Medications

Medication
Classification
Reason for taking
Nursing Assessment
amlodipine
norvasc
Calcium channel blocker; Cardiovascular Agent; Dihydropyridine (*IBM Micro Medex*, n.d.)
Treat high blood pressure
Assess heart function; can cause adverse reactions related to the heart (*IBM Micro Medex*, n.d.)
losartan
Cozaar
Angiotensin II Receptor Antagonist; Cardiovascular Agent (*IBM Micro Medex*, n.d.)
Treat high blood pressure
Assess use of diabetic medications; can be contraindicated (*IBM Micro Medex*, n.d.)
aspirin
Ecotin
Analgesic; NSAID; Platelet Aggregation Inhibitor; Salicylate, Aspirin (*IBM Micro Medex*, n.d.)
Pain relief, anticoagulant
BEERS criteria: monitor the amount consumed daily (*IBM Micro Medex*, n.d.)
atorvastatin
Lipitor
Antihyperlipidemic; HMG-CoA Reductase Inhibitor (*IBM Micro Medex*, n.d.)
Treat hyperlipidemia, lower LDL and triglycerides
Need baseline liver functioning and CK levels (*IBM Micro Medex*, n.d.)
carvedilol
Coreg
Alpha/Beta-Adrenergic Blocker; Cardiovascular Agent (*IBM Micro Medex*, n.d.)
Treat high blood pressure
Assess baseline heart rate; bradycardia is contraindicated (*IBM Micro Medex*, n.d.)
clonidine
Catapres
Alpha-2 Adrenergic Agonist; Analgesic Antihypertensive; Central Nervous System Agent (*IBM Micro Medex*, n.d.)
Treat high blood pressure
BEERS criteria - antihypertensive; assess blood pressure before administration (*IBM Micro Medex*, n.d.)
doxazosin
Cardura
Alpha-1 Adrenergic Blocker; Cardiovascular Agent (*IBM Micro Medex*, n.d.)
Treat high blood pressure
Assess the position of the client upon administration; postural hypotension could occur, also assist the client with standing after administration (*IBM Micro Medex*, n.d.)
famotidine
Pepcid
Gastric Acid Secretion Inhibitor; Gastrointestinal Agent; Histamine H2 Antagonist (*IBM Micro Medex*, n.d.)
Treat heartburn, indigestion, or acid reflux
Assess the baseline renal function; reduce the dosage with signs of renal impairment (*IBM Micro Medex*, n.d.)
heparin
Heparin
Anticoagulant; Heparin (class) (*IBM Micro Medex*, n.d.)
Used to thin the blood and prevent clotting
Assess blood pressure before administration; severe hypertension increases the risk for hemorrhage (*IBM Micro Medex*, n.d.)
hydralazine
Apresoline
Peripheral Vasodilator (*IBM Micro Medex*, n.d.)
Treat high blood pressure, open the arteries and veins for less pressure
Assess pregnancy while taking this medication; EKG changes can occur (*IBM Micro Medex*, n.d.)
insulin lispro
Humalog
Antidiabetic; Insulin, Ultra Rapid Acting (*IBM Micro Medex*, n.d.)
Used to treat diabetes mellitus
Assess heart and S/S heart failure; can cause dose-related fluid retention and cause new/worsening heart failure (*IBM Micro Medex*, n.d.)
levothyroxine
Synthroid
Thyroid Hormone; Hormones (class) (*IBM Micro Medex*, n.d.)
Used for hypothyroidism, hormonal replacement
Initiate therapy at lower dose in elderly clients; can cause cardiovascular effects (*IBM Micro Medex*, n.d.)
sevelamer carbonate
Renvela
Bile Acid Sequestrant; Phosphate Binder (*IBM Micro Medex*, n.d.)
Used to treat hyperphosphatemia in clients who have chronic kidney failure and are on dialysis (MayoClinic, 2022),
Assess swallow ability of the client; esophageal tablet retention reported (*IBM Micro Medex*, n.d.)
torsemide
Demadex
Cardiovascular Agent; Diuretic, Loop (*IBM Micro Medex*, n.d.)
Treat fluid overload, assist with excretion of excess fluid
Assess other medications the client is taking; worsening renal function occurs with nephrotoxic drugs (NSAIDs) (*IBM Micro Medex*, n.d.)

