N431 Care Plan # 2

Lakeview College of Nursing

Name; Destiny Bell

Demographics (3 points)

Date of Admission 4-19-2024	**Client Initials** N.K	**Age** 76 years old	**Gender** Male
Race/Ethnicity Cambodian	**Occupation** Unknown	**Marital Status** Divorced	**Allergies** Baclofen; Hallucinations Lisinopril; cough Opioids-Morphine analogues; Hallucinations
Code Status Full code	**Height** 160 cm 5ft 3 in	**Weight** 73kg 160lb 15oz	

Medical History (5 Points)

Past Medical History:

- Allergic rhinitis; no known date
- Anemia; no known date
- Coronary artery disease; DES in 2014
- Diabetes mellitus, type 2; no known date
- Diffuse pulmonary alveolar hemorrhage; April 2023
- ESRD on hemodialysis; no known date
- Gout; 2017
- Heart Failure with reduced ejection fraction; no known date
- Hypertension; no known date
- Hyperlipidemia; no known date
- Myocardial infarction; May 2014
- Pacemaker; April 2022

- Pulmonary embolism; April 2017
- Septic arthritis of the right shoulder; no known date

Past Surgical History:

- Stent-coronary-native: May 2014
- Cardiac catheterization; May 2014
- Left vein surgery; 3/8/2022.
- IR tunneled dialysis catheter insertion; 4/27/2022
- IR US venous access; 4/27/2022.
- Lead revision; 5/2/2022
- Left pacemaker insertion; 4/29/2022.
- Pericardiocentesis; 4/29/2022.
- AV Fistulagram; 8/10/2022.
- IR US venous access; 8/10/2022.
- EGD/Colonoscopy; 2/17/2023.
- Pacemaker removal; 2/23/2023.
- IR non-tunneled dialysis catheter insertion; 2/24/2023.
- IR US venous access; 2/24/2023.
- Bronchoscopy; 3/30/2023.
- Filter placement; 4/29/2023.
- Left heart catheterization; 5/25/2023.
- PTCA/Stent; 5/31/2023.
- Impella assist device; 5/31/2023.
- Atherectomy-coronary-native; 5/31/2023.

- AV Fistulagram; 7/31/2023.

Family History:

- Cardiac disorders; mother
- No other pertinent family history is available.

Social History (tobacco/alcohol/drugs including frequency, quantity and duration of use):

- The patient denies any current tobacco use but is a former smoker of 0.5 days for the past 10 years. He quit smoking in May of 2013.
- The patient denies any alcohol or recreational drug usage.

Assistive Devices: N/A

Living Situation: Lives at home by himself.

Education Level: Highschool diploma

Admission Assessment

Chief Complaint (2 points): Chest pain and shortness of breath.

History of Present Illness – OLD CARTS (10 points):

N.K is a 76-year-old Cambodian male who presented to Carle Foundation Hospital with a chief complaint of worsening chest pain and shortness of breath. The patient has a past medical history of coronary artery disease with a stent placement and has now developed multivessel disease. The patient has hypertension, recurrent VTE, and a history of myocardial infarction. He denies any complaints of a cough, chills, or nausea and vomiting. The patient's daughter states that the patient was hypotensive with a systolic blood pressure in the 70's at home which resolved without any interventions.

Primary Diagnosis

Primary Diagnosis on Admission (2 points): N-STEMI/ Myocardial Car

Secondary Diagnosis (if applicable): N/A

Pathophysiology of the Disease, APA format (20 points): Acute myocardial infarction is defined as an ACS that occurs when the heart endures prolonged ischemia without recovery (Capriotti, 2020). Myocardial infarctions can be classified in two different ways based off the ECG findings, either STEMI or NSTEMI (Capriotti, 2020). Our patient, N.K., is experiencing an NSTEMI. A NSTEMI is indicative of the MI is subendocardial and not completely through the heart wall, whereas a STEMI is completely through (Capriotti, 2020). Acute myocardial infarction occurs due to an obstruction of the coronary artery either resulting from atherosclerotic plaque or clots thus blocking blood flow carrying oxygen into the myocardium (Capriotti, 2020). However, an MI can also occur when there is an increase in the myocardial metabolic demands such as in a case of severe hypertension or aortic valve stenosis (Capriotti, 2020). Some specific potential causes of an NSTEMI include hypertension, tobacco use, diabetes, obesity, and family history (Basit et al., 2023).

An individual experiencing a myocardial infarction can present with many varying symptoms or may be asymptomatic. Some common signs and symptoms that we may see in a patient experiencing an MI are dyspnea, anxiety, chest pain that radiates to the arm, shoulder, jaw, or back, weak pulses, diaphoresis, nausea and vomiting, and Levine's sign (Capriotti, 2020). A patient experiencing an MI may also exhibit signs such as increased respiratory rate, respiratory distress, low blood pressure, and decreased level of consciousness (Capriotti, 2020). The patient presented to the ED with a chief complaint of worsening chest pain and shortness of breath. The patient's daughter also stated upon admission to the ED that the patient was

hypotensive at home. Some common risk factors for ACS include male sex, older age, diabetes, coronary artery disease, and renal insufficiency (Basit et al., 2023). The patient would be at risk since he has a past medical history of diabetes mellitus, coronary artery disease, and male gender. When a patient presents with chest pain there are many things a nurse can utilize during her evaluation of the patient. The nurse can obtain history on the patient, labs such as cardiac biomarkers like troponin, and an ECG (Basit et al., 2023).

