N321 Care Plan #2

Lakeview College of Nursing

Morgan Wagner

Demographics (3 points)

Date of Admission 06/25/21	**Patient Initials** R.J.	**Age** 57 years old	**Gender** female
Race/Ethnicity african american	**Occupation** disabled, on social security; used to work as a CNA	**Marital Status** divorced	**Allergies** tramadol ampicillin
Code Status full code	**Height** 5'6"	**Weight** 188 lbs 11.2 oz (constantly changing with dialysis)	

Medical History (5 Points)

Past Medical History: coronary artery disease, breast cancer, carcinoma, stage 3 chronic kidney disease, GFR 30-59ml/min, chronic obstructive pulmonary disease (COPD), diabetes mellitus, hypertension, myocardial infarction (MI), chronic systolic heart failure, hyponatremia

Past Surgical History: cesarean section, tubal ligation, breast lumpectomy, insertion dialysis catheter

Family History: diabetes mellitus and hypertension in mother, father unknown, paternal and maternal grandparent's unknown

Social History (tobacco/alcohol/drugs): has been smoking since she was 15 years old, smokes 1-2 packs of cigarettes a day; no smokeless tobacco or alcohol use; patient reports using marijuana recreationally throughout her life

Assistive Devices: glasses, walker, life vest

Living Situation: lives at home alone with the assistance of everyday activities from daughter

Education Level: high school graduate, some college

Admission Assessment

Chief Complaint (2 points): shortness of breath

History of present Illness (10 points): My patient is a 57-year-old African American female who present to the emergency department with shortness of breath. The patient has a past medical history of breast cancer, end stage renal disease, chronic obstructive pulmonary disease, diabetes mellitus, and chronic systolic heart failure. The patient was short of breath in her chest, stating she felt winded and almost as if she couldn't catch her breath. The patient has been having these symptoms for the past week. When she arrived to the emergency department, personnel found the patient to be very congested and wheezy. The patient has not anything to treat her shortness of breath, and this is her first time receiving medical care for the complaint. The patient did admit that she is noncompliant with her fluid and dietary restrictions, as well as medical regimen.

Primary Diagnosis

Primary Diagnosis on Admission (2 points): systolic heart failure

Secondary Diagnosis (if applicable): stage 3 chronic kidney disease

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

Heart failure is a medical disease that commonly occurs when a ventricular muscle is weakened and unable to adequately pump enough blood to meet the demands of the tissues (Capriotti, 2020). Heart failure can be distinguished in several ways; for example, patients can have diastolic or systolic dysfunction, acute or chronic heart failure, high-output or low-output, and forward or backward failure (Capriotti, 2020). The heart is an unprecedented muscular organ of the body that depends on the effectiveness and strength of all its chambers (Capriotti, 2020). Both ventricles are affected by the biochemical and pressure abnormalities that impact the myocardium in heart failure (Capriotti, 2020). A defect or weakness on one portion of the heart

will have repercussions on the other side over time, resulting in a mixed clinical presentation of the key signs and symptoms later on in the disease (Capriotti, 2020).

Chronic heart failure is more common than acute, a sudden and very quick development of heart failure (Capriotti, 2020). Chronic heart failure occurs when the heart progressively becomes weaker and suffers over an extended period of time (Capriotti, 2020). During systolic heart failure, the left ventricle is weakened and causes difficulty when ejecting blood out of the chamber (Capriotti, 2020). Because the left ventricle is a weak forward pump, ventricular emptying is in adequate (Capriotti, 2020). Both the stoke volume and cardiac output, which are functions of forward heart-pumping process, are reduced (Capriotti, 2020). The weakened left ventricle fills with blood, raising blood pressure inside the chamber (Capriotti, 2020). This creates a hydrostatic pressure backup in the left atrium superior (Capriotti, 2020). The left atrium's backward hydrostatic pressure causes pressure to build up in the pulmonary veins and eventually the pulmonary capillaries (Capriotti, 2020). This pressure that builds up in the capillaries causes pulmonary edema (Capriotti, 2020).

Additionally, as the left ventricular pump weakens, neurohormonal compensatory mechanisms are initiated, deteriorating heart failure (Capriotti, 2020). The kidney and SNS are involved in the neurohormonal process; the RAAS is activated when the kidney detects poor perfusion, which increases blood volume and peripheral artery vasoconstriction (Capriotti, 2020). The vasoconstriction causes extra blood volume, thus creating an additional strain on the damaged left ventricle and creating resistance (Capriotti, 2020). Furthermore, the baroreceptors detect a decrease in blood pressure as the heart pump declines, causing the SNS to raise heartrate and constrict peripheral arteries (Capriotti, 2020). The stimulant to upturn heartrate weakens the heart, and the supplementary peripheral vasoconstriction adds more opposition against the left

ventricle (Capriotti, 2020). These components exacerbate the heart's capability to pump (Capriotti, 2020).

When the ventricular muscle's forward pumping power is diminished, left ventricular systolic dysfunction develops (Capriotti, 2020). Because the left ventricle is feeble, it is unable to discharge its blood volume into the aorta, lowering stroke volume and cardiac output (Capriotti, 2020). Two of the significant effects the left ventricle's systolic insufficiency has is backward and forward outcomes of failure (Capriotti, 2020). Hydrostatic pressure develops in the left atrium, pulmonary veins, and pulmonary capillaries due to the retrograde impact of a faltering left ventricle (Capriotti, 2020). The brain, kidneys, and other organs have less perfusion due to the forward failure effects (Capriotti, 2020).

