

Student Name: Elani Russell
 Medical Diagnosis/Disease: Urinary Tract Infection

Anatomy and Physiology

Normal Structures

The body takes nutrients from food and changes them to energy. After the body has taken the food components that it needs, waste products are left behind in the bowel and in the blood. The kidney and urinary systems help the body to get rid of liquid waste called urea. They also help to keep chemicals (such as potassium and sodium) and water in balance. Urea is produced when foods containing protein (such as meat, poultry, and certain vegetables) are broken down in the body. Urea is carried in the blood to the kidneys. This is where it is removed, along with water and other wastes in the form of urine.

The kidneys have other important functions. They control blood pressure and produce the hormone erythropoietin. This hormone controls red blood cell production in the bone marrow. The kidneys also control the acid-base balance and conserve fluids. The kidneys remove urea from the blood through tiny filtering units called nephrons. Each nephron consists of a ball formed of small blood capillaries (glomerulus) and a small tube called a renal tubule. Urea, together with water and other waste substances, forms the urine as it passes through the nephrons and down the renal tubules of the kidney. The two ureters are also part of the urinary tract. These narrow tubes carry urine from the kidneys to the bladder. Muscles in the ureter walls keep tightening and relaxing. This forces urine downward, away from the kidneys. If urine backs up, or is allowed to stand still, a kidney infection can develop. About every 10 to 15 seconds, small amounts of urine are emptied into the bladder from the ureters. Next is the bladder. Two ureters. These narrow tubes carry urine from the kidneys to the bladder. Muscles in the ureter walls keep tightening and relaxing. This forces urine downward, away from the kidneys. If urine backs up, or is allowed to stand still, a kidney infection can develop. About every 10 to 15 seconds, small amounts of urine are emptied into the bladder from the ureters. The two sphincter muscles in the urinary system help keep urine from leaking by closing tightly like a rubber band around the opening of the bladder. The nerves in the bladder tell the person when they have to urinate, and lastly the urethra. This tube allows urine to pass outside the body. The brain signals the bladder muscles to tighten. This squeezes urine out of the bladder. At the same time, the brain signals the sphincter muscles to relax to let urine exit the bladder through the urethra. When all the signals happen in the correct order, normal urination happens.

Biological Adaptation

Pathophysiology of Disease

There are several defense mechanisms that maintain sterility and prevent UTIs. These defenses include normal voiding w/complete emptying the bladder, ureterovesical junction competence and ureteral peristaltic activity that prevents the urine from the bladder from ascending. The characteristics of urine are maintained by an acidic pH, high urea concentration, and an abundance of glycoproteins that interfere with the growth of the bacteria. A change in any of these normally cause a UTI. The organisms that usually cause UTIs originate in the perineum and are introduced via the ascending route from the urethra. Most infections are caused from a gram negative bacilli normally found in the GI tract. A common factor to this ascending infection is biological instrumentation. This allows for the urethra to be open for sexual intercourse promotes "milking" of bacteria from the vagina and perineum area may cause a UTI.

NCLEX IV (7): Reduction of Risk

Anticipated Diagnostics

Labs
 dipstick urinalysis
 microscopic urinalysis
 urine culture
 clean catch urine sample

Additional Diagnostics

catheterization for clean catch if unable to urinate

NCLEX II (3): Health Promotion and Maintenance

Contributing Risk Factors

urinary catheterization
 sexual intercourse
 Age
 Poor hygiene
 previous UTI

Signs and Symptoms

Disuria, urgency, frequency, discomfort or pressure, hematuria, cloudy urine, fever, chills, flank pain, fatigue, anorexia, painful bladder

Possible Therapeutic Procedures

Non-surgical
 drug therapy
 antimicrobial therapy
 antibiotics
 fluid intake
Surgical

Prevention of Complications

(What are some potential complications associated with this disease process)
 sexual intercourse
 various procedures involving catheterization
 urinary

NCLEX IV (7): Reduction of Risk

NCLEX IV (6): Pharmacological and Parenteral Therapies

Anticipated Medication Management

Antibiotics like piperazopyridine, sulfazoxazole
 sensitivity guided antibiotic therapy
 3-12 month trial of suppressive or prophylactic antibiotic regimen

NCLEX IV (5): Basic Care and Comfort

Non-Pharmacologic Care Measures

adequate fluid intake
 patient teaching

NCLEX III (4): Psychosocial/Holistic Care Needs

What stressors might a patient with this diagnosis be experiencing?

frequency urinating could cause decrease in sleep making the patient restless, and agitated

Client/Family Education

List 3 potential teaching topics/areas

- ALWAYS WIPE front to back
- INCREASE fluid intake

NCLEX I (1): Safe and Effective Care Environment

Multidisciplinary Team Involvement

(Which other disciplines do you expect to share in the care of this patient)

urology, nurse, lab

Potential Patient Problems (Nursing Diagnoses)

List two potential patient problems you will be addressing along with clinical reasoning, goals/expected outcomes, assessments, and priority nursing interventions. The patient problems must be in priority order.

