

Medications

Ceftriaxone (Rocephin)
2g IV every 24 hours
Pharmacological class: Third-generation cephalosporin (Jones & Bartlett Learning, 2023).
Therapeutic class: Antibiotic (Jones & Bartlett Learning, 2023).
Reason pt. is taking: Pneumonia (Jones & Bartlett Learning, 2023).
Key nursing assessment before administration: Monitor BUN, serum creatinine, and I&O; Monitor bowel pattern daily and any signs/symptoms of gallbladder disease (nausea, vomiting, abdominal pain), superinfection (diarrhea, cough, fever, rash, itching, swelling) or blood dyscrasia (bleeding, arthralgia, ecchymosis, pharyngitis) (Jones & Bartlett Learning, 2023).

Metoprolol tartrate (Lopressor)
25mg tablet oral BID
Pharmacological class: Beta 1- adrenergic blocker (Jones & Bartlett Learning, 2023).
Therapeutic class: Antihypertensive (Jones & Bartlett Learning, 2023).
Reason pt. is taking: Hypertension (Jones & Bartlett Learning, 2023).
Key nursing assessment before administration: Assess ECG for AV block; monitor blood glucose in diabetic clients, worsening heart failure and arterial insufficiency; take at the same time every day with or immediately after meal, do not crush or chew (Jones & Bartlett Learning, 2023).

Pantoprazole (Protonix)
40mg tablet oral BID
Pharmacological class: Proton pump inhibitor (Jones & Bartlett Learning, 2023).
Therapeutic class: Antulcer (Jones & Bartlett Learning, 2023).
Reason pt. is taking: Symptomatic GERD (Jones & Bartlett Learning, 2023).
Key nursing assessment before administration: Monitor PT/INR if taking anticoagulant; if taking for more than 3 years, vitamin B12 may not be absorbed; monitor urine output and serum magnesium levels; monitor for bone fractures, diarrhea and symptoms of systemic/cutaneous lupus erythematosus; swallow whole (Jones & Bartlett Learning, 2023).

Polyethylene glycol (MiraLAX)
17g oral daily
Pharmacological class: Saline Cathartics (Frandsen & Pennington, 2021, Chapter 39).
Therapeutic class: Laxative (Frandsen & Pennington, 2021, Chapter 39).
Reason pt. is taking: Constipation (Frandsen & Pennington, 2021, Chapter 39).
Key nursing assessment before administration: Effects can take up to 2 to 4 days; not to be taken for longer than 2 weeks (Frandsen & Pennington, 2021, Chapter 39).

Probiotic (Vishione, VSL #3)
1 packet oral daily
Pharmacological class: Probiotics (Cerner Multum, 2023).
Therapeutic class: Probiotics (Cerner Multum, 2023).
Reason pt. is taking: Maintain healthy digestive tract/constipation (Cerner Multum, 2023).
Key nursing assessment before administration: May cause stomach bloating; antibiotic may interfere with some bacteria in probiotic; store in refrigerator; do not take with hot liquids or foods (Cerner Multum, 2023).

Demographic Data

Date of Admission: 02/08/2024
Admission Diagnosis/Chief Complaint: Pneumonia/Abdominal pain & weakness
Age: 103
Gender: Female
Race/Ethnicity: White or Caucasian
Allergies: Sulfa Antibiotics
Code Status: DNR/DNI
Height in cm: 162.6 cm
Weight in kg: 44.8 kg
Psychosocial Developmental Stage: Integrity vs Despair
Cognitive Developmental Stage: Formal operational
Braden Score: 14
Morse Fall Score: 82
Infection Control Precautions: Contact precautions - VRE

Pathophysiology

Disease process:
Pneumonia is an inflammation of the lung tissues. Bacterial or viral infections mainly cause pneumonia, but it can also be caused by the inhalation of chemicals or aspiration (Capriotti, 2020). In bacterial or viral infections, the pathogens are first inhaled into the upper respiratory airways and then enter the lungs. The pathogens stick to the respiratory epithelium and cause inflammation, spreading to the lower respiratory tract and alveoli. Where inflammation occurs, the blood vessels dilate, and neutrophils travel into the air spaces from the capillaries (Capriotti, 2020). The neutrophils work to destroy the pathogens. Respiratory goblet cells are also stimulated, and they begin to release excess mucus. The mucus and exudate accumulate between the alveoli and capillaries, causing some alveoli not to open correctly (Capriotti, 2020). This issue causes crackles to be heard at the base of the lungs. The excess mucus and exudate also build up, causing impaired gas exchange, which causes the client to become hypoxic and hypercapnic (Capriotti, 2020).

