ATI Real Life Student Packet
N202 Advanced Concepts of Nursing
2024

Student Name: _Lucy Siranides_____

ATI Scenario: _Myocardial Infarction_____

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

- Three Distinct Layers:
  1. Endocardium ➜thin innermost layer
  2. Myocardium ➜ muscular layer
  3. Epicardium ➜ outermost layer
- The heart is covered by a fibrotic sac – the pericardium.
- Two Layers (Pericardium):
  1. Visceral Layer (thin inner layer)
  2. Parietal Layer (tough fibrous outer layer)
- Pericardial fluid (10-15ml) lies between these layers to lubricate the layers and prevent friction as the heart contracts.
- Blood enters the heart through two large veins, the inferior and superior vena cava, emptying oxygen-poor blood from the body into the right atrium.
- As the atrium contracts, blood flows from the right atrium into the right ventricle through the open tricuspid valve.
- When the ventricle is full, the tricuspid valve shuts. This prevents blood from flowing backward into the atria while the ventricle contracts.
- As the ventricle contracts, blood leaves the heart through the pulmonic valve, into the pulmonary artery and to the lungs where it is oxygenated.
- The pulmonary vein empties oxygen-rich blood from the lungs into the left atrium.
- As the atrium contracts, blood flows from the left atrium into the left ventricle through the open mitral valve.
- When the ventricle is full, the mitral valve shuts. This prevents blood from flowing backward into the atrium while the ventricle

NCLEX IV *(7)*: Reduction of Risk

Pathophysiology of Disease

- Abrupt stoppage of blood flow through a coronary artery that causes irreversible myocardial cell death (necrosis).
- 80%-90% secondary to thrombus
- Most MIs occur in the setting of preexisting CAD.
- Causes → plaque rupture, new coronary artery thrombosis, coronary artery spasm
- STEMI vs NSTEMI
  - Ischemia starts in subendocardium (NSTEMI) vs STEMI (transmural)
  - Transmural = involves entire thickness of myocardium
  - Necrosis of entire thickness of myocardium takes 4 to 6 hours
  - **STEMI --** caused by occlusive thrombus; ST elevation in leads facing the area of infarction
    - **EMERGENCY!** Need to reopen artery within 90 minutes of presentation via a percutaneous coronary intervention (PCI) as first line treatment; also may use thrombolytics/ fibrinolytics (if PCI not available).
  - **NSTEMI –** Nonocclusive thrombus; NO ST elevation
    - Need catheterization within 12-72 hours; thrombolytic therapy not indicated
- **Time is Tissue!**
  - Hypoxia occurs within 10 seconds to the heart muscle in a MI and can withstand for 20 minutes before cell death.
  - Most MIs will affect left ventricle.
  - After a few minutes, anaerobic metabolism produces lactic acid.
  - During a MI, nerves become stimulated and will send pain messages through thoracic.
  - Lastly, the degree of collateral circulation influences the severity of MI.

contracts. - As the ventricle contracts, blood leaves the heart through the aortic valve, into the aorta and to the body. - The myocardium has its own blood supply, coronary circulation. - Blood flows into the two major coronary arteries occurs primarily during diastole (relaxation of the myocardium). - The left coronary artery arises from the aorta and divides into two main branches: the left anterior descending artery and left circumflex artery. - These arteries supply the left atrium, left ventricle, interventricular septum, and part of the right ventricle. - The right coronary artery also arises from the aorta, and its branches supply the right atrium, right ventricle, and part of the posterior wall of the left ventricle.		