Problem # 1: Impaired urinary system function

Clinical Reasoning: pain while urinating, cloudy, foul smelling urine
urine before dx.

Goal/EO: Patient will have less pain and non-foul smelling urine

Ongoing Assessments: Assess laboratory data q shift. Assess for signs and symptoms of UTI q shift. Assess urine color and smell after every void. Assess for any hx of UTI on admission.

NI: 1. Encourage to finish all prescribed antibiotics q shift

2. Limit use of indwelling catheters q shift

3. Encourage to drink 500ml q shift

4. Teach to void often to empty bladder completely q shift

5. Encourage perineal hygiene front to back after every elimination

6. Encourage to report signs and symptoms q shift

Problem # 2 Acute pain

Clinical Reasoning:

Goal/EO: Patient reports satisfactory pain control and decreased intensity of $\leq 3/10$ on numeric pain scale during my shift.

Ongoing Assessments: Assess PQRST of pain q shift. Assess what decreases pain q shift. Assess pain level on a 0-10 scale q 4hr. Assess HR, BP, and RR q 4hr.

NI: 1. Respond to reports of pain PRN

2. Apply heating pad to suprapubic area PRN

3. Encourage use of analgesics PRN

4. Provide rest periods q 4hr

5. Encourage diversional activities q shift

6. Encourage to report pain while urinating q shift

ACTIVE LEARNING TEMPLATE: *Medication*

STUDENT NAME Elani Russell

MEDICATION Levofloxacin (IVPB)

REVIEW MODULE CHAPTER _____

CATEGORY CLASS Fluoroquinolone

PURPOSE OF MEDICATION

Expected Pharmacological Action

Inhibits DNA enzyme gyrase in susceptible microorganisms interfering with bacterial cell replication repair. therapeutic effect: bactericidal

Therapeutic Use

Treatment of susceptible infections due to s pneumoniae, s aureas, e faecalis, h influenza, mcatarrhalis including acute bacterial exacerbation of chronic bronchitis

Complications

Diarrhea, nausea, abdominal pain, dizziness, drowsiness, headache

Medication Administration

Administer no less than 60 minutes for 250 mg or 500 mg: 90 minutes for 750 mg

IV incompatibilities: furosemide, heparin, insulin, nitroglycerin, propofol
IV compatibilities: dexmedetomidine, dobutamine, dopamine, lidocaine, lorazepam, magnesium, morphine

Contraindications/Precautions

Contraindications: hypersensitivity to levofloxacin and other fluoroquinolone.

Cautions known or suspected CNS disorders, seizure disorder, renal impairment, bradycardia, rheumatoid arthritis, elderly

Nursing Interventions

monitor serum glucose, renal function, LFT. Monitor daily pattern of bowel activity, stool consistency. Promptly report hypersensitivity to reaction; skin rash, urticaria, pruritus, photosensitivity. Be alert for superinfection; fever, vomiting, diarrhea, oral mucosal changes

Interactions

may decrease therapeutic effect of BCG, antacids, sucralfate, zinc decrease absorption, NSAIDs may increase risk of CNS stimulation, seizures, medication that prolong QT interval may increase risk of arrhythmias

Client Education

Teach the need to complete drug therapy. Early discontinuation may result in antibacterial resistance or increase risk of recurrent infection. Report any episodes of diarrhea.

Evaluation of Medication Effectiveness

Monitor serum glucose for signs of improvements

ACTIVE LEARNING TEMPLATE: **Medication**

STUDENT NAME Elani Russell

MEDICATION Lorazepam (PO)

REVIEW MODULE CHAPTER _____

CATEGORY CLASS Benzodiazepine

PURPOSE OF MEDICATION

Expected Pharmacological Action

Enhances use of inhibitory neurotransmitter gamma-aminobutyric acid in CNS, affecting memory motor sensory, and cognitive function. therapeutic use: produces anxiolytic anticonvulsant, sedative, muscle relaxant, antiemetic effects

Therapeutic Use

Management of anxiety disorders, short term relief of symptoms of anxiety, anxiety associated with depressive symptoms.

Complications

Drowsiness, dizziness, weakness, ataxia headache, hypotension, nausea, vomiting, confusion

Medication Administration

2 mg/ml or 0.5mg, 1mg, 2mg available. Initially give 0.5-2 mg q4-6 hr as needed up to 10mg/day. maximum dose is 2 mg

Contraindications/Precautions

Contraindications: hypersensitivity to lorazepam, other benzodiazepines, acute narrow angle glaucoma, severe respiratory depression. Cautions: neonates, renal/hepatic impairment, compromised pulmonary function, depression, comitant use of CNS depressants, pts at high risk for suicidal ideation and behavior,

Nursing Interventions

Offer emotional support to anxious patient. Assess motor responses autonomic responses, assess for drug seeking behavior and risk for drug abuse and misuse. Monitor bp, rr, hr and diligently screen for suicidal ideation.