Demographic Data

Date of Admission: 02/05/2023
Admission Diagnosis/Chief Complaint: Fluid overload / Shortness of Breath
Age: 70
Gender: Male
Race/Ethnicity: Caucasian, Non Hispanic or Latino
Allergies: Nitroglycerin
Code Status: Full Code
Height in cm: 175.3 cm
Weight in kg: 80 kg
Psychosocial Developmental Stage: Integrity (Erikson)
Cognitive Developmental Stage: Formal Operational Stage (Piaget)

Pathophysiology

Disease process: Fluid overload can simply mean having too much fluid within the body. Other names for fluid overload include hypervolemia and volume overload. Usually, fluid overload is a symptom of another disease process, such as congestive heart failure (CHF) or renal failure (Cleveland Clinic, 2022). As the heart continues to decline in an individual with CHF, the body's response is to attempt to correct heart failure leads to serum sodium levels rising (Sequanamedical, n.d.). Renal failure results in fluid overload due to the inability of the kidneys to excrete excess fluid within the body. This results in hemodialysis being performed on the individual to remove the excess fluid.
S/S of disease: Swelling/edema in the extremities, third spacing, bloating of the stomach, cramping or headaches, quick weight gain, high blood pressure, shortness of breath, or heart failure (Cleveland Clinic, 2022). S/S of the client - shortness of breath, feeling as if they were suffocating, and discomfort in the chest and lungs.
Method of Diagnosis: Signs and symptoms are addressed by the provider, along with completing a comprehensive metabolic panel (CMP) to address electrolyte imbalances. The amount of blood within the body can also be tested. Diagnostic tests, such as X-rays, can be used to view abnormalities within the body (Cleveland Clinic, 2022). The client was diagnosed through a CMP, S/S, and the use of a chest X-ray that showed pulmonary edema.
Treatment of disease: Fluid overload is treated through medication, such as diuretics, that assists in the removal of excess fluid within the body. Fluid restriction, limiting salt intake, and dialysis are other ways fluid overload can be treated (Cleveland Clinic, 2022). The client was treated with dialysis, fluid restriction, and torsemide to assist with ridding the excess fluids within the body.

Admission History

The client arrived at the Emergency Department via an ambulance complaining of shortness of breath. The symptoms started earlier in the day and progressively worsened as the day went on. The client stated they felt like they could not breathe and complained of persistent pain in the lungs, chest, and throat. The client did not recall any aggravating factors and stated that fresh, cold air made breathing easier. The client rated their pain on a numerical scale at a 10/10.