To Be Completed Before the Simulation

Anticipated Patient Problem: Acute Pain: Chest

Goal 1: ATI will have no chest pain (report a pain score of 0/10 on a standard pain scale) 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 PQRST of pain q2hr and PRN.	Administer morphine/nitroglycerin/analgesic as ordered during my time of care.
Assess HR, BP, and RR q4hr and PRN.	Administer supplemental oxygen PRN.
Monitor nonverbal indicators of pain (i.e., facial grimacing, restlessness) q2hr and PRN.	Administer anticoagulant/antiplatelet medication as ordered during my time of care.
Monitor cardiac biomarkers for further elevation: Troponin, CK-MB, myoglobin qshift and PRN.	Educate to immediately report chest pain to healthcare personnel during my time of care.
Monitor use of relaxation techniques (i.e., deep breathing, Care Channel, etc.) during my time of care.	Cluster nursing care and encourage use of diversional activities (i.e., watching TV, reading, listening to music, etc.) during my time of care.
Monitor analgesic effectiveness q30min-1hr and PRN.	Facilitate a quiet, calm environment to promote rest during my time of care.

Goal 2: ATI will maintain HR (60-100), BP (within 10mmHg of 120/80), and RR (12-20) WNL during my time of care.

To Be Completed Before the Simulation

Anticipated Patient Problem: Decreased Cardiac Output

Goal 1: ATI will maintain a urine output ≥ 30mL/hr, absence of edema in extremities, and no shortness of breath 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?
Monitor weight qshift and strict intake and output during my time of care.	Administer diuretic medication as ordered during my time of care.
Assess HR and BP q4hr and PRN.	Administer antihypertensive medication as ordered during my time of care.
Assess SpO2, skin temperature and color, and LOC q4hr and PRN.	Administer inotropic agents as ordered during my time of care.
Monitor heart rhythm continuously.	Administer antiarrhythmic medication as ordered and educate on and maintain cardiac monitoring (telemetry) continuously.
Assess RR and lung sounds for crackles, use of accessory muscles, nasal flaring, and shortness of breath q4hr and PRN.	Administer supplemental oxygen PRN.
Assess for pitting edema in lower extremities, pulses in all extremities, and capillary refill q4hr and PRN.	Elevate lower extremities TID or as tolerated.

Goal 2: ATI will have pulse that are +2/moderate in all extremities, a capillary refill ≤ 3 seconds, and a mean arterial pressure (MAP) of ≥ 65mmHg during my time of care.

To Be Completed During the Simulation:

#1 **Actual Patient Problem:** Acute Pain: Chest Clinical Reasoning: 8/10 squeezing chest pain; MI

Goal: R.D. will have no chest pain (report a pain score of 0/10 on a standard pain scale) at time of discharge.
Met: ☐ Unmet: ☐

Goal: R.D. will maintain HR (60-100), BP (within 10mmHg of 120/80), and RR (12-20) WNL during my time of care.
Met: ☐ Unmet: ☐

#2 **Actual Patient Problem**: Decreased Cardiac Output Clinical Reasoning: blockage of coronary artery; MI; MAP 54; decreased urinary output

Goal: R.D. will maintain a urine output ≥ 30mL/hr, absence of edema in extremities, and no shortness of breath during my time of care. Met: ☐ Unmet: ☐

Goal: R.D. will have pulse that are +2/moderate in all extremities, a capillary refill ≤ 3 seconds, and a mean arterial pressure (MAP) of ≥ 65mmHg during my time of care. Met: ☐ Unmet: ☐

Additional Patient Problems:
#3 Risk for Bleeding
#4 Risk for Adverse Reaction to Iodinated Contrast Media
#5 Risk for Infection

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 & 2	DAY 1 1725	T 37.2°C, HR 106, RR 24, BP 100/66, SpO2 96% 4LNC; 8/10 pain – squeezing over heart (Wife gave him 3 doses of nitroglycerin and Aspirin 325mg at home upon onset); hx of blocked arteries	DAY 1 1725	ECG Tech performed 12-lead ECG	DAY 1 1730	ST-segment elevation
2 & 5	DAY 1 1730	ECG suggests heart attack or ST-Elevation Myocardial Infarction (STEMI); Wife asked "Can you explain this reopening a bit more?"	DAY 1 1735	Dr. Patterson educated on what a myocardial infarction is and the procedure of heart catheterization	DAY 1 1740	Verbalized understanding of procedure, risks, and complications

