Medications

Penicillin G Potassium 18 Million in Sodium Chloride (Pfizerpen) - (Pencillin) (Antibiotic)
- 0.75 mil units/hr (23.3 mL/hr) IV - Continuous
- The patient take the medication to treat for Serious infections due to susceptible strains of staphylococci that causes pneumonia or endocarditis.
- **Nursing Assessments**: Obtain Body Tissue/fluid samples for culture and sensitivity before giving dose. Assess the patient for signs of secondary infection such as diarrhea, Monitor sodium level and assess for early signs of heart failure when patient receives high doses. The patient is at risk for fluid overload or hypertension (Jones & Bartlett Learning, 2020).

Iron Sucrose (Venofer) - (Iron Mineral) (Hematinic)
- 200 mg IV ONCE
- The Patient takes this medication to treat iron deficiency anemia.
- **Nursing Assessments:** Given IV injection slow. Monitor patient for anaphylaxis signs and symptoms such as collapsing, dyspnea, loss of consciousness, seizures, or severe hypotension. Hypotension is the most common adverse reaction. Test iron levels after 48 hours after last dose and notify doctor to prevent iron toxicity. Monitor signs for iron overload such as GI bleeding or in the lungs, decreased activity, and pale eyes with sedation (Jones & Bartlett Learning, 2020).

Lovenox (Enoxaparin) - (Low-Molecular Weight Heparin) (Anticoagulant)
- 40 mg Subcutaneously every 24 hours
- The patient take the medication to help prevent blood clots from forming.
- **Nursing Assessments:** Prior to administration a nurse should assess for signs of bleeding or unusual bruising and a drop in hematocrit or blood pressure levels (Jones & Bartlett Learning, 2020).

Magnesium Hydroxide (Milk of Magnesia) - (Mineral) (Electrolyte Replacement)
- 30 mL daily P.O (Liquid)
- The patient uses this medication to relieve chronic constipation.
- **Nursing Assessment:** Before giving liquid drug, shake the contents well and give large amounts of water. Observe/report early signs of hypermagnesemia such as bradycardia, depressed deep tendon reflex, diplopia, dyspnea, flushing, hypotension, nausea, slurred speech, vomiting, and weakness. (Jones & Bartlett Learning, 2020).

Melatonin (Circadin) - (Miscellanoues Anxiolytics) (Sedatives/Hypnotics)
- 6 mg Tab (Oral) Nightly PRN
- The patient take this medication to improve overall sleep.
- **Nursing Assessment:** Advise the patient to avoid driving or other mechanical activities requiring alertness until response to medication is known. Advise the patient to avoid concurrent use of alcohol or other CNS depressants. During the therapy, the nurse must assess the patient blood glucose levels, coagulation panel, and lipid panel (Jones & Bartlett Learning, 2020).

Demographic Data

Date of Admission: 09-26-2022

Admission Diagnosis (Principle Problem): Bacteremia

Secondary Dx: Pneumonia in Left Lower Lung

Chief Complaint: Altered Mental Status

Age: 75 years old

Gender: Female

Race/Ethnicity: Caucasian

Allergies: Iodine (Reaction - Rash-like Hive)

Code Status: Full Code

Height in cm: 159 cm

Weight in kg: 61.1 kg

Psychosocial Developmental Stage: Integrity vs. Despair

Cognitive Developmental Stage: Patient is able to read/write fully formed sentence structure with minimal difficulty. Patient is cognitively sound to make informed decisions based on information given. (Formally operational)

Braden Score: 19 (No Risk)

Morse Fall Score: 45 (Low Fall Risk)

Infection Control Precautions: None

Active Orders

- **Diet:** Soft to chew - Soft until dinner time (09-26-2022)
- **IP Consult to Cardiology** - Bacteremia, Patient needs TEE (09-29-22)
- **IP Consult to Pharmacy** - Vancomycin Therapy.
- **Urine Culture** - Collect Specimen (09-27-2022) (Pending Results)
- **X-Ray Chest Single View:** Altered Mental Status AMS (STAT)
- **I/O Tracking**: Every 8 hours to help assess - for AMS
- **Up as Tolerated:** Regain mobility
- **Vital Signs:** Post-procedural Routine, VS should be taken q 15 mins for 1 hour, then q 30 mins for 2 hours, then every hour if stable.

