

Medications

Allopurinol (Apo-Allopurinol, Lopurin, Purinol, Zyloprim)
 Dosage: 100 mg Tab orally once daily
 Pharmacological Classification: Xanthine oxidase inhibitor (Jones & Bartlett Learning, 2022).
 Therapeutic Classification: Antigout (Jones & Bartlett Learning, 2022).
 Reason for taking: Gout Treatment
 Key nursing assessment(s): obtain CBC and uric acid levels, review results of liver and renal function before and during allopurinol treatment, monitor patient for rashes or negative response, maintain fluid intake of 2 L daily, Do not provide Vitamin C to avoid offsetting the pH of the urine (Jones & Bartlett Learning, 2022).
Aspirin EC (Aspirin-81, Ecotrin, Bayer)
 Dosage: 81 mg orally once daily
 Pharmacological Classification: Salicylate (Jones & Bartlett Learning, 2022).
 Therapeutic Classification: NSAID (anti-inflammatory) (Jones & Bartlett Learning, 2022).
 Reason for taking: reduce the risks of a myocardial infarction
 Key nursing assessment(s): monitor salicylate levels in patients when using long-term, ensure to stop using 5 to 7 days before surgeries (Jones & Bartlett Learning, 2022).
Azithromycin (Zithromax)
 Dosage: 500mg tablet orally BID
 Pharmacological Classification: Macrolide (Jones & Bartlett Learning, 2022).
 Therapeutic Classification: Antibiotic (Jones & Bartlett Learning, 2022).
 Reason for taking: To treat exacerbations of COPD
 Key nursing assessment(s): Monitor for arrhythmias, monitor and test liver and renal function, assess for fungal infection, monitor stools for pseudomembranous colitis, abnormalities in lab during treatment may occur (Jones & Bartlett Learning, 2022).

Demographic Data

Date of Admission: 8/28/2023
Admission Diagnosis/Chief Complaint: Respiratory Failure
Age: 74 years old
Gender: Male
Race/Ethnicity: White
Allergies: Iodine- Swelling
Code Status: Full Code
Height in cm: 5' 9"
Weight in kg: 149.7 kg
Psychosocial Developmental Stage: Integrity vs. Despair
Cognitive Developmental Stage: Formal Operational
Braden Score: 19
Morse Fall Score: 23
Infection Control Precautions: No Infection Control
 Precautions

Pathophysiology

Disease process: The disease process associated with respiratory failure is due to the lack of oxygen obtained by the lungs to provide adequate oxygen to the blood. This can be caused by many respiratory diseases, or illnesses. COPD, Chronic obstructive pulmonary disease, is one of the diseases that cause respiratory failure. COPD is the name of many diseases that cause airflow blockage. There is narrowing in the airways of the lungs, often due to inflammation, decreasing oxygen capacity. There is less airflow and more limitation in the lungs, there is damage to the walls between the air sacs located inside the lungs, the air sacs often lose their mobility to stretch and shrink, and there are large amounts of mucus production. The mucus may block airflow. Respiratory failure may be acute or chronic. If the body does not have enough oxygen in the tissues, this is referred to as hypoxia, which is a possible and common outcome associated with respiratory failure. If the body is not correctly disposing of carbon dioxide, which is also common if the patient is not able to disperse oxygen through the body, this is referred to as Hypercapnia. Both of these terms are used to describe different forms of respiratory failure. Respiratory failure is a medical emergency and should be treated as soon as possible due to the severity, and inadequate oxygen to your body can be life threatening. (Phelps, 2022).

S/S of disease: Shortness of breath, tiredness, dizziness, sleepiness, rapid breathing, confusion, disorientation, fast heartrate, coughing, wheezing, severe headache, cyanosis.

Method of Diagnosis: Respiratory failure can be diagnosed by observing signs and symptoms. However, most importantly, and most commonly, it is shown by doing a blood test called an Arterial Blood Gas test that measures levels of oxygen, carbon dioxide, pH, and bicarbonate. This blood test can assist in determining if the patient is experiencing respiratory failure and the possible cause. If the body is not correctly dispersing oxygen in the blood and not correctly ridding the body of carbon dioxide, this blood test will determine this. Another method of diagnosis option is a Chest x-ray. The provider will order a chest x-ray in which images will be taken of the heart, lungs, and bones in the chest to determine if there may be damage or scarring in the lungs.

