

Medications

| Medication | Classification (Thera. & Pharma.) | Why client is taking | Key nursing assessment(s) |
|---|---|---------------------------------|--|
| Allopurinol 100 mg PO daily | T: Anti-gout P: Xanthine oxidase inhibitor | Gout management | Assess and monitor for joint pain and swelling before medication initiation and periodically during medication therapy (Vallerand & Sanoski, 2023). |
| Ipratropium 3mg/3ml NEB QID | T: Bronchodilator P: Anticholinergic | COPD-related airway management | Assess patient's respiratory status before medication administration, including but not limited to respiratory rate, lung sounds, and ease of breathing (Vallerand & Sanoski, 2023). |
| Cefepime 2g/100 ml NS Q8H | T: Anti-infective P: Cephalosporin | Treatment of systemic infection | Before medication initiation, evaluate patient for any history of allergies or adverse reactions to penicillin or cephalosporins (Vallerand & Sanoski, 2023). |
| Levothyroxine 75 mcg PO AM | T: Hormone P: Thyroid preparation | Treatment of hypothyroidism | Assess and monitor patient's apical pulse and blood pressure before medication initiation and periodically during medication therapy (Vallerand & Sanoski, 2023). |
| Loratadine 10 mg PO daily | T: Antihistamine P: None | Allergy management | Assess lung sounds and character of secretions prior to medication administration (Vallerand & Sanoski, 2023). |
| Tamsulosin 0.4 mg PO daily | T: None P: Antidrenergic | Treatment of urine retention | Assess patient for symptoms of benign prostatic hyperplasia (BPH) prior to medication initiation and periodically during medication therapy (Vallerand & Sanoski, 2023). |
| Vancomycin 1250 mg/250 ml NS Q24H | T: Anti-infective P: None | Treatment of systemic infection | Prior to medication initiation, obtain cultures for culture and sensitivity testing (Vallerand & Sanoski, 2023). |

Vallerand, A. H. & Sanoski, C. A., (2023). Davis'sDrugGuide.com. F. A. Davis Company.
<https://www.drugguide.com/ddo>

Lab Values/Diagnostics

| Lab | Normal value | Today's value | Relation to diagnosis |
|--------------------------------------|--------------|---------------|---|
| K+ (mmol/L) | 3.5-5.1 | 3.2 | The patient's increased potassium levels are related to his state of alkalosis - in alkalosis, cells uptake potassium in response to hydrogen ion release (Van Leeuwen & Bladh, 2021). |
| CO2 (mmol/L) | 22-30 | 21 | The patient's respiratory rate indicates a mild state of hyperventilation, causing a mild decrease in CO2 levels due to increased exhalation (Van Leeuwen & Bladh, 2021). |
| Ca++ (mg/dL) | 8.7-10.5 | 8.1 | Serum calcium is decreased in states of alkalosis, due to uptake of calcium by the cells (Van Leeuwen & Bladh, 2021). |
| pH | 7.35-7.45 | 7.54 | States of shock are associated with metabolic alkalosis - the patient's body may have been in septic shock and compensated by moving to a state of alkalosis (Van Leeuwen & Bladh, 2021). |
| PT (seconds) | 10.0-13.1 | 81.4 | PT levels are increased during warfarin therapy - the patient was taking warfarin, but the medication was discontinued due to the significantly increased PT/INR (Van Leeuwen & Bladh, 2021). |
| INR | 0.8-1.1 | 6.8 | INR is increased during warfarin therapy - the patient was taking warfarin, but the medication was discontinued due to the significantly increased PT/INR (Van Leeuwen & Bladh, 2021). |
| WBC (x10 ³ /µL) | 4.0-12.0 | 21.4 | An increased white blood cell count is associated with active infection, like sepsis (Van Leeuwen & Bladh, 2021). |
| Neutrophils (%) | 40-68 | 95.9 | Neutrophils increase with infection conditions, including sepsis (Van Leeuwen & Bladh, 2021). |
| Lymphocytes (%) | 19-49 | 1.9 | A decrease in lymphocytes is associated with infection, including sepsis (Van Leeuwen & Bladh, 2021). |
| Blood cultures | Negative | Positive | Blood cultures positive for gram negative bacilli contributed to the sepsis diagnosis and show the infection is still active (Van Leeuwen & Bladh, 2021). |

Imaging: Chest x-ray - impression: left ventricle hypertrophy

The patient underwent a chest x-ray while in the ED, and the results of the imaging showed left ventricle hypertrophy, or an enlarged left ventricle. Left ventricle hypertrophy is a common complication of heart failure (Mayo Clinic, 2022).