Myocardial infarctions can be diagnosed through many different diagnostic tests and labs. One diagnostic procedure used to aid in diagnosing a myocardial infarction is the use of an ECG (Capriotti, 2020). The finding of ST elevation or ST depression on an ECG can indicate ACS, however the ECG can not be used by itself to confirm an MI (Capriotti, 2020). Blood tests such as CPK-MB and Troponin are used to confirm a diagnosis of MI (Capriotti, 2020). CPK-MB levels tend to rise within 4 hours after an MI and Troponin levels rise around 4 to 8 hours after the onset of chest pain (Capriotti, 2020). Another diagnostic test that can be utilized is a cardiac CT scan. The patient had multiple ECG's done as well as labs and a CT scan. The main focus of treatment for an acute MI is to reestablish blood flow to the heart (Capriotti, 2020). Initial management strategies include the use of oxygen, aspirin, and nitrates (Basit et al., 2023). When there is a confirmed diagnosis of an NSTEMI, the patient should be started on started on anticoagulation therapy (Basit et al., 2023). The patient was started on a heparin infusion.

Pathophysiology References (2) (APA):

Basit, H., Malik, A., & Huecker, M. R. (2023, July 10). *Non–st-segment elevation myocardial infarction*. StatPearls [Internet]. https://www.ncbi.nlm.nih.gov/books/NBK513228/

Capriotti, Theresa M. "Davis Advantage for Pathophysiology: Introductory Concepts and Clinical Perspectives" 2nd ed. (2020). *F.A Davis Company.*

Laboratory Data (15 points)

CBC Highlight All Abnormal Labs—Explanations must be in complete sentences and contain in-text citations in APA format.

Lab	Normal Range	Admission Value	Today's Value	Reason for Abnormal Value
RBC	4.10-5.70 10 ^ 6/ uL	2.46	2.71	Decreased red blood counts can be caused by a chronic illness. Decreased levels can also be caused by anemia or dietary deficiency (PhD Rn & Facs, 2021).
Hgb	12.0-18.0 g/dL	7.9	8.7	Decreased levels could be a sign of hemorrhage or bleeding, the patient received 2 units of blood in the ER prior to coming to the floor (PhD Rn & Facs, 2021).
Hct	37.0-51.0 %	25.4	27.0	Decreased hematocrit levels can be related to dietary deficiency, anemia, or hyperthyroidism (PhD Rn & Facs, 2021).
Platelets	140-400 10^3 u/l	360	308	
WBC	4.00-11.00 10^3/uL	11.38	10.83	Patient is taking allopurinol and heparin which can cause increased levels, but the patient has recently experienced a lot of stress and trauma also which can increase WBC count. (PhD Rn & Facs, 2021).
Neutrophils	1.60-7.70 10^3/uL	9.41	n/a	Patient has recently experienced a lot of stress and trauma which can increase neutrophil count. (PhD Rn & Facs, 2021).
Lymphocytes	1.00-4.90 10^3/uL	0.76	n/a	Could be a result of medications that the patient is taking or possible sepsis (PhD Rn & Facs, 2021).
Monocytes	0.00-1.10 10^3/uL	1.03	n/a	
Eosinophils	0.00-0.50 10^3/uL	0.10	n/a	
Bands	0.0-10.0%	n/a	n/a	

Chemistry Highlight All Abnormal Labs—Explanations must be in complete sentences and contain in-text citations in APA format.

Lab	Normal Range	Admission Value	Today's Value	Reason For Abnormal
Na-	136-145 Mmol/L	137	N/A	
K+	3.5-5.1 Mmol/L	4.6	N/A	
Cl-	98-107 Mmol/L	94	N/A	
CO2	22.0-29.0 Mmol/L	26.0	N/A	
Glucose	74-100 Mg/dL	223	N/A	Patient is a type 2 diabetic which can cause increased levels (PhD Rn & Facs, 2021).
BUN	8-26 Mg/dL	45	N/A	Patient is currently admitted for a myocardial infarction which can cause increased BUN levels (PhD Rn & Facs, 2021).
Creatinine	0.70-1.30 Mg/dL	6.64	N/A	
Albumin	3.4-4.8 g/dL	3.1	N/A	Low albumin levels can be a sign of liver disease, cirrhosis, or GI malabsorption (PhD Rn & Facs, 2021).
Calcium	8.9-10.6 Mg/dL	9.5	N/A	
Mag	1.6-2.6 Mg/dL	2.2	N/A	
Phosphate	N/A	n/a	n/a	
Bilirubin	0.2-1.2 Mg/dL	0.5	N/A	
Alk Phos	40-150 u/l	280	N/A	Patient is taking allopurinol which can result in elevate levels of alkaline phosphate in the blood (PhD Rn & Facs, 2021).
AST	5-34 U/L	39	N/A	Patient is on an anticoagulant and antihypertensive medications which can cause increased AST levels (PhD Rn & Facs, 2021).
ALT	0-55 U/L	40	N/A	

Amylase	23-85 U/L	n/a	n/a	
Lipase	0-160 U/L	n/a	n/a	
Lactic Acid	0.5-2.0 Mmol/L	n/a	n/a	
Troponin	0-4 Ng/mL	20.360	24,309	Patient is currently admitted with a myocardial infarction (NSTEMI) which can cause elevated troponin levels (PhD Rn & Facs, 2021).
CK-MB	N/A	n/a	n/a	
Total CK	22-269 u/L	n/a	n/a	

Other Tests Highlight All Abnormal Labs—Explanations must be in complete sentences and contain in-text citations in APA format.

