N441 Care Plan 1

Lakeview College of Nursing

Rebekah Moutria

Demographics (3 points)

Date of Admission 9/19/2022	**Client Initials** N.C.	**Age** 80 years	**Gender** Female
Race/Ethnicity Caucasian	**Occupation** Retired teacher	**Marital Status** Divorced	**Allergies** Amoxicillin, atropine, ibuprofen-Reactions not specified
Code Status DNR/DNI	**Height** 142 cm	**Weight** 40.3kg	

Medical History (5 Points)

Past Medical History: Osteoporosis, anorexia nervosa, severe kyphosis of the spine, chronic constipation, malnutrition

Past Surgical History: Colonoscopy (2015), Caesarean section (1962)

Family History: Mother- Congenital heart failure

Social History (tobacco/alcohol/drugs including frequency, quantity and duration of use): The patient has no history of drug, tobacco, or alcohol use.

Assistive Devices: The patient uses a walker for ambulating and glasses for vision correction.

Living Situation: The patient is a resident at Rebekah Old Fellow nursing home.

Education Level: The patient has a master's degree in Education.

Admission Assessment

Chief Complaint (2 points): Dyspnea and weakness

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

An 80-year-old female presented to the emergency department on 9/19/2022 from the nursing home complaining of difficulty breathing and weakness. The patient has a history of osteoporosis, severe spinal kyphosis, chronic constipation, anorexia nervosa, and malnutrition. In the ED report, the patient stated the shortness of breath and generalized weakness started roughly

two weeks ago and worsened with time. The patient stated the symptoms were worse upon exertion. Resting and sitting down were the only options to relieve the symptoms at home. The ED suspected acute heart failure exacerbation. The patient was administered 2L of oxygen via nasal cannula which relieved the shortness of breath. The patient was admitted to the medical surgical floor for treatment, then transferred to the critical care unit after needing intubated.

Primary Diagnosis

Primary Diagnosis on Admission (2 points): Acute congenital heart failure exacerbation

Secondary Diagnosis (if applicable): Elevated troponin

Pathophysiology of the Disease, APA format (20 points):

Heart failure is a progressive condition in which the heart muscle cannot adequately pump enough blood to meet the body's needs (Capriotti, 2020). This causes pressure changes within the heart chambers which results in weakened cardiac muscle and inadequate circulation of blood to the tissues (Capriotti, 2020). With heart failure, cardiac output is diminished due to the left ventricle weakening and the inability to push blood forward. Regarding the preload of the heart, an excessive venous return can overload a weakened ventricle, leading to heart failure and decreased cardiac output (Capriotti, 2020). As preload increases, high blood volumes can overwhelm the weakened ventricle, resulting in a decreased stroke volume. The four major pathological changes that can lead to heart failure include increased fluid volume, impaired ventricular filling, decreased ventricular contractile function, and degeneration of the ventricles (Capriotti, 2020).

The most common causes of heart failure are ischemic heart disease, chronic hypertension, cardiomyopathy, and dysrhythmias (Capriotti, 2020). Risk factors for heart failure are advancing age, ethnicity, specifically African Americans, family history and genetics, smoking, sedentary lifestyle, diabetes, obesity, and kidney conditions (Capriotti, 2020). The patient was at risk for heart failure due to her genetics and family history and advancing age.

Signs and symptoms of heart failure vary on which side of the heart is weakened. With right-sided heart failure, patients could experience jugular vein distention, ascites, hepatomegaly, splenomegaly, peripheral edema, anorexia, nausea, and jaundice (Capriotti, 2020). Left-sided heart failure can present as dyspnea, orthopnea, cough, pulmonary crackles, headache, memory loss, disorientation, weakness, and exercise intolerance (Capriotti, 2020).
The patient was mainly experiencing worsening shortness of breath, weakness, and fatigue, which provoked her to seek treatment.

Expected vital signs with heart failure include hypertension, tachycardia, and increased respirations due to the harder work of breathing (Holman et al., 2019). Common laboratory findings include an elevated BNP, hypokalemia, increased creatinine, hypoalbuminemia, hyponatremia, and hypomagnesemia (Capriotti, 2020).

The diagnosis of heart failure must involve one of the major criteria, which include jugular vein distention, paroxysmal nocturnal dyspnea, cardiomegaly, pulmonary crackles, hepatojugular reflux, S3 heart sound, and an increased CVP greater than 16 cm (Capriotti, 2020). In addition to the one major criteria, two minor criteria must be present. These include bilateral extremity edema, hepatomegaly, nighttime cough, tachycardia, dyspnea on exertion, pleural effusion, and reduced pulmonary vital capacity of one-third from baseline (Capriotti, 2020). Other diagnostic tools include a Brain Natriuretic Peptide, elevated in the bloodstream in heart

failure, serum electrolytes, echocardiogram, electrocardiogram, a chest x-ray, or cardiac catheterization (Capriotti, 2020). The patient's lab values showed an elevated BNP and troponin. The patient's echocardiogram also assisted in the diagnosis of her heart failure.

Treatment for heart failure can start with lifestyle modifications such as a low-sodium diet, a low-fat diet, exercising, smoking cessation, and alcohol cessation. ACE inhibitors, angiotensin II receptor blockers, and beta blockers are commonly used to improve symptoms (Capriotti, 2020). Diuretics are commonly used to promote diuresis and manage heart failure. Other treatment options include cardiac resynchronization therapy, intra-aortic balloon pump, left ventricular assist device, or cardiac transplantation (Capriotti, 2020). The patient was receiving diuretics to manage fluid balance and was intubated to assist with breathing.

Pathophysiology References (2) (APA):

Capriotti, T. M. (2020). *Davis advantage for pathophysiology: Introductory concepts and clinical perspectives* (2nd ed.). F. A. Davis Company.