The RAAS is a significant contributor in heart failure's hormonal impact (Capriotti, 2020). Renin travels after being released and interacts with angiotensinogen, a protein produced by the liver (Capriotti, 2020). Angiotensinogen is split into angiotensin I, which flows and is transformed to angiotensin II in the lungs by angiotensin converting enzyme ACE (Capriotti, 2020). Angiotensin II has wide-ranging systemic actions that aggravate heart failure and advances the growth of ventricular hypertrophy (Capriotti, 2020). Angiotensin II is a powerful arterial vasoconstrictor that affects the entire circulatory system (Capriotti, 2020). Peripheral vascular resistance climbs as a result of the increasing vasoconstriction, raising afterload on the compromised heart (Capriotti, 2020). Elevated peripheral resistance to that same failing left ventricle, which is already impaired, makes it even more difficult (Capriotti, 2020). Angiotensin II also increases the secretion of aldosterone by the adrenal gland (Capriotti, 2020). Aldosterone increases potassium elimination from the circulation as well as sodium and water accumulation (Capriotti, 2020). The sodium and water buildup boosts blood pressure and overall blood volume

(Capriotti, 2020). As a result, angiotensin II's activation of aldosterone puts the compromised left ventricle under even more strain (Capriotti, 2020). The net effects of these elevate blood pressure and volume and build resistance against the left ventricle (Capriotti, 2020).

The signs and symptoms of heart failure include a number of varying manifestations. The general symptoms of heart failure include dyspnea, fatigue, weakness, edema of lower extremities, tachycardia, arrhythmias, altered exercise performance, continuous wheezing or cough, nocturia, ascites, very quick weight gain from fluid retention, lack of appetite, nausea and vomiting, deteriorating alertness, and trouble concentrating (Mayo Clinic Staff, 2020). It is urgent that a patient sees their physician when they experience chest pain, severe weakness or fatigue, loss of consciousness or fainting, tachycardia and/or arrhythmias, and a sudden, severe shortness of breath that includes coughing up pink, frothy sputum (Mayo Clinic Staff, 2020).

To correctly diagnosis heart failure, physicians may run both laboratory and diagnostic studies. One of the key laboratory values that will detect heart failure is BNP, or brain natriuretic peptide (Capriotti, 2020). This peptide is excreted by the heart and will be elevated in the bloodstream when there is heart failure occurring (Capriotti, 2020). A doctor may also perform a chest x-ray, electrocardiogram, echocardiogram, multiple-gated acquisition scan, and cardiac catheterization and angiography assist and reinforce the diagnosis of heart failure (Capriotti, 2020).

There are many different types of medical care when treating heart failure. The first intervention is lifestyle modifications, which includes a low sodium and fat diet, an increase in daily physical activity, and smoking cessation (Capriotti, 2020). Patients can include a walking regiment into their everyday routine, see a dietary specialist about what they should and shouldn't be eating, and begin the journey of stopping the bad habit of smoking to help better

their health and heart failure (Capriotti, 2020). In addition to lifestyle modifications, patients can be put on a number of pharmacological medications including diuretics, ACE inhibitors, angiotensin II receptor blockers, inotropic agents, aldosterone antagonists, arterial vasodilators, and synthetic natriuretic peptides (Capriotti, 2020).

R. J. was admitted on June 25th, 2021, with the primary diagnosis of systolic heart failure and a secondary diagnosis of stage 3 chronic kidney disease. The patient had a past medical history of coronary artery disease, COPD, diabetes mellitus, hypertension, and breast cancer. The patient was brought to the emergency department with a chief complaint of shortness of breath for the previous week before. The patient was found to be ill-appearing with mild distress at rest, edema in both lower extremities, orthopnea, elevated respirations, wheezes and crackles bilaterally in anterior and posterior lungs, and use of accessory muscles, all of which correlate with the primary diagnosis of systolic heart failure. Upon admission, blood work was ordered for the patient. When the labs came back, her monocytes, eosinophils, CO2, glucose, creatinine and BNP were elevated, and her RBC, Hct, Hgb, platelets, WBC, lymphocytes, sodium, chloride, and calcium levels, albumin, and phosphate were all elevated. The key lab value that correlates well with the primary diagnosis was the very elevated BNP. The physician's treatment plan was to continue the current management, try to ultrafiltrate 4 L of fluid every time the patient dialyzes until there is no significant edema in the lower extremities.

Pathophysiology References (2) (APA):

Capriotti, T. (2020). *Davis Advantage for Pathophysiology* (2nd ed.). F.A. Davis.

Mayo Clinic Staff. (2020, May 29). *Heart failure - Symptoms and causes*. Mayo Clinic. https://www.mayoclinic.org/diseases-conditions/heart-failure/symptoms-causes/syc-20373142

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	**Male: 4.7-6.1 Female: 4.2-5.4**	**3.14**	**2.40**	**Patient's decreased RBC may be due to her chronic kidney disease (Pagana et al., 2021).**
Hgb	**Male: 14-18g/dL Female: 12-16g/dL**	**8.6**	**8.4**	**Patient's decreased Hgb may be due to her chronic kidney disease (Pagana et al., 2021).**
Hct	**Male: 40-52% Female: 36-47%**	**26.7**	**26.4**	**Patient's decreased Hct may be due to her chronic kidney disease (Pagana et al., 2021).**
Platelets	**150-400 x 10^9/L**	**50**	**34**	**Patient's low platelet count may be due to the Lasix she takes daily (*Drug-Induced Thrombocytopenia*, 2019).**
WBC	**5-10 x 10^9/L**	**2.60**	**2.40**	**Patient's decreased WBC count may be due to her daily Lasix (*White Blood Cell Count - Series—Results*, 2019). The low levels may also be caused by her chronic kidney disease (Arai, 2017).**
Neutrophils	**55-70**	**69.4**	**60.0**	
Lymphocytes	**20-40**	**15.1**	**24.0**	**Patient's decreased WBC count may be due to her chronic kidney disease (Pagana et al., 2021).**
Monocytes	**2-8**	**9.5**	**10.5**	**Patient's increased monocyte levels may be due to her systolic heart**