Lab Values/Diagnostics

Potassium ↑5.2 (3.5-5.1); The client has kidney failure and is taking heparin, which is likely leading to increased potassium levels (Pagana et al., 2020, p. 721).
BUN ↑37 (8-26); Kidney failure is likely the cause of the high BUN levels (Pagana et al., 2020, p. 157).
Creatinine ↑5.03 (0.7-1.3); Kidney failure also causes creatinine levels to rise drastically (Pagana et al., 2020, p. 161).
BUN/Creatinine Ratio ↓7 (12-20); Low protein diet and kidney failure is likely the cause of a low ratio (Pagana et al., 2020, p. 163).
GFR, Est. NonAfrican ↓11 (≥60); impaired kidney function, kidney disease (Pagana et al., 2020, p. 425).
GFR, Est. African ↓14 (≥60); impaired kidney function, kidney disease (Pagana et al., 2020, p. 425)
GFR, Estimated ↓12 (≥60); impaired kidney function, kidney disease (Pagana et al., 2020, p. 425)
Glucose ↑173 (70-99); The client has previously been diagnosed with Diabetes mellitus (Pagana et al., 2020, p. 464).
Troponin I ↑0.117 (0-0.04); Troponin levels can be falsely elevated in dialysis patients (Pagana et al., 2020, p. 954).
RBC ↓3.09 (4.4-5.8); Renal disease, chronic illnesses, and overhydration (fluid overload) all likely lead to low RBC levels (Pagana et al., 2020, p. 765).
Hemoglobin ↓8.4 (13.0-16.5); Kidney disease can cause low hemoglobin levels (Pagana et al., 2020, p. 491).
Hematocrit ↓26.4 (38.0-50.0); Renal disease, low RBC, and low Hgb are likely the cause of low hematocrit (Pagana et al., 2020, p. 487).
Platelet count ↓92 (140-440); Medications, such as hydralazine, can cause low platelet counts (Pagana et al., 2020, p. 703).
RDW ↑16.5 (11.8-15.5); Elevated red blood cell distribution indicates anemia, and the client could be experiencing aplastic anemia from kidney disease (Pagana et al., 2020, p. 811).
MPV ↓7.6 (8.0-12.6); The low mean platelet volume indicates aplastic anemia, which is a likely diagnosis as the client has kidney disease (Pagana et al., 2020, p. 556).
Neutrophils ↑93.1 (40.0-68.0); A high level of neutrophils can be indicative of aplastic anemia, which could be likely due to the client having kidney disease (Pagana et al., 2020, p. 973).
Lymphocytes ↓4.6 (19.0-49.0); The low level of lymphocytes can be linked to diuretics (Pagana et al., 2020, p. 973).
Monocytes ↓1.8 (3.0-13.0); Decreased monocytes are linked to aplastic anemia, which is likely occurring in the client (Pagana et al., 2020, p. 973).
Absolute Neutrophils ↑6.60 (1.40-5.30); This directly correlates with the neutrophil count (Pagana et al., 2020, p. 973).
Absolute Lymphocytes ↓0.30 (0.90-3.30); This directly correlates with the lymphocyte count (Pagana et al., 2020, p. 973).
EKG showed sinus tachycardia; The heart may be working faster than normal to attempt to get oxygen to all body parts, as many labs have indicated aplastic anemia.
X-ray of the right foot showed extensive vascular calcification; The client has gangrene on the big toe of the right foot. The X-ray was used to determine the function of the vasculature of the foot.
X-ray of the chest showed the findings indicated pulmonary edema and mild right pleural effusion; The client was diagnosed with fluid overload, in which pulmonary edema is a sign.

Medical History

Previous Medical History: Diabetes mellitus, Esophageal dilation, Hiatal hernia, Hypertension, Kidney failure
Prior Hospitalizations:
1/26/23 Gangrene of the right foot
01/07/23 Acute metabolic encephalopathy
12/21/22 Pneumonia
08/25/22 Pneumonia
05/24/22 Hypothermia
07/23/21 Kidney Stone
Previous Surgical History: Rotator cuff repair, Cholecystectomy, Esophagogastroduodenoscopy, Cardiac Catherization, Angioplasty
Social History: Denies tobacco and drug use. Client states they have one beer every three months.

Active Orders

Diet and Nutrition; *Carbohydrate consistent medium calorie diet* - The client is diabetic
Consult dietician and Nephrology; The provider wanted dietary's and nephrology's input on the diet choice.
Lab; *Basic metabolic panel with calcium total, complete blood count (CBC) with differential* - BMP was taken to get baseline liver function; CBC was taken to identify imbalances in electrolytes and other chemical data.
Imaging; *Adult Trans Thoracic Echo 2D complete* - used to identify pulmonary edema in the client
Respiratory; *Aerosol Nebulizer* - used to help open the lungs to breathe easier; *Oxygen Therapy* - used to deliver more oxygen to the lungs and make breathing less difficult; *Continuous Pulse Oximetry* - used to monitor the client's oxygen saturation and maintain a certain level of oxygenation.
Other Orders; *Admission Weight* - get the client's weight upon admission; *Cardiac/Telemetry Monitoring* - observe the client's heart characteristics; Use of a Central Line - used for dialysis; *Fluid Restriction of 1500 mL* - diagnosed with fluid overload, used to prevent further overload; *Monitor Blood Sugar, POC Blood Glucose, Post Hypoglycemia Treatment* - the client is diabetic and needs to have glucose monitoring; *Inpatient Hemodialysis* - The client has kidney failure and needs fluid removed multiple times a week; *Insert/Maintain IV* - needed in case of an emergency; *Intake & Output* - needed to monitor how the treatment for fluid overload is going, see if the client is eliminating as much as they are taking in; *Notify Physician: Nephrology, Symptomatic bradycardia, Ventricular arrhythmias, Completion of medication review, Abnormal potassium levels* - the physician would want to know about abnormalities with the client; *Nursing Communication: continue home medications after completion of medication reconciliation, discontinue dialysis orders at the end of dialysis treatment* - following orders given; *Up With Assistance* - the client is a fall risk; *Verify Informed Consent for Dialysis* - the client needs to verbally accept the treatment for dialysis; *Q4 Vital Signs & Vital Signs During Dialysis* - monitor the client's blood pressure and when removing excess fluid during dialysis; *Wound Care & Consult* - the client has gagrene on the big toe of the right foot that needs evaluated and treatment; *Full Code* - the client wishes to recieve full treatment if they were to code.

