## Medications

- **Carvedilol (Coreg)**
  - **Pharmacological class:** Alpha/beta-adrenergic blocking agent
  - **Therapeutic class:** Antihypertensive, heart failure treatment adjunct (Jones & Bartlett, 2023).
  - **Indication of use:** To control hypertension (Jones & Bartlett, 2023).
  - **Nursing assessments prior to taking:**
    - Before administering carvedilol to a patient, as directed, check their blood glucose level because the medication may change it (Jones & Bartlett, 2023).
    - Prior to administering carvedilol, determine whether the patient has peripheral vascular disease, as this medication may exacerbate symptoms of arterial insufficiency (Jones & Bartlett, 2023).
- **Atorvastatin (Lipitor)**
  - **Pharmacological class:** Antihyperlipidemic-HMGCOA reductase inhibitor (statins)
  - **Therapeutic class:** Antihyperlipidemic (Jones & Bartlett, 2023).
  - **Indication of use:** Hyperlipidemia
  - **Nursing assessments prior to taking:**
    - Assess the patient before administering atorvastatin for any habit of drinking more than two alcoholic beverages per day (Jones & Bartlett, 2023).
    - assess the patient before administering atorvastatin or kidney disease (Jones & Bartlett, 2023).
- **Duloxetine (Nyenhuha)**
  - **Pharmacological class:** Serotonin-norepinephrine reuptake-inhibitor (SNRIs)
  - **Therapeutic class:** Painkillers for musculoskeletal, neuropathic, and antidepressant conditions (Jones & Bartlett, 2023).
  - **Indication of use:** To alleviate diabetic peripheral neuropathy's neuropathic pain (Jones & Bartlett, 2023).
  - **Nursing assessments prior to taking:**
    - Before beginning duloxetine therapy, take a baseline blood pressure reading from the patient and check it again at regular intervals to look for changes (Jones & Bartlett, 2023).
    - Prior to administering duloxetine, evaluate patients with severe renal impairment or end-stage renal disease requiring hemodialysis, as their blood medication levels tend to rise considerably in these individuals (Jones & Bartlett, 2023).
- **Enoxaparin (Lovenox)**
  - **Pharmacological class:** Heparin and related preparations
  - **Therapeutic class:** Anticoagulant (Jones & Bartlett, 2023).
  - **Indication of use:** To prevent DVT in medical patients who are at risk for thromboembolic complications due to severely restricted mobility during acute illness (Jones & Bartlett, 2023).
  - **Nursing assessments prior to taking:**
    - Before starting enoxaparin due to the possibility of increased bleeding, evaluate the patient for bleeding diathesis, diabetic retinopathy, panic or renal impairment, recent GI hemorrhage or ulceration, or uncontrolled hypertension (Jones & Bartlett, 2023).
    - Assess patient's platelet count before administering enoxaparin due to the increased bleeding risk (Jones & Bartlett, 2023).
- **Insulin Glargine (Lantus)**
  - **Pharmacological class:** Insulins
  - **Therapeutic class:** Antidiabetic
  - **Indication of use:** Hyperglycemia management
  - **Nursing assessments prior to taking:**
    - Assess patient's blood glucose level before administering insulin glargine due to the changes in the blood glucose levels that will occur after giving insulin glargine (Jones & Bartlett, 2023).
    - Before starting insulin glargine, make sure the patient has undergone a thorough medical history, physical examination, and spirometer to rule out any pulmonary conditions (Jones & Bartlett, 2023).
- **Levothyroxine**
  - **Pharmacological class:** Thyroid hormones
  - **Therapeutic class:** Thyroid hormone replacement
  - **Indication of use:** To treat primary, secondary, or tertiary hypothyroidism (Jones & Bartlett, 2023).
  - **Nursing assessments prior to taking:**
    - Prior to administering levothyroxine to diabetic patients, check their blood glucose levels because the medication may exacerbate glucotoxicity and raise the need for insulin or antidiabetic agents (Jones & Bartlett, 2023).
    - Assess patient for underlying cardiovascular disease (Jones & Bartlett, 2023).
- **Pantoprazole (Protonix)**
  - **Pharmacological class:** Proton-pump inhibitors
  - **Therapeutic class:** Antiulcer
  - **Indication of use:** To treat erosive esophagitis associated with gastroesophageal reflux disease (GERD) short term (Jones & Bartlett, 2023).
  - **Nursing assessments prior to taking:**
    - Prior to administering pantoprazole, keep an eye on the patient's urine output because the medication may cause acute tubulointerstitial nephritis (Jones & Bartlett, 2023).
    - Assess the patient for hypomagnesemia before administering pantoprazole due to the increased risk of hypomagnesemia pantoprazole brings (Jones & Bartlett, 2023).
- **Pregabalin (Lyrica)**
  - **Pharmacological class:** Anticonvulsants
  - **Therapeutic class:** Analgesic, anticonvulsant
  - **Indication of use:** To relieve neuropathic pain associated with diabetic peripheral neuropathy (Jones & Bartlett, 2023).
  - **Nursing assessments prior to taking:**
    - Assess the patient for suicidal behavior or thinking due to pregabalin increasing the risk of suicidal behavior or thoughts (Jones & Bartlett, 2023).
    - Assess the patient for decreased respiratory status before administering pregabalin due to the risk of respiratory depression (Jones & Bartlett, 2023).
- **Valganciclovir**
  - **Pharmacological class:** Antivirals
  - **Therapeutic class:** Antivirals
  - **Indication of use:** MRSA
  - **Nursing assessments prior to taking:**
    - Before administering valganciclovir assess the patient for low blood cell count (Jones & Bartlett, 2023).
    - Assess the patient for kidney disease before administering valganciclovir (Jones & Bartlett, 2023).