Lab Test	Normal Range	Value on Admission	Today's Value	Reason for Abnormal
INR	0.9-1.1 ratio	1.3	N/A	Patient is taking allopurinol which can cause increased levels (PhD Rn & Facs, 2021).
PT	11.7-13.8 seconds	16.2	N/A	Patient is on heparin which can result in an increased PT time (PhD Rn & Facs, 2021).
PTT	22.4-35.9 seconds	48.8	n/a	Patient is on heparin which can cause elevated PTT times (PhD Rn & Facs, 2021).
D-Dimer	N/A	n/a	n/a	
BNP	0-99 Pg/ml	n/a	n/a	
HDL	40-59 Mg/dl	n/a	n/a	
LDL	<100 Mg/dl	n/a	n/a	
Cholesterol	<200 Mg/dl	n/a	n/a	
Triglycerides	<150 Mg/dl	n/a	n/a	
Hgb A1c	4-5.6 Mmol/L	n/a	n/a	

	Non-diabetic			
TSH	0.270-4.200 Miu/L	n/a	n/a	

Urinalysis Highlight All Abnormal Labs—Explanations must be in complete sentences and contain in-text citations in APA format.

Lab Test	Normal Range	Value on Admission	Today's Value	Reason for Abnormal
Color & Clarity	Clear and Yellow	N/A	N/A	
pH	4.5-9	N/A	N/A	
Specific Gravity	1.005-1.035	N/A	N/A	
Glucose	NEG	N/A	N/A	
Protein	NEG	N/A	N/A	
Ketones	NEG	N/A	N/A	
WBC	0-25 U/L	N/A	N/A	
RBC	0-20 U/L	N/A	N/A	
Leukoesterase	NEG	N/A	N/A	

Arterial Blood Gas Highlight All Abnormal Labs—Explanations must be in complete sentences and contain in-text citations in APA format.

Test	Normal Range	Value on Admission	Today's Value	Explanation of Findings
pH	**N/A**	**N/A**	**N/A**	
PaO2	**N/A**	**N/A**	**N/A**	
PaCO2	**N/A**	**N/A**	**N/A**	
HCO3	**N/A**	**N/A**	**N/A**	
SaO2	**N/A**	**N/A**	**N/A**	

Cultures Highlight All Abnormal Labs—Explanations must be in complete sentences and contain in-text citations in APA format.

Test	Normal Range	Value on Admission	Today's Value	Explanation of Findings
Urine Culture	**N/A**	**N/A**	**N/A**	
Blood Culture	**N/A**	**N/A**	**N/A**	
Sputum Culture	**N/A**	**N/A**	**N/A**	
Stool Culture	**N/A**	**N/A**	**N/A**	

Lab Correlations Reference (1) (APA):

PhD Rn, P. K. D., & Facs, M. T. P. J. (2021). Mosby's Diagnostic and Laboratory Test Reference (Mosby's Diagnostic & Laboratory Test Reference) (15th ed.). Mosby.

Diagnostic Imaging

All Other Diagnostic Tests (5 points):

- **AV Fistulogram (SCHEDULED);**

- A fistulogram is a type of x-ray that uses contrast to look inside a patient's AV fistula that is used for their hemodialysis (Saint Luke's, n.d.).

- **CT Chest W/O Contrast (4/20/2024);**

- A CT scan is a combination of x-ray images taken from varying angles of the body. A CT scan utilizes computer processing to create cross-sectional images of the soft tissues, blood vessels, and bones which allows for the provider to see more detailed images opposed to a normal x-ray (Mayo Clinic, 2022).
- Findings;

  Vascular & Mediastinum: gynecomastia is noted. The thyroid gland is unremarkable.

Thoracic aorta is normal in caliber. Signs of severe calcific adenopathy are seen. The cardiac chambers are enlarged. Trace of pericardial effusion is noted, and severe coronary calcifications and coronary stents are observed. Small hiatal hernia is observed.

Upper abdomen: non-contrast evaluation demonstrates no significant acute abnormalities.

Musculoskeletal: no significant acute abnormalities observed. Signs of degenerative disc disease and spondylosis is noted.

Lungs and Pleura: no pneumothorax is identified. Trace of a left and a small right pleural effusion is observed. Fluid is visualized within the right major fissure. Subtle patchy ground glass densities can be seen within the lungs, scattered subcentimeter subsolid and solid nodules are seen throughout the lungs.

- **ECG 12 Lead (4/19/2024);**

- An electrocardiogram (ECG) is a diagnostic test used to assess and record electrical signals within the heart to help diagnose arrhythmias (Mayo Clinic, 2024).
- Findings:

  Sinus rhythm with 1st degree AV block. There is a marked ST abnormality and a possible subendocardial injury.

- **ECG 12 Lead (4/21/2024);**

- Findings:

  Normal sinus rhythm with a 1st degree AV block. There is a non-specific intra-ventricular conduction delay. ST and T wave abnormality is seen, consider lateral ischemia.

Diagnostic Test Correlation (5 points):

The patient had a CT scan done to help visualize the cardiac muscles and aid in diagnosing the patient. The patient also had a ECG done as it shows any abnormalities in the heart's rhythm

which can aid in the diagnosis of an MI. In which the patient's ECG showed abnormalities in the ST wave which led to a diagnosis of NSTEMI.

Diagnostic Test Reference (1) (APA):

Mayo Clinic. (2022, January 6). *CT Scan*. Mayo Clinic. https://www.mayoclinic.org/tests-procedures/ct-scan/about/pac-20393675

Mayo Clinic. (2024, April 2). *Electrocardiogram (ECG or EKG)*. Mayo Clinic. https://www.mayoclinic.org/tests-procedures/ekg/about/pac-20384983#:~:text=An%20electrocardiogram%20(ECG%20or%20EKG,which%20prints%20or%20displays%20results.