				failure and coronary artery disease (Pietrangelo, 2019). The increased levels may also be due to her chronic kidney disease (Koraishy, 2018).
Eosinophils	**1-4**	**5.5**	**4.8**	**Increased eosinophil levels may be due to her daily Lasix (*Common and Rare Side Effects for Lasix Oral*, n.d.). The levels may also be due to her breast cancer (Mayo Clinic Staff, 2019). Increased eosinophils can also be due to chronic heart failure and chronic kidney disease (Cleveland Clinic Medical Professionals, 2018).**
Bands	**0.5-1**	**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 mEq/L**	**120**	**135**	**Patient's decreased sodium levels may be due to her daily Lasix, chronic kidney disease, or edema caused by heart failure or kidney disease (*Sodium | Lab Tests Online*, 2019). Patient also has a diagnosis of hyponatremia, a decreased sodium level.**
K+	**3.5-5 mEq/ L**	**3.5**	**3.6**	
Cl-	**98-106 mEq/L**	**86**	**99**	**Patient's decreased chloride levels may be due to her heart failure and COPD (*Chloride | Lab Tests Online*, 2019).**
CO2	**23-30 mEq/ L**	**30**	**32**	**Patient's elevated CO2 may be due to her diagnosis of COPD and chronic kidney disease (*Carbon Dioxide (CO2) in Blood*, 2020).**
Glucose	**74-106 mg/ dL**	**169**	**103**	**Patient's elevated glucose may be due to current diagnosis of diabetes mellitus (*Glucose Tests | Lab Tests Online*, 2020)**
BUN	**10-20**	**12**	**7**	**Patient's decreased BUN may be**

	mg/dL			**due to her chronic kidney disease and treatment of dialysis (Pagana et al., 2021).**
Creatinine	**0.5-1.1 mg/ dL**	**1.98**	**1.14**	**Patient's increased creatinine may be due to her chronic kidney disease and treatment of dialysis (Pagana et al., 2021).**
Albumin	**3.5-5 mg/dL**	**2.4**	**N/A**	**Patient's decreased albumin may be due to her chronic kidney disease and treatment of dialysis (Pagana et al., 2021).**
Calcium	**9-10.5 mg/dL**	**7.9**	**8.1**	**Patient's decreased calcium may be due to her chronic kidney disease and treatment of dialysis (Pagana et al., 2021).**
Mag	**1.3-2.1 mEq/dL**	**1.4**	**N/A**	
Phosphate	**3-4.5 mg/dL**	**3.1**	**1.0**	**Patient's phosphate may be low due to her diagnosis of diabetes mellitus or her dialysis treatment (*Phosphorus | Lab Tests Online*, 2018).**
Bilirubin	**0.3-1 mg/dL**	**0.8**	**N/A**	
Alk Phos	**30-120 U/L**	**111**	**N/A**	
AST	**0-35 U/L**	**20**	**N/A**	
ALT	**4-36 U/L**	**17**	**N/A**	
Amylase	**60-120 U/L**	**N/A**	**N/A**	
Lipase	**0-160 U/L**	**16.6**	**N/A**	
Lactic Acid	**Venous blood: 5-20 mg/dL** **Arterial blood: 3-7 mg/dL**	**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	**0.8-1.1**	**N/A**	**N/A**	
PT	**11-12.5 sec**	**N/A**	**N/A**	
PTT	**60-70 sec**	**N/A**	**N/A**	
D-Dimer	**Greater than 0.4 mcg/mL or greater than 250 ng/mL**	**N/A**	**N/A**	
BNP	**Less than 100 pg/mL**	**3024**	**4700**	**Patient's elevated BNP may be due to her diagnosis of heart failure (Pagana et al., 2021).**
HDL	**Male: greater than 45 mg/dL** **Female: greater than 55 mg/dL**	**N/A**	**N/A**	
LDL	**Adult: less than 130 mg/dL** **Children: less than 110 mg/dL**	**N/A**	**N/A**	
Cholesterol	**Less than 200 mg/dL**	**N/A**	**N/A**	
Triglycerides	**40-180 mg/dL**	**N/A**	**N/A**	
Hgb A1c	**Below 5.7%**	**N/A**	**N/A**	
TSH	**2-10 mU/L**	**N/A**	**N/A**	

Urinalysis Highlight All Abnormal Labs—Explanations must be in complete sentences and contain in-text citations in APA format. Verified with Professor Lawson, no lab tests were done for urine and cultures!

Lab Test	Normal Range	Value on Admission	Today's Value	Reason for Abnormal
Color & Clarity	Clear, Amber/ Yellow	N/A	N/A	
pH	4.6-8 Average: 6	N/A	N/A	
Specific Gravity	1.005-1.03	N/A	N/A	
Glucose	30-300 mg/day	N/A	N/A	
Protein	0-8 mg/dL	N/A	N/A	
Ketones	Negative	N/A	N/A	
WBC	0-4 per low-power field Negative for cast	N/A	N/A	
RBC	Less than or equal to 2, negative for cast	N/A	N/A	
Leukoesterase	Negative	N/A	N/A	

Cultures Highlight All Abnormal Labs—Explanations must be in complete sentences and contain in-text citations in APA format. Verified with Professor Lawson, no lab tests were done for urine and cultures!

