Medications

(Sarah Bush Lincoln Staff, 2023)

1. Sulfamethoxazole-trimethoprim 419=26.19 ml, IV piggyback

   Injectable, q8h, over 60 minutes to treat pneumocystis pneumonia

2. Enoxaparin (Lovenox) 40 mg=0.4ml, SQ, injectable daily to prevent blood clots- per hospital protocol

Lab Values/Diagnostics

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Labs

PCO2 art-77.6 (normal 40-50)-due to pneumocystis pneumonia
Neutrophil-1.8 (normal 45.3-79.0)- due to pneumocystis pneumonia
Monocytes-0.2(normal 4.4-12.0)-exacerbated by patient's HIV infection
Platelets-109(normal 149-393)- Thrombocytopenia caused by HIV infection
WBC-3.4 (normal 4.0-11.7)-due to pneumonia infection
HIV-positive (normal-not detected)-Patient is HIV positive
CD4-49 (normal 500-1500)-Patient is HIV positive
Lymph- 9.0 (normal 11.8-45.9)

Diagnostic Tests

Sputum test confirming patient's pneumocystis pneumonia diagnosis
CT chest angio pulmonary with contrast
-Lungs showed patchy bilateral ground glass opacities with areas of atelectasis and more confluent opacity of the inferior right middle and posterior right lower lobe lung sulcus.
-This test confirms the patient has pneumocystis pneumonia

Demographic Data

Date of Admission: 3/13/2023
Admission Diagnosis/Chief Complaint: Persistent cough and shortness of breath
Age: 27 years old
Gender: Male
Race/Ethnicity: Caucasian/ Non-Hispanic or Latino
Allergies: Prednisone (no reaction noted in chart or by patient's knowledge), anabolic steroids (reaction: swelling at injection site), doxycycline (reaction: rash)
Code Status: Full code
Height in cm: 171 cm
Weight in kg: 83.8 kg
Psychosocial Developmental Stage: Intimacy versus Isolation (Sutton, 2023)
Cognitive Developmental Stage: Formal operational stage (Sherrell, 2021)
Braden Score: 20
Morse Fall Score: 20
Infection Control Precautions: Standard Precautions

Admission History

A 27-year-old male entered the ED complaining of shortness of breath and persistent cough. He has a history of Asthma and is not using any inhalers. The patient mentioned that about two months he started noticing that he had coughing spells. Five days before admission, the patient saw that the coughing spells had worsened. The coughing spells had gotten so bad that he was having difficulty speaking. The patient felt consistently short of breath and did not take anything to manage symptoms prior to hospital visit. The patient denied having a fever but reported feeling hot attacks, chills, and sweating. The patient's oxygen status in the ED was stable, and he was on room air. The patient thought he could not take a breath. The patient was assessed at an outside clinic and checked his d-dimer, which presented as elevated. They advised him to come to the hospital for further workup. The patient stated, "I could not breathe." During the ED stay, the patient had a CT angio of the chest. It did not reveal pulmonary emboli; however, it did reveal multiple infiltrates with a pattern of atypical pneumonia. Labs showed leukopenia, mild elevated AST-43, CD4-49, and positive for HIV. The patient denied breathing treatments and antibiotics to aid in his care. His admittance is for pneumocystis pneumonia.

Medical History

Previous Medical History: The patient has a history of Asthma, exposure to STD, persistent cough, arm pain/swelling, carpal tunnel syndrome (left), and community acquired pneumonia, knee pain, sinusitis, shortness of breath (SOB), and tendinopathy, dentalgia, rash, gastritis, and poor nutrition.

Prior Hospitalizations: SBL-for flu-like symptoms (2020), SBL-for knee surgery (2020)

Previous Surgical History: ACL reconstruction

Social History: The patient used to drink Whiskey, twice per month, two glasses at a time. The patient denies smoking or illicit drug use. The patient lives alone with two dogs. He is currently employed as a graduation cap designer. His primary language is English. He does not have any coping methods.