Holman, H.C., Williams, D., Sommer, S., Johnson, J., Ball, B., Wheless, L., Leehy, P., & Lemon, T. (2019). *RN adult medical surgical nursing edition* (11th ed.). Assessment Technologies Institute, LLC.

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	3.8-5.4 x 10^6/ mcL	4.34	3.25	The red blood cell count can be decreased in patients with heart failure

				due to the worsening heart function causing anemia (Capriotti, 2020).
Hgb	11.3-15.2 gm/ dL	13.8	10.2	Hemoglobin may be slightly decreased in this patient due to fluid administration while the patient has been hospitalized. The patient's heart failure could also cause fluid overload, leading to diluted hemoglobin concentration in the blood (Capriotti, 2020).
Hct	33-45%	42.7	32.3	Hematocrit may be slightly decreased in this patient due to fluid administration while the patient has been hospitalized. The patient's heart failure could also cause fluid overload, leading to diluted hematocrit concentration in the blood (Capriotti, 2020).
Platelets	150-400/mm3	215	146	Platelet count can be affected from heart failure due to the affect of platelet activation. Excessive fluid volumes could show low platelet counts from dilution of the blood (Capriotti, 2020).
WBC	4.0-11.7 K/mcL	8.9	4.3	N/A
Neutrophils	2.4-8.4 x 10^3/mcL	7.6	3.4	N/A
Lymphocytes	0.8-3.7 x 10^3/mcL	0.4	0.3	The patient's lymphocyte count could be decreased due to her taking aspirin daily. Aspirin can cause leukopenia (Jones & Bartlett Learning, 2021).
Monocytes	0.3-1.1 x 10^3/mcL	0.8	0.5	N/A
Eosinophils	0.0-0.5 x 10^3/mcL	0.1	0.2	N/A
Bands	0.0-10.0%	N/A	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-	135-145 mmol/L	135	140	N/A
K+	3.5-5.1 mmol/L	5.5	4.7	N/A
Cl-	97-107 mmol/L	97	97	N/A
CO2	21-31 mmol/L	27	37	CO2 levels could be elevated due to hypoventilation leading to high carbon dioxide levels in the blood (Capriotti, 2020).
Glucose	70-110 mg/dL	90	108	N/A
BUN	7-25 mg/dL	71	28	The increased BUN level upon admission could be due to the patient being dehydrated, or because the patient was experiencing an acute kidney injury secondary to heart failure (Capriotti, 2020).
Creatinine	0.50-1.0 mg/dL	1.30	28	Elevated creatinine levels in this patient could be linked to her acute kidney injury or possible dehydration upon admission (Capriotti, 2020).
Albumin	3.5-5.2 mg/dL	3.4	3.3	Decreased albumin levels are associated with heart failure due to fluid volume overload (Capriotti, 2020).
Calcium	8.4-10.5 mg/dL	8.0	6.4	Decreased calcium levels are associated with heart failure due to dilution from fluid volume overload (Capriotti, 2020).
Mag	1.8-2.6 mg/dL	N/A	N/A	N/A
Phosphate	2.7-4.5 mg/dL	N/A	N/A	N/A
Bilirubin	0.0-1.2 mg/dL	0.8	0.4	N/A
Alk Phos	35-105 U/L	90	62	N/A
AST	10-30 U/L	795	30	Due to the patient's heart failure, AST levels could be elevated due to the liver being affected from hepatic congestion (Capriotti, 2020).
ALT	10-40 U/L	777	91	Due to the patient's heart failure,

				ALT levels could be elevated due to the liver being affected from hepatic congestion (Capriotti, 2020).
Amylase	40-140 U/L	N/A	N/A	N/A
Lipase	0-160 U/L	N/A	N/A	N/A
Lactic Acid	0.5-2.2mmol/L	N/A	N/A	N/A
Troponin	0-0.03 ng/mL	0.07	N/A	The patient's elevated troponin levels are likely associated with her acute heart failure exacerbation and damage to the heart occurring (Capriotti, 2020).
CK-MB	5-25 IU/L	N/A	N/A	N/A
Total CK	25-200 U/L	N/A	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	0.8-1.2	N/A	N/A	N/A
PT	11-13 sec	N/A	N/A	N/A
PTT	30-40 sec	N/A	N/A	N/A
D-Dimer	<250 mg/mL	N/A	N/A	N/A
BNP	<100 pg/mL	995	N/A	This lab value would be elevated due to the patient experiencing an acute heart failure exacerbation and the heart not being able to pump efficiently (Capriotti, 2020).
HDL	23-92 mg/dL	55	N/A	N/A
LDL	<100 mg/dL	89	N/A	N/A
Cholesterol	<200 mg/dL	162	N/A	N/A
Triglycerides	<150 mg/dL	95	N/A	N/A

Hgb A1c	4-5.6%	N/A	N/A	N/A
TSH	0.5-5.33 mIU/L	5.72	N/A	This lab value could be elevated due to the thyroid gland not producing enough thyroid hormone. This elevated lab value could also be linked to the patient's heart failure (Capriotti, 2020).

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	Light-dark yellow, clear-slightly hazy	Dark yellow, turbid	N/A	The patient's urine could appear abnormal due to the patient having an acute kidney injury secondary to heart failure. Upon admission, the patient could also have been dehydrated, causing more concentrated urine (Capriotti, 2020).
pH	4.5-8	5.5	N/A	N/A
Specific Gravity	1.005-1.035	1.026	N/A	N/A
Glucose	Negative	Negative	N/A	N/A
Protein	Negative-trace	Trace	N/A	N/A
Ketones	Negative	Negative	N/A	N/A
WBC	Negative	14	N/A	The white blood cells in the urine are most likely linked to the patient's acute kidney injury (Capriotti, 2020).
RBC	Negative	6	N/A	Red blood cells could be present in the urine due to the patient's acute kidney injury and kidney inflammation (Capriotti, 2020).
Leukoesterase	Negative	3+	N/A	Leukoesterase found in the urine is most likely linked to the patient's urine containing white blood cells in relation to the patient's acute kidney injury (Capriotti, 2020).