Demographic Data

Date of Admission: 6/8/2023

Admission Diagnosis/Chief Complaint: Sepsis

Age: 76

Gender: Male

Race/Ethnicity: White

Allergies: Lisinopril (cough)

Code Status: Full code

Height in cm: 182.9 cm

Weight in kg: 78.6 Kg

Psychosocial Developmental Stage: Ego integrity vs. despair (Videbeck, 2023)

Cognitive Developmental Stage: Formal operational (Videbeck, 2023)

Braden Score: 15

Morse Fall Score: 80

Infection Control Precautions: Standard (universal)

Admission History

Patient presented to the emergency department (ED) with complaints of shortness of breath, fever, fatigue, and weakness over last 5 days. Patient stated symptoms were continuous and worsening over time period. Patient stated nothing provided relief from the symptoms, but activity made them worse. Before presenting to the ED, the patient was managing symptoms with rest and hydration. The patient was admitted for treatment of sepsis with secondary urinary tract infection (UTI). The patient had not sought treatment for sepsis before, but has a history of urinary retention and UTIs.

Medical History

Previous Medical History: Atrial fibrillation, coronary artery disease, congestive heart failure, myocardial infarction, chronic obstructive pulmonary disorder, urinary tract infection, hypothyroidism, gout

Prior Hospitalizations: Myocardial infarction (2019)

Previous Surgical History: Coronary artery bypass graft (2019)

Social History: Previous 1/2 pack per day smoker for over ten years. Has recent ceased cigarette smoking. Patient denies any alcohol or other drug use.

Pathophysiology

Disease process: According to Capriotti and Frizzell (2020), sepsis is defined as "a body-wide infection that overwhelms the immune system and causes severe multiorgan compromise (p. 1152)." Sepsis is most commonly caused by a bacterial infection, but can be viral, fungal, or parasitic in nature (Capriotti & Frizzell, 2020). According to Capriotti and Frizzell (2020), sepsis commonly begins from an infection in a single organ system that subsequently moves to the bloodstream. Once the infection has moved to the bloodstream, the infection moves throughout the body causing sepsis - this is why the term "sepsis" and "bloodstream infection" are often used interchangeably (Capriotti & Frizzell, 2020). As sepsis progresses in severity, the condition can lead to septic shock. In septic shock, the severe septic infection causes systemic vasodilation and a dangerous drop in blood pressure (Capriotti & Frizzell, 2020). Capriotti and Frizzell (2020) explain that widespread inflammation follows the systemic vasodilation, and is also accompanied by microthrombi formation. The combination of systemic vasodilation, inflammation, and microthrombi cause decreased tissue perfusion and eventual multiple organ dysfunction syndrome occurs (Capriotti & Frizzell, 2020, p. 1153).

Another common cause of sepsis is urosepsis, where the initial infection starts in the urinary tract (Capriotti & Frizzell, 2020). While it was not confirmed, it was suspected that this patient's sepsis started in the urinary tract, as they have a history of urinary retention and associated urinary tract infections.

S/S of disease: Mayo Clinic (2023) explains that signs and symptoms of sepsis are vague, and present differently from case to case. According to Mahapatra and Heffner (2023), common signs and symptoms of sepsis include fever, tachycardia, tachypnea, altered mental status, and hypoxia. According to the Mayo Clinic (2023), patients can also present with symptoms related to a urinary tract infection in cases of urosepsis. This patient presented to the ED with vague symptoms such as fever and shortness of breath, and symptoms associated with urinary tract infection such as difficulty urinating.

Method of Diagnosis: Various methods are used to contribute to a sepsis diagnosis. According to Mahapatra and Heffner (2023), all suspected cases of sepsis should receive a complete blood count with differential, blood cultures, urine cultures, and a urinalysis at baseline. Depending on the severity of the condition, other diagnostic markers including C-reactive protein, procalcitonin, liver function tests, disseminated intravascular coagulation panels, and arterial blood gasses can provide additional information for diagnosis (Mahapatra and Heffner, 2023). This patient had many of the tests listed above completed, including a complete blood count with differential, metabolic panel, and blood cultures.

Treatment of disease: According to Hinkle and Cheever (2022), treatment of sepsis and septic shock has been a popular research topic in the last 20 years. Early identification and treatment initiation of sepsis is the basis of many protocols, with current goals aiming to initiate treatment within one hour (Hinkle & Cheever, 2022). Common sepsis treatments includes antibiotics, fluid replacement, vasopressors, and nutritional therapy (Hinkle & Cheever, 2022). This patient was receiving two antibiotic infusions to treat his sepsis, and also received two fluid boluses while in the ED.

Active Orders

1. Intake and output Q8H - related to maintenance of fluid balance
2. Bedrest - related to high fall risk
3. Foley catheter - related to history of urinary retention
4. Simultaneous compression devices - related to venous stasis with bedrest
5. Regular diet - related to continuing with normal dietary schedule
6. Vital signs Q4H - related to identification of acute status changes

Physical Exam/Assessment

General: Patient currently is alert and oriented to person, place, time, and situation (x4), but has spells of confusion where he moves to A&Ox3. Intermittent confusion related to currently infection. Patient well groomed, resting in a clean bed, and in no acute distress.

Integument: Skin warm, pink, and color is appropriate for ethnicity. Patient has dry skin on lower extremities which he says is common. Overall skin intact. Skin turgor returns to place promptly (< 3 seconds). No inspected rashes, bruises, wounds, or drains. Braden score 15, which indicates low risk for skin integrity issues.