Pathophysiology

Disease process: Pneumocystis pneumonia is an infection caused by the fungus pneumocystis jirovecii (Centers for Disease Control and Prevention, (2021). It develops because a patient has a specific medical condition that weakens their immune system and makes it difficult for them to fight off infection, such as HIV/AIDS, or they are taking medications such as corticosteroids (Centers for Disease Control and Prevention, (2021). Pneumocystis attaches to type I alveolar epithelium, which allows the fungus to transition from its small trophic form to the larger cystic form. It is primarily an alveolar pathogen, but in severely immunocompromised individuals, the rare, disseminated form may be seen (Centers for Disease Control and Prevention, (2021). It is the most common opportunistic infection in patients with HIV/AIDS. However, with the widespread use of prophylaxis and antiretroviral therapy, the incidence in this population has declined substantially (Centers for Disease Control and Prevention, (2021).

S/S of disease: Patients with pneumocystis pneumonia may experience fever, dyspnea, cough, and in severe cases, respiratory failure (Centers for Disease Control and Prevention, (2021). HIV patients often experience oral thrush, interstitial infiltrates, and severe dyspnea (Centers for Disease Control and Prevention, (2021). Patients may also experience fatigue, difficulty breathing, and chills (Centers for Disease Control and Prevention, (2021). This patient experienced shortness of breath and persistent cough at home. When he arrived at the hospital, he began to feel fatigued in addition to the other symptoms he experienced.

Method of Diagnosis: Histology is often done on specimens to diagnose pneumocystis pneumonia (Centers for Disease Control and Prevention, (2021). Stains like Giemsa, crystal violet, and diff-quick can detect cysts and trophozoites (Centers for Disease Control and Prevention, (2021). Pneumocystis pneumonia is diagnosed using a sample from the patient's lungs, either through sputum collection or a procedure called a bronchoalveolar lavage (Centers for Disease Control and Prevention, (2021). A chest CT scan may also diagnose the condition (Centers for Disease Control and Prevention, (2021). This patient had a CT of the chest that revealed patchy bilateral ground glass opacities with areas of atelectasis in his lungs. The patient also had a sputum culture as well.

Treatment of disease: The most common treatment for pneumocystis pneumonia is trimethoprim/sulfamethoxazole (Centers for Disease Control and Prevention, (2021). It is usually given orally or through a vein for three weeks (Centers for Disease Control and Prevention, (2021). This patient was prescribed 419mg=26.19 ml trimethoprim/sulfamethoxazole by IV piggyback, injectable, every eight hours, to administer over 60 minutes. However, he refused to take the medication because it nauseated him. The nursing instructor offered him to take ondansetron, and he said that the medication did not work to reduce his nausea.

Active Orders

(Sarah Bush Lincoln Staff, 2023)

These orders began from admission and will continue to discharge:

Regular diet
The patient is not on any restrictive diet; diet continues as it would at home, the patient also has a decreased appetite, a regular diet will improve caloric and nutritional intake

Q4 vitals
Standard protocol for assessing vital signs to monitor improvement status.

Continuous pulse oximetry
This is ordered because the patient expressed difficulty breathing and has an admittance diagnosis of atypical pneumonia which reduces respiratory functioning. It will help the nursing team monitor for a decrease in oxygen saturation to aid in prompt intervention.

Consult to dietician
This is ordered secondary to nutritional risk factors, the patient has decreased appetite and poor nutrition.

Incentive spirometry-to improve lung ventilation

Ambulate with assistance-patient has an elevated d-dimer and decreased mobility while hospitalized, this is ordered to decrease blood clot formation.

Acapella-Respiratory Therapy
This is ordered to shale u secretions in the lungs

Aerosol Treatment 2.5mg-0.5mg/3ml-3ml q4h PRN
This is ordered to help with the patient's Asthma

Physical Exam/Assessment

General: The patient appeared alert and oriented to person, pace, time and, situation. He did not appear in any acute distress. He was well- groomed. However, he was extremely fatigue. He refused all medications and did not want to stand and walk to the door to test gait and mobility. He did not mind finishing the assessment and evaluation while in the bed. The patient experienced coughing episodes when he took deep breaths.