PhD Rn, P. K. D., & Facs, M. T. P. J. (2021). Mosby's Diagnostic and Laboratory Test Reference (Mosby's Diagnostic & Laboratory Test Reference) (15th ed.). Mosby.

Saint Luke's. (n.d.). *Fistulogram and angioplasty of your AV fistula*. Saint Luke's Health System. https://www.saintlukeskc.org/health-library/fistulogram-and-angioplasty-your-av-fistula#:~:text=A%20fistulogram%20is%20a%20type,done%20at%20the%20same%20time.

Current Medications (10 points, 1 point per completed med)
10 <u>different</u> medications must be completed

Home Medications (5 required)

Brand/Generic	Acetaminophen	Diphenhydramine	Gabapentin	Nitroglycerin	Metoprolol Succinate
Dose	500mg	25mg	100mg	0.4mg	25mg
Frequency	As needed	Daily at bedtime	Twice a day	PRN up to 3 doses 15 minutes apart	Daily
Route	Oral	oral	Oral	Sublingual	Oral
Classification	Pharmacologic class: nonsalicylate, paraminophenol derivative Therapeutic class: antipyretic, nonopioid analgesic (Jones & Bartlett, 2019).	Pharmacologic class: antihistamine therapeutic class: anti antianaphylactic adjunct, antidyskinetic, antiemetic, antihistamine, antitussive, antivertigo, sedative-hypnotic (Jones & Bartlett, 2019).	Pharmacologic class: 1-amino-methyl cyclo-hexaneacetic Therapeutic class: anticonvulsant (Jones & Bartlett, 2019).	Pharmacologic class: nitrate Therapeutic class: vasodilator (Jones & Bartlett, 2019).	Pharmacological: beta1-adrenergic blocker Therapeutic: Antianginal, antihypertensive (Jones & Bartlett, 2019).
Mechanism of Action	Inhibits the enzyme cyclooxygenase, blocking prostaglandin production and interfering with pain impulse generation in the peripheral nervous system. Also acts directly on the temperature-regulating center in the hypothalamus by inhibiting synthesis of prostaglandin E2 (Jones & Bartlett, 2029).	Binds to central and peripheral H1 receptors, competing with histamine for four sides and preventing it from reaching its side of action. By blocking histamine diphenhydramine produces antihistamine effects, inhibiting GI, respiratory, and vascular smooth muscle contraction; decreasing capillary permeability, which aids in reducing flares, itching, and wheals. Diphenhydramine produces anti dyskinetic effects by inhibiting anti choline and the central nervous system. It also produces antitussive effects by directly	Gabapentin is structurally similar to GABA, the main inhibitory neurotransmitter in the brain. GA BA inhibits rapid firing of neurons associated with seizures which helps prevent exaggerated responses to painful stimuli and helps relieve post herpetic neuralgia and restless leg syndrome symptoms (Jones & Bartlett, 2019).	Interacts with nitrate receptors in vascular smooth muscle membranes which allows for nitroglycerin to be reduced in nitric oxide thus activating the enzyme guanylate cyclase, increasing intracellular formation of cGMP. The increase in cGMP relaxes vascular smooth muscle by forcing calcium out of the cell resulting in vasodilation. Nitroglycerin reduces the preload and afterload, decreasing myocardial workload and oxygen demand. It also dilates the coronary arteries thus increasing	Inhibits stimulation of beta1 receptor sites, located mainly in the heart, resulting in decreased cardiac excitability, cardiac output, and myocardial oxygen demand. These effects help relieve angina, minimize cardiac tissue damage from a myocardial infarction, and help relieve symptoms of heart failure. Metoprolol also helps reduce blood pressure by decreasing renal release of renin (Jones & Bartlett, 2019).

		suppressing the cough center in the medulla oblongata in the brain (Jones & Bartlett, 2019).		blood flow to myocardial tissues (Jones & Bartlett, 2019).	
Reason Client Taking	To manage and relieve pain.	To Aid in sleep.	To treat and prevent seizures	To prevent and treat acute angina pectoris	To treat and manage hypertension
Contraindications (2)	Hypersensitivity to acetaminophen or its components, severe hepatic impairment, sever liver disease (Jones & Bartlett, 2019).	Hypersensitivity to diphenhydramine, similar antihistamines, or their components and breastfeeding (Jones & Bartlett, 2019).	Hypersensitivity to gabapentin or its components (Jones & Bartlett, 2019).	Hypersensitivity two nitrates or their components, hypotension, severe anemia, and acute MI (Jones & Bartlett, 2019).	Contraindications include acute heart failure, cardiogenic shock; hypersensitivity to metoprolol, its components or other beta blockers, pulse less than 45 beats per minute (Jones & Bartlett, 2019)
Side Effects/Adverse Reactions (2)	Hypotension, stridor, anxiety, fatigue, abdominal pain (Jones & Bartlett, 2019).	Tachycardia, drowsiness, and nausea (Jones & Bartlett, 2019).	hypotension, leukopenia, and seizures (Jones & Bartlett, 2019).	Tachycardia, hypertension, agitation, drowsiness, and abdominal pain (Jones & Bartlett, 2019).	**CV:** arrhythmias, including bradycardia and AV block. **CNS:** Anxiety, confusion and CVA **HEME:** leukocytopenia (Jones & Bartlett, 2019).
Nursing Considerations (2)	Use cautiously in patients with hepatic impairment and monitor renal function (Jones & Bartlett, 2019).	Expect to discontinue the drug at least 72 hours before any skin tests for allergies because the drug may inhibit cutaneous histamine response which would cause false negative results (Jones & Bartlett, 2019).	Give the drug at least two hours after an antacid and no that gabapentin capsules may be opened and mixed with applesauce, fruit juice, or water before administration (Jones & Bartlett, 2019).	Know that patients receiving oral nitroglycerin should not receive ergotamine and related drugs if possible due to the fact that Nitroglycerin increases the effects of ergotamine and use nitroglycerin cautiously in elderly patients due to the increased risk of falls and hypotension (Jones & Bartlett, 2019).	Use cautiously in patient's with angina or hypertension who also have congestive heart failure because beta blockers can further depress myocardial contractility (Jones & Bartlett, 2019). Monitor vital signs if patient develops bradycardia, dosage may need to be adjusted (Jones & Bartlett, 2019).
Key Nursing Assessment(s) /Lab(s) Prior to Administration	Vital signs and pain assessment	Vital signs and labs as this medication can result in thrombocytopenia as well as tachycardia (Jones & Bartlett, 2019).	Assess renal function lab test results as dosage may need to be adjusted and vital signs (Jones & Bartlett, 2019).	Vital signs and respiratory assessment (Jones & Bartlett, 2019).	Monitor vital signs such as blood pressure, ecg, heart rate, and respiratory rate (Jones & Bartlett, 2019).
Client Teaching Needs (2)	Do not exceed the recommended dosage daily. And do not take any other medications	Advise the patient to take the drug with food to minimize GI distress and advise the patient to avoid	Instruct patient not to take the drug within two hours after taking an antacid	Teach the patient to recognize common signs and symptoms of angina pectoris	Take exactly as directed. Take the medication whole, do not crush or chew tablets (Jone & Bartlett, 2019).