1, 2, & 5	DAY 1 1730	HR 102, RR 22, BP 98/60, SpO2 96% 4LNC; 8/10 pain	DAY 1 1730	Inserted 18 gauge 1.5 inch angiocatheter w/ saline lock	DAY 1 1730	Saline lock IV access device flushed w/ 0.9% sodium chloride 12mL, no difficulties
1, 2, 3, & 5	DAY 1 1750	HR 100, RR 22, BP 102/58, SpO2 96% 4LNC; 8/10 pain; Potassium 3.6; CXR: No fluid or pneumothorax; heart is situated in the anterior chest under the sternum w/ no enlarged heart shadows; no rib fractures or tumors; aorta and aortic arch has calcification and appears intact w/ no dilation of artery	DAY 1 1745	Placed on continuous telemetry monitoring; off floor to cardiac cath lab	DAY 1 2000	Percutaneous transluminal coronary angioplasty (PTCA) w/ stent placement in the L anterior descending coronary artery, no complications
1, 3, & 5	DAY 1 2100	[To ICU from cardiac cath lab] Indwelling urinary catheter intact, draining clear yellow urine; R neck CVP catheter intact w/ opaque dressing, scant amount of red drainage around insertion site	DAY 1 2100	Administered 0.9% sodium chloride 250mL to maintain arterial line patency using pressure bag; Applied 2LNC; Administered 0.9% sodium chloride 1000mL at 250mL/hr IV	DAY 1 2100	Denies pain or SOB; reports irritating cough and nasal congestion; arterial line L radial artery intact w/ opaque dressing, no drainage noted; vascular closure device to R groin puncture site, dressing clean, dry, no bleeding or hematoma noted
1 & 2	DAY 1 2100	T 36°C, HR 96., RR 14, BP 112/66, SpO2 98% 2LNC, arterial blood pressure 114/70, CVP 10; 0/10 pain	DAY 1 2100	Maintained continuous telemetry monitor	DAY 1 2100	Sinus rhythm w/ occasional PVCs
4	DAY 1 2100	Stated “I am feeling itchy over my arm and chest…I ate shrimp one time, my tongue swelled;”	DAY 1 2100	Administered Diphenhydramine 25mg IV bolus; increased oxygen to 15L non-rebreather; called	DAY 1 2120	HR 116 (tachycardia w/ PVCs), RR 32, BP 155/98, SpO2 87% 15L non-rebreather,

		c/o coughing, nasal congestion, and SOB		provider and rapid response team		intermittent strider, skin ashen, nail beds dusky, feeling distressed
4	DAY 1 2120	Allergic reaction to contrast dye from cardiac cath procedure; no improvement from Diphenhydramine or increased oxygen	DAY 1 2130	Administered Epinephrine 0.3mg IM	DAY 1 2200	HR 88 (NSR w/ PVCs), RR 14, BP 108/74, SpO2 100% 3LNC; voided 125mL; stated “I feel much better. I’m breathing much better and I don’t itch anymore.”
3 & 4	DAY 1 2200	Stated “But I still have this nagging cough.”	DAY 1 2200	Educated on keeping R leg straight and applying pressure to R groin puncture site to prevent dislodging of clot when coughing and to inform other providers of shellfish/contrast allergy in the future	DAY 1 2200	Stated “OK. I’ll make sure I remember that.”
3 & 5	DAY 1 2205	R groin puncture site is dressed w/ gauze and a transparent bandage, there is a 7.62cm (3inch) hematoma and gauze is saturated w/ bright red blood	DAY 1 2205	Applied pressure to R groin puncture site for 10 minutes; outlined hematoma	DAY 1 2230	R groin puncture site bleeding stopped; hematoma is 6inch
3 & 5	DAY 1 2300	HR 74 (NSR w/ PVCs), RR 12, BP 112/72, SpO2 99% 3LNC; Potassium ↓ 3.2; voided 175mL; R femoral pressure dressing clean and dry	DAY 1 2305	Administered Potassium 20mEq PO; Provided/ educated on cardiac risk factors	DAY 1 2310	Verbalizes understanding of need to modify diet and implement exercise regimen, stated “I did stop smoking a month ago.”
2	DAY 2 1940	HR 96 (tachycardia w/ PVCs), RR 12, BP 80/52, SpO2 99% 3LNC, arterial blood pressure 78/52, CVP 7; skin cold and clammy; restless and	DAY 2 1950	Administered 0.9% sodium chloride 1000mL 250mL/hr IV; administered Dobutamine 250mg 16.5mL/hr IV continuous bolus	DAY 2 2010	HR 58 (sinus brady), RR 12, BP 78/56, SppO2 96% 4LNC; voided 42mL