Treatment of disease: The first intervention associated with respiratory failure includes assessing the airway, breathing, and circulation. Assessing the airway, breathing, and circulation ensures that the patient has dependable oxygenation, ventilation, and the ability to correct blood gas abnormalities. If required, the patient may be provided oxygen therapy, medication, and potentially procedures/surgery. Some medications that may be provided to patients with respiratory failure include diuretics, Nitrates, Inotropic Agents, Beta2 Agonists, Anticholinergics, Respirator, and Corticosteroids. These medications are often used to clear the lungs and airways of mucus and to treat symptoms. The ultimate goal is to provide the patient with adequate oxygen distribution, breathing, and circulation through the body. Treating respiratory failure and having the patient in a stable condition will improve the quality of life.

Lab Values/Diagnostics

Sodium: 133 mEq/L
 Normal value: 136-145 mEq/L
 Reason for abnormal value: Sodium level is decreased due to dehydration caused by diuretics, Hyponatremia (Martin, 2019).
Chloride: 94 mEq/L
 Normal Value: 98-107 mEq/L
 Reason for abnormal value: Chloride level is decreased due to dehydration caused by diuretics (Martin, 2019).
Creatinine: 1.55 mg/dL
 Normal Value: 0.70-1.3 mg/dL
 Reason for abnormal value: Creatinine level is increased can be related to congestive heart failure and dehydration (Martin, 2019).
Albumin: 3.3g/dL
 Normal Value: 3.5-5.5g/dL
 Reason for abnormal value: Albumin level is decreased due to malnutrition or inflammatory disease, such as COPD (Martin, 2019).
A/G Ratio: 0.7
 Normal value: 1.0-2.2
 Reason for abnormal value: A/G ratio is low due to possible kidney infection (Martin, 2019).
T Bilirubin: 1.4mg/dL
 Normal value: 02-1.2 mg/dL
 Reason for abnormal value: Bilirubin levels may be increased due to inflammation (Martin, 2019).
SGOT (Serum glutamic-oxaloacetic transaminase): 48 u/L
 Normal value: 5-34 u/L
 Reason for abnormal value: SGOT level may be increased due to inflammation (Martin, 2019).

Admission History

The patient was brought to the hospital by ambulance on 8/28/2023 due to shortness of breath that began on 8/25/2023. The patient stated he woke up on the night of 8/25/23 short of breath and used "Cold and Flu" medication, and the shortness of breath subsided. On 8/28/2023, the shortness of breath returned. The patient stated that he "normally can rest and catch my breath." Therefore, he attempted to use medication and "rest" but was unsuccessful. The patient stated "I felt like I was going to die, so I called 911". The patient did not try any further treatment and called 911 to seek care at OSF Foundation Hospital. Due to the circumstances, the severity level is high.

Medical History

Previous Medical History: Cellulitis, COPD (Chronic obstructive pulmonary disease), Diabetes Mellitus, Gout, Prostate Cancer.
Prior Hospitalizations: 3/3/2018 (Cellulitis of the Left Leg), 9/14/2020 (Shortness of Breath), 10/07/2020 (Generalized Weakness), 8/28/23 (Respiratory Failure).
Previous Surgical History: Colonoscopy, Prostatectomy, Tonsillectomy.
Social History: No drug use. 20 years of tobacco use, the patient quit using tobacco in 2017. Average use of 10 beers a day, averaging 70 beers a week.

Active Orders

Nebulizer/Flutter valve/Incentive spirometry
 Reason for order: Shortness of breath
Pulse Ox
 Reason for order: Monitor oxygen levels.
Check Blood Sugar (notify provider if levels are too high or too low)
 Reason for order: Monitor blood sugar due to patient being diabetic.
Daily Weight
 Reason for order: monitor patient's weight to monitor fluid overload
Fluid Restriction
 Reason for order: To monitor fluid retention.
Insert/Maintain Peripheral IV
 Reason for order: to utilize to push fluids and medications.
Intake and Output
 Reason for order: monitor the fluid balance, ensuring equal intake and output.
Telemetry Monitoring
 Reason for order: used to track heart rhythms.
EKG 12 Lead
 Reason for order: EKG 12 completed due to dyspnea.
Consult to Cardiology
 Reason for order: Consult required due to elevated troponin and elevated brain natriuretic peptide.
Diet CHO consistent medium Calorie
 Reason for order: Diet order due to dyspnea.
Adult Trans Thoracic ECHO 2D
 Reason for order: Order completed due to dyspnea.
Comprehensive Metabolic Panel (daily Morning draw)
 Reason for order: monitor abnormalities in blood sugar, nutrition, and live/kidney health.
Complete blood count w/ diff. (daily Morning draw)
 Reason for order: monitor abnormalities and levels of WBC to monitor for progressive infections.
Lipid panel (daily Morning draw)
 Reason for order: monitor cholesterol levels
Magnesium (daily Morning draw)
 Reason for order: Monitor abnormalities (high/low levels) of magnesium deficiency.