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	7.35-7.45	7.27	7.33	The pH value was likely acidotic due to hypoventilation leading to high carbon dioxide levels in the blood (Capriotti, 2020).
PaO2	75-85 mmHg	67	69.3	PaO2 levels were likely decreased because of hypoventilation and the patients acute heart failure exacerbation not allowing the body to properly receive oxygenated blood (Capriotti, 2020).
PaCO2	35-45 mmHg	65.5	73.5	PaCO2 levels were likely elevated due to the excessive amount of carbon dioxide levels in the blood secondary to hypoventilation (Capriotti, 2020).
HCO3	22-26 mEq/ L	25.2	34.4	N/A
SaO2	95-98%	88.7	95.3	SaO2 was likely decreased upon admission due to the patient experiencing an acute heart failure exacerbation and the heart being less effective at pumping oxygen-rich blood through the body (Capriotti, 2020).

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	Negative	N/A	NEG	N/A
Blood Culture	Negative	N/A	Trace	Due to the patient having no other

				signs of infection and not being put on an antibiotic, the blood sample for this culture was likely contaminated (Capriotti, 2020).
Sputum Culture	Negative	N/A	NEG	N/A
Stool Culture	Negative	N/A	N/A	N/A

Lab Correlations Reference (1) (APA):

Capriotti, T. M. (2020). *Davis advantage for pathophysiology: Introductory concepts and clinical perspectives* (2nd ed.). F. A. Davis Company.

Jones & Bartlett Learning. (2021). *Nurse's Drug Handbook* (20th ed.).

Diagnostic Imaging

All Other Diagnostic Tests (5 points):

Diagnostic Test Correlation (5 points):

1. **Chest X-ray:**
    a. An x-ray is a diagnostic test that looks at bone structures, soft tissues, organs, and detects abnormalities within the structures (Capriotti, 2020). Chest x-rays can show abnormalities such as inadequate lung expansion, COPD changes, tumors, pneumothorax, improper NG tube placement, or the presence of fluid accumulation (Capriotti, 2020).
    b. Upon admission to the hospital, the patient had a chest x-ray initially due to her experiencing shortness of breath. The results indicated suspect fluid overload with interstitial edema and small right basilar pleural effusions. On 9/22/2022, the

patient had another chest x-ray performed due to her being intubated and to confirm the placement of the tube. The chest x-ray confirmed her ET tube was 2 cm above the carina. Another chest x-ray was performed on 9/27/2022 to confirm the placement of the ET tube. The results showed the ET tube located 3.2 cm above the carina. Trace bilateral pleural effusions were detected as well.

2. **Electrocardiogram**:
    a. An electrocardiogram records the heart's electrical activity through electrodes placed on different points of the body (Capriotti, 2020). This test can tell us if our patient is having any cardiac issues such as a STEMI, dysrhythmia, or heart block. This test was performed on this patient due to her exhibiting shortness of breath.
    b. The patient's EKG showed a regular heart rate of around 100 bpm and regular rhythm. The PR interval was 0.14 seconds, QRS complex was 0.12 seconds, and QT segment was 0.34 seconds. This patient was showing normal sinus rhythm.

3. Echocardiogram:

a. An echocardiogram is a simple ultrasound of the heart that visualizes the structure and function of the heart by visualizing the valves and chambers (Capriotti, 2020). Echocardiograms can show excess fluid surrounding the heart and can demonstrate a decrease in the ejection volume of the left ventricle (Capriotti, 2020). An echocardiogram was performed to visualize the patient's function of the heart muscle due to her symptoms, elevated BNP lab value and to detect the level of heart failure.
b. The patient's echocardiogram results suggested tricuspid and mitral valve regurgitation. The images also showed pulmonary regurgitation.

4. **US Venous Duplex** (Lower bilateral extremities):
    a. A venous duplex ultrasonography is a test that combines ultrasound images with doppler blood flow studies (Capriotti, 2020). It is utilized to visualize the blood flow through the veins and detect any possible thrombi. The patient had this test performed due to her experiencing hypoxia and being intubated.
    b. The test results confirmed normal blood flow to the extremities with no evidence of a deep vein thrombosis.
5. **KUB X-ray**:
    a. An x-ray is a diagnostic test that looks at bone structures, soft tissues, organs, and detects abnormalities within the structures (Capriotti, 2020). This specific x-ray can visualize the abdominal area and assess the structures of the gastrointestinal and genitourinary system.
    b. On 9/25/2022, the patient had this x-ray due to abdominal distention. The results showed nonobstructive bowel gas pattern and the position of the ET tube suggested an elongated stomach.
6. **Ultrasound** (Abdomen and kidneys)
    a. An ultrasound is an imaging test that produces sonograms to visualize organs, tissues, and other structures of the body (Capriotti, 2020). An ultrasound of the kidneys can be used to examine the kidney size, rule out kidney stones or urinary anomalies, and show intrarenal masses or cysts (Capriotti, 2020). The patient had a kidney ultrasound done due to her experiencing an acute kidney injury. The results showed bilateral renal atrophy, otherwise the results were within normal limits.

b. The patient had an abdominal x-ray performed due to her elevated ALT and AST lab values. The results showed unremarkable right upper quadrant ultrasound.

Diagnostic Test Reference (1) (APA):

Capriotti, T. M. (2020). *Davis advantage for pathophysiology: Introductory concepts and clinical perspectives* (2nd ed.). F. A. Davis Company.