S/S of disease:
Pneumonia begins with a sudden onset of a cough, productive or nonproductive, fever and chills, pleuritic chest pain, dyspnea, tachypnea, hemoptysis, and fatigue (Capriotti, 2020). The client may also present with other nonspecific symptoms, such as headache, abdominal pain, nausea, and vomiting (Capriotti, 2020). This client has been experiencing a mild cough, fatigue, and weakness. She also presented to the emergency room with abdominal pain. Lastly, this client had a high respiration count ranging from 18-20, an oxygen saturation ranging from 93%-96% while on one liter of oxygen administered through a nasal cannula, and diminished lung sounds.

Method of Diagnosis:
The most important diagnostic tool for diagnosing pneumonia is a chest X-ray, which can show consolidated infiltrates (Capriotti, 2020). Lab work such as a complete blood count (CBC) with differential is also used to help distinguish between a viral or bacterial infection. Sputum culture and sensitivity are used to identify the microorganism causing the infection and what antibiotic is appropriate for treatment (Capriotti, 2020). This client had a chest X-ray done when she came into the emergency room, which showed extensive infiltrates in the left lung, which is consistent with pneumonia. This client also has daily CBC/CMP labs drawn to monitor resolving or worsening pneumonia.

Treatment of disease:
Some clients with pneumonia can recover without needing to be hospitalized (Capriotti, 2020). There is a guide known as the pneumonia severity index (PSI) that physicians can use to determine whether the client needs hospitalization. This guide has a table with different patient characteristics that can be scored to determine the risk (Capriotti, 2020). When the client is hospitalized, there are two main priorities when treating pneumonia: oxygen therapy and antibiotic therapy (Capriotti, 2020). Oxygen therapy is administered through a mask or nasal cannula. It is recommended that the client be placed in Fowler's position to aid in oxygenation (Capriotti, 2020). Antibiotics are chosen based on the type of microorganism causing the pneumonia and are given intravenously. Different medications, such as antipyretics, analgesics, and bronchodilators, also might need to be given to help treat any fever or pain. IV fluids are also given if the client is dehydrated (Capriotti, 2020). This client was in a semi-Fowler's position and on oxygen therapy via a nasal cannula on one liter. Her last oxygen saturation taken at 1200 had increased to 96% from 93%. She was also on Rocephin, which is a cephalosporin antibiotic given intravenously.

Lab Values/Diagnostics

CBC:
RBC (3.8-5.3mc/L): 3.69mc/L due to dietary deficiency (Pagana et al., 2023).
Hemoglobin (12-15.8 g/dL): 10.9 g/dL due to anemia, nutritional deficiency and antibiotic use (Pagana et al., 2023).
Hematocrit (36-47%): 33.7% due to anemia and dietary deficiency (Pagana et al., 2023).
RDW (11.8-15.5%): 16.1% due to anemia (Pagana et al., 2023).
MPV (9.7-12.4 fL): 7.1 fL due to anemia (Pagana et al., 2023).
Lymphocytes (18-42%): 15.6% due to antibiotics (Pagana et al., 2023).
Absolute Monocytes (0.2-1.0mc/L): 1.1mc/L due to infection (Pagana et al., 2023).
CMP:
Chloride (98-107 mmol/L): 108 mmol/L due to anemia and dehydration (Pagana et al., 2023).
CO2 venous (22-30 mmol/L): 20 mmol/L due to decreased possible nutritional deficiency and pneumonia (Pagana et al., 2023).
BUN (10-20 mg/dL): 25 mg/dL due to cephalosporin use, dehydration (Pagana et al., 2023).
BUN/creatinine ratio (12-20): 27 due to possible dehydration and urinary tract obstruction (Pagana et al., 2023).
Total protein (6.3-8.2 g/dL): 5.6 g/dL due to nutritional deficiency (Pagana et al., 2023).
Albumin (3.5-5.0 g/dL): 2.5 g/dL due to nutritional deficiency (Pagana et al., 2023).
A/G ratio (1.0-2.2): 0.8 due to nutritional deficiency (Pagana et al., 2023).
Calcium (8.7-10.5 mg/dL): 8.3 mg/dL due to low albumin and osteoporosis (Pagana et al., 2023).
GFR estimated (<= 60): 54 due to cephalosporin use and dehydration (Pagana et al., 2023).
GFR Nostadrican (<= 60): 55 due to cephalosporin use and dehydration (Pagana et al., 2023).
N/A diagnostic imaging taken and resulted this day

Admission History

The client is a 103-year-old female who came to the emergency room on 02/08/2024 with complaints of abdominal pain and weakness. The patient states the abdominal pain and weakness started a week ago. She also stated she had not eaten for a “few days” and has not been able to “go to the bathroom.” When asked to clarify not being able to go to the bathroom, she confirmed that she was constipated. The client states her abdominal pain was a four out of ten at the time and the weakness was generalized. Any past treatments tried to relieve symptoms were unable to be obtained.

