowler's position to reduce the oxygen requirements of the ischemic myocardium. This descriptive study was conducted to assess nurses knowledge and practice regarding care of patient with Acute coronary syndrome in Elmek Nimer university hospital, CCU and ICU units, at period extended from (August to November 2016).

The study reflect that more than half (58%) of study group had good knowledge about definition of ACS this result analogical with previous study conducted at State hospital in East Texas on November-2000 by CAROL G .Price which found that 47% of respondent had adequate knowledge in their opinion regarding definition of ACS ⁽¹¹⁾.

The study showed that about more than half (57%) of study group had good knowledge about causes and risk factors of ACS, this result of adequate knowledge reflect the reason of good practice (63%) of respondent of health education to ACS patients about risk factor and chronic diseases of ACS.

The study clarified that about two third (63%) of nurses participating in the study having adequate knowledge regarding clinical feature of ACS ,and more than tow third (77%) were good knowledge about common diagnostic tests of ACS disease which affect wildly on improving nursing performance nursing assessment and care.

The present study had found that more than two third (70%) of study group assessed site of chest pain of ACS patient on sub sterna site, while more than half (60%) of study group were good knowledge regarding nature of ACS pain as (stabing) pain, and (40%) their opinion regarding nature of ACS pain as (heaviness) pain this result strong agree with literature review location of ACS on sub sterna characters of ACS pain heaviness, discomfort stabbing pain. ⁽⁹⁾

On another hand more than two third (76%) of study group had adequate knowledge about onset of ACS pain, as (sudden) pain, and more than half(53%) of study group had good knowledge about aggravating factors of ACS pain, this good result of adequate knowledge lead to improving the respondents performance about assessing and reducing pain of hospitalized ACS patients about more than tow third (73%) of study group had good performance about assessing and reducing ACS pain.

The study found that more than half (60%) of participant were having poor knowledge about reliving factors of ACS pain, this result indicate that about more than half (57%) had no previous training program or not attend sufficient courses, work shop, for staff developing about ACS disease.

The study reflected that more than two third (77%) of study group were known time of obtaining ECG from patient reporting chest pain as within first 10 minutes from reporting pain this good result reflect that high nursing performance decrease the mortality rate and improving quality of life by urgent diagnose and early intervention.

The study showed that about less than half (30%) of study group had good knowledge about methods of anxiety reduction form hospitalized ACS patient, this result accommodate with nursing performance about assessing and reduction ACS patient level of anxiety which reflect that about half(50%) of study participants were good performance about methods of anxiety reduction from hospitalized ACS patients.

The study reflected that about (30%) of study group had poor knowledge about common medication used to treats ACS patient, this result was another reason for insufficient courses and no policy programs for staff development.

The study found that about most of study group (63%) knowledgably about their nursing role regarding ACS patient, this result corresponding with their of experience because about near half (47%) of study group their years of experience

more than 5 years, and more than two thirds (67%) of the study group had their level of education as a bachelor's degree, while (20%) of them had a master's degree. These results affect positively on their nursing role regarding ACS patients.

The study clarified that about half (50%) of the study group had good knowledge about complications of ACS, this result agrees with their performance (67%) of the study group who were good practice about monitoring and managing potential complications of hospitalized ACS patients.

The present study had found that more than half (60%) of the study group had good practice of health education and self-promotion post-ACS disease about dietary therapy, while (53%) of the study group were good practice about health education and self-promotion about daily activity of ACS patients.

The study clarified that more than two thirds (77%) of respondents had adequately performed about health education to ACS patients about medication: instruction used to treat ACS, their side effect, other chronic medication used. This result agrees with some previous study which mentioned above (16% of respondents' opinion that able to provide adequately explain to their patients regarding medication used to treat ACS).

The present study reflected that more than two thirds (70%) of the study group had good performance of health education to ACS patients about follow-up care of: life style modification, medication, maintain normal ECG, Bp, lab tests, attend to cardiac refer regularly.