Admission History

The patient was admitted with a chief complaint of altered mental status that started a day prior to admission. Location is generalized throughout the entire body. The duration of symptoms lasted for 4 days (now going on the 5th day - Sunday to Thursday). The patient stated that the they felt a lot of shakiness, unbalanced, and feverish that progressively gotten worse from the onset of symptoms. They also stated they felt confused to their surroundings and to what the husband trying to communicate to them. The patient stated that the pain level during the time of admission was a 0/10. The husband stated that nothing helped relieve the onset of symptoms due to it progressively getting worse. The patient had the husband give tylenol for the fever that the patient was feeling.

Lab Values

RBC: 2.85 x 10^6 Cells/mcL
- **Normal Value: 3.8 - 5.3 x 10^6 cells/mcL** (Pagna, 2018)
- **Relevance:** The patient is anemic due to taking iron supplementation.

HgB: 9.0 g/dL
- **Normal Value: 12.0 - 15.8 g/dL** (Pagna, 2018)
- **Relevance:** The patient is anemic due to taking iron supplementation.

Hct: 26.4%
- **Normal Value: 36.0 - 47.0%** (Pagna, 2018)
- **Relevance:** The patient is anemic due to taking iron supplementation.

Platelets: 73 x 10^3 Cells/mcL
- **Normal Value: 140 - 440 x 10^3 Cells/mcL** (Pagna, 2018)
- **Relevance:** The patient has low platelet levels because the infection in the blood is destroying the platelets.

WBC: 3.90 x 10^3 Cells/mcL
- **Normal Value: 4.00 - 12.00 x 10^3 Cells/mcL** (Pagna, 2018)
- **Relevance:** The low WBC levels may be a sign of early sepsis..

Neutrophils: 89.4%
- **Normal Value: 47.0 - 73.0%** (Pagna, 2018)
- **Relevance:** The is relevant to the patient because the patient has a UTI infection plus infection in the blood.

Lymphocytes: 5.4%
- **Normal Value: 18.0 - 42.0%** (Pagna, 2018)
- **Relevance:** This low lymphocytes can occur when a bacterial infection is present in the bloodstream.

Glucose: 145 mg/dL
- **Normal Value: 70 - 100 mg/dL** (Pagna, 2018)
- **Relevance:** The patient is not a diabetic but the high glucose level could be a cause from high stress levels during the time of infection. Hormones such as cortisol/adrenaline decreases insulin effects causing the blood glucose to increase.

BUN: 30 mg/dL
- **Normal Value: 7 - 25 mg/dL** (Pagna, 2018)
- **Relevance:** The high BUN levels means that the kidneys are not functioning properly but the high BUN without the increase of creatinine indicates that there is an increase protein breakdown, meaning that there is an increase risk of infection.

Urinalysis (Protein): Trace
- **Normal Value: Negative** (Pagna, 2018)
- **Relevance:** This is relevant to the patient because of protein levels are being broken down at high levels causing them to increase BUN which passes through the kidneys.

Urinalysis (Leukoesterase): Trace
- **Normal Value: Negative** (Pagna, 2018)
- **Relevance:** This is relevant to the patient due to having a trace of leukoestarse present in the urinalysis and patient has Penicillin K via IV - Continuous.

Urine Culture: Pending Results
- **Normal Value: Negative** (Pagna, 2018)
- **Relevance:** The patient has a possible infection in the urethra that traveled up into the kidneys invading the circulation of blood.

Blood Culture: Positive (Gram-Positive)
- **Normal Value: Negative** (Pagna, 2018)
- **Relevance:** The bacteremia can be treated with ampicillin, benzylpenicillin, levofloxacin, and vancomycin.

Diagnostic Imaging

CT Abdominal Pelvis with Contrast (09-27-22)
- To help capture a view of the urinary bladder (Pagana et al., 2018).
  - **Result:** Pending to be interpreted by provider

Adult Transthoracic Echo 2D (09-28-22) - Test was not completed fully due to complications.
- The Test was used to capture images of the heart from the esophageal region (Pagana et al., 2018).