Integument: The patient's skin was warm and dry. The patient's skin color was pink and normal for his ethnicity. The patient's skin appeared with red pimple-like sores on entire arm, bilaterally. The patient's skin turgor was less than three seconds. He had a peripheral IV access in right AC 20g, inserted on 3/13/2023. The IV access dressing was clean, dry, and intact. No obvious signs of infiltration. The IV catheter was patent, as checked with saline flush. The patient's skin was elastic. The patient did not have any bruising or swelling in legs, bilaterally. The patient did not express pain to palpation of the skin. The patient's skin did not have any yellowing or unusual redness no pallor, petechiae, or cyanosis. His Braden score was 20.

HEENT: The patient's head and neck appeared normal, without deviation. No obvious bruising, drainage, or lesions noted. No lymph nodes palpable. The patient did not express pain to palpation of sinuses. The patient was able to move his neck from side-to side with no problem. His thyroid was non-palpable. His trachea appeared without deviation. His hair was even in distribution, texture, and color for his ethnicity. His carotid arteries were palpable, 2+ bilaterally. PERRLA present. EOMs were intact. Did not assess red light reflex. His cornea was clear. His sclera was white. His conjunctiva was pink and moist. No obvious drainage or lesions in eyes noted. The patient did not want to open his mouth for the student nurse to assess dentition, uvula, tonsils, soft or hard palate. His nose appeared midline without deviation. His turbinates were pink and moist. No drainage from his nose. No lymphadenopathy present. No nodules noted. No JVD noted.

Cardiovascular: S1 & S2 sound noted. Heart appeared with normal rate and rhythm. No S3 or S4 sounds. No gallops, murmurs or rubs. Capillary refills were less than 3 seconds bilaterally. No edema. Nail bed s were normal for ethnicity. All peripheral pulses were 3+ bilaterally. The patient's blood pressure 99/60 and his HR was 62. The patient did not have any dizziness upon assessment. The patient does not have any history of heart disease nor does his family. The patient isn't currently taking in cardiac medications. The patient does not have a history of stroke or related conditions. The patient does have a history of arm swelling, unrelated to any heart conditions.

Respiratory: The patient presented with coughing spells while trying to breathe normally and coughing spells while trying to take deep breaths. The patient experienced shortness of breath. His O2 saturation was at 95% room air. Upon auscultation, the patient had diminished breath sounds in lower lobes of his lungs bilaterally, anteriorly and posteriorly. His upper lobes of his lungs were clear breath sounds. No accessory muscle usage. No stridor heard upon auscultation of lungs in all lobes of the lung, bilaterally, anteriorly and posteriorly. Minimal conversational dyspnea. His respirations were 24 breaths per minute and unlabored at rest. The patient's breathing pattern was normal with abnormal rate. The patient has history of Asthma and refused breathing treatment. The patient has pneumocystis pneumonia and refused the nursing student to administer medication to treat the condition.

Genitourinary: The patient did not void during the clinical shift and he did not have any drains or catheters present. The patient mentioned, when he used the bathroom in the middle of the night, he did not notice any pain when urinating. He did not notice visible blood in his urine. He did not present with frequency or burning when urinating. The patient refused inspecting genitals during the assessment. The patient did not have anything to drink during the clinical shift. The patient was not on dialysis.

Gastrointestinal: The patient did not present with an ostomy, nasogastric tube, or feeding tube/PEG tube. Upon inspection of his abdomen, his abdomen was non-tender to palpation and non-distended. His abdomen did not present with any incisions, scars, drains, or wounds. His diet at home and in the hospital were both regular. He is 171 cm in height and weighed 83.8kg. He did not eat food during the clinical day in order to assess intake. He presented with diminished bowel sounds in the LUQ and LLQ quadrants. He presented with normal and active bowel sounds in the RUQ and RLQ. No rebound tenderness noted. The patient did pass gas during the inspection. The patient's last bowel movement was the day before the assessment on 3/19/2023.