## Lab Values/Diagnostics

Lab Values

Glucose:

- Normal range: 66-99 mg/dL
  Lab value: 131 mg/dL
  Reason for abnormality: Due to possible hyperglycemia

Calcium:

- Normal range: 8.6-10.4 mg/dL
  Lab value: 8.4 mg/dL
  Reason for abnormality: Due to possible hypomagnesemia

BUN:

- Normal range: 10-20 mg/DL
  Lab value: 31 mg/dL
  Reason for abnormality: Due to possible kidney damage

Chloride:

- Normal range: 98-107 mmol/L
  Lab value: 108 mmol/L
  Reason for abnormality: Due to possible dehydration or kidney damage

RBC:

- Normal range: 3.50-5.50 10^6/uL
  Lab value: 2.42 10^6/uL
  Reason for abnormality: Due to possible low iron

HGB:

- Normal range: 11.0-16.0 g/dL
  Lab value: 7.2 g/dL
  Reason for abnormality: Due to possible anemia, cancer, or kidney disease

HCT:

- Normal range: 36.0-47.0%
  Lab value: 21.6%
  Reason for abnormality: Due to possible anemia or kidney disease

RDW:

- Normal range: 11.0-15.0%
  Lab value: 20.0%
  Reason for abnormality: Due to possibility of iron deficiency or vitamin B12 deficiency

RDW-SD:

- Normal range: 38.0-52.0 fL
  Lab value: 67.0 fL
  Reason for abnormality: Due to possibility of iron deficiency or vitamin B12 deficiency

Diagnostic Imaging:

- CT brain: Due to strain deficiency
- MRI hyperintelligy scan: Due to choke pubis
- CT chest: Due to pneumonia and bronchiolar opacity
- CT abdomen: Due to choke pubis

## Demographic Data

**Date of Admission:** 1/29/2024
**Admission Diagnosis/Chief Complaint:** Respiratory distress (adult respiratory distress syndrome)
**Age:** 63 y/o
**Gender:** Female
**Race/Ethnicity:** White
**Allergies:** Fentanyl, penicillin V potassium, rybelsus (semaglutide), Trulicity (dulaglutide), meloxicam, farxiga (dapagliflozin), hydrocodone-acetaminophen, naproxen-esomeprazole, tramadol
**Code Status:** Full
**Height in cm:** 165.1 cm
**Weight in kg:** 112.2 kg
**Psychosocial Developmental Stage:** Generativity vs. stagnation
**Cognitive Developmental Stage:** Formal Operational
**Braden Score:** 15
**Morse Fall Score:** 16
**Infection Control Precautions:** MRSA (gown, mask, gloves)-contact isolation

## Admission History

The patient presented to CCU due to shortness of breath on 1/29/24. The patient states the onset of the severe shortness of breath "started on the evening of 1/29/24." The patient expressed her pain nonverbally by her difficulty breathing. The duration lasted from that moment until the patient was brought to the CCU until currently. The characteristics that the patient felt was being unable to get air and tightness in the chest. Patient nonverbally expressed that movement was an aggravating factor for the patient's inability to get air. Patient nonverbally expressed that relaxation was the relieving factor. The patient was given oxygen and was intubated to help treat the respiratory distress. Patient was unable to state the severity of the pain.

