Medications

Amlodipine: Pharmacological: calcium channel blocker; therapeutic: antianginal, antihypertensive. The client is taking this medication to help control his hypertension. Amlodipine should be used cautiously in patients with heart failure and monitor blood pressure and assess chest pain when starting or increasing the dosage (Jones and Bartlett, 2021).

Sevelamer: Pharmacologic: polymeric phosphate binder; therapeutic: phosphate binder. The patient is taking this medication to control serum phosphate levels because of being on dialysis. Monitor blood pressure frequently and monitor serum phosphorus level to determine the drugs effectiveness (Jones and Bartlett, 2021).

Carvedilol: Pharmacologic: nonselective beta blocker and alpha-1 blocker; therapeutic: antihypertensive, heart failure treatment adjunct. The patient is taking this to treat chronic heart failure. Monitor patients' glucose level because drug may alter the level (Jones and Bartlett, 2021).

Furosemide: pharmacologic: loop diuretic; therapeutic: antihypertensive, diuretic. The patient is taking this to reduce edema caused by heart failure. Obtain patients weight before and periodically during furosemide treatment to monitor fluid loss (Jones and Bartlett, 2021).

Heparin: pharmacologic: anticoagulant; therapeutic: anticoagulant. The patient is taking this to help prevent venous thrombosis. Take bleeding precautions because bleeding is a major adverse effect of heparin (Jones and Bartlett, 2021).

Demographic Data

Date of Admission: 3/17/2024
Admission Diagnosis/Chief Complaint: acute pulmonary edema
Age: 68
Gender: male
Race/Ethnicity: white
Allergies: n/a
Code Status: full
Height in cm: 180.3 cm
Weight in kg: 118 kg
Psychosocial Developmental Stage: normal
Cognitive Developmental Stage: normal
Braden Score: 16
Morse Fall Score: 35
Infection Control Precautions: none

Pathophysiology

Disease process: Pulmonary edema is caused when there is an increase in hydrostatic pressure in the capillary bed of the lungs. When this happens, fluid is accumulated around the alveoli and causes an inhibition of oxygen transfer. The main cause of hydrostatic pressure being built up in the capillary bed of the lungs is left ventricular heart failure (Capriotti & Frizzell, 2020). When a patient has left ventricular heart failure the left ventricle is weak and cannot eject all of the blood that is in the chamber, so it builds up in the left ventricle resulting in pressure backing up into the left atrium, pulmonary veins, and pulmonary capillaries (Capriotti & Frizzell, 2020).

S/S of disease: The main symptom of pulmonary edema is severe respiratory distress. Along with the shortness of breath, the patient may also experience pink frothy sputum (Hinkle & Cheever, 2022). If the patients shortness of breath continues for too long, the lack of oxygen may get to the brain and cause the patient to be confused. When listening to the lung sounds of a patient with pulmonary edema, you will most likely hear coarse and loud crackles on auscultation (Hinkle & Cheever, 2022).

Method of Diagnosis: To diagnose this patient, the provider will take into account all of the patients clinical presentation of symptoms. The provider will also order a chest x-ray on the patient. This chest x-ray will show any congested pulmonary vasculature and infiltrates, or any presence of fluid in or around the patients lungs. The provider will also order a CT of the chest to show a more specific view of the respiratory system and to help rule out any other different conditions. (Capriotti &Frizzell, 2020).

Treatment of disease: When treating a patient with this disease, the goal is to decrease the hydrostatic pressure in the pulmonary capillaries which will lead to a reduction of fluid in the pulmonary interstitial and increase oxygen flow in the blood (Hinkle & Cheever, 2022). To this this the patient will receive diuretics to enhance water loss in the bloodstream and reduce any edema. The patient will also be put on oxygen to help with the shortness of breath. The patient will have digitalis to help strengthen left ventricular function, and they will be prescribed ACE inhibitors to reduce RAAS that happens will left ventricular failure (Capriotti & Frizzell, 2020).

Lab Values/Diagnostics

Glucose: 249 (70-110): A high glucose level is most likely because of his diagnosis of type 2 diabetes.

Troponin: 0.231 (0.00-0.03): in patients with chronic heart failure, troponin levels may be high because it shows myocardial injury.

XR chest: a chest x-ray shows the presence of fluid in or around the lungs (Capriotti & Frizzell, 2020).

CT Angio chest pulmonary: A CT will show a more specific view of the respiratory system and can identify many different conditions (Capriotti & Frizzell, 2020).

CV echo: Since the patient was having chest pain they most likely did an echo because it shows the activity and structure and function of the heart (Capriotti & Frizzell, 2020).

Admission History

Patient was at home watching basketball game when he got very SOB and had some chest pain. Patient had missed dialysis earlier this week on Friday due to being SOB as well. Patient came to the ER because the SOB was making him anxious, and he wanted to be seen by a provider. The patient did not do anything to manage him symptoms before coming to the hospital.

