N321 Concept Map

Student Name:

**Medications**

| Medication | Therapeutic/Pharm Class | Reason for Taking | Nursing Assessments |
|---|---|---|---|
| Acetaminophen | Nonsalicylate, para-aminophenol derivative/ Antipyretic, nonopioid analgesic (Jones & Bartlett Learning, 2020) | Fever/Mild pain | Don't give to patients with hepatic impairment, disease, or alcoholism (Jones & Bartlett Learning, 2020). |
| Clopidogrel | P2Y12 platelet inhibitor Platelet aggregation inhibitor (Jones & Bartlett Learning, 2020) | History of MI | Use cautiously in patients with severe hepatic or renal disease (Jones & Bartlett Learning, 2020). |
| Furosemide | Loop diuretic/ Antihypertensive, diuretic (Jones & Bartlett Learning, 2020) | Hypertension | Use cautiously in patients with advanced hepatic cirrhosis or history of hepatic encephalopathy (Jones & Bartlett Learning, 2020). |
| Metoprolol | Beta 1 adrenergic blocker/ Antianginal, antihypertensive (Jones & Bartlett Learning, 2020) | Arrhythmia/ Hypertension | Assess heart rate and blood pressure before administering the medication (Jones & Bartlett Learning, 2020). |
| Potassium chloride | Electrolyte cation/ Electrolyte replacement (Jones & Bartlett Learning, 2020) | Replace K+ from diuretic | Monitor serum potassium level before and during administration of IV potassium (Jones & Bartlett Learning, 2020). |
| Albuterol | Adrenergic/Bronchodilator (Jones & Bartlett Learning, 2020) | COPD | Monitor serum potassium level because it can cause hypokalemia (Jones & Bartlett Learning, 2020). |
| Amiodarone | Benzofuran derivative/ Class 3 antiarrhythmic (Jones & Bartlett Learning, 2020) | Arrhythmia | Use a central venous catheter when possible (Jones & Bartlett Learning, 2020). |
| Cefepime | Fourth-generation cephalosporin/Antibiotic (Jones & Bartlett Learning, 2020) | Septic shock/ UTI | Obtain culture and sensitivity test results before administering. |
| Guaifenesin | Expectorant/Mucus thinner (Jones & Bartlett Learning, 2020) | Cough | Assess for hypersensitivity and signs of headache, nausea, and vomiting. |
| Dextromethorphan | Antitussive/Cough suppressant (Jones & Bartlett Learning, 2020) | Cough | Ensure the patient doesn't eat or drink about 30 minutes before administration (Jones & Bartlett Learning, 2020). |

**Lab Values/Diagnostics**

| Lab | Normal Value Range (Van Leeuwen & Bladh, 2019) | Patient's Lab Value |
|---|---|---|
| Glucose | < 200 mg/dL | 212 mg/dL |
| Urine Culture without sensitivity | Negative | Positive with mixed flora >100,000 cfu/mL gram negative bacilli |
| Blood Culture | Negative | Negative |
| Neutrophils | 7,000 – 11,000 cells/mcL | 90,000 cells/mcL |

| Urinalysis (UA) | | |
|---|---|---|
| Lab | Normal Value (Van Leeuwen & Bladh, 2019) | Patient's Lab Value |
| Quality | Pale yellow to dark amber | Turbid |
| Leukocyte esterase | Negative | Positive |
| Protein | Negative | Positive |
| Glucose | 1-15 mg/dL | 150 mg/dL |
| Blood | Negative | Positive |
| WBC | 0 – 4 / HPF | > 100 / HPF |
| RBC | 0 / HPF | > 100 / HPF |
| Epithelial cells | 0 – 3 / HPF | > 3 / HPF |

The elevated glucose if from the patient's stress from the infection and patient's diagnosis of diabetes. The neutrophils signify the presence of an infection, being the patient's UTI. The positive flora in the urine culture gives a positive marker for the UTI. The UA's positive and elevated labs are abnormal and also indicate an infection in the urinary tract. An EKG and chest x-ray was done due to the patient's complaints of dyspnea and history of heart failure

## Demographic Data

**Date of Admission:** 4/12/2022
**Admission Diagnosis/Chief Complaint:** Septic shock from UTI / respiratory distress
**Age:** 78 years old
**Gender:** Female
**Race/Ethnicity:** Caucasian
**Allergies:** Penicillin, sulfa, cephalexin – reaction unknown (RU), aspirin/ibuprofen – minor bleed, azithromycin/erythromycin – throat swelling, morphine – severe pain, Mylanta, bismuth salicylate – N/V, oxytetracycline – chest pain, famotidine, lansoprazole – acid reflux
**Code Status:** Full Code
**Height in cm:** 154.9 cm
**Weight in kg:** 65.4 kg
**Psychosocial Developmental Stage:** Developmental stage is appropriate for age
**Cognitive Developmental Stage:** Developmental stage is appropriate for educational level -- dropped out of high school at 16 years old.
**Braden Score:** 14
**Morse Fall Score:** 35
**Infection Control Precautions:** Standard precautions