The study found that about more than two thirds (67%) of respondents were good performance to preparation for cardiac monitoring connection, while (90%) of the study group had adequate performance about technical connection of cardiac monitoring, and about more than two thirds (67%) of nurses had good performance about cardiac monitoring screen reading and documentation. This adequate performance helping the study group to good monitoring and assessing ACS patients.

resulting in sufficient nursing care and lowering morbidity and mortalities rate of ACS patients.

There was significant association between level of education and method of anxiety reduction (p.000), the level of education appeared significant impact (p0.001), level of education and medication used significant by (p.000) this result agree with large number of nurse with bachelor degree. years of experience had no significant (p.340) affect on the anxiety reduction scores, no significant with (p.726)on nursing role scores, also no significant with (p.830) on medication scores. Working department had highly significant affect on anxiety reduction scores with (p.000), medication used highly significant with (p.000) and working depart mint CCU, nursing roles highly significant with (p..000) and working department CCU.

5.2 Conclusion

Based on finding of presented study it was concluded that:

- Most of study group had bachelor degree and most of them work in CCU about more half of study group had knowledge about definition of acute coronary syndrome.
- About tow third of study group had good knowledge and practice about assessment of pain of ACS, knowledge about (site, nature, onset) and less than one third had fair knowledge and practice about pain assessment, more than half of study group had poor knowledge about measures to relive pain, and majority of them have good knowledge and practice about ACS complication.
- About half of study group had good knowledge and practice about method to relive ACS patient anxiety.
- The majority of study group had good practice about patient health Education for post ACS self care and promoting health post ACS disease, about tow third of study group had good practice about cardiac monitor preparation, connection, reading, documentation.

5.3 Recommendations

Based on finding and conclusion it was recommended that:

The hospital manager, have to:

- ❖ In mind an education in service program about Acute coronary syndrome by using charts, real object media and. work shop should be give to the nurses in the hospital where the study was performed to improve quality
- ❖ Increase source of information practice about important of Acute coronary syndrome (reliving factor of pain, reduction of anxiety ,scientific name of medication of ACS).

By the nurse director and senior nurses of CCU /ICU have to:

- ❖ Nurses should be trained firstly before they distributed to working in CCU mainly to under standing how to deal with ACS cases.
- ❖ Increase period of nurses working in CCU (rotation period) for several months to improve nursing awareness about care of ACS patient.

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Shendi university

Faculty of Post graduate and scientific research

Assessment of nurse's knowledge about care of patient with Acute coronary syndrome

Part (1):

1) Education level:

- a) Deploma () b) bachelor () c) master () d) PHD()

2) Experience level:

- a) less than 2years () b) 2 – 5 years () c) more than 5 years ()

3)Previous training Program:

- a) yes () b) No()

4) Department:

- a) ICU () b) CCU ()

Part (2):

5) Acute coronary syndrome can define as:

- a) unstable angina () b) acute myocardial infarction ()
c)unstable angina and myocardial infarction () d) heart failure ()

6) Causes and risk factors of ACS :

- a) chronic disease (D.M – HTN – obesity -↑ cholesterol ()
b) smoking and cocaine use () c) congenital coronary anomalies ()
d) advancing age ()

7) The cardinal clinical feature:

- a) chest pain / sub sternal/ epigastric pain ()
b) tachycardia and increase respiratory rate () c) sweating ()
d)nausea and vomiting ()

8) Common diagnostic test:

- a) ECG() b) cardiac marker (troponine + creatinine kinase C.K-MB) ()
c) echocardiogram () d) laboratory test ()

9) To assess chest pain of ACS:

9.1 Site:

- a) center of chest (substernal) () b) lower back ()
c) arround umbilical () d) Apiex ()

9.2 Nature:

- a)heaviness () b) stabbing () c)tingling () d)colic ()

9.3 Onset:

- a)gradually () b)sudden () c) 1ayear after other S & S () d)last sign ()

9.4 Common aggravate factors:

- a) physical exertion () b)stress () c)eating heavy meal ()
d) exposure to cold ()