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

Home Medications (5 required)

Brand/ Generic	Tylenol/ acetaminophen	Calcium Carbonate/ Calsan, Apo-Cal	Magnesium hydroxide/Phillips' Milk of Magnesia	Pyridoxine/ Vitamin B6	Ondansetron /Zofran
Dose	650mg	600 mg	2.4mg/30 mL	100mg	4mg
Frequency	BID	Q8H/PRN	HS & PRN	QPM	PRN
Route	PO	PO	PO	PO	PO
Classification	Pharmacologic class: Non salicylate par aminophenol derivative Therapeutic class: Antipyretic, nonopioid analgesic	Pharmacologic class: Calcium salts Therapeutic class: Antacid, calcium replacement, cardiotonic	Pharmacologic class: Mineral Therapeutic class: Electrolyte replacement	Pharmacologic class: Vitamin Therapeutic class: Vitamin B6 analog/ derivative	Pharmacologic class: Selective serotonin receptor antagonist Therapeutic class: Antiemetic
Mechanism of	Inhibits the	Increases levels	Assists all	Converts to	Blocks

Action	enzyme cyclooxygenase, blocking prostaglandin production and interfering with pain impulse generation in the peripheral nervous system.	of intracellular and extracellular calcium, which is needed to maintain homeostasis, especially in the nervous and musculoskeletal systems. It plays a role in normal cardiac and renal function, respiration, coagulation, and cell membrane and capillary permeability.	enzymes involved in phosphate transfer reactions that use adenosine triphosphate. Magnesium is required for normal function of the ATP-dependent sodium-potassium pump in muscle membranes. As a laxative, magnesium exerts a hyperosmotic effect in the small intestine. It causes water retention that distends the bowel and causes the duodenum to secrete cholecystokinin.	pyridoxal 5-phosphate in the body, which is an important coenzyme for synthesis of amino acids, neurotransmitters, sphingolipids, and aminolaevulinic acid.	serotonin receptors centrally in the chemoreceptor trigger zone and peripherally at vagal nerve terminals in the intestine
Reason Client Taking	Chronic back pain due to kyphosis	Acid indigestion	Severe chronic constipation	Vitamin B6 deficiency/Malnutrition	Nausea
Contraindications (2)	Severe hepatic impairment, Severe active liver disease	Renal calculi, Hypercalcemia	Hypersensitivity to magnesium salts or any component of magnesium-containing preparations, Fecal impaction	Hypersensitivity to vitamin B6 or any component of a vitamin B6-containing pharmaceutical preparation, Chronic hepatic disease	Concomitant use of apomorphine, Hypersensitivity to ondansetron or its components
Side Effects/Adverse Reactions (2)	Hepatotoxicity, jaundice	Hypotension, hypercalcemia	Hypotension, hypermagnesemia	GI upset, hepatoxicity	Headache, hypotension
Nursing Consideration	-Use acetaminophen	-Store at room temperature and	-Before giving drug as laxative,	-Monitor the patient for	-Place tablet or oral soluble

s (2)	cautiously in patients with hepatic impairment or active hepatic disease, alcoholism, chronic malnutrition, or renal impairment. -Monitor renal function in patients on long-term therapy. Closely monitor urine for changes in color or blood.	protect from heat, moisture, and direct light. -Monitor serum calcium level as ordered to evaluate therapeutic response. Assess Chvostek's and Trousseau's signs.	shake oral solution, liquid, or liquid concentrate well and give with a large amount of water. -Monitor serum electrolyte levels in patients with renal insufficiency because they're at risk for magnesium toxicity.	jaundice, fatigue, elevated hepatic enzymes, or loss of appetite. -Monitor LFT specifically AST monthly for first 3 months of therapy and then every other month.	film on the patient's tongue immediately after opening. -Use a calibrated container or oral syringe to measure the dose of oral solution.
Key Nursing Assessment(s) /Lab(s) Prior to Administration	Pain levels, liver function	Serum calcium levels, blood pressure, heart rate	Blood pressure, heart rate, serum magnesium levels	Liver function tests	Heart rate, worsening symptoms of nausea
Client Teaching needs (2)	-Caution the patient not to exceed the recommended dosage or take other drugs containing acetaminophen at the same time. -Teach the patient to recognize manifestations of hepatotoxicity such as bleeding, malaise, or easy bruising.	-Urge patient to chew chewable tablets thoroughly before swallowing and to drink a glass of water afterwards. -Instruct patients to take calcium carbonate tablets 1-2 hours after meals and snacks.	-Instruct the patient to notify prescriber and avoid using magnesium-containing laxative if they are vomiting or experiencing nausea or abdominal pain. -Teach the patient to prevent constipation by increasing dietary fiber and fluid intake and exercising regularly.	-Take this vitamin at the same time every day and with food to increase absorption. - Take the missed dose as soon as you remember. Skip the missed dose if it is almost time for your next scheduled dose.	-Advise the patient to immediately report signs of hypersensitivity such as a rash. -Monitor the patient closely for serotonin syndrome, which may include agitation, chills, confusion, diaphoresis, fever, poor coordination, shaking, or twitching.