	containing acetaminophen while taking this medication (Jones & Bartlett, 2019).	alcohol while taking diphenhydramine (Jones & Bartlett, 2019).	and caution the patient not to stop the drug abruptly (Jones & Bartlett, 2019).	such as chest fullness, pain, and pressure and that the pain may radiate down the arm into the neck or jaw and inform patient that nitroglycerin commonly causes headache which typically resolves after a few days they can use acetaminophen as needed (Jones & Bartlett, 2019).	

Hospital Medications (5 required)

Brand/Generic	Pantoprazole	Heparin	Allopurinol	Aspirin	Torsemide
Dose	40mg	22 units/kg/hr x 100kg	200mg	81mg	100mg
Frequency	Daily	continuous	Daily	daily	Daily
Route	Oral	IV	oral	oral	Oral
Classification	Proton pump inhibitor, antiulcer (Jones & Bartlett, 2019).	Pharmacologic class: Anticoagulant Therapeutic class: Anticoagulant Pregnancy category: C (Jones & Bartlett, 2019).	Pharmacologic class: Xanthine oxidase Therapeutic class: antigout (Jones & Bartlett, 2019).	Pharmacologic class: salicylate Therapeutic class: NSAID (Jones & Bartlett, 2019).	Loop diuretic Antihypertensive (Jones & Bartlett, 2019).
Mechanism of Action	interferes with gastric acid, secretion by inhibiting the hydrogen-potassium-adenosine triphosphate enzyme system, or proton pump, in gastric parietal cells. normally, the proton pump uses energy from hydrolysis of ATPase to drive	Binds with antithrombin III, enhancing antithrombin III's inactivation of coagulation enzymes thrombin (factor IIa) and factors Xa and Xia. At low doses, heparin inhibits factor Xa and prevents conversion of prothrombin to thrombin.	Inhibits uric acid production by inhibiting xanthine oxidase, which is the enzyme that converts hypoxanthine and xanthine to uric acid (Jones & Bartlett, 2019).	Blocks the activity of cyclooxygenase , the enzyme needed for prostaglandin synthesis. By blocking cyclooxygenase and inhibition of prostaglandins inflammatory symptoms then subside and pain is also	Blocks active chloride and sodium reabsorption in the ascending loop of Henle by promoting rapid excretion of sodium, chloride, and water. It also increases the production of renal prostaglandin, increasing the

	H+ and chloride out of parietal cells and into the stomach lumen in exchange for potassium, which leaves the stomach lumen and enters parietal cells thus forming hydrochloric acid (Jones & Bartlett, 2019).	Thrombin is needed for the conversion of fibrinogen to fibrin; without fibrin, clots can not form. At high doses, heparin inactivates thrombin, preventing fibrin formation and existing clot extension.		relieved. Aspirin inhibits platelet aggregation by interfering with the production of thromboxane 82, which is a substance that stimulates platelet aggregation (Jones & Bartlett, 2019).	plasma renin level and renal vasodilation. As a result blood pressure drops, reducing preload and afterload (Jones & Bartlett, 2019).
Reason Client Taking	To treat and manage gerd	Pulmonary embolism and hematoma	Used to treat gout and hyperuricemia	patient is taking to prevent and reduce the severity of acute MI	Used to treat hypertension
Contraindications (2)	Concurrent therapy with rilpivirine containing products, hypersensitivity to pantoprazole, lansoprazole or their components (Jones & Bartlett, 2019).	Breastfeeding, infants, neonates, or pregnant women (heparin sodium injection, USP, preserved with benzyl alcohol); history of heparin-induced thrombocytopenia or heparin- induced thrombocytopenia and thrombosis; hypersensitivity to heparin, pork, or its components; inability to monitor coagulation parameters when full dose heparin is used; severe thrombocytopenia; uncontrolled active bleeding, except in disseminated intravascular coagulation (DIC) (Jones & Bartlett, 2019).	Hypersensitivity to allopurinol and its components (Jones & Bartlett, 2019).	Active bleeding or coagulation disorders, hypersensitivity to aspirin or other NSAIDs or their components (Jones & Bartlett, 2019).	Anuric patients, hepatic coma, hypersensitivity to torsemide or its components (Jones & Bartlett, 2019).
Side Effects/Adverse Reactions (2)	Chest pain, elevated serum creatine, hypomagnesemia (Jones & Bartlett, 2019)	CNS: chills, dizziness, fever, headache, peripheral neuropathy CV: Chest pain, rebound	Thrombocytopenia and drowsiness (Jones & Bartlett, 2019).	CNS depression, leukopenia, bronchospasm, and prolonged bleeding time (Jones &	Hypotension, dry mouth, abdominal pain (Jones & Bartlett, 2019).