Physical Exam/Assessment

General: Patient is alert and oriented x person, place, and time. Well groomed, appears in respiratory distress.

Integument: Skin is warm and dry upon palpation. Skin color appears pink, usual for ethnicity. Normal quantity, distribution, and texture of hair. Nails without clubbing or cyanosis. Skin turgor normal mobility. Capillary refill less than 3 seconds on fingers and toes bilaterally. No rashes, slight discoloration and bruising of skin on left and right lower extremity.

HEENT: Head and neck are symmetrical, trachea appears midline without deviation. Thyroid is not palpable, with no noted nodules. Bilateral carotid pulses are palpable and 2+. Auricles appear with no visible or palpable deformities, lesions, or lumps bilaterally. Septum is midline. Turbinates are pink and moist with no visible lesions or bleeding bilaterally. Sclera white bilaterally, Cornea clear bilaterally, conjunctiva pink bilaterally, no visible drainage from eyes. Lids are pink and moist with no discharge, lesions, or discoloration noted bilaterally. PERRLA bilaterally, EOMs intact bilaterally. Oral mucosa is pink and moist without presented lesions. Patient oral dentition is poor.

Cardiovascular: Clear S1 and S2 without murmur, gallops, or rubs. PMI palpable at the 5th intercostal space at MCL. Normal rate and rhythm.

Respiratory: Wheezing is heard bilaterally. Patient appears in acute respiratory distress. Patient is using oxygen on nasal cannula. Patient has a productive cough. Respiratory rate and pattern is labored and irregular.

Genitourinary: Urine is yellow, clear. Patient is able to use the restroom without assistance. Patient urinates without pain or complication.

Gastrointestinal: Diabetic diet. 5' 9" height. 149.7 kg weight. Bowel sounds hypoactive. Last BM 8/27/2023. Two mass appear on the abdomen located in the right upper quadrant, and in the left lower quadrant. No distention, pain, incisions, drains, or wounds. Scars present from previous surgery located in the left and right lower quadrants.

Musculoskeletal: All extremities have full range of motion, active ROM. 4 Strength. Hand grips and pedal pushes and pulls appear normal and equal in strength. Fall score 23. No supportive devices in use. Patient is independent. Balanced and smooth gait.

Neurological: Patient is orientated to person, place, situation, and time. Patient appears with normal cognition. Speech is clear. Patient is alert-awake and answers questions appropriately. PERRLA. Strength is equal bilaterally on all extremities.

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

8/28/2023 @ 1451

Blood Pressure: 107/60, Heartrate: 105, Temp: 97.1F, Respiratory Rate: 20, Oxygen: 93% (nasal cannula in use)

Pain and pain scale used: 8/28/2023 @ 1451

No pain, pain scale used (0).

<p align="center">Nursing Diagnosis 1</p> <p>Impaired gas exchange related to scarring at the base of the left lung as evidence by shortness of breath.</p>	<p align="center">Nursing Diagnosis 2</p> <p>Ineffective airway clearance related to excessive mucus as evidence by ineffective cough.</p>	<p align="center">Nursing Diagnosis 3</p> <p>Ineffective breathing pattern related to decreased lung expansion as evidence by abnormal breathing pattern.</p>
<p align="center">Rationale</p> <p>Patient is short of breath and struggles to move without becoming short of breath.</p>	<p align="center">Rationale</p> <p>Patient has been coughing with no success of producing mucus.</p>	<p align="center">Rationale</p> <p>Patient appears struggling to maintain steady breathing pattern.</p>
<p align="center">Interventions</p> <p>Intervention 1: Monitor Oxygen level using pulse oximeter. Intervention 2: Assist patient in appropriate positioning to improve breathing.</p>	<p align="center">Interventions</p> <p>Intervention 1: Administer medications or breathing treatments as needed and as ordered, such as bronchodilators. Intervention 2: Monitor the production of mucus for color, quantity, and consistency.</p>	<p align="center">Interventions</p> <p>Intervention 1: Provide oxygen to the patient. Intervention 2: Provide respiratory devices to assist in expanding the lungs.</p>
<p align="center">Evaluation of Interventions</p> <p>Patient was receptive to plan of care and repositioned and rested to regain their breath.</p>	<p align="center">Evaluation of Interventions</p> <p>Patient appears to produce a productive cough, and is disposing of mucus.</p>	<p align="center">Evaluation of Interventions</p> <p>Patient was receptive to plan of care, and appears to be breathing comfortably.</p>