9.5 Reliving factor:

- a) bed rest () b) Nitroglycerin ()
c) not relive with bed rest and Nitroglycerin (but gradually) ()
d) medication ()

10)Obtain ECG from patient:

- a) within first 10minutes from report chest pain ()
b) after 2 hours from pain () c) not need () d) after treatment ()

Part (3):

11) Common methods used to reduce anxiety:

- a)quiet environment () b)teaching relaxation techniques ()
c)spiritual support () d)medication ()

12) Common medication used :

- a) analgesia + anti emetic () b) nitroglycerin S/L ()
c) anti platelet and anti co-agulent () d)anti ischemic medication ()

13) Role of nursing in management :

- a) administer O₂ () b) ECG+cardiac monitoring ()
- c) pain and anxiety management ()
- d) observe medication side effect and complication ()

14) Common complication of ACS:

- a) conduction disturbance (arrhythmia – block) ()
- b) hemodynamic disturbance ()
- c) cardiovascular disease ()
- d) stroke and death ()

Check list of about nursing performance for health education & self promotion post ACS disease

s/n	Steps	Good	Fair	Poor
1	<p>Assessing & reducing pain: Regular pain assessment (location duration severity reliving & aggravating factor) self reporting pain facial expression. Monitor vital sign. Total rest & put patient on cardiac position. Administering O₂ to reduce myocardial demand. Nitrate therapy to reduce pain. Analgesia (morphine + anti emetic). Obtain ECG during pain.</p>			
2	<p>Assessing & reduction anxiety: Assess patient and anxiety level by observing for verbal & non verbal sign of anxiety. Insuring quiet environment. Teaching relaxation technique. Spiritual support consist with patient belief Provide frequent & private chance to share fear & feeling.</p>			
3	<p>Monitoring & managing potential complication Close monitor for HR, rhythm, sound, BP, chest pain, RR, urinary output, temperature, skin color, ECG change, lab test value, Report any change in patient condition Provide adequate education about ACS. Effective treatment plan.</p>			
4	<p>Nutrition: Eat diet low in saturated fat. Increase fiber diet. Decrease sodium diet to 2 g. If indicate lowering calories diet</p>			

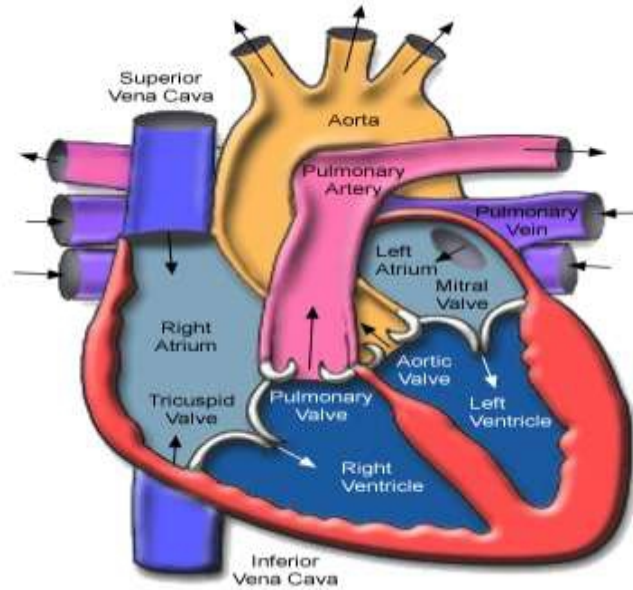
5	<p>Activity:</p> <p>Initially kept on bed rest. Increase activity gradually. Avoid weight lifting. Walking daily increase distance and time according to physican order.</p>			
6	<p>Risk factor and chronic disease:</p> <p>Asking about history of chronic disease (HTN, DM,↑ cholesterol). Asking about follow up for this disease. Smoking history, stop smoking, tobacco, avoid second and smoking (↑HR, BP, blood monoxide level). Lose the weight if obese.</p>			
7	<p>Medication:</p> <p>Take medication manly (aspirin, Beta blocker,). Carry nitro glycerin at all time. Instruction about use medication. Side effect of medication. Avoid over counter medication b/c may interfere with medication of ACS. Ask about chronic medication use.</p>			
8	<p>Follow up care:</p> <p>Achieve and maintain normal BP and BG. ECG, lab test medication. Life style modification. Call physician in any S & S (SOB, fainting,↓ HR, swelling ankle). Attend to cardiac refer regularly</p>			