		hyperlipemia, thrombosis EENT: epistaxis, gingival bleeding, rhinitis ENDO: adrenal hemorrhage causing acute adrenal sufficiency GI: Abdominal distention and pain, elevated liver enzymes, hematemesis, melena, nausea, retroperitoneal hemorrhage, vomiting GU: hematuria, hypermenorrhea, ovarian hemorrhage, priapism HEME: delayed onset of heparin-induced thrombocytopenia, easy bruising, excessive bleeding from wounds, hemorrhage, heparin-induced thrombocytopenia, heparin-induced thrombocytopenia and thrombosis. Thrombocytopenia MS: back pain, myalgia, osteoporosis Resp: asthma, dyspnea, wheezing Skin: alopecia, cutaneous necrosis following subcutaneous injection, cyanosis, petechiae, pruritus, urticaria Other: anaphylaxis, heparin resistance; injection-site hematoma, irritation, pain, redness, and ulceration (Jones &		Bartlett, 2019).	

		Bartlett, 2019).			
Nursing Considerations (2)	Monitor patient's urine output because pantoprazole can cause acute interstitial nephritis and monitor patient for diarrhea as this medication can result in clostridium difficile (Jones & Bartlett, 2019).	Know that heparin sodium injection, USP, preserved with benzyl alcohol should not be given to infants, neonates, pregnant women or breastfeeding women and Use heparin cautiously in alcoholics, menstruating women; patient's over age 60, especially if women and patients with conditions that increase the risk of hemorrhage. Read heparin label carefully (Jones & Bartlett, 2019).	Maintain a fluid intake with a daily urinary output of 2L daily and monitor for a rash (Jones & Bartlett, 2019).	Advise patient not to crush time released or controlled released aspirin tablets unless directed and ask about tinnitus as this reaction usually occurs when the blood aspirin level reaches or exceeds the maximum dosage for therapeutic effect (Jones & Bartlett, 2019).	Do not exceed 200mg in a single IV dose and monitor serum electrolyte levels.as hypovolemia can occur (Jones & Bartlett, 2019).
Key Nursing Assessment(s)/Lab(s) Prior to Administration	Vital signs and urine output and magnesium level as it can cause hypomagnesemia (Jones & Bartlett, 2019).	Labs such as PTT and INR, vital signs (Jones & Bartlett, 2019).	Baseline CBC and uric acid level and pain/vital signs (Jones & Bartlett, 2019).	Vital signs and a respiratory assessment as this medication can cause bronchospasm (Jones & Bartlett, 2019).	Serum electrolyte levels and fluid intake and output. And vital signs (Jones & Bartlett, 2019).
Client Teaching Needs (2)	Teach patient to swallow medications whole and not to chew or crush the tablets. Advise patient to notify the physician if diarrhea occurs and becomes severe (Jones & Bartlett, 2019).	Monitor for bleeding and any new bruises (Jones & Bartlett, 2019).	Take after meals and drink plenty of water. Report any unusual bleeding or bruising (Jones & Bartlett, 2019).	Instruct patient to take aspirin with food or after meals as it could cause GI upset if taken on an empty stomach and instruct patient to stop taking aspirin and notify the provider if any symptoms of stomach or intestinal bleeding occur such as tarry stools or if the patient is coughing up blood or has coffee ground emesis (Jones &	Change position slowly to minimize the effects of orthostatic hypotension and advise patient to maintain an adequate fluid intake (Jones & Bartlett, 2019).

				Bartlett, 2019).	

Medications Reference (1) (APA):

Jones & Bartlett Learning. (2019). *2020 Nurse's Drug Handbook* (19th ed.). Jones & Bartlett Learning.

Assessment

Physical Exam (18 points) – HIGHLIGHT ALL PERTINENT ABNORMAL FINDINGS

GENERAL: **Alertness:** **Orientation:** **Distress:** **Overall appearance:**	**Patient is alert and oriented x 4 (person, place, time, and situation).** **Patient appears stated age and is dressed in a hospital gown. Patient does not appear to be in any distress.**
INTEGUMENTARY: **Skin color:** **Character:** **Temperature:** **Turgor:** **Rashes:** **Bruises:** **Wounds:** . **Braden Score: 19** **Drains present: Y☐ N ☒** **Type:**	**Skin is pale, warm, and dry. Skin is free of rashes and wounds. Skin turgor is normal. No drains are present.** **Braden score 19** **Nutrition is adequate**
HEENT: **Head/Neck:** **Ears:** **Eyes:** **Nose:** **Teeth:**	**PERRLA bilaterally, left and right both at 3mm. Eyes, ears, and nose are free of drainage. Oral mucosa is pink and moist. Dentation is good.** .
CARDIOVASCULAR: **Heart sounds:** **S1, S2, S3, S4, murmur etc.** **Cardiac rhythm (if applicable):** **Peripheral Pulses: 2 +** **Capillary refill: < 3 seconds** **Neck Vein Distention: Y ☐ N ☒** **Edema Y ☐ N ☒** **Location of Edema:**	**S1 and S2 are present, no murmurs or gallops heard upon auscultation. Peripheral pulses are equal strength and quality, 2+ bilaterally throughout. Capillary refill is less than 3 seconds on fingers and toes bilaterally.**

