ATI Real Life Student Packet
N202 Advanced Concepts of Nursing
2024

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ATI Scenario: MI

To Be Completed Before the Simulation

Blue boxes should be completed using textbook information. What do you expect to find? This information should be collected before you start the ATI simulation

Medical Diagnosis: Myocardial Infarction

NCLEX IV *(8)*: Physiological Integrity/Physiological Adaptation

Anatomy and Physiology
Normal Structures

Structures and Functions of CV System
- Heart has four chambers and is composed of three layers - Endocardium (inside), Myocardium (muscle), Epicardium (outside)
  - Pericardium (the sack that surrounds the heart)- 2 layers= visceral (inside) and parietal (outside) - 10 to 15 mL in between
  - Left ventricular wall 2 to 3 times thicker than right – because it pushes to systemic circulation

Blood Flow Through the Heart
- Right side (unoxygenated): SVC (above heart) and IVC (below heart) to RA to TV to RV to PV to PA (only artery where blood is deoxygenated) to lungs (to become oxygenated)
- Left side (oxygenated): Pulmonary veins to left atrium to mitral valve to left ventricle to aortic valve to systemic circulation

Heart Valves
- Mitral, Tricuspid
  - Chordae Tendineae and Papillary Muscle (shuts valve)

Coronary Circulation *Way for the heart itself to get O2
- Left coronary artery branches: Left anterior descending and left circumflex - Supply blood to LA, LV, interventricular septum, and part of RV
- Right coronary artery branches: Supplies blood to RA, RV, part of posterior LV - AV node and bundle of His
- Coronary veins—drain into coronary sinus

Conduction System
- Specialized tissue creates and transports electrical impulse (action potential) depolarization heart muscle contraction
- SA node to interatrial pathways to atrial contraction to AV node to internodal pathways to bundle of His to left and right bundle branches to Purkinje fibers to ventricular contraction

Mechanical System
- Stroke volume (SV): Amount of blood ejected with each heartbeat
- Cardiac output (CO): Amount of blood pumped by each ventricle in 1 minute (CO = SV × HR) and normal is 4 to 8 L/min

NCLEX IV *(7)*: Reduction of Risk

Pathophysiology of Disease

Acute Coronary Syndrome
- Includes unstable angina, NSTEMI, and STEMI
- Caused by decline of once stable atherosclerotic plaque, leads to thrombus
- If partial occlusion by thrombus UA, NSTEMI and if total occlusion MI

Unstable Angina
- Chest pain that is new in onset, occurs with rest, or occurs with increasing frequency, duration or with less effort than pt's chronic stable angina - usually lasts 10 minutes or more
- May see ST depression and/or T wave inversion = ischemic changes
- Chronic can progress to unstable when pain lasts longer and doesn't go away as easy

Myocardial Infarction (MI)
- Causes: Plaque rupture, new coronary artery thrombosis, coronary artery spasm= blood can't flow through
- Abrupt stoppage of blood flow through a coronary artery that causes irreversible myocardial cell death (necrosis) (Most MIs occur in the setting of preexisting CAD)
- STEMI vs NSTEMI: Ischemia starts in subendocardium NSTEMI-non occlusive vs STEMI-complete occlusive (transmural- across the heart wall)
- Necrosis of entire thickness of myocardium takes 4 to 6 hours

STEMI - EMERGENCY!
- Occlusive thrombus
- ST elevation in leads facing the area of infarction
- Need to reopen the artery within 90 minutes of presentation

NSTEMI
- Nonocclusive thrombus
- Need cath within 12-72 hours, thrombolytic therapy not indicated
- No ST elevation and + biomarkers (- biomarkers with unstable angina)

Myocardial Infarction - Time is Tissue!
- Hypoxia in 10 seconds to heart muscle
- Can withstand for 20 minutes before cell death and irreversible heart damage (most affect LV)
- After minutes, anaerobic metabolism produces lactic acid
- Stimulates nerves to send pain messages through thoracic
- Degree of collateral circulation influences severity of MI- the more collateral circulation you have the better off you are, the longer you've had CAD the better off you are for a MI

To Be Completed Before the Simulation

Anticipated Patient Problem: Acute Pain: Chest

Goal 1: ATI will report a pain score 0 on a scale of 0-10 during my time of care.

Goal 2: ATI will have a heart rate of 60-100 bpm and a respiratory rate of 12-20 bpm during my time of care.