Hospital Medications (5 required)

Brand/Generic	Aspirin/ acetylsalicylic acid	Enoxaparin sodium/ Lovenox	Furosemide/ Lasix	Fentanyl Citrate/ Sublimaze	Propofol/ Diprivan
Dose	81 mg	40mg/ 0.4mL	20mg/2mL	2500mcg/250mL	1000mg/100mL
Frequency	Daily	BID	BID	100 mcg/hr	30mcg/kg/min
Route	NG Tube	Subq	IV push	IV drip	IV drip
Classification	Pharmacologic class: Salicylate Therapeutic class: NSAID, antiplatelet, antipyretic	Pharmacologic class: Low-molecular weight heparin Therapeutic class: Anticoagulant	Pharmacologic class: Loop diuretic Therapeutic class: Antihypertensive, diuretic	Pharmacologic class: Opioid Therapeutic class: Opioid analgesic	Pharmacologic class: Phenol derivative Therapeutic class: Sedative-Hypnotic agent
Mechanism of Action	Blocks the activity of cyclooxygenase, the enzyme needed for prostaglandin synthesis. Prostaglandins, important mediators in the inflammatory response, cause local vasodilation with swelling and pain. With blocking of cyclooxygenase and inhibition of prostaglandins, inflammatory symptoms	Potentiates the action of antithrombin III, a coagulation inhibitor. By binding with antithrombin III, enoxaparin rapidly binds with and inactivates clotting factors. Without thrombin fibrinogen can't convert to fibrin and clots can't form.	Inhibits sodium and water reabsorption in the loop of Henle and increases urine formation. As the body's plasma volume decreases, aldosterone production increases, which promotes sodium reabsorption and the loss of potassium and hydrogen ions.	Binds to opioid receptor sites in the CNS, altering perception of and emotional response to pain by inhibiting ascending pain pathways. Fentanyl may alter neurotransmitter release from afferent nerves responsive to painful stimuli, and it causes respiratory depression by acting directly on respiratory	Decreases cerebral blood flow, cerebral metabolic oxygen consumption, and intracranial pressure and increases cerebral vascular resistance, which may play a role in propofol's hypnotic effects

	subside.			centers in the brain.	
Reason Client Taking	To reduce the risk of blood clots or stroke	Prophylaxis to prevent DVTs while patient is intubated	To reduce edema caused by heart failure	To maintain anesthesia, pain management	Sedation
Contraindications (2)	Active bleeding, current or recent GI bleeding or ulcers	Active major bleeding, history of immune-mediated heparin-induced thrombocytopenia within the past 100 days	Anuria, hypersensitivity to furosemide or its components	Significant respiratory depression, upper airway obstruction	Hypersensitivity to propofol or its components, Allergy to eggs or egg products, or to soybeans or soy products
Side Effects/Adverse Reactions (2)	GI bleeding, leukopenia	Atrial fibrillation, hematuria	Hypokalemia, arrhythmias	Respiratory depression, Hypotension	Hypotension, Bradycardia
Nursing Considerations (2)	-Do not crush timed-release or controlled release tablets, unless directed. -Ask the patient about tinnitus as this reaction usually occurs when blood aspirin level reaches or exceeds maximum dosage for therapeutic effect.	-Watch closely for bleeding. Notify provider immediately if platelet count falls below 100,000/mm^3. -Keep protamine sulfate nearby in case of accidental overdose.	-Obtain patient's weight before and periodically during furosemide therapy to monitor fluid loss. -Administer drug slowly I.V. over 1-2 minutes to prevent ototoxicity.	-Use caution when titrating fentanyl dosage in elderly or debilitated patients, especially when using I.V. route, because these patients are more sensitive to the drug's effects. -Monitor patient closely for signs and symptoms of serotonin syndrome such as agitation, diaphoresis, fever, tachycardia, nausea, or shakiness. Be prepared to discontinue the drug.	-Use propofol cautiously in patients with cardiac disease, peripheral vascular disease, impaired cerebral circulation, or increased intracranial pressure because this drug can aggravate those disorders. -Dosage must be tapered before being stopped abruptly. Stopping abruptly will cause rapid awakening, anxiety, agitation, and resistance to

					mechanical ventilation.
Key Nursing Assessment(s)/Lab(s) Prior to Administration	Platelet levels, RBCs, PT, aPTT, INR, pain levels	Platelet count, Skin assessment, heart rate, PT, INR, aPTT	Electrolytes such as potassium, calcium, sodium and magnesium, body weight, blood pressure	Respiratory rate, blood pressure, heart rate, pain levels, kidney function	Blood pressure, heart rate
Client Teaching needs (2)	-Advise the patient to take aspirin with food or after meals because it could cause GI upset if taken on an empty stomach. -Advise patients not to also take ibuprofen or naproxen because these drugs may reduce the cardioprotective and stroke preventative effects of the drug.	-Advise the patient to notify prescriber about adverse reactions such as bleeding. Inform the patient that taking aspirin or other NSAIDs may increase risk of bleeding. -Instruct the patient to seek immediate help for evidence of a thromboembolism, such as shortness of breath or neurological changes.	-Instruct patient to take for Rosa might at the same time each day to maintain therapeutic effects. Urged the patient to take it as prescribed, even if they are feeling better. -Advise the patient to change positions slowly to minimize effects of orthostatic hypotension and to take furosemide with food or milk to reduce GI upset.	-Inform patient about potentially fatal additive effects of combining fentanyl with a benzodiazepine. Tell the patient to inform all prescribers of fentanyl use. -Tell patient to increase fiber and fluid intake, unless contraindicated, because the drug may cause severe constipation. Notify prescriber if symptoms become severe.	-Urge the patient and family members to voice concerns and ask questions before administration. -Inform the patient and family that caution is required when performing activities requiring mental alertness, such as driving, because mental alertness may be impaired for some time after propofol has been given.

Medications Reference (1) (APA):

Jones & Bartlett Learning. (2021). *Nurse's Drug Handbook* (20th ed.).