Medical History

Previous Medical History: Combined forms of age-related cataracts (Left and Right), GERD (gastroesophageal reflux disease) without esophagitis, paroxysmal a-fib, dizziness, osteoporosis, asthma, upper GI bleed, hearing loss, urinary incontinence, diverticulitis, degenerative joint disease, hypertension, sick sinus syndrome

Prior Hospitalizations: 02/03/2018 for acute UTI, 03/09/2018 for volume depletion, 04/04/2021 for syncope, 02/02/2022 for acute UTI

Previous Surgical History: Knee arthroscopy (Left), Cataract removal with implant (Left and Right), gallbladder surgery, Pacemaker implant procedure (Left), tonsillectomy

Social History: When asked if the client has ever or is currently drinking alcohol, using tobacco products, or drugs, the client responded only once with “no.”

Active Orders

General diet and supplement Ensure Plus HP TID due to malnourishment
CMP/CBC in the morning due to monitoring pneumonia and anemia to see if it is resolving or worsening
Lower respiratory sputum culture due to identifying microorganism causing pneumonia
Sputum gram stain smear and legionella antigen due to identifying microorganism causing pneumonia
UR creatinine random, sodium random, and Urinalysis with reflex due to client's possible UTI
Adult trans thoracic echo 2D complete: unsure of the reason why echo was ordered; EPIC comment had sepsis, echocardiography is done to evaluate the structure and function of the heart so if the client had any valvular heart disease or abnormalities, infarction, or aneurysm; they can be diagnosed with this. They can also be used in cardiac stress tests (Pagana et al., 2023).
Physical therapy evaluate and treat for discharge disposition
Oxygen therapy continuous, nasal cannula 2L titrate SpO2 90-95% due to pneumonia
Pulse ox continuous due to pneumonia
Admission weight due to client being underweight and malnourished
Ambulate patient TID with assist due to weakness
Cardiac monitoring continuous due to pacemaker and pneumonia
Insert and maintain peripheral IV, saline lock IV for medication and fluid administration
I&O every 8 hours – number of voids and stools due to medications and monitoring relief of constipation
Perform POC blood glucose QID before meals and at bedtime call if <400 or <70 possibly due to nutritional status
Place sequential compression device on at all times unless ambulating or bathing for a mechanical method of thromboprophylaxis due to limited ambulation
Up as tolerated PRN, Up in chair BID, Up with assist PRN due to weakness
Vital signs routine per unit due to client needing monitoring for hypertension and respirations

Physical Exam/Assessment

General: The client was **lethargic** but responsive; **oriented x2, person and place**, at the time of assessment. She did not appear to be in distress, and her appearance was appropriate.

Integument: Skin color is usual for ethnicity, with **some purple ecchymoses noted on the external surfaces of hands, forearms, and calves, consistent with fragile and thin dermal tissue**. **Bruise to right antecubital noted due to IV stick**. Skin is intact, dry, and warm to the touch, and skin turgor **slowly returns**. The client has an IV in the left antecubital.

HEENT: Head and neck are symmetrical, and trachea is midline. Thyroid and lymph nodes are not palpable. Carotid pulses palpable +2 bilaterally. Sclerae are white bilaterally, and no drainage or lesions were noted. Corneas are clear bilaterally and conjunctiva are pink and moist. **PERRL bilaterally, accommodation and EOMs could not be assessed due to the patient wanting to keep her eyes closed**. Auricles are intact and consistent with skin color bilaterally, and no lesions were noted. **The client does have severe hearing loss**. Septum is midline and no drainage or bleeding noted. The client's **lips were dry and a little chapped, and some teeth were missing**. Oral mucosa was moist and pink.

Cardiovascular: Clear S1 and S2 sounds with no murmur or gallops. Normal rate and rhythm. Peripheral pulses are palpable +2 bilaterally in all extremities, and capillary refill was less than 3 seconds. No edema is noted in any of the extremities and no neck vein distention.