Relevant Assessments (Prework) What assessments pertain to your patient's problem? Include timeframes	**Multidisciplinary Team Intervention** (Prework) What will you do if your assessment is abnormal?
Assess HR, RR, SpO2, and BP continuously during treatment, PRN	Administer oxygen as ordered
Obtain ECG during chest pain symptoms, PRN	Administer nitroglycerin as ordered
Assess pain score on a scale of 0 to 10 on arrival and q5 min, PRN	Administer morphine as ordered
Assess for nonverbal cues of pain (guarding, facial expression) during care, q5 min, PRN	Administer aspirin as ordered
Assess pain goal on a scale of 0-10 q1 hour, PRN	Educate to report chest pain immediately to the nurse during time of care
Assess heart sounds on admission, PRN	Administer ACEs and beta-blockers as ordered

To Be Completed Before the Simulation

Anticipated Patient Problem: Anxiety

Goal 1: ATI will be able to verbalize the cause of their anxiety prior to discharge.

Goal 2: ATI will display signs of reduced anxiety (HR and RR WNL) and a calm demeanor prior to discharge.

Relevant Assessments (Prework) What assessments pertain to your patient's problem? Include timeframes	**Multidisciplinary Team Intervention** (Prework) What will you do if your assessment is abnormal?
Assess anxiety level on admission, PRN	Offer information and answer questions
Assess coping mechanisms during interaction, PRN	Teach distraction mechanisms (TV, reading)
Establish and maintain a trusting relationship on admission	Include in the care planning process
Asses VS (HR and RR) q4, PRN	Administer anxiolytics
Observe for nonverbal cues of anxiety (picking at fingers, biting lip) during interaction, PRN	Recognize that the patient's anxieties are valid
Assess for triggers of anxiety during time of care, PRN	Converse using simple language and brief statements

To Be Completed During the Simulation:

Actual Patient Problem: Acute pain

Clinical Reasoning: pain 8/10, "squeezing pain", HR 102, RR 24

Goal: RD will report a pain score 0 on a scale of 0-10 during my time of care. Met: X Unmet:□

Goal: RD will understand medication regimen when chest pain occurs, include one nitroglycerin tablet, 5 minutes apart for a total of three, and seeking medical attention if pain persists after administration, prior to discharge. Met: X Unmet:□

Actual Patient Problem: Decreased cardiac Output

Clinical Reasoning: STEMI, PVCs, blocked coronary artery, arterial blood pressure of 55/54

Goal: RD will maintain hemodynamic stability as evidence by UO >30mL/hr, warm and dry skill with immediate turgor, free of edema, no crackles in all lung fields, prior to discharge. Met: X Unmet:□

Goal: RD will have a decreased myocardial workload as evidence by BP 100-12-/50-80 mmHg, HR 60-100 bpm, and CO of 4-8 L/min prior to discharge. Met: X Unmet:□

Additional Patient Problems:

3. Risk of shock
4. Deficient knowledge
5. Risk for electrolyte Imbalance
6. Risk for bleeding

Below will be your notes, add more lines as needed. **Relevant Assessments:** Indicate pertinent assessment findings. **Multidisciplinary Team Intervention:** What interventions were done in response to your abnormal assessments? **Reassessment/Evaluation:** What was your patient's response to the intervention?

Patient Problem	Time	Relevant Assessments	Time	Multidisciplinary Team Intervention	Time	Reassessment/ Evaluation
1	Mon. 1725	Stated "my chest is tight" while holding onto R side of chest, started at 1655, x3 Nitro and 325mg aspirin at 1715. Stated intensity is worsening, 8/10 pain	1735	Educated on what the cardiac catheter and PTCA surgery are and answered any questions. Prepped for cardiac catheterization.	1740	HR 102, RR 24, pain 8/10
2	1730	STEMI on ECG due to a blocked coronary artery	1755	Initiate orders of potassium and creatinine levels, troponin levels, CXR, and morphine	1830	Transfered to ICU s/p stent placement in LAD coronary artery, 2L NC
1,4	1835	Laying flat in bed, eyes closed, on 2L NC	1840	Educate on splinting when needing to cough, and positioning post surgery	2100	Back from surgery, stated no pain, the "squeezing" pain from earlier is "gone"

2	2110	Stated, I am feeling a little itchy and further reports allergy to shellfish, stated cough and dyspnea, wheezing present, SpO2 87%, dusky nails, ashy skin	2120	Administered epinephrine IM, applied non rebreather at 15L, called a rapid response	2130	Anaphylaxis reversed. “I feel much better” Stated breathing better and no itching
3	2155	Stated persistent cough, SpO2 at 100% on non rebreather at 15mL	2200	Switch to NC 3L	2230	Began to perform post cardiac catheterization assessment
6	2245	Hematoma developing at puncture site, stated he felt like he was ”sitting in something wet”	2300	Applied pressure to puncture site, hematoma outlined	2300	Stated comfort in knowing that the bleeding has stopped
4,5	2305	Potassium of 3.2	2305	Administered oral potassium, educated on cardiac risk factors, including modifiable risk factors	2310	Stated no exercising, fast food x4/week
3	Wed. 1800	Map of 54, agitated and restless, and arterial blood pressure of 55/54, cold and clammy skin	1830	Increased NC to 3L, NS IVF hung, and dobutamine and norepinephrine administered	1940	Stated “I need something to help me feel better”, unable to complete sentence without trying to breathe in the middle
3	2040	BP 96/56, stated “less shaky, no dizziness or sweating anymore”	2045	Titrated norepinephrine and provide rest	Thurs. 1900	Sitting up in bed, talking to wife, BPO 124/72
4	1910	Stated “My wife and I have discussed making lifestyle changed”	1920	Educated on ways to reduce sodium and different foods with their sodium level	1930	Stated “Maggie and I are going to try” in reference to their new cooking and lifestyle at home
4	1940	Asked about the “blood thinner medication”	1945	Educated on name, use, and what to look pout for	1955	Verbalized understanding of new medication regimen