Assessment

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

GENERAL: **Alertness:** **Orientation:** **Distress:** **Overall appearance:**	Alertness: Unable to assess due to the patient being intubated and sedated Orientation: Unable to assess due to the patient being intubated and sedated Distress: The patient showed no signs of distress. The patient appeared relaxed and comfortable. Overall appearance: The patient was overall well-groomed.
INTEGUMENTARY: **Skin color:** **Character:** **Temperature:** **Turgor:** **Rashes:** **Bruises:** **Wounds:** . **Braden Score:** **Drains present: Y☐ N ☒** **Type:**	Skin color: Appropriate for ethnicity Character: Dry, intact Temperature: Warm Turgor: Loose Rashes: No rashes were present. Bruises: The patient had bruising on her left lower extremity. Wounds: The patient had a skin cancer lesion on her left upper leg extremity. Braden Score: 11
HEENT: **Head/Neck:** **Ears:** **Eyes:** **Nose:** **Teeth:**	Head/Neck: Patient's head appears normocephalic. Neck appeared symmetrical with trachea at midline. No facial drooping noted. Ears: Ears had no visible drainage, and no redness. Eyes: Pupils were observed to be 2 mm, with sluggish pupillary response to light. Eyes appeared symmetrical with no drainage present, conjunctiva was pink and not inflamed. The patient's extraocular movements were not assessed due to the patient being unresponsive. Nose: Patient's nose was midline, straight and patent. No drainage or irritation present. Teeth: No teeth were present, the patient wears

	dentures which were removed due to intubation. The patient's tongue and lips showed swelling. Mucous membranes moist and pink upon assessment.
CARDIOVASCULAR: **Heart sounds:** **S1, S2, S3, S4, murmur etc.** **Cardiac rhythm (if applicable):** **Peripheral Pulses:** **Capillary refill:** **Neck Vein Distention: Y ☐ N ☒** **Edema Y ☒ N ☐** **Location of Edema:**	S1 and S2 heard. S3 and S4 not heard. Normal rate and rhythm were heard upon auscultation. The patient's EKG showed normal sinus rhythm. Radial, dorsalis pedis, and tibialis pulses were palpable bilaterally at 2+. No jugular vein distention was noted. Capillary refill was less than 3 seconds. Bilaterally lower leg 1+ pitting edema present.
RESPIRATORY: **Accessory muscle use: Y☐ N ☒** **Breath Sounds: Location, character** **ET Tube:** **Size of tube:** **Placement (cm to lip):** **Respiration rate:** **FiO2:** **Total volume (TV):** **PEEP:** **VAP prevention measures:**	Respirations were observed to be even, calm, and regular. No accessory muscles were used. Breath sounds were diminished in all lobes bilaterally. ET Tube: Size of tube: 7 mm Placement (cm to lip): 22 cm Respiration rate: 8/min FiO2: 40% Total volume (TV): 260 mL PEEP: 5.0cm H2O VAP prevention measures: Oral care Q2H, elevated head of bed at least 30 degrees, suctioning as needed
GASTROINTESTINAL: **Diet at home:** **Current Diet** **Height:** **Weight:** **Auscultation Bowel sounds:** **Last BM:** **Palpation: Pain, Mass etc.:** **Inspection:** **Distention:** **Incisions:** **Scars:** **Drains:** **Wounds:** **Ostomy: Y ☐ N ☒** **Nasogastric: Y ☒ N ☐**	Diet at home: Reduced sodium diet Current Diet: Jevity formula via NG tube feeding Height: 142 cm Weight: 40.3 kg Auscultation Bowel sounds: Bowel sounds were active in all four quadrants. Last BM: 9/26/2022 Palpation: Pain, Mass etc.: Due to the patient being intubated, no pain or tenderness was reported or observed upon palpation. No masses felt upon palpation. Patient had no distention, incisions, scars, drains, or wounds present. The patient had a 16 Fr nasogastric tube in place.

Size: 16 fr **Feeding tubes/PEG tube Y ☐ N ☒** **Type:**	
GENITOURINARY: **Color:** **Character:** **Quantity of urine:** **Pain with urination: Y ☐ N ☐** **Dialysis: Y ☐ N ☐** **Inspection of genitals:** **Catheter: Y ☐ N ☐** **Type:** **Size:** **CAUTI prevention measures:**	Color: Dark yellow Character: Cloudy Quantity of urine: 215 mL during shift Pain with urination: Y ☐ N ☐ Unable to assess pain due to patient being intubated and sedated. Dialysis: Y ☐ N ☒ Inspection of genitals: No signs of infection or irritation upon inspection. Catheter: Y ☒ N ☐ Type: Fr Size: 16 CAUTI prevention measures: Catheter care every 12 hours and as needed, proper hand hygiene, urine bag below the level of the bladder
MUSCULOSKELETAL: **Neurovascular status:** **ROM:** **Supportive devices:** **Strength:** **ADL Assistance: Y☐ N ☐** **Fall Risk: Y ☐ N☐** **Fall Score:** **Activity/Mobility Status:** **Independent (up ad lib) ☐** **Needs assistance with equipment ☐** **Needs support to stand and walk ☐**	Neurovascular status: The patient's neurovascular status was intact. ROM: Unable to assess active ROM due to the patient being sedated and intubated. Supportive devices: The patient used a walker in the nursing home prior to admission to the CCU. Strength: Unable to assess due to patient being sedated and intubated. ADL Assistance: Y☒ N ☐ Fall Risk: Y ☒ N☐ Fall Score: 50 The patient is on total bed rest due to sedation and intubation.
NEUROLOGICAL: **MAEW: Y ☐ N☒** **PERLA: Y ☐ N☒** **Strength Equal: Y ☐ N ☐ if no -** **Legs ☐ Arms ☐ Both ☐** **Orientation:** **Mental Status:** **Speech:** **Sensory:** **LOC:**	Due to the patient being sedated, the patient did not move extremities well. The patient's pupillary response was sluggish to light. The pupils were round, equal, reactive to light. Accommodation could not be assessed due to the patient being unresponsive. Strength, orientation, mental status, speech, and sensory could not be assessed due to the patient being sedated and intubated. The patient's LOC was a comatose like state due to sedation.
PSYCHOSOCIAL/CULTURAL: **Coping method(s):** **Developmental level:** **Religion & what it means to pt.:**	The patient's daughter stated the patient copes by listening to Christian music and praying. She has Christian beliefs and takes her faith seriously. The patient has a master's degree in education

Personal/Family Data (Think about home environment, family structure, and available family support):	and is a retired teacher. The patient's son stated the patient had a strong support system including him and her daughter.