References (3) (APA):

Jones & Bartlett Learning, LLC. (2022). *2022 Nurse's Drug Handbook* (20th ed.).

Martin, P. (2019). *Normal Laboratory Values for Nurses: A Guide for Nurses*. Nurselabs. <https://nurseslabs.com/normal-lab-values-nclex-nursing/>

Phelps, L.L. (2020). *Spark's & Taylor's Nursing Diagnosis Reference Manual 11th ed. Essay*. Wolters Kluwer.

Continued Medications**Budesonide-formoterol fumarate 160-4.5 (Symbicort)**

Dosage: 2 puffs BID

Pharmacological Classification: Corticosteroid (Jones & Bartlett Learning, 2022)

Therapeutic Classification: Antiasthmatic, Anti-inflammatory (Jones & Bartlett Learning, 2022)

Reason for taking: used to provide treatment and therapy for asthma.

Key nursing assessment(s): monitor if patient is lactose intolerant as this medication may contain lactose, monitor patients with diabetes mellitus and hypertension as this may cause adverse effects, use cautiously if the patient may have an untreated illness/infection (Jones & Bartlett Learning, 2022).

Ceftriaxone Injection

Dosage: 2g intravenous injection every 24 hours

Pharmacological Classification: Third-generation cephalosporin (Jones & Bartlett Learning, 2022).

Therapeutic Classification: Antibiotic (Jones & Bartlett Learning, 2022).

Reason for taking: used to treat bacterial infection.

Key nursing assessment(s): use cautiously in patients that have hypersensitivity to penicillin, monitor BUN and serum creatinine levels to address risk for nephrotoxicity, assess bowel movements for diarrhea, assess for superinfection (Jones & Bartlett Learning, 2022).

Lasix Injection (Furosemide)

Dosage: One time injection of 20mg, continued injection once daily of 40mg

Pharmacological Classification: Loop diuretic (Jones & Bartlett Learning, 2022).

Therapeutic Classification: Diuretic (Jones & Bartlett Learning, 2022).

Reason for taking: treatment of edema associated with congestive heart failure

Key nursing assessment(s): monitor sodium and water depletion, monitor hydration (Jones & Bartlett Learning, 2022).

Guaifenesin SR (Mucinex)

Dosage: 600mg Tablet BID

Pharmacological Classification: expectorants (Jones & Bartlett Learning, 2022).

Therapeutic Classification: decongestant (Jones & Bartlett Learning, 2022).

Reason for taking: clear congestion, clear mucus.

Key nursing assessment(s): monitor for adverse reactions, monitor for effectiveness (Jones & Bartlett Learning, 2022).

Heparin Injection

Dosage: 7,500 units subcutaneously every 8 hours

Pharmacological Classification: Anticoagulant (Jones & Bartlett Learning, 2022).

Therapeutic Classification: Anticoagulant (Jones & Bartlett Learning, 2022).

Reason for taking: to prevent arterial and pulmonary embolism

Key nursing assessment(s): cautiously use in patients that consume large amounts of alcohol, avoid injection other drugs to decrease risk of bleeding, monitor patients lab results, monitor stool for blood (Jones & Bartlett Learning, 2022).

Insulin Lispro (Humalog)

Dosage: 2-12 units TID after meals

Pharmacological Classification: Human Insulin (Jones & Bartlett Learning, 2022).

Therapeutic Classification: Antidiabetic (Jones & Bartlett Learning, 2022).