RESPIRATORY: **Accessory muscle use: Y☐ N ☒** **Breath Sounds: Location, character**	Breath sounds are clear to auscultation bilaterally throughout. No accessory muscle use noted. Patient's respirations are noted to be shallow. Patient denies painful breathing.
GASTROINTESTINAL: **Diet at home: normal** **Current Diet: NPO** **Height: 160cm** **Weight: 73kg** **Auscultation Bowel sounds:** **Last BM: 4-21-2024** **Palpation: Pain, Mass etc.:** **Inspection:** **Distention:** **Incisions:** **Scars:** **Drains:** **Wounds:** **Ostomy: Y ☐ N ☒** **Nasogastric: Y ☐ N ☒** **Size:** **Feeding tubes/PEG tube Y ☐ N ☒** **Type:**	Patient is currently NPO. **Bowel sounds are present and normoactive in all 4 quadrants.** **Last BM: 4/21/2024** **Abdomen is nondistended, nontender and free of pain upon palpation. No drains, incisions, or wounds noted.**
GENITOURINARY: **Color:** **Character:** **Quantity of urine:** **Pain with urination: Y ☐ N ☒** **Dialysis: Y ☐ N ☒** **Inspection of genitals:** **Catheter: Y ☐ N ☒** **Type:** **Size:**	**Patient is on hemodialysis but does produce urine. Urine voided is observed as clear and yellow in color. There is no pain noted during urination.**
MUSCULOSKELETAL: **Neurovascular status:** **ROM:** **Supportive devices: none** **Strength: moderate** **ADL Assistance: Y☒ N ☐** **Fall Risk: Y ☒ N☐** **Fall Score: 11** **Activity/Mobility Status:** **Independent (up ad lib) ☐** **Needs assistance with equipment ☐** **Needs support to stand and walk ☐**	Fall risk: 11 **Patient can ambulate within the room and transfer with a standby 1 to 2 assist gait belt and walker.** **Active ROM is moderately impaired. Generalized weakness noted.**

NEUROLOGICAL: **MAEW: Y ☒ N☐** **PERLA: Y ☒ N☐** **Strength Equal: Y ☒ N ☐ if no -** **Legs ☐ Arms ☐ Both ☐** **Orientation:** **Mental Status:** **Speech:** **Sensory:** **LOC:**	Patient has good judgement and thought process is normal, speech is clear and audible. **Perceptive to touch, temperature, and pain.** **Patient is alert and oriented to person, place, time, and situation.** **Strength is 3+ in bilateral extremities.** **No gross focal or neurological deficits noted.**
PSYCHOSOCIAL/CULTURAL: **Coping method(s):** **Developmental level:** **Religion & what it means to pt.:** **Personal/Family Data (Think about home environment, family structure, and available family support):**	Patient reports having a good support system consisting of his daughter. The daughter is actively involved in his care. **No religious beliefs were stated or noted.** **Patient reports a strong and loving home environment. Denies any home concerns.**

Vital Signs, 2 sets (5 points) – HIGHLIGHT ALL ABNORMAL VITAL SIGNS

Time	Pulse	B/P	Resp Rate	Temp	Oxygen
0813	**65 bpm**	**150/69 (99)** **mmhg**	**20**	**97.7 F**	**90%** **Room air**
1030	**65 bpm**	**128/64 (73)** **mmhg**	**18**	**98.2 F**	**93%** **Room air**

Vital Sign Trends: Vital signs are stable in a normal sinus rhythm, blood pressure systolic has slightly increased. Patient's oxygen saturation has increased.

Pain Assessment, 2 sets (2 points)

Time	Scale	Location	Severity	Characteristics	Interventions

0813	**Numeric**	**Chest pain**	**4**	**n/a**	**Nitroglycerin adminstered**
1030	**Numeric**	**Denies pain**	**n/a**	**n/a**	**Continue to monitor**

IV Assessment (2 Points)

IV Assessment	**Fluid Type/Rate or Saline Lock**
Size of IV: 20g **Location of IV: Anterior right wrist** **Date on IV: 4-21-2024** **Patency of IV: patent, flushes easily** **Signs of erythema, drainage, etc.: none** **IV dressing assessment: intact**	Heparin 16.1ml/hr

Intake and Output (2 points)

Intake (in mL)	**Output (in mL)**
64.4 ml heparin infusion **100ml water before NPO status** **Total: 164.4ml**	**Voided x 2 (absorbent brief changed)**

Nursing Care

Summary of Care (2 points)

Overview of care: Patient was admitted via ems transfer for a chief complaint of chest pain and shortness of breath. The patient was thus diagnosed with a NSTEMI myocardial infarction in which he is being treated with heparin intravenously and nitroglycerin.

Procedures/testing done: The patient had a CBC, CMP and CT scan and ECG performed upon admission. With a follow up ECG being performed on 4-21-2024.

Complaints/Issues: patient voices no complaints or issues.

Vital signs (stable/unstable): Stable with a Blood pressure of 128/64, pulse of 65 bpm, respiratory rate of 18, and an oxygen saturation on 93% on room air.

Tolerating diet, activity, etc.: patient is currently NPO as he goes for a cardiac catheterization today.