Test	Normal Range	Value on Admission	Today's Value	Explanation of Findings
Urine Culture	Negative: less than 10,000 per mm of U Positive: greater than	N/A	N/A	

	100,000 per mm of U			
Blood Culture	**Negative**	**N/A**	**N/A**	
Sputum Culture	**Normal Upper RT**	**N/A**	**N/A**	
Stool Culture	**Normal intestinal flora**	**N/A**	**N/A**	

Lab Correlations Reference (1) (APA):

Arai, Y. (2017, July 11). ***Low white blood cell count is independently associated with chronic kidney disease progression in the elderly: the CKD-ROUTE study*****. PubMed. https://pubmed.ncbi.nlm.nih.gov/28699033/**

Carbon Dioxide (CO2) in Blood**. (2020, July 30). MedlinePlus. https://medlineplus.gov/lab-tests/carbon-dioxide-co2-in-blood/**

Chloride | Lab Tests Online**. (2019, November 26). Lab Tests Online. https://labtestsonline.org/tests/chloride**

Cleveland Clinic Medical Professionals. (2018, February 5). ***Eosinophilia: Causes, Treatment*****. Cleveland Clinic. https://my.clevelandclinic.org/health/diseases/17710-eosinophilia**

Common and Rare Side Effects for Lasix oral**. (n.d.). WebMD. Retrieved July 1, 2021, from https://www.webmd.com/drugs/2/drug-3776-8043/lasix-oral/furosemide-oral/details/list-sideeffects**

Drug-induced thrombocytopenia**. (2019, May 22). MedlinePlus. https://medlineplus.gov/ency/article/000556.htm**

Glucose Tests | Lab Tests Online**. (2020, August 18). Lab Tests Online.**

Koraishy, F. M. (2018, September). ***Monocyte count modifies the association between chronic kidney disease and risk of death*****. PubMed. https://pubmed.ncbi.nlm.nih.gov/29974856/**

Mayo Clinic Staff. (2019, October 8). ***Eosinophilia*****. Mayo Clinic. https://www.mayoclinic.org/symptoms/eosinophilia/basics/definition/sym-20050752?reDate=01072021**

Pagana, K. D., Pagana, T. N., & Pagana, T. J. (2021). ***Mosby's diagnostic and laboratory test reference*** **(15th ed.). Elsevier.**

Phosphorus | Lab Tests Online**. (2018, June 14). Lab Tests Online. https://labtestsonline.org/tests/phosphorus**

Pietrangelo, A. (2019, November 19). ***What Does It Mean If Your Monocyte Levels Are High?*** **Healthline. https://www.healthline.com/health/monocytes-high#causes-of-high-levels**

Sodium | Lab Tests Online**. (2019, December 19). Lab Tests Online. https://labtestsonline.org/tests/sodium**

White blood cell count - series—Results**. (2019, January 29). MedlinePlus. https://medlineplus.gov/ency/presentations/100151_3.htm**

Diagnostic Imaging

All Other Diagnostic Tests (5 points): Chest X-Ray and EKG

Diagnostic Test Correlation (5 points):

A Chest X-ray is used to show an image of the cardiac and pulmonary fields (Capriotti, 2020). For my patient, even though she was chronic heart failure, we were seeking for an image of her lungs due to the edema, crackles, and wheezes present. Upon inspection of the Chest X-ray, my patient was found to have total opacification of the left hemithorax with the right lung appearing grossly clear.

An electrocardiogram, or EKG, will illustrate and show any abnormalities of the heart (Capriotti, 2020). My patient was found to have sinus tachycardia with occasional premature ventricular complexes, low voltage QRS, and possible anterolateral infarct.

Diagnostic Test Reference (1) (APA):

Capriotti, T. (2020). *Davis Advantage for Pathophysiology* (2nd ed.). F.A. Davis.

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

Home Medications (5 required)

Brand/Generic	**quetiapine (Seroquel)**	**furosemide (Lasix)**	**metoprolol succinate SR (Toprol XL)**	**albuterol (Proventil HFA)**	**spironolactone (Aldactone)**
Dose	**100 mg**	**40 mg**	**50 mg**	**108 mcg/ACT (90 base)**	**25 mg**
Frequency	**take 1 tablet by mouth every day in the evening**	**take 1 tablet by mouth twice daily**	**take 1 tablet by mouth daily**	**take 2 puffs by mouth every 6 hours as needed for wheezing/ cough**	**take 1 tablet by mouth daily**
Route	**oral**	**oral**	**oral**	**oral**	**oral**
Classification	**antipsychotic**	**antihypertensive, diuretic**	**antianginal, antihypertensive**	**bronchodilator**	**diuretic**
Mechanism of Action	**May produce antipsychotic effects by interfering with dopamine binding to dopamine type**	**Inhibits sodium and water reabsorption in the loop of Henle and increases the urine formation.**	**Inhibits stimulation of beta1-receptor sites, located mainly in the heart, resulting in decreased**	**Albuterol attaches to beta 2 receptors on bronchial cell membranes,**	**Normally, aldosterone attaches to receptors on the walls of distal convoluted**

	2 receptor sites in the brain and by antagonizing serotonin 5-HT2, dopamine type 1, histamine H1, and adrenergic alpha 1 and alpha 2 receptors (Jones & Bartlett Learning, 2019).	**As the body's plasma volume decreases, aldosterone production increases, which promotes sodium reabsorption and the loss of potassium and hydrogen ions. By reducing intracellular and extracellular fluid volume, the drug reduces blood pressure and decreases cardiac output**	**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. Also helps reduce blood pressure by decreasing renal release of renin (Jones & Bartlett Learning, 2019).**	**which stimulates the intracellular enzyme adenylate cyclase to convert adenosine triphosphate (ATP) to cyclic adenosine monophosphate (cAMP). This reaction decreases intracellular calcium levels. It also increases intracellular labels of cAMP. Together, these effects relax bronchial smooth-muscle cells and inhibit histamine release (Jones & Bartlett Learning, 2019).**	**tubule cells, causing sodium and water reabsorption in the blood. This drug competes with aldosterone for these receptors, thereby preventing sodium and water reabsorption and causing their excretion through the distal convoluted tubules. Increased urinary excretion of sodium and water reduces blood volume and blood pressure (Jones & Bartlett Learning, 2019).**
Reason Client Taking	**This medication is often prescribed for certain mental or mood conditions, such as bipolar disorder and schizophrenia. I**	**Patient is taking to treat symptoms of fluid retention (edema) dye to heart failure (Jones & Bartlett Learning, 2019).**	**Patient is taking to treat hypertension**	**This medication is often prescribed as a bronchodilator that relaxes muscles in**	**Patient is taking for heart failure and edema**