## Medical History

**Previous Medical History:** Abnormal positron emission tomography (PET) scan (left) (8/14/14), ADHD (attention deficit hyperactivity disorder) (9/16/14), anterolisthesis (9/16/14) (L4 on L5), asthma (9/16/14), back pain, cancer (CMS-HCC) melanoma stage 1 on back, degenerative arthritis of lumbar spine (8/15/14), GERD (gastroesophageal reflux disease) (6/12/13), hypercholesterolemia (7/24/14), hyperlipidemia, hypertriglyceridemia (7/5/13), levoscoliosis (mild) (9/16/14), obesity (6/12/13), plantar fasciitis (7/12/13) (right), prediabetes (7/5/13), sacroiliitis (CMS-HCC) (9/16/14)

**Prior Hospitalizations:** Bone lesion at northwestern memorial healthcare, document not downloadable (2/5/20) and respiratory distress (1/29/24)

**Previous Surgical History:** colonoscopy (1/2/24), EGD/colonoscopy (3/29/22), excisional biopsy (left) (2010), skin cancer excision (left) (2010), soft tissue tumor resection (left) (2010)

**Social History:** former smoker (packs/day: 0.50, packs/year: 30, total packs/years: 15, type: cigarettes, quit date: 6/1/1996, years since quitting: 27.6), never used smokeless tobacco, and uses alcohol "very rarely"

## Pathophysiology

**Disease process:** Acute respiratory distress syndrome (ARDS) is a condition where fluid accumulates in the lungs' tiny, elastic air sacs called alveoli. Due to the moisture preventing the lungs from filling with enough air, the bloodstream receives less oxygen. The organs lose the oxygen they require to function as a result of this. People with severe injuries or those who are already very sick often have ARDS. The primary ARDS symptom, severe dyspnea, typically appears many hours to several days following the initiating injury or illness. A large percentage of ARDS patients pass away. Age and the severity of the illness both raise the chance of mortality. Among those who do survive ARDS, some fully recover, while others suffer lung damage that does not go away (Mayo Clinic, 2022).

**S/S of disease:** Depending on the underlying heart or lung disease as well as the severity of the condition, the intensity of the signs and symptoms of acute respiratory distress syndrome (ARDS) might vary. These include great exhaustion and disorientation, low blood pressure, laborious and extremely fast breathing, and severe shortness of breath (Mayo Clinic, 2022).

**Diagnosis of Disease:** There isn't a particular test to diagnose ARDS. The physical examination, chest x-ray, and oxygen levels are used to make the diagnosis. It's crucial to rule out other illnesses and ailments that may cause comparable symptoms, such as specific cardiac issues. A computed tomography (CT) scan and a chest x-ray are two common imaging procedures. An X-ray of the chest can show you whether your heart is enlarged as well as which areas of the lungs are filled with fluid. A CT scan creates cross-sectional pictures of internal organs from x-ray images that are acquired from a variety of angles. CT scans can offer comprehensive details about the anatomy of the heart and lungs. The patient's oxygen level can be determined by a test that draws blood from a wrist artery. Additional blood tests can be used to look for anemia or infection symptoms. The doctor may test secretions from the airway if they think the patient might have a lung infection in order to identify the infection's source. Heart test will also usually be done when it comes to ARDs. Due to the similarities between the symptoms and signs of ARDS and certain heart conditions, your doctor could advise heart tests such an echocardiography and an electrocardiogram. An electrocardiogram is a is a harmless test that monitors the heart's electrical activity. It entails wiring multiple sensors to various parts of the body. An echocardiography is a cardiac ultrasonography that can identify issues with the anatomy and operation of the heart (Mayo Clinic, 2022). When it comes this patient, they had a chest x-ray which was used to look further into an abnormality of the left lower lobe of the lung.