**Admission History**

| | |
|---|---|
| Onset: The patient started experiencing dysuria, dyspnea, and swelling of the lower extremities about a week before being admitted to the hospital. | Aggravating Factors: the patient reported coughing and urinating as aggravating factors. Also moving around too much made the pain worse. |
| Location: The pain is when the patient breathed, coughed, and urinated with a catheter. | Relieving Factors: Laying on her side with a warm water bottle on the back helped some with the pain. |
| Duration: The patient reported the pain would be the most severe when voiding and coughing. There would be pain when breathing but not as severe. | Treatment: The patient tried to take some Tylenol for the pain but it "didn't put a dent in it." |
| Characteristic: The pain was reported as dull when breathing and sharp when voiding or coughing. | Severity: Patient reports the pain as a 8/10 when being admitted into the hospital. |

**Medical History**

**Previous Medical History:** Acute NSTMI, allergic conjunctivitis, COPD, generalized anxiety disorder, GI bleed, heart failure with decreased ejection fraction, hyperlipidemia, mitral valve regurgitation, polio, post poliomyelitis syndrome, thyroid nodule, diabetes mellitus type 2, stage 2 pressure ulcer on the right foot.
**Prior Hospitalizations:**
Emergency: 2/9/18 cellulitis in the right leg, 11/9/20 right leg pain, 12/2/20 right leg pain, 3/21/21 nausea and vomiting, 2/1/22 catheter replacement
Inpatient: 3/23/21 flu-like symptoms, 7/11/21 shortness of breath, 9/3/21 abdominal pain, 10/6/21 shortness of breath and abdominal pain, 12/2/21 shortness of breath, 3/21/22 shortness of breath
**Previous Surgical History:** Abdominal hysterectomy (date unknown), cesarian section (date unknown), cholecystectomy (date unknown), laparoscopic (9/5/21), esophagogastroduodenoscopy biopsy (10/8/21), colonoscopy (12/22/21)
**Social History:** ½ pack or more per day every day for the last 25 years. Denies alcohol and substance use.

**Pathophysiology**

**Disease process:** Septic shock occurs when there is severe sepsis with life-threatening hypotension that is not changed with fluid replacement and vasopressors. The condition is caused by a severe infection that produces toxins a rapid rate that overwhelms the body (Capriotti, 2020). Urinary tract infections (UTI) are caused by an infection of the urinary system. Bacteria will enter the urethra, usually from the anus, and attaches to the mucosal surface of the epithelium in the urinary tract to colonize (Hinkle et al., 2022). The bacteria can have outer capsules that are resistant to the acidic urine and allows it to move up into the bladder (Capriotti, 2020).

**S/S of disease:** Frequency, dysuria, urgency, incontinence, nocturia, and can have hematuria. The patient may experience suprapubic tenderness and costal vertebral angle (CVA) tenderness (Capriotti, 2020). The patient experienced dysuria.

**Method of Diagnosis:** To diagnosis a UTI, a urinalysis and urine culture is done to identify if there are any bacteria, and if so, what antibiotics are effective (Hinkle et al. 2022). The patient's urinalysis and urine culture came back with positive results that indicated a UTI.

**Treatment of disease:** Most common and effective treatment are antibiotics. The correct antibiotic will be determined with the urine culture and sensitivity. The common antibiotics used are nitrofurantoin, trimethoprim-sulfamethoxazole, and fluoroquinolones. Phenazopyridine is used to help with the pain but doesn't rid of the body of the infection. Hydration is essential to help clear out the bacteria and cranberry juice can help prevent UTIs (Capriotti, 2020). The patient is on cefepime antibiotic to kill the bacteria causing the UTI.

## Active Orders

- Blood glucose monitoring
  - Patient's diagnosis of diabetes
- Central venous catheter care
  - Prevent further infection
- Urinary catheter care twice a day
  - Prevent further infection
- Turn every 2 hours
  - Patient has very limited range of motion, prevents pressure ulcers, and prevent pneumonia
- Float heels
  - Prevents pressure ulcers
- Nebulized inhaler every 4 hours
  - Treat the patient COPD

**Physical Exam/Assessment**

**General:** The patient was alert and oriented to self, place, time, and situation (A&O x4). The patient appeared to be in some pain and agitated. The patient was somewhat disheveled but not dirty.

**Integument:** The patient's skin color was normal for ethnicity, warm, dry, pink, and intact. It exhibited slightly loose turgor with no bruising, rashes, or wounds on the upper extremities bilaterally and abdomen. The Braden score was 14 indicating a moderate risk of pressure ulcers and no drains were present. The patient does have 3 pressure ulcers about 2 cm in diameter each on the lateral surface of the left calf. There is also a pressure ulcer about 13-14 cm in diameter on the left upper thigh/ buttock area.