Physical Exam/Assessment

General: The client is alert and oriented to person, place, time, and situation. The client is well groomed and in no acute distress.

Integument: The skin is usual for ethnicity, palish-white in color. No rashes, bruises, or wounds. Warm and dry to palpation. Skin turgor normal mobility. Capillary refill less than three seconds in the fingers and toes. Chest port in right clavicular area (dialysis). Gangrene on the big toe of the right foot.

HEENT: The head and neck are symmetrical, the trachea is midline. Bilateral eyes clear without lesions or discharge. Bilateral ears have no visible lumps, lesions, or deformities. Septum is midline. Mouth is pick and moist, dentition is good.

Cardiovascular: Heart sounds are clear to auscultation, with S1 and S2 noted. Heart was of normal rate and rhythm. No edema noted.

Respiratory: Respirations were of normal rate and rhythm, symmetrical and non-labored. Lung sounds are clear anterior and posterior bilaterally. No wheezes, crackles, or rhonchi noted.

Genitourinary: The client goes to hemodialysis 3-4 times a week. The client voids spontaneously without difficulty. No pain with urination.

Gastrointestinal: Bowel sounds were normoactive in all four quadrants. Abdomen inspection did not yield any outstanding results.

Musculoskeletal: The client walks with a walker. The client had equal and normal strength in the hands and feet, 5/5.

Neurological: The client is alert and oriented to person, place, time, and situation. The client moves all extremities well. Speech is easy and clear.

Most recent VS (include date/time and highlight if abnormal):

1248: Temp - 98.7 temporal, Pulse - 95, Respirations - 18, Blood pressure - 190/97, Oxygen Saturation - 99% on 3 liters via nasal cannula

1455: Temp - 98.7 temporal, Pulse - 92, Respirations - 16, Blood pressure - 162/78, Oxygen Saturation - 98% on 3 liters via nasal cannula

Pain and pain scale used:

1248: The client rated their pain on a numerical scale at 9 and described the pain as achy in the right hip.

1455: Again, the client rated their pain on a numerical scale at 9 and described the pain as achy in the right hip.