Check list about cardiac monitor application

Steps	Good	Fair	Poor
<p><u>Preparation:</u></p> <ol style="list-style-type: none"> 1. Grated the patient and introduced him/her self. 2. Observe patient general condition. 3. Promote comfortable position (cardiac position). 4. Explain the procedure to the patient. 5. Maintain privacy. 6. Setup equipment (monitor machine / ECG electrode). 7. Prepare skin (shaving if need – dry). 8. Apply electrodes as recommended (RA placed on the RT sub clavicle line – LA on the LT sub clavicle line – LL placed on below the rib cage). 			
<p><u>Connecting monitor:</u></p> <ol style="list-style-type: none"> 1. Connect the cable to monitor. 2. Turn monitor on. 3. Identified the BP cuff checked it and connected it. 4. Identified the pulse oximeter and connected it. 5. Identified the temperature probe and connected it. 6. Identified the chest lead and connected it 			
<p><u>Monitor reading and Documentation:</u></p> <ol style="list-style-type: none"> 1. Commented that the screen well cleared to be read. 2. Check BP- pulse- temperature –RR- rhythm-ECG reading. 3. Tension to monitor alarm. 4. Call physician for change. 5. Thank patient / Remove glove /hand washing / Documentation 			

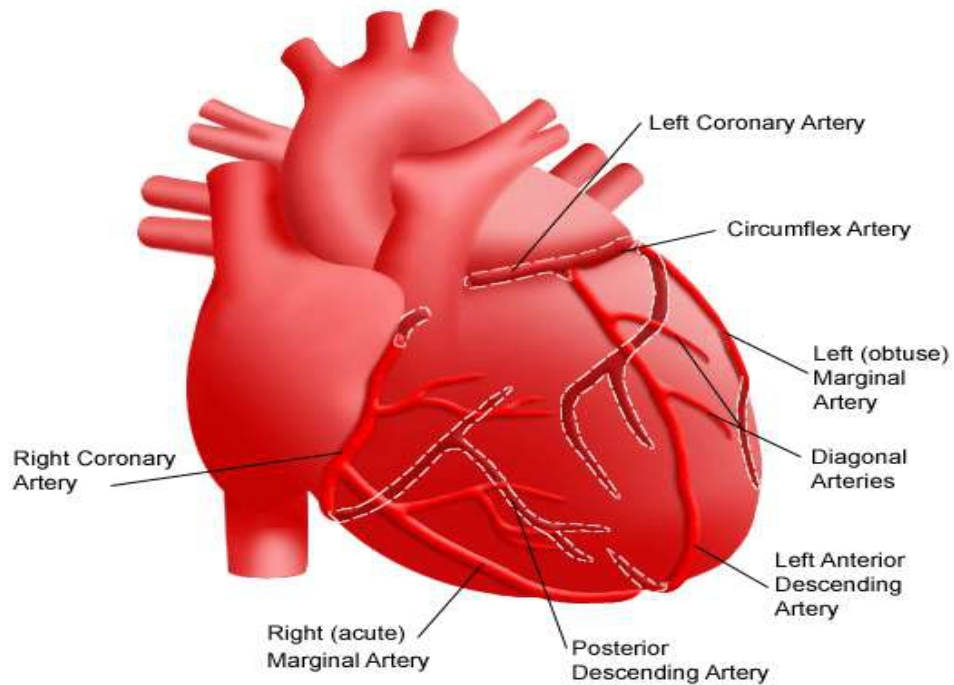
Appendix (1)

Anatomy of the heart.



Appendix (2)

Coronary Arteries of the Heart



Appendix (3)