	would clarify with the provider about the appropriate indication for use, as this is not listed on the medical diagnosis list.			**the airways and increases airflow to the lungs. It is often used to treat patients with asthma or certain types of chronic obstructive pulmonary disease (COPD). Therefore, my patient is taking to help treat her COPD.**	
Contraindications (2)	**hypersensitivity to quetiapine or its components**	**anuria, hypersensitivity to furosemide or its components, allergy to sulfa**	**acute heart failure, pulse less than 45 beats per minute, second or third degree AV block**	**Hypersensitivity to albuterol or its components**	**acute renal insufficiency, conditions associated with hyperkalemia, anuria**
Side Effects/Adverse Reactions (2)	**suicidal ideations, cardiomyopathy, hyponatremia, and neutropenia**	**arrhythmias, thromboembolism, hepatocellular insufficiency, hypocalcemia, hypokalemia, hypomagnesemia, hyponatremia**	**arterial insufficiency, cardiac arrest, heart failure, bronchospasm**	**hypotension, bronchospasm, pulmonary edema**	**encephalopathy, hypotension, renal failure, hyponatremia**
Nursing Considerations (2)	**-Know that quetiapine shouldn't be used for elderly patients with dementia related psychosis because drug increases the risk of death in**	**-Use cautiously in patients with advanced hepatic cirrhosis -Be aware that patients who are allergic to sulfonamides may also be allergic to furosemide**	**-Use this medication with extreme caution in patients who bronchospastic disease who don't respond to or can't tolerate other antihypertensives**	**-Administer pressurized inhalations of albuterol during second half of inspiration, when airways are open wider**	**-Know that in diagnosing primary aldosteronism, test is considered positive if patient's serum potassium level rises**

	these patients -Monitor patients (particularly children and young adults) closely for suicidal tendencies, especially when therapy starts or dosage changes, because depression may worsen temporarily during these times		**-Check for signs of poor glucose control in patient with diabetes mellitus, this drug can interfere with therapeutic effects of insulin or oral antidiabetic drugs**	**and aerosol distribution is more effective -Be aware that drug tolerance can develop with prolonged use**	**when spironolactone is given and falls when it is discontinued -Evaluate spironolactone ’s effectiveness by assessing blood pressure and presence of degree of edema**

Hospital Medications (5 required)

Brand/Generic	**epoetin alfa - EPBX (Retacrit)**	**iron sucrose (Venofer)**	**glucose gel (Glutose)**	**folic acid (Folvite)**	**insulin glargine (Lantus)**
Dose	**8000u (2 mL)**	**100 mg (5mL)**	**40% gel (15 g)**	**1 mg**	**100u/mL**
Frequency	**inject 8000u subcutaneously for one dose**	**administer 100 mg (5mL) by slow IV push injection over 2-5 minutes**	**administer 1 dose if patient is unable to take food, but conscious and able to swallow**	**take 1 tablet by mouth daily**	**inject 25 units subcutaneously every morning and 10 units subcutaneously every evening**
Route	**subcutaneous**	**IV**	**oral**	**oral**	**subcutaneous**
Classification	**antianemic**	**hematinic**	**antihypoglycemic**	**water-soluble vitamins**	**long-acting insulin**
Mechanism of Action	**Stimulates the release of reticulocytes**	**Acts to replenish iron stores**	**Glucose can act as precursors**	**Folic acid, as it is biochemical**	**Insulin glargine binds to the insulin receptor**

	from the bone marrow into the bloodstream, where they develop into mature RBCs (Jones & Bartlett Learning, 2019).	**lost during dialysis because of increased erythropoiesis and insufficient absorption of iron from GI tract. Also normalizes RBC production by binding with hemoglobin or being stored as ferritin in reticuloendothelial cells of the bone marrow, liver, or spleen (Jones & Bartlett Learning, 2019).**	**to generate other biomolecules such as vitamin C. It plays a role as a signaling molecule to control glucose and energy homeostasis (*Glucose Gel Oral: Uses, Side Effects, Interactions, Pictures, Warnings & Dosing - WebMD*, n.d.), (*Glucose: Uses, Interactions, Mechanism of Action | DrugBank Online*, 2015).**	**ly inactive, is converted to tetrahydrofolic acid and methyltetrahydrofolate by dihydrofolate reductase (DHFR). These folic acid congeners are transported across cells by receptor-mediated endocytosis where they are needed to maintain normal erythropoiesis, synthesize purine and thymidylate nucleic acids, interconvert amino acids, methylate tRNA, and generate and use formate. Using vitamin B12 as a cofactor, folic acid can normalize**	**(IR), a heterotetrameric protein consisting of two extracellular alpha units and two transmembrane beta units. The binding of insulin to the alpha subunit of IR stimulates the tyrosine kinase activity intrinsic to the beta subunit of the receptor. The bound receptor autophosphorylates and phosphorylates numerous intracellular substrates such as insulin receptor substrates (IRS) proteins, Cbl, APS, Shc and Gab 1. Activation of these proteins leads to the activation of downstream signalling molecules including PI3 kinase and Akt. Akt regulates the activity of glucose transporter 4 (GLUT4) and protein kinase C**

				high homocysteine levels by remethylation of homocysteine to methionine via methionine synthetase (Folic Acid: Uses, Interactions, Mechanism of Action | DrugBank Online, 2005).	**(PKC), both of which play critical roles in metabolism. Insulin glargine is completely soluble at pH 4, the pH of administered solution, and has low solubility at physiological pH 7.4. Upon subcuteous injection, the solution is neutralized resulting in the formation of microprecipitates. Small amounts of insulin glargine are released from microprecipitates giving the drug a relatively constant concentration over time profile over 24 hours with no pronounced peak. This release mechanism allows the drug to mimic basal insulin levels within the body (*Insulin Glargine: Uses, Interactions, Mechanism of Action | DrugBank***