		agitated; MAP 54; voided 48mL				
2	DAY 2 2015	HR 58 (sinus brady), RR 12, SpO2 96% 4LNC, arterial blood pressure 88/58, CVP 7; damage to portion of L ventricular myocardium → L sided HF	DAY 2 2010	Administered Norepinephrine 4mg 0.5mcg/min continuous IV bolus	DAY 2 2040	Stated "I'm less shaky and I'm not as dizzy or sweating anymore;" HR 64 (NSR w/ PVCs), RR 14, SpO2 96% 2LNC, arterial blood pressure 96/56, CVP 9
2, 3, & 5	DAY 3 1900	T 36.8°C, HR 68 (NSR), RR 12, BP 124/72, SpO2 98% RA; voided 250mL; R femoral pressure dressing clean and dry	DAY 3 1915	Educated on lifestyle changes and medication administration prior to transfer to cardiac step-down unit	DAY 3 1915	Stated "Maggie and I have been talking about lifestyle changes to start when I leave…I will reduce my sodium intake to 1500mg a day."
3	DAY 3 1920	Stated "Can you tell me more about the blood thinner medication?"	DAY 3 1920	Educated on the antiplatelet, Clopidogrel, and how it works to prevent clotting of the new coronary artery stent and possible complications	DAY 3 1925	Verbalized that he will take both the Clopidogrel and Aspirin for the prescribed amount of time after discharge
Discharged to Cardiac Step-Down Unit						

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
- **ECG: ST-Segment Elevation**
- **Troponin T 0.2, 0.4, 0.6ng/mL**
- **Troponin I 0.06, 0.07, 0.08ng/mL**
- **Potassium: 3.6, 3.2**
- Creatine Kinase MB (CK-MB)
- Myoglobin
- **Cardiac cath**
- ECHO
- **CXR: calcification of aorta, causing left ventricular heart damage**

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

Signs and Symptoms
- **Pain (heaviness, constriction, tightness, burning, pressure, or crushing in chest/back/epigastric/neck/jaw/ arm/shoulder)**
- **Diaphoresis**
- **Vasoconstriction of peripheral blood vessels → ashen, clammy, and/or cool to touch skin**
- **Early: ↑ HR and BP; later: ↓ BP, ↓ CO**
- **Crackles in lungs**
- JVD
- S3 or S4, murmur
- **N/V**
- Fever

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

Contributing Risk Factors
- **Smoking**
- Coronary artery disease (CAD)
- **Obesity**
- Diabetes
- Hypertension
- Endocarditis
- **Hx of MI**
- **High LDL levels**
- **Sedentary lifestyle**
- Family hx of MI
- Substance abuse

Therapeutic Procedures

Non-surgical
- **Morphine, Oxygen, Nitroglycerin, Aspirin (MONA)**

Surgical
- **Cardiac cath**
- Coronary artery bypass graft (CABG)
- Intra-aortic balloon pump
- Ventricular assist device
- Minimally invasive direct CAB (MIDCAB)
- Transmyocardial laser revascularization