Medical History

Previous Medical History: Coronary artery disease, diabetes mellitus type 2, chronic renal failure stage 5, chronic kidney disease, diabetic peripheral neuropathy, deep venous thrombosis, hypertension, idiopathic chronic pancreatitis, chronic heart failure

Prior Hospitalizations: 2010: pancreatitis

Previous Surgical History: Cataract extraction: 2010, pancreatic stent: 2010, partial pancreatectomy: 2010, arthroscopy of knee: 11/08/2021, Dialysis catheter presternal insertion: 1/12/2022, arterial venous shunt creation – fistula: 8/12/2022, dialysis catheter peritoneal insertion: 8/12/2022

Social History: No alcohol or substance use. Tobacco use: chew; started at 16 stopped at 66 years old.

Active Orders

CV echo limited: reason: chest pain, elevated troponin.

EKG: reason: heart failure

Oxygen therapy protocol: reason: SpO2 goal 92% or greater

Consistent carbohydrate diet: reason: renal diet

1.5 L fluid restriction: reason: decreased urine output due to renal impairment.

Physical Exam/Assessment

General: A&Ox4, patient alert and responsive, patient appeared to be in no visual distress and had an appropriate appearance. Patient was talking and joking with myself and the primary nurse.

Integument: Toes on both feet black from dropping farm equipment on them. Skin color usual for ethnicity. Skin clean, dry, and intact, with a warm temperature.

HEENT: Head and neck symmetrical with skull and face. Trachea midline with no enlargements of lymph nodes or thyroid. Patient has normal placement of ears with no drainage. Patient was able to have a normal conversation. Eyes PERRLA. Nose was midline with no drainage. Tongue was midline.

Cardiovascular: Normal heart sounds, all pulses are +3, normal capillary refill time of 2 seconds.

Respiratory: Respirations appeared regular and unlabored with no use of accessory muscles. Crackles heard while listening to lung sounds.

Genitourinary: Patient had no output of urine while I was taking care of him during clinical hours. The patient is on dialysis.

Gastrointestinal: The patient is on a 1.5 L fluid restriction due to decreased urine output due to renal impairment. Patient is also on a consistent carbohydrate renal diet. Patients last bowel movement was yesterday, 3/17/24. Patient stated there was no pain to palpation and no masses were felt. Abdomen is flat and symmetrical. No distention, incisions, scars, drains, or wounds.

Musculoskeletal: Nail beds pink, normal capillary refill time. Patient has active ROM. Patient has a fall score of 35. Patient does not use any assistive devices.

Neurological: Patient is A&Ox4. Patient has normal cognition and speech is clear and usual for age. Patient was awake and alert and able to answer all questions appropriately.

Most recent VS (include date/time and highlight if abnormal): BP: 140/71, pulse: 68, RR: 18, temp: 37 Celsius, O2: 95%

Pain and pain scale used: pain: 5/10

Nursing Diagnosis 1 Ineffective breathing pattern related to pulmonary edema as evidenced by shortness of breath.	Nursing Diagnosis 2 Decreased activity tolerance related to shortness of breath as evidenced by patient not being able to move around much without getting worn out.	Nursing Diagnosis 3 Anxiety related to shortness of breath as evidenced by the patient stating he is having anxiety.
Rationale Due to pulmonary edema causing shortness of breath in patients it is important to monitor patient to assess for any signs of respiratory distress.	Rationale The patient needs to build up activity tolerance in order to be safely discharged to home.	Rationale It is important to get the patients anxiety under control so they can relax and focus on getting better.
Interventions Intervention 1: observe for signs of respiratory distress such as the use of accessory muscles, nasal flaring, retractions, and grunting. Intervention 2: administer oxygen as ordered.	Interventions Intervention 1: teach patient exercises for increasing strength and endurance. Intervention 2: Have patient perform self-care activities and assist with turning and transfer.	Interventions Intervention 1: attend to patients comfort needs to increase trust and reduce anxiety. Intervention 2: Give patient clear, concise explanations of any care that is going to occur.
Evaluation of Interventions The patient had no signs of respiratory distress and continued use of oxygen order to keep O2 above 92%.	Evaluation of Interventions Patient is able to perform self-care activities to tolerance level and states desire to increase activity level.	Evaluation of Interventions The patients anxiety is well controlled and he is able to relax and focus on getting better.

References (3) (APA):

Capriotti, T & Frizzell, J.P. (2020). *Pathophysiology: Introductory concepts and clinical perspectives*. (2nd ed.). F.A. Davis Company.

Hinkle, J. L., & Cheever, K. H. (2022). *Brunner & Suddarth's textbook of medical-surgical nursing* (15th ed.). Wolters Kluwer Health Lippincott Williams & Wilkins

Jones & Bartlett Learning. (2023). 2021 *Nurse's drug handbook* (22nd ed.). Jones & Bartlett Learning.