					***Online*, 2005).**
Reason Client Taking	**Patient is taking due to hemodialysis treatment**	**Patient is taking due to hemodialysis treatment**	**Patient may take due to possible low blood sugar**	**This medication is often prescribed for folic acid deficiency, megaloblastic anemia, and in anemias of nutritional origins pregnancy, infancy, or childhood. I would clarify with the provider about the appropriate indication for use, as this is not listed on the medical diagnosis list.**	**Patient is taking due to diabetes mellitus to control blood sugar**
Contraindications (2)	**breastfeeding, pregnancy, uncontrolled hypertension, infants and neonates**	**anemia other than iron deficiency, hypersensitivity to iron salts or their components, iron overload**	**hypersensitivity to glucose gel or its components**	**renal disease, failure, or impairment, hypersensitivity to folic acid or its components, pernicious anemia**	**episodes of hypoglycemia, hypersensitivity to insulin glargine or its components**
Side Effects/Adverse Reactions (2)	**congestive heart failure, seizures, deep vein**	**hypotension, shock, hypoglycemia,**	**hypotension, allergic reaction, itching,**	**abdominal cramps, diarrhea, irritability,**	**anxiety, blurred vision, chills, difficulty thinking,**

	thrombosis, pulmonary congestion	**angioedema**	**trouble breathing**	**nausea, stomach upset**	**drowsiness**
Nursing Considerations (2)	**-Be aware that this drug shouldn't be given to cancer patients when a cure is anticipated because drug may decrease survival rate and increase tumor progression** **-Use drug cautiously in patients with cardiovascular disorders caused by hypertension, a history of porphyria or seizures, vascular disease, or a hematologic disorder**	**-Give drug directly into dialysis line by slow IV injection or by infusion** **-Assess blood pressure often after drug administration because hypotension is a common adverse reaction that may be related to infusion rate**	**-Do not give oral glucose gel to a patient who is unconscious** **-Monitor the patient's blood glucose levels**	**-Administer orally if at all possible. With severe GI malabsorption or very severe disease, give IM, IV, or subcutaneously** **-Use caution when giving the parenteral preparing to premature infants. These preparations contain benzyl alcohol and may product a fatal gasping syndrome**	**-Inspect skin areas that will be used for injection, note any areas that are bruised, thickened, or scarred which could interfere with insulin absorption and alter anticipated response** **-Have a colleague double check the dosage of insulin drawn up**

Medications Reference (1) (APA):

***Folic acid: Uses, Interactions, Mechanism of Action | DrugBank Online*. (2005, June 30).**

DrugBank. https://go.drugbank.com/drugs/DB00158

***Glucose Gel Oral: Uses, Side Effects, Interactions, Pictures, Warnings & Dosing - WebMD*.**

(n.d.). WebMD. Retrieved July 1, 2021, from

https://www.webmd.com/drugs/2/drug-144242/glucose-gel-oral/details

***Glucose: Uses, Interactions, Mechanism of Action | DrugBank Online*. (2015, November 27). DrugBank. https://go.drugbank.com/drugs/DB09341**

***Insulin glargine: Uses, Interactions, Mechanism of Action | DrugBank Online*. (2005, June 13). DrugBank. https://go.drugbank.com/drugs/DB00047**

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

Assessment

Physical Exam (18 points)

GENERAL (1 point): **Alertness:** **Orientation:** **Distress:** **Overall appearance:**	**Alert and oriented x3** **well groomed** **ill-appearing** **mild distress at rest**
INTEGUMENTARY (2 points): **Skin color:** **Character:** **Temperature:** **Turgor:** **Rashes:** **Bruises:** **Wounds:** . **Braden Score:** **Drains present: Y☐ N ☐** **Type:**	**Brown/black skin color with slight paleness** **Skin warm and dry upon palpation** **No rashes, lesions, or bruising** **Normal quantity, distribution, and texture of hair** **Nails without clubbing or cyanosis** **Skin turgor normal mobility** **Capillary refill less than 3 seconds fingers and toes bilaterally** **No drains present** **Braden score of 14, medium risk** **Single lumen implant port (infraclavicular fossa) on right side of chest** **Double lumen tunneled central line (internal jugular vein) on right side of chest**
HEENT (1 point):	**Head and neck are symmetrical, trachea is**

Head/Neck: **Ears:** **Eyes:** **Nose:** **Teeth:**	**midline without deviation, thyroid is not palpable, no noted nodules. Bilateral carotid pulses are palpable and 2+. No lymphadenopathy in the head or neck is noted.** **Bilateral sclera white, bilateral cornea clear, bilateral conjunctiva pink, no visible drainage from eyes. Bilateral lids are moist and pink without lesions or discharge noted. PERRLA bilaterally , red light reflex present bilaterally, Rosemburg 20/20, EOMs intact bilaterally.** **Bilateral auricles moist and pink without lesions, bilateral canals clear with pearly grey tympanic membranes** **Septum is midline, turbinates are moist and pink bilaterally and no visible bleeding or polyps. Bilateral frontal sinuses are nontender to palpation.** **Posterior pharynx and tonsils are moist and pink without exudate noted. Tonsil size is 1+. Uvula is midline; soft palate rises and falls symmetrically. oral mucosa overall is moist and pink without lesions noted.** **Patient has no teeth, dentures in their place** .
CARDIOVASCULAR (2 points): **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:**	**Clear S1 and S2 without murmurs, gallops or rubs.** **PMI palpable at 5th intercostal space at MCL.** **Normal rate and rhythm.** **Peripheral pulses are 2+ in all upper and lower extremities.** **No neck vein distention.** **Edema present in both lower extremities.** **Orthopnea present** **Capillary refill less than 3 seconds in fingers and toes**
RESPIRATORY (2 points): **Accessory muscle use: Y☐ N ☐** **Breath Sounds: Location, character**	**Normal pattern of respirations.** **Slightly elevated rate of respirations.** **Respirations symmetrical but labored.** **Lung sounds not clear throughout anterior/posterior bilaterally, wheeze and crackles**