CT Chest with Contrast (09-26-22)
- Test was done to assess possibility of pulmonary embolism (Pagana et al., 2018).
  - **Results**: None were detected

X-Ray Chest Single View - Portable (09-26-22)
- Helps identify any causes of lung or heart problems (Pagana et al., 2018).
  - **Results**: No Acute Disease were present in the lungs or heart.

CT Head/Brain without Contrast (09-26-22)
- Test helps capture view of the brain and blood vessels.
  - **Results**: No acute infarction, bleeding, or mass present.

Medical History

Previous Medical History:
Primary Malignant Neuroendocrine Tumor of Small Intestine
Carcinoid Tumor

Prior Hospitalizations:
07-20-2022: Chronic Systolic CHF
08-10-2022: Dizziness/Giddiness
12-05-2019: Chronic Constipation

Previous Surgical History:
2x Cancer Surgery (Date: Unknown)

Social History:
Tobacco: None
Alcohol: None
Drugs: None
Sexual Activity: Not currently

Pathophysiology of UTI related to Bacteremia

Disease process:

The urinary tract is sterile along with normal flora found in the urethral opening but with normal flora found in the opening, it allows a way for pathogens to enter and cause infection (Capriotti T. 2020). As urine continuously passes through the urethra, it clears out the bacteria trying to enter, but stagnant urine in the urethra is a good medium for bacteria to grow (Capriotti T. 2020). Women tend to be more prone to urinary tract infection due to the shorten length of the urethra compared to the male counterpart (which is uncommon in men) (Capriotti T. 2020). Urinary Tract Infections are caused by uropathogenic bacteria that invades the urethra epithelium cells which causes irritation and inflammation (Capriotti T. 2020). The infection can be localized at the start but later can spread to the bladder, ureters, and kidneys causing a upper urinary tract infection (Capriotti T. 2020). In older adults, the urinary tract infection can cause altered mentality that leads to confusion/delirium, sudden changes in behavior, and agitation (Capriotti T. 2020).

Bacteremia are borderline sepsis without the severe effect of it. It is typically caused from another source of infection that has escape the local region and traveled in the circulation system. The infection bypasses the primary and second barriers of a human's natural defenses and invades the circulating blood. If infection prolongs for long duration then it may lead to sepsis, systemic inflammatory response syndrome, septic shock, and multiple organ dysfunction syndrome. Common causes of bacteremia include escherichia coli and staphylococcus aureus (Capriotti T. 2020).

S/S of disease:

Signs and symptoms include frequency/pain/ or burning during urination, sense of urgency, and at times hematuria (Capriotti T. 2020). Although lower UTIs do not have an associated-fever, upper UTIs do present one. Other signs/symptoms include cloudy urine or strong smelling urine (Capriotti T. 2020).

Signs and symptoms of bacteremia include: hypotension, septic shock, altered mental status, decreased urine output from hypovolemia, fast heart rate, feeling faint or lightheadedness, tachypnea, and respiratory distress (Capriotti T. 2020).

Method of Diagnosis:

Urinalysis and Urine culture are the primary test used to diagnose UTI (Capriotti T. 2020). The urinalysis can test for the presence of WBCs, RBC, leukoesterase, color/clarity, specific gravity, glucose, protein, and ketones. In a urine culture, it can indicate the microorganism growth and specificity the type of antibiotic it is sensitive to. (growth greater than 10^{5}/mL indicates infection) (Capriotti T. 2020).

Diagnosing bacteremia primarily involves a blood culture taken from the vein in the arm. Which is then sent to the lab to identify the presence of bacteria. Other labs taken to support diagnosis includes CBC labs with differentials specifically high neutrophils (Capriotti T. 2020).

Treatment of disease:

The primary treatment for UTIs are antibiotic therapy. Culture and sensitivity determine the specific antibiotic to be used (Capriotti T. 2020). Hydration is implemented to allow clearance of bacteria in the urethra (Capriotti T. 2020). Other interventions to assist in the treatment therapy include intake of cranberry juice (this makes the bacteria less adherence to the urethra/bladder wall) (Capriotti T. 2020).