Nursing Diagnosis 1	Nursing Diagnosis 2	Nursing Diagnosis 3
Fluid volume excess related to kidney failure as evidenced by the client being on dialysis.	Ineffective breathing pattern related to pulmonary edema as evidenced by X-ray indications of pulmonary edema and fluid overload.	Impaired urinary elimination related to kidney failure as evidenced by the client's need for dialysis three to four times per week.
Rationale The client has previously been diagnosed with kidney failure and goes to dialysis to have excess fluid removed. An unknown cause led to fluid overload and caused severe shortness of breath.	**Rationale** The client complained of severe shortness of breath upon arrival at the emergency department. After seeing a provider, the client was diagnosed with fluid overload, and an X-ray showed signs of pulmonary edema.	**Rationale** The client has a previous diagnosis of kidney failure and is unable to get rid of excess fluids through their kidneys. The client needs assistance through dialysis due to impaired urinary elimination.
Interventions **Intervention 1:** The client will be placed under a fluid restriction of 1500 mL, and strict input and output will be recorded (Ralph & Taylor, 2010, p. 143). **Intervention 2:** The nurse will administer diuretics to assist with the excretion of excess fluid (Ralph & Taylor, 2010, p. 143).	**Interventions** **Intervention 1:** The client will receive supplemental oxygen to assist with oxygen delivery to the tissues; oxygen saturation will be kept above 92% in the client (Ralph & Taylor, 2010, p. 45). **Intervention 2:** The client will be positioned in the Semi-Fowler's position or higher to facilitate easier respirations. (Ralph & Taylor, 2010, p. 45).	**Interventions** **Intervention 1:** The client will be administered diuretics to assist with the excretion of excess fluid (Ralph & Taylor, 2010, p. 399). **Intervention 2:** The client will undergo dialysis to remove consistent excess fluid (Ralph & Taylor, 2010, p. 399).
Evaluation of Interventions The client will acknowledge the fluid restriction and be aware of the reason for restricting fluids and be able to keep track of their fluid intake daily. Also, the client will understand the importance of diuretics to assist with the excretion	**Evaluation of Interventions** The client will be educated on the need for supplemental oxygen and the bed's positioning in Semi-Fowler's position or higher. A permanent pulse oximetry monitor will be kept on one of the client's fingers to monitor	**Evaluation of Interventions** The client will be educated on the use of diuretics to assist with the excretion of excess fluids. The client will be aware that after administering the diuretics, their urge to void may increase, and they should seek assistance to the bathroom due to the

of excess fluid. The client will be aware of the associated changes that should occur and be able to communicate with the nurse about any changes.	oxygen saturation. The client will notify the nurse if the oxygen saturation falls below 92%. Also, the client will understand that their positioning must be as close to upright as possible until the pulmonary edema begins to subside.	increased risk of falling. The client will understand the importance of dialysis and begin taking daily weights to determine if they need to visit dialysis more frequently.

References (3) (APA):

Cleveland Clinic. (2022, May 10). *Hypervolemia Symptoms, Causes & Treatment*. Cleveland Clinic. Retrieved February 7, 2023, from https://my.clevelandclinic.org/health/diseases/22962-hypervolemia

IBM Micromedex. (n.d.). IBM Watson Health Products. Retrieved January 22, 2023, from https://www.micromedexsolutions.com/home/dispatch/

MayoClinic. (2022, November 1). *Sevelamer (Oral Route) Side Effects*. Mayo Clinic. Retrieved February 7, 2023, from https://www.mayoclinic.org/drugs-supplements/sevelamer-oral-route/side-effects/drg-20065958?p=1

Nurselabs. (n.d.). *Nurselabs*. Nurseslabs - For All Your Nursing Needs % %. Retrieved February 7, 2023, from https://nurseslabs.com/

Ralph, S. S., & Taylor, C. M. (2010). *Sparks and Taylor's Nursing Diagnosis Pocket Guide*. Lippincott Williams & Wilkins. https://books-library.net/files/download-pdf-ebooks. org-1511894246Xi5P9.pdf

Sequanamedical. (n.d.). *Heart failure & fluid overload*. Sequana Medical. Retrieved February 7, 2023, from https://www.sequanamedical.com/alfapump-dsr/heart-failure-volume-overload/