Reason for taking: improve glycemic with diabetes mellitus

Key nursing assessment(s): monitor the patients' blood sugar, monitor serum potassium levels (Jones & Bartlett Learning, 2022).

Ipratropium-albuterol (3) mg/3mL Nebulizer Solution

Dosage: 3mL used 4x daily.

Pharmacological Classification: bronchodilators (Jones & Bartlett Learning, 2022).

Therapeutic Classification: bronchodilators (Jones & Bartlett Learning, 2022).

Reason for taking: treat airflow blockage associated with COPD.

Key nursing assessment(s): ensure patient is hydrated, administer only as prescribed, monitor changes in respiratory status, and monitor heartrate and blood pressure (Jones & Bartlett Learning, 2022).

Methylprednisolone (Medrol)

Dosage: One time intravenous dose of 125mg, 40mg daily

Pharmacological Classification: Glucocorticoid (Jones & Bartlett Learning, 2022).

Therapeutic Classification: Glucocorticoid (Jones & Bartlett Learning, 2022).

Reason for taking: treatment for inflammation

Key nursing assessment(s): monitor blood glucose, monitor thyroid function, monitor for signs of infection, monitor for sodium retention and edema in patients with congestive heart failure (Jones & Bartlett Learning, 2022).

Rosuvastatin (Crestor)

Dosage: 5 mg tablet orally every evening

Pharmacological Classification: HMG-CoA reductase inhibitor (Jones & Bartlett Learning, 2022).

Therapeutic Classification: Antilipemic (Jones & Bartlett Learning, 2022).

Reason for taking: reduce risk of myocardial infarction

Key nursing assessment(s): monitor liver function (Jones & Bartlett Learning, 2022).

Additional Abnormal Labs:

Alkaline Phosphate: 176 mg/dL

Normal value: 40-150 mg/dL

Reason for abnormal value: Alkaline phosphate levels may be increased due to inflammation associated with COPD (Martin, 2019).

GFR estimated: 47 (Estimated Glomerular Filtration Rate)

Normal value: greater than or equal to 60.

Reason for abnormal value: GFR levels may be decreased due to hypertension and diabetes (Martin, 2019).

Glucose: 309 mg/dL

Normal value: 70-99 mg/dL

Reason for abnormal value: Glucose levels increased due to diabetes mellitus (Martin, 2019).

Troponin I: 58 ng/L

Normal value: less than or equal to 35 ng/L

Reason for abnormal value: Troponin levels may be increased due to myocardial injury, potentially caused by congestive heart failure (Martin, 2019).

Natriuretic peptide: 582 pg/mL

Normal value: 400 pg/mL

Reason for abnormal value: Natriuretic peptide levels are increased due to congestive heart failure (Martin, 2019).

White Blood Cells: 13.30 10³/mL

Normal value: 4.00-12.00 10³/mL

Reason for abnormal value: White blood cell levels are increased due to inflammation and infection (Martin, 2019).

Neutrophils: 77.1%

Normal value: 40.0-68.0 %

Reason for abnormal value: Neutrophil levels are increased due to inflammation and infection (Martin, 2019).

Lymphocytes: 9.9%

Normal value: 19.0-49.0%

Reason for abnormal value: Lymphocyte levels are decreased due to severe infection and nutritional deficiency (Martin, 2019).

Monocytes: 1.60 %

Normal value: 0.10-0.90 %

Reason for abnormal value: Monocytes levels are elevated due to inflammation and infection (Martin, 2019).

Diagnostic Imaging:**Chest X-Ray:**

Impression: No acute pathology. No significant interval changes.

CT Chest without Contrast

Impression: There is pleural thickening at the left base with atelectasis changes. The aorta has atherosclerotic changes along with calcifications. Cholelithiasis present. Mild possible splenomegaly.

Reason for findings: The findings within the CT chest without contrast diagnostic testing can be directly related to COPD (Chronic obstructive pulmonary disease). Pleural thickening is often due to scar tissue thickening the membrane lining. This can be caused by inflammation or symptoms of serious conditions, such as COPD. Atherosclerotic changes with calcifications in the aorta involves plaque buildup and calcium deposits to form on the aorta. Atherosclerotic changes with calcifications can be signs of heart disease, this patient has a history of congestive heart failure. Cholelithiasis is present when there is hardened digestive fluid formed in the gallbladder. Mild possible splenomegaly referred to an enlarged spleen.