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)
- **Arrhythmias**
- **Heart failure**
- **Cardiogenic shock**
- Papillary muscle dysfunction/rupture
- Left ventricular aneurysm
- Ventricular septal wall rupture, left ventricular free wall rupture
- Pericarditis
- Dressler Syndrome
- **Acute pulmonary edema**
- Thromboembolism

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

Medication Management
- **Morphine IV**
- **Oxygen**
- **Nitroglycerin Sublingual**
- **Aspirin PO**
- **Clopidogrel PO**
- **Lisinopril PO**
- **Norepinephrine IV**
- **Epinephrine IV**
- **Dobutamine IV**
- Beta blockers
- Statins

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

Non-Pharmacologic Care Measures
- **Nutritional Therapy**
- Chaplin
- **Education**

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

Stressors the client experienced?
- **Lifestyle change**
- **Pain**
- Financial concerns
- Recurrent MI
- Anxiety

Client/Family Education

Document 3 teaching topics specific for this client.
- **Adhering to medication regimen**
- Signs and symptoms of MI
- **Lifestyle changes (i.e., smoking cessation, diet)**

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

Multidisciplinary Team Involvement

(Which other disciplines were involved in caring for this client?)
- **Cardiologist** - Case management
- **Pharmacy** - **Primary care physician**
- **Radiology** - Hospitalist

Patient Resources
- Cardiovascular support groups
- **Support system (family/friends)**
- Cardiac rehabilitation

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 Mr. Davis is "time is tissue." Both Mr. Davis and his wife, Maggie, acted quickly when they realized that the 3 doses of nitroglycerin were not relieving his chest pain. They got to the hospital in a timely manner (within 30 minutes of the onset of chest pain) and were able to begin the cardiac catheterization within 30 minutes after arrival. This showed how important it is to have knowledge of the time sensitivity regarding chest pain. Mr. Davis, Maggie, and the healthcare team were able to achieve the best outcome for the situation because of their timely reactions.

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

   Something that surprised me in the care of Mr. Davis was when he said to his nurse that he had felt like he was sitting in something wet, but did not check his puncture site or call a healthcare team member to ask what he was feeling. Mr. Davis stated this after his nurse informed him that a hematoma had formed and required pressure to be held to stop the bleeding. This conveyed how important both educating clients of signs of bleeding from puncture site after a cardiac catheterization and frequent assessments of the site is. It is possible that Mr. Davis would not have alerted anyone of this feeling and if the nurse was not so diligent with his care and assessments of Mr. Davis, the outcome could have been poor.

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

   Something I would have done differently with the care of Mr. Davis is as the nurse and/or provider ask Mr. Davis about any knowledge of reactions or allergies to shellfish or contrast dye (if he had received it before). The situation required the healthcare team to move quickly, however the delayed anaphylactic reaction to the contrast dye should have and could have been avoided by taking a brief moment of time to ask a question. Even though Mr. Davis had allergies listed in the EMR, it is very important to ask about and confirm allergies, regardless. If the nurse or provider had asked Mr. Davis about a reaction to shellfish, the reaction could have been avoided.

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

   This simulation experience will impact my nursing practice by serving as an example of how to work collaboratively with all members of the healthcare team in a timely manner. Mr. Davis had 90 minutes from the start of his chest pain to receive a cardiac catheterization to preserve his heart's tissue and function. Between EMS, the ECG tech, the nurses, radiology, and the provider, they were able to accomplish a thorough workup and assessment of Mr. Davis so they could best provide care for a favorable outcome. As a nurse, it is crucial to acknowledge that you understand your responsibilities in a given situation, and if you do not, to ask for help or allow others to assume the responsibility so it may be done correctly. With this scenario, for example, the patient cannot afford to lose time to mistakes or the inability to work as a team.