Musculoskeletal: The refused to walk in order for the student nurse to visualize the patient's normal gait and mobility. However, it was noted in the patient's chart that he has normal gait and mobility. The patient did present with normal strength when performing pedal pushes and pulls. The patient only requires assistance when ambulating due to decreased respiratory effort, in case the patient cannot breathe and needs assistance to sit down. The patient is oriented to his own abilities. He has moderate strength in all extremities. He had moderate handgrips and his nailbed was appropriate for his ethnicity and warm to touch. His ROM were active and his strength was a 4+. He does not require assistive devices. No broken bones, limbs, or tendons. He has a history of knee pain and ACL reconstruction. His fall score was 20. No edema in bilateral lower extremities.

Neurological: The patient was alert and oriented to person, place, time, and situation. A &O X 4. The patient moved all extremities well and PERRLA was present. The patient presented with equal strength in arms and legs. LOC was normal. Sensory was normal. No balance challenges. Assessed patient's ability to recall first job every take, and he was able to recall it. Assessed the patient's ability to recall where he lived and with whom, he was able to recall. The patient's speech was clear and moderate, due to coughing while trying to speak. Patient followed some commands and answered questions appropriately for age and education level.

Most recent VS (include date/time and highlight if abnormal): 3/20/2023 at 0740- temp-36.3 C (97.4F), pulse-62, RR-24, B/P-99/60, O2-95% on room air

Pain and pain scale used: The patient did not have any pain 0/10. The numeric pain scale was used to assess pain.

Nursing Diagnosis 1	**Nursing Diagnosis 2**	**Nursing Diagnosis 3**
Impaired gas exchange related to pneumocystis pneumonia as evidence by the patient's PCO2 of 77.6 and the patient experiencing shortness of breath (Centers for Disease Control and Prevention, 2021).	Infection related to pneumocystis pneumonia as evidence by CT chest-angio pulmonary with contrast showing patchy lungs with bilateral ground glass opacities and areas of atelectasis (Centers for Disease Control and Prevention, 2021).	Noncompliance related to treatments used to resolve infection and improve ventilation as evidence by patient refusing medications (Centers for Disease Control and Prevention, 2021).
Rationale The highest priority is improving the patient's gas exchange and respiratory effort. Pneumocystis pneumonia causes a decrease in gas exchange and symptoms such as shortness of breath.	**Rationale** The patient has a new diagnosis of pneumocystis pneumonia exacerbated by his HIV infection. The patient is refusing treatment for the condition and it may become life threatening if left untreated.	**Rationale** This diagnosis is significant because if the patient continues to refuse treatment, the infection will not resolve and his ventilation will not improve. These conditions may also be life threatening and cause medical emergencies if left untreated.
Interventions **Intervention 1:** The patient was on continuous O2 monitoring, documented every four hours. **Intervention 2:** Although the patient refused breathing treatments to expand his lungs and improve gas exchange, the student nurse offered breathing treatment and explained its importance to improve his ventilation.	**Interventions** **Intervention 1:** Although the patient refused antibiotics, the student nurse still offered the treatment and explained the importance of compliance with the treatment prescribed. **Intervention 2:** Pneumocystis pneumonia makes it difficult to breathe lying flat, as a result, the student nurse elevated the head of the bed.	**Interventions** **Intervention 1:** The patient was educated about why taking antibiotics was important to resolve his infection. **Intervention 2:** The patient was educated about why taking the breathing treatment was important to improve his ventilation.
Evaluation of Interventions The student nurse was unable to analyze the evaluation of the interventions by the end of the clinical day. However, the expectations are that the patient will be compliant with the breathing treatments and his oxygen saturation will remain stable above 95%. Also, he will improve his respirations and ventilation during his hospital stay.	**Evaluation of Interventions** The student nurse was unable to analyze the evaluation of the interventions by the end of the clinical day. The outcomes expected are that the patient becomes compliant with taking the antibiotics to fight off the infection, especially since he has a weakened immune system due to his HIV infection and CD4 count of 49.	**Evaluation of Interventions** The student nurse was unable to analyze the evaluation of the interventions in place by the end of the clinical day. The expected outcome of the patient is that he will not refuse medications.

References (3) (APA):

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