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

Time	Pulse	B/P	Resp Rate	Temp	Oxygen
0800	80bpm	127/71mmhg	9/min	37.0 C	97%
1015	81bpm	138/76 mmhg	12/min	36.7 C	98%

Vital Sign Trends/Correlation:

The patient's vital signs upon 0800 assessment showed heart rate at 80 bpm, blood pressure at 127/71mmhg, respirations at 9/min on ventilator settings, 37.0 C temperature, and 97% oxygen on ventilator. Although respirations are below the normal range, they were not concerning due to the ventilator settings. Upon the 1015 assessment, vital signs showed a heart rate of 81 bpm, blood pressure of 138/76mmhg, respiration rate of 12/min, temperature of 36.7 C and oxygen at 98% on ventilator assistance. The blood pressure was slightly elevated during this assessment, possibly due to patient's acute heart failure exacerbation and fluid imbalance. All other vital signs were within normal limits.

Pain Assessment, 2 sets (2 points)

Time	Scale	Location	Severity	Characteristics	Interventions
0800	FLACC	Unable to assess due to patient being intubated	0/10	Unable to assess due to patient being intubated	Fentanyl
1000	FLACC	Unable to	0/10	Unable to	Fentanyl

		assess due to patient being intubated		assess due to patient being intubated	

IV Assessment (2 Points)

IV Assessment	**Fluid Type/Rate or Saline Lock**
Size of IV: **Location of IV:** **Date on IV:** **Patency of IV:** **Signs of erythema, drainage, etc.:** **IV dressing assessment:**	Size/Location of IV: 20G in the left hand, 20G in the right hand, 18G in the right AC Date on IV: 9/22/2022 for all three IVs Patency of IV: All three IVs were patent, flushed easily, and displayed no signs of infiltration or phlebitis. All three IVs were saline locked. Signs of erythema, drainage, etc.: No signs of drainage or erythema present. IV dressing assessment: All IV dressings were dry, clean, intact, and transparent.
Other Lines (PICC, Port, central line, etc.)	
Type: **Size:** **Location:** **Date of insertion:** **Patency:** **Signs of erythema, drainage, etc.:** **Dressing assessment:** **Date on dressing:** **CUROS caps in place: Y ☒ N ☐** **CLABSI prevention measures:**	Type: PICC, triple lumen Size: 5 Fr Location: Right upper arm Date of insertion: 9/22/2022 Patency: Patent, flushed easily Signs of erythema, drainage, etc.: No signs of erythema or drainage Dressing assessment: The dressing was clean, dry, intact, and CHG impregnated. Date on dressing: 9/25/2022 CUROS caps in place: Y ☒ N ☐ CLABSI prevention measures: Sterile insertion, sterile dressing changes, CUROS caps on all three lumens, and a CHG impregnated dressing, proper hand hygiene

Intake and Output (2 points)

Intake (In mL)	**Output (in mL)**
Propofol: 45 mL via IV drip during shift (6 mL/hr)	215 mL of urinary output during shift

Fentanyl: 56.25 mL IV drip during shift (7.5 mL/hr)	

Nursing Care

Summary of Care (2 points)

Overview of care: Throughout the shift, the patient was sedated and intubated. The patient remained relaxed and sleeping. The patient was receiving IV drip medications as prescribed. Oral care and ventilator suctioning was performed by the student during the shift. The patient's son and daughter remained at the bedside throughout most of the shift. Comfort care will be initiated following extubating the patient on 9/27/2022.

Procedures/testing done: A chest x-ray was performed during the shift to confirm the placement of the ET tube. The tube was placed 3.2 cm above the carina.

Complaints/Issues: The patient was unable to address complaints or issues due to being unresponsive. The patient's son showed concerns regarding the patient's bleeding, compression fractures, and positioning in bed.

Vital signs (stable/unstable): The patient's vital signs remained stable throughout the shift with minimal variability or concerns.

Tolerating diet, activity, etc.: During the shift, the patient did not receive an NG tube feeding. Due to the patient being intubated and on total bed rest, no activities were completed.

Physician notifications: The physician did not need notified during the student's shift.

Future plans for client: The plan for this patient is to be extubated on 9/27/2022 and see how she manages without ventilation assistance. The family has decided to continue comfort care from there.

Discharge Planning (2 points)

Discharge location: If the patient responds well to being extubated, extensive rehab will be needed. The patient will be discharged to a rehab facility to recover. If comfort care is initiated for the patient, the patient will be sent to the morgue following her passing.

Home health needs (if applicable): If the patient can return to the nursing home, she will need extensive cardiac rehabilitation.

Equipment needs (if applicable): If the patient can return to the nursing home, she will need a walker or wheelchair to ambulate. The patient will also need assistance with ADLs such as eating, oral hygiene, and bathing.

Follow up plan: If the patient is placed on comfort care following extubating, funeral home arrangements will be made. Otherwise, the patient will need extensive rehab.

Education needs: The patient will need education on medication adherence, importance of a heart healthy, low-sodium diet, physical therapy and rehab treatment, and ways to manage heart failure.