The treatment options for bacteremia includes the appropriate antibiotics which is then sent for culture and sensitivity. Treatment may last up to 7 to 14 days depending on the type of pathogen of cause (Capriotti T. 2020).

Relevance to the Patient:

The information that is presented in the pathophysiology for UTI related to bacteremia, I believe to relate a lot to the patient. The patient was admitted in the hospital with chief complaint of altered mental status and was only oriented to their name during the time of admission. At the time of admission the patient's husband witness the signs present which include body shakiness, temp of 103F, confusion, and loss of balanced and unsteady. The Patient had a high neutrophil count which reflected on the urine culture done which indicated a UTI that progressed into the circulatory system. A Blood culture was also test for infection with results indicated positive infection in progress with sensitivity of specific antibiotics that can be used to treat. The patient had current use of penicillin G K to treat for infection of gram negative microorganisms.

Physical Exam/Assessment

General:

- Patient is alert and oriented X3 to person, place, and time. No distress appearance at the moment and was resting/laying in bed with HOB elevated at 30 degrees. Patient is alert and responsive to verbal and painful stimuli.

Integument:

- Skin color was a tan with age-related wrinkling. Skin was also dry and warm upon palpation. Skin turgor was retractable almost immediate. No signs of contusions or rashes in the cervical/trunk areas and upper/lower extremities. The patient had a IV saline (20 gauge) in the right antecubital area with patent IV (Rate was 23.3 mL/hr). Braden score is 19 (low risk)

HEENT:

- Skull and face are symmetrical. Trachea is midline with no deviations. Upon palpation trachea movement is present when patient swallows. Carotid artery is palpable and is +2 bilaterally. All cervical lymph nodes are nonpalpable bilaterally. Eyelids have no visible discoloration, lesions, or swelling bilaterally. Sclera is white and clear bilaterally. Conjunctiva is pink and moist bilaterally. Pupils (PERRLA) are round and equal, reactive to light, and are able to accommodate bilaterally. 6 Extraocular movements are present in both eyes with no deviations bilaterally. No present ear tenderness upon palpation with no visible drainage or discoloration bilaterally. No visible impaction in ears bilaterally. Nose septum is midline. Turbinates are moist and pink in nose bilaterally with no visible signs of bleeding. Frontal sinuses are nontender to palpation bilaterally. Uvula is midline. Soft palate and hard palate are present. Swallow reflex is present with a soft palate able to move upward. Buccal mucosa is moist. Teeth are present and are a yellow/white color and is consistent in the top section and bottom section of the mouth. A cavity is apparent in the left/right/upper/lower back section of the molar teeth.

Cardiovascular:

- Sinus Rhythm is present along with S1 and S2 sound present. No signs of S3, S4, or murmurs. Heart rhythm is regular. Upper left arm pulse is +1 and upper right arm pulse is +2. lower peripheral pulses were +2 bilaterally. Apical pulse palpable and auscultated at the midclavicular line at the 5th intercostal space (pulse is a +2 and the rhythm/rate is regular). No signs of neck vein distention or edema in the upper/lower extremities. Cap refill is less than 3 seconds.

Respiratory:

- Normal rate and regular pattern of respirations. Respirations are symmetrical and non-labored. Lung sounds clear throughout anterior/posterior bilaterally. No wheezes or rhonchi noted. No use of accessory muscle or signs of breathing distress. Lung aeration is equal bilaterally.

Genitourinary

- Urine is yellow and clear (Patient stated). No urine voiding was witnessed within the interaction time (patient voided the night before). Patient denies pain when voiding. Genitals are clean (By patient statement). Patient is not on dialysis and has not catheter in place for voiding.

Gastrointestinal:

- No signs of distention, incisions, drains, or wounds upon inspection. Scar is apparent in the right lower quadrant (about 3 inches long - smooth and flat with not redness). Bowel sounds were audible within normal limits in all 4 quadrants. No signs pain or tenderness upon palpation in all 4 quadrants. No ostomy or nasogastric tube present. Last bowel movement was the day before at 1300 (afternoon). Diet at home is regular but during hospitalization a soft to chew diet was ordered. Height is 5'2"(159 cm) and current weight is 134 lbs (61.1 kg).