HEENT: Head and neck symmetrical. Trachea midline without deviation. No lymphadenopathy inspected or palpated in head or neck. Carotid pulses palpable and 2+ bilaterally. Bilateral auricles symmetrical with no lesions, lumps, or drainage. Ear canals clear bilaterally. PERRLA present bilaterally. EOMs intact bilaterally. Sclera white and conjunctiva pink and moist bilaterally. No inspected drainage from eyes. Overall oral mucosa pink and moist with no lesions or drainage. Uvula midline. Tonsils present and 1+ bilaterally. Overall dentition intact.

Cardiovascular: S1 and S2 heart sounds present with no auscultated murmurs, gallops, or rubs. Cardiac rate and rhythm regular. Radial and posterior tibial pulses 2+ bilaterally. Capillary refill < 3 seconds in fingers and toes bilaterally. No neck vein distention noted. No edema inspected or palpated.

Respiratory: Breath sounds clear and present anteriorly and posteriorly bilaterally. No adventitious breath sounds noted. No accessory muscle use noted. Respirations symmetrical with normal rate and rhythm.

Genitourinary: Urine yellow and cloudy and collecting in bedside catheter bag. Indwelling foley catheter inserted into patient. Cloudy urine and foley catheter use consistent with treatment for urinary retention and UTI. Patient reports no pain associated with catheter and no other catheter related issues. Catheter insertion site inspected and no issues noted. Genitals not inspected.

Gastrointestinal: Bowel sounds auscultated and normoactive at 5-34 per minute in all four quadrants. Abdomen soft and non-tender with no inspected or palpated distention, incisions, scars, wounds, or drains in all four quadrants. Patient reports last bowel movement of yesterday, 6/8/23. Patient is on a regular diet with no restrictions.

Musculoskeletal: Neurovascular status intact. Range of motion full and active in all extremities. Finger grips and pedal pushes display 5/5 strength bilaterally. Patient uses no assistive devices when ambulating. Morse fall score 80 which indicates a high risk for falls.

Neurological: Patient is alert and oriented x4 with intermittent confusion. Patient's mental status appropriate for age and development. Patient speech is clear and sensory intact. Strength equal overall.

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

| | | | | |
|--------|-----------|--------|---------|-----------|
| HR: 61 | BP: 90/58 | RR: 22 | O2: 97% | T: 37.2 C |
|--------|-----------|--------|---------|-----------|

Pain and pain scale used: Numerical 0-10 scale – rating 0/10

| | | |
|---|--|--|
| <p align="center">Nursing Diagnosis 1</p> <p>Risk for shock <u>related to</u> sepsis <u>as evidenced by</u> positive blood cultures and hypotension.</p> | <p align="center">Nursing Diagnosis 2</p> <p>Risk for unstable blood pressure <u>related to</u> septic shock and vasodilation <u>as evidenced by</u> hypotension and current septic infection.</p> | <p align="center">Nursing Diagnosis 3</p> <p>Acute confusion <u>related to</u> systemic infection and urinary retention <u>as evidenced by</u> decreased orientation.</p> |
| <p align="center">Rationale</p> <p>This nursing diagnosis was chosen due to the risk of the patient's infection worsening and leading to a state of septic shock.</p> | <p align="center">Rationale</p> <p>This nursing diagnosis was chosen due to the patient's low blood pressure, and the risk of septic shock to decrease the patient's blood pressure further.</p> | <p align="center">Rationale</p> <p>This nursing diagnosis was chosen due to the patient's intermittent confusion and need to address his periodic change in orientation.</p> |
| <p align="center">Interventions</p> <p>Intervention 1: Collect, evaluate, and monitor serum laboratory specimens and report acute changes to provider.</p> <p>Intervention 2: Administer intravenous fluids and assess vital signs frequently.</p> | <p align="center">Interventions</p> <p>Intervention 1: Assess and monitor patient's hemodynamic status and alert provider of any acute changes.</p> <p>Intervention 2: Identify and initiate treatment for hypertension or hypotension quickly and per order.</p> | <p align="center">Interventions</p> <p>Intervention 1: Assess and monitor patient's neurological status and orientation level frequently.</p> <p>Intervention 2: Reorient patient to time, place, and situation periodically throughout the day.</p> |
| <p align="center">Evaluation of Interventions</p> <p>The patient reacted well to the interventions related to shock. After admittance to the facility, the patient was educated on the risks associated with sepsis and understood that an exacerbation of his infection could lead to shock. The patient was grateful the staff was taking necessary precautions.</p> | <p align="center">Evaluation of Interventions</p> <p>The patient was accepting of these interventions even though he thought his blood pressure was within normal limits. After education on normal blood pressure ranges and the side effects of septic shock, the patient was open to the provided interventions.</p> | <p align="center">Evaluation of Interventions</p> <p>The patient was initially apprehensive and unsure that he was experiencing intermittent confusion. After education, the patient was open to interventions and wanted the staff to alert him when he was experiencing disorientation.</p> |

References (3) (APA):

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