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. Ineffective airway clearance related to presence of artificial airway as evidenced by adventitious breath sounds.	This rationale was chosen due to the patient being intubated and breath sounds being diminished bilaterally.	1.Assess airway patency and suction as needed. 2.Monitor ET tube placement. Note lip line marking and compare with desired placement. Secure tube carefully with tape as needed.	1. Maintain patent airway with breath sounds clear. Suction as needed to prevent the risk of aspiration.	The client responded well to the nurse's actions. The client's ET tube remained in place and vital signs remained stable. Suctioning will be continued as needed. No change to the plan currently. Goal met.
2. Ineffective breathing pattern related to respiratory muscle fatigue as evidenced by dyspnea upon	This nursing diagnosis was chosen due to the patient complaining of difficulty breathing upon admission to	1. Observe overall breathing pattern. Note respiratory rate, and symmetry of chest movement. 2.Verify that the client's respirations are in	1. Reestablish and maintain effective respiratory pattern via ventilator with absence of retractions, hypoxia, cyanosis, and	The client responded well to the nurse's actions. The client's respiratory pattern remained consistent with the ventilator setting at 8/min.

admission.	the unit.	phase with the ventilator.	decreased oxygen saturation.	The client remained free of signs of cyanosis, hypoxia, and accessory muscle use. No change to the plan currently. Goal met.
3. Risk for ventilator associated pneumonia related to endotracheal intubation as evidenced by the patient being intubated.	This nursing diagnosis was chosen due to the patient being intubated for several days and being a high-risk patient for contracting VAP.	1. Perform proper oral care on the patient every 2 hours and as needed. 2. Keep the head of bed elevated 30 to 45 degrees and perform suctioning as needed.	1. Prevent ventilator associated pneumonia during the duration of intubation.	The patient and family responded well to the interventions. The patient remained free of signs or symptoms of VAP. The head of bed was continuously elevated and suctioning and oral care was performed as needed. Continue with these measures while the patient is intubated. Goal met.
4.Risk for impaired oral mucous membranes related to ET tube as evidenced by the patient's lip and tongue inflammation.	This nursing diagnosis was chosen due to the patient's lips and tongue appearing swollen at the time of assessment.	1. Routinely inspect oral cavity, teeth, gums for sores, lesions, and bleeding. 2. Change position of ET tube and airway on a regular and	1. The patient will remain free of ulcerations, sores, and bleeding of the lips and gums while intubated.	The patient responded well to these interventions. The patient received oral care and suctioning as needed during the shift. The patient's oral cavity should be monitored closely for worsening

		PRN schedule as appropriate.		symptoms. Goal met.
5.Risk for impaired skin integrity related to immobility as evidenced by the patient being sedated and unresponsive.	The nursing diagnosis was chosen due to the patient being bedridden over an extended period and being at risk for pressure ulcers.	1. Reposition the patient every two hours and as needed. 2. Use assistive devices as needed, such as a foam mattress, alternating pressure mattress, moon boots, pillows, and padding to protect bony prominences.	1. The patient will remain free of pressure injuries or skin breakdown during hospital stay.	The patient responded well to the interventions. The patient appeared comfortable in the bed while being supported by pillows and moon boots. The patient was turned on schedule. The interventions should be continued. Goal met.

Other References (APA):

Concept Map (20 Points):

Subjective Data

The patient complained of worsening difficulty breathing and generalized weakness for the past two weeks.

Nursing Diagnosis/Outcomes

Ineffective airway clearance related to presence of artificial airway as evidenced by adventitious breath sounds
Maintain patent airway with breath sounds clear. Suction as needed to prevent the risk of aspiration.
Ineffective breathing pattern related to respiratory muscle fatigue as evidenced by dyspnea upon admission
Ineffective breathing pattern related to respiratory muscle fatigue as evidenced by dyspnea upon admission
Reestablish and maintain effective respiratory pattern via ventilator with absence of retractions, hypoxia, cyanosis, and decreased oxygen saturation.
Risk for ventilator associated pneumonia related to endotracheal intubation as evidenced by the patient being intubated.
Prevent ventilator associated pneumonia during the duration of intubation.
Risk for impaired oral mucous membranes related to ET tube as evidenced by the patient's lip and tongue inflammation.
The patient will remain free of ulcerations, sores, and bleeding of the lips and gums.
Risk for impaired skin integrity related to immobility as evidenced by the patient being sedated and unresponsive.
The patient will remain free of pressure injuries or skin breakdown during hospital stay.

Objective Data

The patient had an elevated BNP of 995 upon admission. The patient had decreased hemoglobin, hematocrit, platelets, RBCs, calcium, and albumin levels. Elevated AST, ALT, troponin, CO_2, creatinine, and BUN were found. The patient's chest x-ray showed suspect fluid overload with interstitial edema and small right basilar pleural effusions. The echocardiogram showed tricuspid, mitral, and pulmonary regurgitation. The ultrasound of the kidneys showed bilateral renal atrophy. The patient had diminished lung sounds bilaterally, mild pitting edema in the lower extremities, and was unresponsive to touch, verbal commands, and unarousable.

Client Information

An 80-year-old female with a history of osteoporosis, severe spinal kyphosis, anorexia nervosa, and malnutrition presented to the ED with dyspnea and weakness. The patient was admitted due to suspect acute heart failure exacerbation. The patient is a DNR/DNI but is currently intubated due to the family's wishes. Comfort care will be initiated following extubating.

Nursing Interventions

1.Assess airway patency and suction as needed.
2.Monitor ET tube placement. Note lip line marking and compare with desired placement. Secure tube carefully with tape as needed.
1. Observe overall breathing pattern. Note respiratory rate, and symmetry of chest movement.
2.Verify that the client's respirations are in phase with the ventilator.
1.Perform proper oral care on the patient every 2 hours and as needed.
2.Keep the head of bed elevated 30 to 45 degrees and perform suctioning as needed.
1.Routinely inspect oral cavity, teeth, gums for sores, lesions, and bleeding.
2. Change position of ET tube and airway on a regular and PRN schedule as appropriate.
1.Reposition the patient every two hours and as needed.
2. Use assistive devices as needed, such as a foam mattress, alternating pressure mattress, moon boots, pillows, and padding to protect bony prominences.