**Treatment of disease:** ARDS currently has no known cure. The goal of treatment is to keep the patient comfortable while the lungs mend. The purpose of supportive treatment is to remove the injury that led to the development of ARDS and to ensure that the body receives adequate oxygen to prevent further damage. Additional oxygen will be needed for every ARDS patient. Usually, oxygen is insufficient on its own, and breathing in too much oxygen might harm the lungs. A ventilator is a piece of equipment that helps in breathing by opening up blocked airways. The patient wears a face mask or has a tube put into their windpipe to connect them to the ventilator. Patients with ARDS usually lie on their backs in bed. ARDS patients are occasionally flipped over onto their stomachs to increase the amount of oxygen in their blood when oxygen and ventilator therapy are at high levels, but blood oxygen is still low. Proning is what it's called, and it can temporarily raise blood oxygen levels. Certain people are too ill to receive this treatment because it's a difficult process. Sedation is frequently required for the ARDS patient in order to ease dyspnea and avoid agitation. Occasionally, additional drugs known as paralytics are required up front to aid the patient in acclimating to the ventilator. These drugs have serious adverse effects, so it's important to regularly assess the advantages and disadvantages of using them. Physicians may prescribe diuretics to patients with acute respiratory distress syndrome (ARDS) in an effort to stimulate urine and flush out extra fluid, potentially preventing fluid accumulation in the lungs. Care must be taken because removing too much fluid can cause renal issues and drop blood pressure. Extracorporeal membrane oxygenation, or ECMO, is a complex medical procedure that involves withdrawing blood from your body, pumping it through a membrane to replenish it with oxygen, eliminate carbon dioxide, and then reintroducing it into the body. This therapy carries a considerable risk of possible consequences. It is not appropriate for every patient with ARDS. Patients with ARDS might need to be ventilated for extended periods of time. This usually takes seven to fourteen days. After this period, medical professionals might advise having a tracheostomy, or direct insertion of a tube through the neck, performed by a surgeon. The doctor typically thinks that recovering from ventilator support could take many weeks longer. Once the patient is no longer in need of a ventilator, this tube can be readily withdrawn. It is noteworthy that the majority of ARDS patients survive. They will recover most of their lung function and won't need oxygen in the long run. Some will experience muscle weakness and may need to go back to the hospital or undergo pulmonary rehabilitation in order to get stronger (American Lung Association, 2022). When it comes to this patient, they had a tracheostomy put in to help them breath.

## Active Orders

- Sitter-remote video monitoring due to impulsiveness
- Isolation-contact due to MRSA
- Pre procedure diet (no solids for 8 hours prior) due to surgery
- Enteral feeding
- ST/PT/OT- ST (swallowing/dysphagia) PT (balance deficits), OT (self-care deficit)
- Consult social worker (nursing home placement)
- Consult wound/skin evaluation and treatment (right cheek wound) (right upper lip wound)
- Consult dietitian (tube feeding)
- Consult med history tech (direct admit)
- Blood glucose level (diabetes) q6 hours
- Vitals
- Tracheostomy care (infection prevention)
- G-J tube care (infection prevention)

**Physical Exam/Assessment**

**General:** Patient is alert and oriented to person and time. Patient appears appropriate. Patient age is not in proportion with their appearance. Patient is without visible signs of acute distress.

**Integument:** Skin color is fair and usual for that of Caucasian decent. Skin is warm and dry to the touch. Skin turgor is tight and less than 2 seconds. Skin is without notable lesions, lumps, but has bruising. Patient's body hair has normal distribution, quality, quantity, and texture. Nailbeds of bilateral upper and lower extremities are without visible clubbing and cyanosis. Capillary refill for bilateral upper and lower extremities is less than three seconds. No other visible wounds found other than the patient's tracheostomy.