Interactions

Valproic acid may increase concentration/affects, alcohol and other CNS depressants may increase CNS depression, herbals with sedative properties may increase CNS depression.

Client Education

Give with food, tablets may be crushed.

Evaluation of Medication Effectiveness

Assess for paradoxical reaction, particularly during early therapy, evaluate for therapeutic response, calm facial expressions, decreased restlessness, and insomnia.

ATI Virtual Clinical Questions and Reflection:

1) Identify two members of the healthcare team collaborating in the care of this patient:

- a. Angela (RN, charge)
- b. Dr. Baxter (provider)

2) What were some steps the nursing team demonstrated that promoted patient safety?

- a. Hand hygiene while entering room
- b. Administering Oxygen when O₂ sat was <92%
- c. Reading back doctors orders

3) Do you feel the nurse and medical team utilized therapeutic communication techniques when interacting with individuals, families, and health team members of all cultural backgrounds?

a. If yes, describe:

Throughout this clinical day I have noticed many techniques through all the care team to provide clarification to prevent any errors.

b. If no, describe:

Reflection

1) Go back to your Preconference Template:

- a. Indicate (circle, star, highlight, etc.) the components of your preconference template that you saw applied to the care of this patient.

2) Review your Nursing Process Form: Did you select a correct priority nursing problem?

a. If yes, write it here: _____

b. If no, write what you now understand the priority nursing problem to be:

Impaired cardiac output

3) Review your Patient Problem Form: Did you see many of your anticipated nursing assessments and interventions used?

a. Were there interventions you included that *were not* used in the scenario that could help this patient?

i. If yes, describe:

Since the patient was in pain one of my interventions was to encourage the use of analgesics to help her pain

ii. If no, describe:

4) After completing the scenario, what is your patient at risk for developing?

a. Septic Shock

b. Why? Since she has a infection and also heart failure there is a decrease in tissue perfusion that will lead to lactic acid production and systemic acidosis which causes a →

5) What was your biggest "take-away" from participating in the care of this patient? How did this impact your nursing practice?

My biggest take away while caring for this patient is the critical thinking, and adapting to the patients needs that were not 100% what was interpreted through the report. She came in with urosepsis and as care was given her Oxygen became priority which led to her heart failure being more important at this time. Throughout the simulation I learned ways to think critically and how to put the priority problems first.

4) Decrease in myocardial contractility

SOAP Note Based on Priority Problems

Priority Patient Problem #1: Impaired cardiac output

| | |
|--|---|
| <p>Subjective:</p> <p><i>This section explains the client symptoms. Include a narrative of the patient's complaints/concerns and/or information obtained from secondary sources.</i></p> | <p>History Present Illness (HPI): <u>URUSCPHSIS</u></p> <p>PMH: congestive heart failure, diabetes</p> <p>Allergies: NKA</p> <p>Current Medications: gliburide 2.5mg PO daily, levofloxacin 250mg IV bolus q 12hr, 1000ml LACTated Ringers IV @ 30ml/hr, Acetaminophen 325mg PO q 4hr/PRN, <u>1000mg 2mg PO q 4hr PRN</u></p> |
| <p>Objective:</p> <p><i>This section is your clinical observations. Include pertinent vital signs, pertinent labs and diagnostics related to the priority problem.</i></p> | <p>Vital Signs: T: 37.2, 88 BPM, RR-22, 128/84, 91% O₂, 18588</p> <p>Labs: RBC: 4.8 million, Hgb-11.3g/dL, Hct 33%, WBC 13,000 BUN 21mg/dl albumin 3.2mg/dl cholesterol 1225 mg/dl</p> <p>Diagnostics: urinalysis: cloudy, slightly amber. SG1.039, protein leukocyte esterase positive RBC casts (+) 2mg</p> |
| <p>Assessment:</p> <p><i>Focused assessments on your priority problem.</i></p> | <p>Assess the skins warmth and the quality of peripheral pulses PRN Assess for any changes in LOC PRN Assess BP, HR, RR q 4hr</p> |
| <p>Plan</p> <p>*Based on priority problem only</p> <p><i>Include what your plan is for the client. What treatments or medications are needed? You can include procedures, consults, labs/diagnostics, etc. What nursing interventions are being performed?</i></p> | <p>Plan: Administer Digoxin as ordered. Maintain supplemental oxygen PRN Elevate the head of the bed PRN Maintain fluid restriction a shift Obtain labs, BNP, Lactate level, CBC once. Continuously monitor medication effectiveness</p> <p>Teaching & Resources: Teach about self-monitoring symptoms Relieve symptoms of anxiety.</p> |