Medication	Classification	Reason for taking	Nursing Assessment
amlodipine Norvasc	Calcium channel blocker; Cardiovascular Agent; Dihydropyridine (*IBM Micro Medex*, n.d.)	Treat high blood pressure (*IBM Micro Medex*, n.d.)	Assess heart function; can cause adverse reactions related to the heart (*IBM Micro Medex*, n.d.)
losartan Cozaar	Angiotensin II Receptor Antagonist; Cardiovascular Agent (*IBM Micro Medex*, n.d.)	Treat high blood pressure (*IBM Micro Medex*, n.d.)	Assess use of diabetic medications; can be contraindicated (*IBM Micro Medex*, n.d.)
aspirin Ecotin	Analgesic; NSAID; Platelet Aggregation Inhibitor; Salicylate, Aspirin (*IBM Micro Medex*, n.d.)	Pain relief, anticoagulant (*IBM Micro Medex*, n.d.)	BEERS criteria; monitor the amount consumed daily (*IBM Micro Medex*, n.d.)
atorvastatin Lipitor	Antihyperlipidemic; HMG-CoA Reductase Inhibitor (*IBM Micro Medex*, n.d.)	Treat hyperlipidemia, lower LDL and triglycerides (*IBM Micro Medex*, n.d.)	Need baseline liver functioning and CK levels (*IBM Micro Medex*, n.d.)
carvedilol Coreg	Alpha/Beta-Adrenergic Blocker; Cardiovascular Agent (*IBM Micro Medex*, n.d.)	Treat high blood pressure (*IBM Micro Medex*, n.d.)	Assess baseline heart rate; bradycardia is contraindicated (*IBM Micro Medex*, n.d.)
clonidine Catapres	Alpha-2 Adrenergic Agonist; Analgesic Antihypertensive; Central Nervous System Agent (*IBM Micro Medex*, n.d.)	Treat high blood pressure (*IBM Micro Medex*, n.d.)	BEERS criteria - antihypertensive; assess blood pressure before administration (*IBM Micro Medex*, n.d.)
doxazosin Cardura	Alpha-1 Adrenergic Blocker; Cardiovascular Agent (*IBM Micro Medex*, n.d.)	Treat high blood pressure (*IBM Micro Medex*, n.d.)	Assess the position of the client upon administration; postural hypotension could occur, also assist the client with standing after administration (*IBM Micro Medex*, n.d.)
famotidine Pepcid	Gastric Acid Secretion Inhibitor; Gastrointestinal Agent; Histamine H2 Antagonist (*IBM Micro Medex*, n.d.)	Treat heartburn, indigestion, or acid reflux (*IBM Micro Medex*, n.d.)	Assess the baseline renal function; reduce the dosage with signs of renal impairment (*IBM Micro Medex*, n.d.)
heparin Porcine	Anticoagulant; Heparin (class) (*IBM Micro Medex*, n.d.)	Used to thin the blood and prevent clotting (*IBM Micro Medex*, n.d.)	Assess blood pressure before administration; severe hypertension increases the risk for hemorrhage (*IBM Micro Medex*, n.d.)
hydralazine Apresoline	Peripheral Vasodilator (*IBM Micro Medex*, n.d.)	Treat high blood pressure, open the arteries and veins for less pressure (*IBM Micro Medex*, n.d.)	Use of telemetry while taking this medication; EKG changes can occur (*IBM Micro Medex*, n.d.)
insulin lispro Humalog	Antidiabetic; Insulin, Ultra Rapid Acting (*IBM Micro Medex*, n.d.)	Used to treat diabetes mellitus (*IBM Micro Medex*, n.d.)	Assess heart and S/S heart failure; can cause dose-related fluid retention and cause new/worsening heart failure (*IBM Micro Medex*, n.d.)
levothyroxine Synthroid	Thyroid Supplement; Hormone (class) (*IBM Micro Medex*, n.d.)	Treats hypothyroidism, hormonal replacement (*IBM Micro Medex*, n.d.)	Initiate therapy at lower dose to elderly clients; can cause cardiovascular effects (*IBM Micro Medex*, n.d.)
sevelamer	Bile Acid Sequestrant; Phosphate Binder (*IBM Micro*	Used to treat hyperphosphatemia in clients who have	Assess swallow ability of the client; esophageal tablet retention reported (*IBM Micro Medex*,

carbonate Renvela	*Medex*, n.d.)	chronic kidney failure and are on dialysis (MayoClinic, 2022),	n.d.)
torsemide Demadex	Cardiovascular Agent; Diuretic, Loop (*IBM Micro Medex*, n.d.)	Treat fluid overload, assist with excretion of excess fluid (*IBM Micro Medex*, n.d.)	Assess other medications the client is taking; worsening renal function occurs with nephrotoxic drugs (NSAIDs) (*IBM Micro Medex*, n.d.)