To Be Completed After the Simulation

The orange boxes should be filled out with your simulation patient's actual results, assessments, medications, and recommendations

NCLEX IV *(7)*: Reduction of Risk

Actual Labs/ Diagnostics
-ST segment elevation on EKG
-Elevated troponins
-CXR
-Creatinine Kinase MB

NCLEX II *(3)*: Health Promotion and Maintenance

Signs and Symptoms
-Chest pain of 8/10
-Tachypnea and tachycardia
-Diaphoresis
-Cool, clammy, ashy skin
-Fever

NCLEX II *(3)*: Health Promotion and Maintenance

Contributing Risk Factors
- 54 year old male
- Hx of "blocked arteries" = CAD
- HX of hypertension
- Obesity
- No exercising
- Poor diet (fast-food x4 per week)
- Hx of smoking

Therapeutic Procedures
Non-surgical
-Medication management if cath lab not available = start thrombolytics

Surgical
-cardiac catheter within 90 minutes of arrival to the ED

NCLEX IV *(7)*: Reduction of Risk

Prevention of Complications
(Any complications associated with the client's disease process? If not what are some complications you anticipate)
-Dysrhythmia
-HF
-ADHF
-Thromboemboli
-Pericarditis
-Ventricular aneurysm
-Papillary muscle rupture
-Cardiogenic shock

NCLEX IV *(6)*: Pharmacological and Parenteral Therapies

Medication Management
-Nitroglycerin x3 sublingual, 5 min apart
-Thrombolytics for STEMI within 30 minutes of arrival to ED if cath lab is not available and not contraindicated
-Aspirin
-Morphine
-ACEs
-Anticoags
-Heparin
-Glycoprotein IIb/IIIa – Integrilin
-Direct Thrombin inhibitors - Angiomax

NCLEX IV *(5)*: Basic Care and Comfort

Non-Pharmacologic Care Measures
-Continuous ECG monitoring
-IVF
-Oxygen

NCLEX III *(4)*: Psychosocial/Holistic Care Needs

Stressors the client experienced?
-Acute pain unrelieved by nitro
-Hospital visit
-Emergency procedure
-$$
-Lifestyle change needed

Client/Family Education

Document 3 teaching topics specific for this client.
• Educated on ways to reduce sodium in diet along with examples of food and their salt level
• Modifiable risk factors that can be changed to decrease risk for cardiac event
• Medication regimen at home and what to look out for

NCLEX I *(1)*: Safe and Effective Care Environment

Multidisciplinary Team Involvement
(Which other disciplines were involved in caring for this client?)
-Hospitalist
-Intensivest
-Nurse/charge nurse
-Cath lab

Patient Resources
-Reading material on lifestyle changes to help decrease risk for cardiac event
-Support group with other individuals with CAD and hypertension
-PCP for f/u

Reflection Questions

Directions: Write reflection including the following:

1. What was your biggest "take away" from participating in the care of this client?

   My biggest take away from participating in the care of this client was understanding the entire process of a client that comes in with a myocardial infarction and what happened during the entire length of their stay. I was able to watch the client at home as he was getting the pain all the way through to him leaving the hospital. I liked being able to participate in his care in all of the departments to see how he transitioned.

2. What was something that surprised you in the care of this patient?

   Something that surprised me in the care of this patient was the cariogenic shock that started to appear. First, the patent had an anaphylactic reaction to the dye that was used in the cath lab and right after he started to develop manifestations of cariogenic shock.

3. What is something you would do differently with the care of this client?

   Something I would have done differently would be to educate more while the wife was in the room. Most education was done at the end when she was present; however, some was done without her and the patient was already in a state that would not retain much as he just has an emergency procedure for a heart attack.

4. How will this simulation experience impact your nursing practice?

   This simulation experience is going to impact my nursing career because it will help me to better assess my patient and understand that something can go wrong at any time. Also, even if one thing goes wrong, that does not mean that it is the only thing that is going to go wrong.