**HEENT:** The patient's head was normocephalic with the trachea midline. Ears appeared symmetrical with no visible discharge or drainage. The patient did not have difficulty hearing and was responsive to noise. The patient's pupils were 3 mm and exhibited PERRLA. The eyes also displayed full extraocular movements and were symmetrical with no drainage or inflammation. The conjunctiva was pink and moist. The nose appeared midline with no deviated septum and patent nares. Nasal and buccal mucosa was moist, pink, and had no lesions. The uvula was midline and tonsils were +1.

**Cardiovascular:** S1 and S2 heart sounds were heard with no S3 or S4 sounds, or murmurs heard. Cardiac rhythm was regular and steady. Radial pulses were regular and +2 bilaterally. Capillary refill was < 3 seconds in fingers and toes bilaterally. Pedal pulses were barely palpable at +1 strength bilaterally with +2 pedal pitting edema bilaterally. No jugular vein distention seen.

**Respiratory:** Lung sounds were clear and regular bilaterally except for a expiratory wheeze heard anteriorly on the right lung. Breathes were even with no accessory muscle use. No chest deformities observed. Patient reported a cough that is sometimes productive but has "thick mucus that's hard to cough out."

**Genitourinary:** The patient's urine was dark amber and does not report any pain with the indwelling catheter. The patient was continent with the catheter this shift. Patient is not on dialysis and the genitals were not inspected. The urinary drainage bag was filled to about 600 mL of urine.

**Musculoskeletal:** Neurovascular status is intact, and patient is in control of her senses. Patient does not report any paresthesia or paralysis nor displays pallor. The patient has full range of motion with 5/5 strength in upper extremities bilaterally and 0/5 in the lower extremities bilaterally. The patient's fall score is a 35 putting her in the moderate fall risk category. The patient is not able to walk, and her legs are stuck in the fetal position. The patient does not have any assistance devices due to the inability to walk.

**Neurological:** Patient has 5/5 strength in the arms and 0/5 strength in the legs. Eyes exhibited PERRLA and articulates well. The patient is A&O x4 and is alert to her surroundings. The patient can sense touch all over each extremity. She is focused on improving her cough. Patient does not feel ready to leave the hospital but knows she will be discharged the next day.

**Most recent VS (include date/time and highlight if abnormal):** 4/18/22 1546

T: 36.2 C tympanic O2 sat: 95% room air HR: 97 bpm BP: 105/58 mmHg right arm 30 respirations/min

**Pain and pain scale used:**

4/10 pain stomachache on the numeric scale.

| Nursing Diagnosis 1 | Nursing Diagnosis 2 | Nursing Diagnosis 3 |
|---|---|---|
| Risk for acute pain related to UTI as evidence by diagnosis of UTI and complaints of dysuria. | Risk for infection related to UTI as evidence by elevated WBC count and positive urine culture. | Risk of imbalanced nutrition related to insufficient dietary intake from septic shock as evidence by UTI and hypotension not affected by fluid boluses. |
| **Rationale** | **Rationale** | **Rationale** |
| Patient has complained about painful urination. | Patient's WBC count is elevated and there were large amounts of bacteria found in the urine culture. | Septic shock can lead to imbalanced nutrition because the patient might be anorexic due to the pain and severe malaise. |
| **Interventions** | **Interventions** | **Interventions** |
| **Intervention 1:** Provide pain medication<br><br>**Intervention 2:** Administer prescribed antibiotic | **Intervention 1:** Educate patient on signs and symptoms of a UTI<br><br>**Intervention 2:** Administer prescribed antibiotic | **Intervention 1:** Identify the patient's preferred foods and provide them within the limitations of patient's prescribed diet (Phelps, 2020).<br><br>**Intervention 2:** Refer patient to a dietitian or nutritional support team for dietary management (Phelps, 2020). |
| **Evaluation of Interventions** | **Evaluation of Interventions** | **Evaluation of Interventions** |
| Reduced pain from UTI has been reached as evidence by the patient no longer reporting dysuria. | Patient will be evaluated by teach back method, decreased WBC count, and a negative urine culture before discharge. | Patient can eat a specific number of calories a day or eat 75% – 100% of her meal the last two days of being at the hospital. |

**References (3) (APA):**

Capriotti, T. M. (2020). *Davis advantage for pathophysiology: Introductory concepts and clinical perspectives* (2nd ed.). F. A. Davis Company. https://fadavisreader.vitalsource.com/books/9781719641470

Hinkle, J. L., Cheever, K. H., & Overbaugh, K. (2022). *Brunner & Suddarth's textbook of medical-surgical nursing* (15th ed.). Wolters Kluwer.

Jones & Bartlett Learning. (2020). *2021 nurse's drug handbook* (20th ed.). Jones & Bartlett Learning.

Phelps, L. L. (2020). *Sparks and Taylor's nursing diagnosis reference manual* (11th ed.). Wolters Kluwer.

Van Leeuwen, A. M., & Bladh, M. L. (2019). *Davis's comprehensive handbook of laboratory & diagnostic tests with nursing implication* (8th ed.). F. A. Davis Company.