	present **Shortness of breath** **Orthopnea present** **Deep, congested cough present** **Use of accessory muscles**
GASTROINTESTINAL (2 points): **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 ☐** **Size:** **Feeding tubes/PEG tube Y ☐ N ☐** **Type:**	**Abdomen is soft, nontender, no organomegaly or masses notes upon palpation of all four quadrants.** **Bowel sounds are normoactive in all four quadrants.** **No CVA tenderness noted bilaterally.** **Low sodium diet at home and in the hospital, but does not follow** **Fluid restrictions, does not follow** **5'6"** **188 lbs 11.2 oz (constantly changing with dialysis)** **Last bowel movement at 0700 on 06/28** **No distention, incisions, scars, drains, or wounds.** **No ostomy** **No NG tube, feeding tube, or PEG tube**
GENITOURINARY (2 Points): **Color:** **Character:** **Quantity of urine:** **Pain with urination: Y ☐ N ☐** **Dialysis: Y ☐ N ☐** **Inspection of genitals:** **Catheter: Y ☐ N ☐** **Type:** **Size:**	**Clear, yellow urine** **200 ml output** **No pain with urination** **Currently doing dialysis M, W, F (everyday while in hospital)** **Genitals appeared clean** **No catheter**
MUSCULOSKELETAL (2 points): **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☐**	**All extremities have full ROM** **Hand grips and pedal pushes/pulls demonstrate normal and equal strength (2+)** **No swelling, tenderness, deformity, or signs of injury** **Patient uses a walker, has a life vest** **Patient needs ADL assistance** **Fall score of 80, high risk** **Needs assistance to get up and walk with walker**

NEUROLOGICAL (2 points): **MAEW: Y ☐ N☐** **PERLA: Y ☐ N☐** **Strength Equal: Y ☐ N ☐ if no -** **Legs ☐ Arms ☐ Both ☐** **Orientation:** **Mental Status:** **Speech:** **Sensory:** **LOC:**	**Alert and oriented x3** **No focal deficits** **Moves all extremities well** **PERRLA intact bilaterally** **Strength is equal in upper extremities bilaterally** **No LOC**
PSYCHOSOCIAL/CULTURAL (2 points): **Coping method(s):** **Developmental level:** **Religion & what it means to pt.:** **Personal/Family Data (Think about home environment, family structure, and available family support):**	**Mood and behavior is normal** **Patient has a normal developmental level** **Patient states she "likes to watch TV" to cope** **Believes in God, but does not practice or worship** **Patient is Baptist, goes to church every Sunday when able to** **Patient's daughter and mother are very supportive and help to take care of her**

Vital Signs, 2 sets (5 points)

Time	Pulse	B/P	Resp Rate	Temp	Oxygen
0701	**78**	**115/77**	**18**	**97.3**	**94%**
0855	**111**	**110/86**	**26**	**98.9**	**100%**

Pain Assessment, 2 sets (2 points)

Time	Scale	Location	Severity	Characteristics	Interventions
0701	**0-10 face scale**	**N/A**	**0, happy face**	**N/A**	**N/A**
1101	**0-10 face scale**	**N/A**	**0, happy face**	**N/A**	**N/A**

IV Assessment (2 Points)

IV Assessment	Fluid Type/Rate or Saline Lock
Size of IV: 20 gauge **Location of IV: medial side of right arm** **Date on IV: 06/25/21** **Patency of IV: flushes without difficult, patent** **Signs of erythema, drainage, etc.: No** **IV dressing assessment: clean, dry, intact**	normal saline, 0.9% sodium chloride

Intake and Output (2 points)

Intake (in mL)	Output (in mL)
3580 mL	**15400 mL**

Nursing Care

Summary of Care (2 points)

Overview of care: Patient was well taken care of during my clinical time. The patient spent most of the day doing her dialysis treatment, so I kept her company. I made sure that the patient was warm, comfortable, always had water, and the call light was within reach. I always ensure her bible and purse were by her side, because if she couldn't see them, she would get very upset. I elevated the head of her bed as she was experiencing shortness of breath. I monitored her fluid intake and made sure her bed rails were always up to ensure patient safety.

Procedures/testing done: Dialysis was performed, the patient had a chest x-ray and EKG performed.

Complaints/Issues: The patient constantly wished to go home.

Vital signs (stable/unstable): Vital signs were mostly stable, the patient's blood pressure usually runs around the same ranger, the morning O2 percentage was low

because she refused to wear her oxygen mask, respirations were elevated because the patient had shortness of breath and endured multiple coughing fits.

Tolerating diet, activity, etc.: Patient was not following her fluid and dietary restrictions.

Physician notifications: Continue the current management, try to ultrafiltrate 4 L of fluid every time the patient dialyzes but still has significant edema of legs.

Future plans for patient: Discharge and follow up with primary is per the patient's request. A fellow nurse or physician should sit down with the patient and discuss just how serious her illnesses are and the medical help she needs.

Discharge Planning (2 points)

Discharge location: The patient will be going back to live at home by herself.

Home health needs (if applicable): Patient's daughter assists with everyday living

Equipment needs (if applicable): Patient needs her walker and life vest

Follow up plan: Follow up with primary care provider after discharge, follow fluid and dietary restrictions

Education needs: The patient does not fully understand the seriousness of her condition. I believe there is a cognitive issue going on, but it does not state a diagnosis or illness in the patient's chart. The patient was very persistent on going home, even after she was informed that her left lung was completely full of fluid. Her provider needs to sit her down and address the major illnesses and issues that are going on.