**HEENT:** Head was round and symmetrical without lumps or bruises but visible right cheek wound and right upper lip wound. Hair appeared to be white and thin. Neck appeared symmetrical and without visible lumps, bruises, but tracheostomy is present. Bilateral carotid arteries palpable with pulses 2+. Trachea is midline without deviation, thyroid is not palpable, no noted nodules. Ears were symmetric with bilateral auricles being without visible lesions, lumps, bruises, or abnormalities. Eyes were round and symmetrical without visible lesions, lumps, bruises, abnormalities, or discharge. Bilateral conjunctiva was pink and moist. PERRLA and EOMs intact bilaterally. Nose midline and symmetrical to face and without visible lesions, lumps, abnormalities, or discharge. Mouth/Throat without visible lesions, lumps, abnormalities, or exudate. Posterior pharynx and tonsils are moist and pink with exudate noted. Uvula is midline; soft palate rises and falls symmetrically. Hard palate intact. Dentition is poor. Lips seem dry.

**Cardiovascular:** Clear S1 and S2 without murmurs gallops or rubs. PMI palpable at 5th intercostal space at MCL. Normal rate and rhythm. No edema noted.

**Respiratory:** Normal rate and pattern of respirations, respirations symmetrical and non-labored, lung sounds wet throughout anterior/posterior bilaterally, wheezes present, coarse crackles present in the anterior bases, no rhonchi noted. Breath sounds diminished in all fields. Patient is on room air.

**Genitourinary:** Urine is clear and yellow. Patient is able to urinate without pain or burning sensations. Patient is currently not on dialysis treatment and had a urine output occurrence once today. Patient is on an external catheter. Inspection of the genitals was not assessed.

**Gastrointestinal:** 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. Patient has fecal incontinence

**Musculoskeletal:** All extremities have full range of motion (ROM). Hand grips and pedal pushes and pulls demonstrates mild impairment. Gait is weak.

**Neurological:** Patient alert and oriented to person and time. Eye response is a 4 (spontaneous), motor response is a 6 (obeys commands), and verbal is a 4 (confused)

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

Time: 1401 Temp: 36.5 (97.7 F) O2: 95 on room air P:61 bpm RR:17 BP:123/88 mmHg

**Pain and pain scale used:**

Faces Expressed no pain

| **Nursing Diagnosis 1** | **Nursing Diagnosis 2** | **Nursing Diagnosis 3** |
|---|---|---|
| Risk of aspiration related to excess sputum from lungs as evidenced by the coarse crackles heard in the lungs (Phelps, 2022). | Risk for impaired gas exchange related to the presents of coarse crackles in the lungs as evidenced by patient is short of breath and wheezing is present (Phelps, 2022). | Risk for hyperglycemia related to the increased glucose lab results of 125 mg/dL as evidenced by the patient's excess hunger and dry mouth (Phelps, 2022). |
| **Rationale**<br>Risk of aspiration is suspected due to the change of fluid levels in the lungs (Phelps, 2022). | **Rationale**<br>Poor pulmonary status may result in hypoxemia (Phelps, 2022) | **Rationale**<br>Hyperglycemia levels are suspected to change when there is a sign of illness or infection (Phelps, 2022). |
| **Interventions**<br>**Intervention 1:** Position patient on the side or adjust position of head of bed (Phelps, 2022).<br><br>**Intervention 2:** Track the patient's vital signs and record any modifications. Hypoxia may be indicated by tachycardia and a small increase in blood pressure (Phelps, 2022). | **Interventions**<br>**Intervention 1:** Determine and document the patient's pulmonary status every four hours, or more often if the patient's condition is unstable (Phelps, 2022).<br><br>**Intervention 2:** Bronchial hygiene procedures such as suctioning, postural draining, percussion, and coughing should all be performed as prescribed (Phelps, 2022). | **Interventions**<br>**Intervention 1:** Monitor patient's blood sugar on a regular basis (Phelps, 2022).<br><br>**Intervention 2:** Get the patient on an insulin regiment and educate the patient/family about the insulin regiment (Phelps, 2022). |
| **Evaluation of Interventions**<br>• Patient's airway remains free from obstruction (Phelps, 2022).<br><br>• Patient's vital signs remain within normal parameters (Phelps, 2022). | **Evaluation of Interventions**<br>• The patient carries out ADLs without showing any indications of dyspnea or other abnormal ABG values (Phelps, 2022).<br><br>• The patient maintains good bronchial hygiene (Phelps, 2022). | **Evaluation of Interventions**<br>• The patient's glucose levels go down (Phelps, 2022).<br><br>• The patient's increased hunger and dry mouth alleviate (Phelps, 2022). |

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