Respiratory: **Rate and rhythm were rapid but not too rapid**. Respirations are symmetrical. **Lung sounds are diminished**, and no crackle, rhonchi, or wheezing is heard. When asked whether she had any difficulty breathing, the client answered "no." The client had a **small, mild cough, nonproductive**.

Genitourinary: The client is **incontinent** and could not assess the color and character of urine at the time of assessment. When asked if it is painful to urinate, **the client did not answer**.

Gastrointestinal: The client's last bowel movement was that morning; although it was a **small amount, she has been constipated**. Bowel movement appeared to be **light brown and creamy consistency**. The client eats a regular diet at the assisted living. Bowel sounds are normoactive. Abdomen is soft and nontender upon palpation, no masses were palpated.

Musculoskeletal: The client has full range of motion bilaterally. **Hand grips and pedal pushes were weak. The client does have generalized weakness throughout the body. The client requires a two person assist for ambulation**. Gait could not be assessed at the time of assessment.

Neurological: The client was **lethargic** but responsive when aroused. She was **oriented to person and place** at the time of assessment. Speech was clear but **at times slurred certain words**. **Impaired cognition (would ask to lie down when she was already in bed) may be due to age**, but she is able to follow commands, and her memory is intact. MAEW and PERRL are present.

Most recent VS (include date/time and highlight if abnormal): 0700 – Blood pressure: 129/72 Heart rate: 79 Respirations: **20** Temperature: 98°
Oxygen saturation: **93% on nasal cannula 1 liter**

1200 – Blood pressure: 130/66 Heart rate: 71 Respirations: 18 Temperature: 97.4° Oxygen saturation: 96% on **nasal cannula 1 liter**

Pain and pain scale used: The client rates her pain a 0 out of 10 on a number scale.

<p align="center">Nursing Diagnosis 1</p> <p>Impaired gas exchange related to obstruction of O₂ and CO₂ exchange due to inflammation of lung tissue as evidenced by pneumonia, the client's need for oxygen therapy, and oxygen saturation (Phelps, 2023).</p>	<p align="center">Nursing Diagnosis 2</p> <p>Risk for impaired skin integrity related to excretions and decreased physical activity/mobility as evidenced by the client being incontinent and inability to ambulate alone (Phelps, 2023).</p>	<p align="center">Nursing Diagnosis 3</p> <p>Imbalanced nutrition related to inadequate intake of food supply as evidenced by the client's weight and related symptoms that brought her into the ER (Phelps, 2023).</p>
<p align="center">Rationale</p> <p>The client is on a 2-liter titrate order; she is currently on 1 liter via a nasal cannula. Her oxygen saturation was 93%, and her respiration rate was 20 at 0700.</p>	<p align="center">Rationale</p> <p>The client is unable to ambulate without a 2 person's assist. The client also wears incontinent briefs, exposing her skin to constant moisture.</p>	<p align="center">Rationale</p> <p>The client is 44.8 kg and has been experiencing generalized weakness, abdominal pain, and constipation. She had stated when she came in that she had not eaten for a "few days." The client is also on a general diet but with a Ensure Plus High Protein supplement three times a day.</p>
<p align="center">Interventions</p> <p>Intervention 1: Monitor respiratory rate and rhythm (Phelps, 2023). Intervention 2: Monitor and titrate oxygen therapy appropriately (Phelps, 2023).</p>	<p align="center">Interventions</p> <p>Intervention 1: Change positions at least every 2 hours (Phelps, 2023). Intervention 2: Assess incontinence briefs and pads at least every 2 hours and change immediately (Phelps, 2023).</p>	<p align="center">Interventions</p> <p>Intervention 1: Assess the client's weight daily at the same time (Phelps, 2023). Intervention 2: Ensure the client eats an appropriate amount at mealtime and drinks the Ensure Plus High Protein supplement (Phelps, 2023).</p>
<p align="center">Evaluation of Interventions</p> <p>The client's vitals were taken at 1200, her respirations decreased to 18, and her oxygen saturation increased to 96%.</p>	<p align="center">Evaluation of Interventions</p> <p>The client was lethargic but would help change positions when asked to. Extra pillows were placed to aid in relieving pressure. The client was also compliant in stating when her briefs needed to be changed.</p>	<p align="center">Evaluation of Interventions</p> <p>The client did not eat her breakfast but drank some of the supplemental drinks. The tech on the floor was informed that the patient now has one-to-one assistance for meals and would ensure she ate.</p>

References

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