Musculoskeletal

- Neurovascular is intact with no impaired blood flow or damage to the peripheral nerves in the extremities bilaterally. Patient is able to perform all ROM actively in upper and lower extremities bilaterally (During time of hospitalization, the patient is ordered to be supervised when doing ADLs). Muscle strength is 5/5 in upper and lower bilaterally. Client is independent but with assistance and no use of supportive devices. Fall Risk score is 45 (low fall risk = standard fall prevention interventions).

Neurological

- MAEW is intact and PERRLA is equal, round and reactive. Muscle Strength in both upper and lower extremity is equal. Orientation x3 to person,place, time, and situation. Mental status is normal with behavior appropriate to their responses. speech and sensory is normal. LOC is 15 with patient alert and awake to question and answers appropriately.

Vital Signs (include date/time and highlight if abnormal): 09/29/22

0824			1011			1050		
B/P: 119/62	**Temp**: 97.5F	**HR**: 60	**B/P:** 125/67	**Temp**: 97.3F	**HR**: 58	**B/P:** 126/66	**Temp**: 97.4F	**HR**: 54
Respiratory Rate: 16		**O2**: 97%	**Respiratory Rate:** 16		**O2**: 97%	**Respiratory Rate:** 14		**O2**: 94%

Pain and pain scale used:

- **@ 0824: 0/10 - verbalized/number scale (Denied presence of pain)**
- **@ 1011: 0/10 - verbalized/number scale (Denied presence of pain)**
- **@ 1050: 0/10 - verbalized/number scale (Denied presence of pain)**

Nursing Diagnosis 1	**Nursing Diagnosis 2**	**Nursing Diagnosis 3**
Acute confusion related to recent diagnosis of UTI as evidence by Patient being oriented to name at the time of admission, husband stated that the patient had a temp of 103F, and High neutrophil count.	Risk of infection related to recent lab value of leukopenia as evidence by WBCs with 3.90 x 10^6 (low), traces of leukoestarase in urinalysis (infection), and blood cultures results are positive which shows specific type of antibiotics to treat infection.	Risk of Falls related to recent state of confusion (from UTI) as evidence by unsteady balance (stated by patients husband), Oriented to only name but not to surroundings at the time of admission, fall risk score is 45 (low risk), blood culture are positive for infection present in the bloodstream.
Rationale	**Rationale**	**Rationale**
I believe that is diagnosis is appropriate to the patient due to recent confusion, patient was only oriented to name but not place, time and situation, and leukoestarse present in urinalysis.	This nursing diagnosis is appropriate to the patients current situation because a UTI is present that has progressed in the bloodstream (evident by blood culture). The patient is taking Penicillin G K intravenously for the initial treatment of broad-spectrum antibiotic. The patient was admitted with altered mental status as a result of the current UTI.	The nursing diagnosis is appropriate to the patient situation because of the recent symptoms of loss of balance with shakiness presented in the time of admission, patient is a low fall risk score of 45 at the present time but during admission was scored higher (stated by nurse), and patient needs supervision and assistance when moving.
Interventions	**Interventions**	**Interventions**
1.) Assess the patient current LOC to obtain a baseline to compare later in ongoing assessment findings (Phelps, 2020). 2.) reassure the family members that the confusion is temporary to ease high levels of anxiety. (Phelps, 2020)	1.) Minimize the patient risk of infection by washing hands before and after care. (Phelps, 2020). 2.) Monitor WBC count as ordered and report elevations that can indicate infection. (Phelps, 2020).	1.) Improve environmental safety factors as needed. (Phelps, 2020). 2.) Assess the patient's ability to use the call light or other safety systems and remove anything form the environment that increases the chance of falls like cords, shoe, or throw rugs. (Phelps, 2020)
Evaluation of Interventions	**Evaluation of Interventions**	**Evaluation of Interventions**
The patient will present improvement of LOC and will be oriented to person, place, time, and situation. The Family will express an	The patient's WBC count with differentials will remain normal range and no evident of	The patient will show understanding of factors that increases the chance of falling and assist in

understanding of the temporary situation and report feelings of being calm (Phelps, 2020).	infection. Patient will not experience signs and symptoms of infection (Phelps, 2020).	making changes to promote fall prevention. (Phelps, 2020).

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