Physician notifications:

- Unplanned or interrupted heparin delivery
- Anti-xa result > or = to 1.1 iu/mL
- Decreased platelet count to < 100,000 or by 50% base.
- Decreased HGB by > or = 2 gm/dl
- Decreased HCT of > or = 6 points the previous measurement
- Active bleeding or worsening symptoms
- Falls
- Therapeutic range not met after 2 consecutive dose adjustments.

Future plans for client: Cardiac catheterization

Discharge Planning (2 points)

Discharge location: Home

Home health needs (if applicable): N/A

Equipment needs (if applicable): N/A

Follow up plan: Follow up with primary in 2-3 days.

Education needs:

- Signs and symptoms of an MI
- When to seek medical attention for chest pain.
- Report any new bruises or any bleeding since he’s taking heparin.

- How to take nitroglycerin

Nursing Diagnosis (15 points)
Must be NANDA approved nursing diagnosis and listed in order of priority

Nursing Diagnosis • Include full nursing diagnosis with "related to" and "as evidenced by" components • Listed in order by priority – highest priority to lowest priority pertinent to this client	**Rationale** • Explain why the nursing diagnosis was chosen	**Interventions (2 per dx)**	**Outcome Goal (1 per dx)**	**Evaluation** • How did the client/family respond to the nurse's actions? • Client response, status of goals and outcomes, modifications to plan.
1. Acute pain related to low or no oxygen rich blood flowing to the heart as evidenced by clutching the chest and diaphoresis (Salvador, 2023).	**Patient was complaining of worsening chest pain and exhibiting Levine's sign**	**1. Administer nitroglycerin** **2. Administer morphine and evaluating the effects of pain control measures (Salvador, 2023).**	**1. patient will be able to verbalize pain relief and control (Salvador, 2023).**	**Patient was able to minimize his pain after receiving nitroglycerin**
2. **Decreased Cardiac Output related to changes in the hearts electrical conduction as evidenced**	**The patient was complaining of increased shortness of breath and chest pain upon arrival to**	**1. Administer oxygen** **2. Administer thrombolytic therapy as ordered (Salvador, 2023).**	**1. patient will have a decrease in their dyspnea, angina, and any dysrhythmias (Salvador, 2023).**	**Patient denied any shortness of breath and was in a normal sinus rhythm,**

by shortness of breath and sudden chest pain (Salvador, 2023).	**the ER.**			
3. **Anxiety related to threat of death as evidenced by restlessness and dyspnea (Salvador, 2023).**	**The patient came in with increasing shortness of breath and was restless, unsure of what this meant for him.**	**1. Include the patient in the planning of their care** **2. Teach the patient ways to reduce their anxiety such as through music, breathing exercises, and possible medications (Salvador, 2023).**	**1. patient will display signs of reduced anxiety such as vital signs within normal range and will remain calm (Salvador, 2023).**	**The patient became more calm once we included him in the care and explained everything that we will doing for him.**
4. Ineffective tissue perfusion related to inadequate blood supply to the heart as evidenced by decreased oxygen saturation and angina	**The patient was complaining of shortness of breath and chest pain and was only 90% on room air.**	**1. Administer aspirin** **2. Administer fibrinolytics** **(Salvador, 2023).**	**1. The patient's pulses and capillary refill time will remain within normal limits and the patient's skin will be warm**	**The patient denied any shortness of breath and his capillary refill time remained within normal limits and his skin was warm dry and without any signs of pallor.**

(Salvador, 2023).			**without any signs of pallor or cyanosis (Salvador, 2023).**	

Other References (APA):

Salvador, K. (2023, March 23). *Myocardial infarction: Nursing diagnoses, care plans, Assessment & Interventions*. NurseTogether. https://www.nursetogether.com/myocardial-infarction-nursing-diagnosis-care-plan/#nursing-care-plans

Concept Map (20 Points):

Subjective Data

The patient was complaining of worsening chest pain and shortness of breath before he was admitted for an NSTEMI.

Nursing Diagnosis/Outcomes

1. Acute pain related to low or no oxygen rich blood flowing to the heart as evidenced by clutching the chest and diaphoresis (Salvador, 2023).
- patient will be able to verbalize pain relief and control (Salvador, 2023).
2. **Decreased Cardiac Output related to changes in the hearts electrical conduction as evidenced by shortness of breath and sudden chest pain (Salvador, 2023).**
- patient will have a decrease in their dyspnea, angina, and any dysrhythmias (Salvador, 2023).
3. **Anxiety related to threat of death as evidenced by restlessness and dyspnea (Salvador, 2023).**
- patient will display signs of reduced anxiety such as vital signs within normal range and will remain calm (Salvador, 2023).
4. **Ineffective tissue perfusion related to inadequate blood supply to the heart as evidenced by decreased oxygen saturation and angina (Salvador, 2023).**
- The patient's pulses and capillary refill time will remain within normal limits and the patient's skin will be warm without any signs of pallor or cyanosis (Salvador, 2023).

Objective Data

Vital signs are stable as follows:
BP; 128/64 mmhg
P: 65 bpm
Temp; 98.3 F
Oxygen; 93% room air
Respirations; 18

Client Information

Patient is a 76-year-old Cambodian male who has been admitted for a NSTEMI/Myocardial infarction.

Nursing Interventions

1. Administer nitroglycerin and Administer morphine and evaluating the effects of pain control measures (Salvador, 2023).
2. Administer oxygen and administer thrombolytic therapy as ordered (Salvador, 2023).
3. Include the patient in the planning of their care and teach the patient ways to reduce their anxiety such as through music, breathing exercises, and possible medications (Salvador, 2023).
4. Administer aspirin and administer fibrinolytics (Salvador, 2023).