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	**Rational** ● Explain why the nursing diagnosis was chosen	**Intervention (2 per dx)**	**Evaluation** ● How did the patient/family respond to the nurse's actions? ● Client response, status of goals and outcomes, modifications to plan.
1. Decreased cardiac output related to systolic heart failure as evidence by abnormal EKG, edema, and dyspnea	**The patient's nursing diagnosis was chosen due to her diagnosis of chronic systolic heart failure.**	**1. Monitor and record heart rate, rhythm, and blood pressure and auscultate heart and lung sounds at least every 4 hours.** **2. Maintain dietary restrictions as ordered.**	**The patient understood the importance of maintaining a pulse and blood pressure within set limits and was able to verbally communicate the reason back to me. When I discussed the dietary and fluid restrictions to the patient, she became very upset and refused to talk about the subject any longer. The patient's daughter was not there to discuss the appropriate interventions for her mother.**
2. Excess fluid volume related to systolic heart failure and chronic kidney disease as evidence by edema, pleural effusion, electrolyte imbalance, weight gain, and adventitious breath sounds	**The patient's nursing diagnosis was chosen due to the crackles noted in her chest, the edema constantly present in both lower extremities, the sodium imbalance, and the diagnosis of systolic heart failure and chronic kidney disease.**	**1. Weigh patient daily before breakfast as ordered to provide consistent readings.** **2. Administer diuretics per providers orders to promote fluid excretion**	**Before admission to the hospital, the patient knew that it was important to weigh herself daily and made it a normal part of her daily routine. Therefore, I did not have to provide much information about daily weights. After informing the patient and emphasizing on the need of taking her diuretic, she agreed to try to remember to take her medications every day. She even made a goal of setting herself a daily reminder to take**

			her medications.
3. Risk-prone health behaviors related to noncompliance as evidence by refusal to follow dietary and fluid restrictions and insistence to go home without regards to medical condition	**The patient's nursing diagnosis was chosen because of her noncompliance in regards to her physical condition. The patient refuses to follow her dietary and fluid restrictions as well as medication regimen. The patient also insisted on going home and signed an AMA (against medical advice) form even though her left lung was completely full of fluid.**	**1. Begin teaching patient and caregivers the skills needed to adequately manage care** **2. Encourage patient to express feelings in a safe, private environment**	**The patient's daughter was not present to listen to the different interventions I had in regards to her mother's care. I explained to my patient that I wanted her to express her feelings to me, and she began to cry and state that she just wanted to go home. I believe that my patient was just very confused, and did not adequately understand her poor health condition. I explained how dangerous some of the illnesses that she has are, and that gave her some insight into the problems that she has. It almost seemed as though she understands that she may die, but she showed no interest in bettering herself nor her health.**

Other References (APA):

Phelps, L. L. (2020). *Sparks & Taylor's Nursing Diagnosis Reference Manual* (11th ed.). LWW.

Concept Map (20 Points):

Subjective Data

Patient came into the ED complaining of shortness of breath. She stated she felt very winded, almost as if she couldn't catch her breath.

Patient also stated she believed she had gained 8 pounds in the last week.

Patient informed us that she usually dialyzes Mondays, Wednesdays, and Fridays.

Nursing Diagnosis/Outcomes

Decreased cardiac output related to systolic heart failure as evidence by abnormal EKG, edema, and dyspnea
Patient will maintain adequate cardiac output
Patient will understand diet, medication regimen, and prescribed activity level
Patient's pulse and blood pressure remains within set limits
Excess fluid volume related to systolic heart failure and chronic kidney disease as evidence by edema, pleural effusion, electrolyte imbalance, weight gain, and adventitious breath sounds
Patient's BUN, creatinine, sodium, and potassium levels will stay within acceptable ranges
Patient will return to baseline weight
Patient will have unlabored respirations
Risk-prone health behaviors related to noncompliance as evidence by refusal to follow dietary and fluid restrictions and insistence to go home without regards to medical condition
Patient recognizes necessity of learning to live with impairment
Patient will demonstrate ability to perform simple self-care measures

Objective Data

Vitals at 0701: HR 78, BP 115/77, Respirations 18, Temp. 97.3 F, O2 94%
Vitals at 0855: HR 111, BP 110/86, Respirations 26, Temp. 98.9 F, O2 100%
Ill-appearing with mild distress at rest
Braden score of 14, medium risk
Single lumen implant port (infraclavicular fossa) on right side of chest
Double lumen tunneled central line (internal jugular vein) on right side of chest
Patient has no teeth, dentures in their place
Edema present in lower extremities bilaterally
Orthopnea present
Elevated respirations
Wheeze and crackles present bilaterally in anterior and posterior lungs
Deep congested cough
Use of accessory muscles
Fall score of 80, high risk
Decreased RBC, Hgb, Hct, platelets, WBC, lymphocytes, sodium and chloride levels, calcium levels, albumin, and phosphate
Elevated monocytes, eosinophils, CO2, glucose, creatinine and BNP.

Patient Information

African American
Female
57 years old
Full code
Allergies to tramadol and penicillin
5'6
188 lbs 11.2 oz
Divorced
Systolic Heart Failure
Chronic Kidney Disease COPD
Dialysis M/W/F weekly

Nursing Interventions

1. Monitor and record heart rate, rhythm, and blood pressure and auscultate heart and lung sounds at least every 4 hours.
2. Maintain dietary restrictions as ordered.
3. Weigh patient daily before breakfast as ordered to provide consistent readings.
4. Administer diuretics per providers orders to promote fluid excretion
5. Begin teaching patient and caregivers the skills needed to adequately manage care
6. Encourage patient to express feelings in a safe, private environment