Student Name: Caroline Maull
Medical Diagnosis/Disease: Urinary tract infection (UTI)

NCLEX IV *(8)*: Physiological Integrity/Physiological Adaptation

Anatomy and Physiology
Normal Structures

see attached!

Pathophysiology of Disease

A UTI is the most common HAI. It is an infection of the urinary tract. This can be an upper or lower infection, it is based on the location. A few examples of how it is based on locations are pyelonephritis is inflammation of the parenchyma, cystitis is bladder inflammation, urethritis is urethra inflammation, and urosepsis (life threatening) is a UTI that becomes systemic. Lower UTI's mean that the patient also has an upper. This can be caused by bacteria (E. coli most common), fungus, or parasites. Fungal and parasitic usually occur in patients with immunosuppression, on long courses of antibiotics, or have diabetes. UTI's are categorized into complicated or uncomplicated. Complicated means there is a structural difference or a serious underlying disease. Some examples are stones, diabetes, a kidney transplant, or chronic kidney disease (CKD). Uncomplicated means that there are no underlying disease and there is a normal urinary tract.

NCLEX IV *(7)*: Reduction of Risk

Anticipated Diagnostics
Labs

- WBC (will be ↑)
- UA

Additional Diagnostics

CT scan, U/S, cystoscopy (examine lining of bladder to urethra), dipstick urinalysis, microscopic urinalysis (confirms dipsticks), urine culture (dx is questionable), bladder scan

NCLEX II *(3)*: Health Promotion and Maintenance

Contributing Risk Factors

- poor hygeine
- women
- diabetes
- HIV
- obesity
- sexual intercourse
- congenital defects
- aging
- pregnancy
- obstruction
- fistula

Signs and Symptoms

Upper (parenchyma, pelvis, uterus)

- fever
- chills
- flank pain
- confusion (elderly)

Lower (bladder storage/emptying)

- dysuria
- urgency
- frequency
- suprapubic pressure
- hematuria

NCLEX IV *(7)*: Reduction of Risk

Possible Therapeutic Procedures
Non-surgical

- limit catheter use
- void Q 2-3h.

Surgical

only if blockage is present:

nephrolithotomy: remove kidney stone, incision in kidney.

pyelolithotomy: stones in renal pelvis, removed from incision in renal pelvis.

cystotomy: bladder stones

Prevention of Complications

(What are some potential complications associated with this disease process)

- Acute kidney infection
- pyelonephritis
- CAUTIs
- urosepsis

if caught early, tx can be started, prevents complications.

NCLEX IV *(6)*: Pharmacological and Parenteral Therapies

Anticipated Medication Management

- antibiotics (normally 3 days but for recurring 7-14 days)
- urinary analgesics (Phenazopyridine - urine red/orange)

NCLEX IV *(5)*: Basic Care and Comfort

Non-Pharmacologic Care Measures

- encourage fluids PO (cranberry juice)
- low sodium diet
- apply heat to abdomen
- peri-care (wipe front to back)

NCLEX III *(4)*: Psychosocial/Holistic Care Needs

What stressors might a patient with this diagnosis be experiencing?

- pain
- frequency of urination

Client/Family Education

List 3 potential teaching topics/areas

- take full course of antibiotics!
- avoid foods/drinks that can irritate the bladder such as caffeine, orange juice, and spicy food.
- monitor for s/sx such as cloudy urine.

NCLEX I *(1)*: Safe and Effective Care Environment

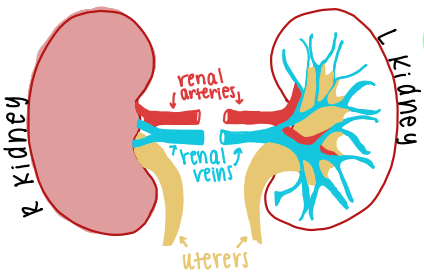
Multidisciplinary Team Involvement

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

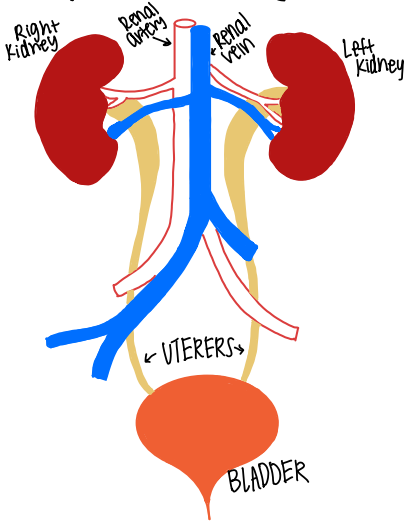
- Urology
- lab tech
- case management

UTI: usually gram-negative bacteria from the GI tract! Catheter use are a big cause for HAI (CAUTIS).

anatomy + physiology



RENAL PELVIS HOLDS 5mL OF URINE



Kidneys: regulate volume and composition of ECF (extracellular fluid) and excrete waste products. The blood flow to the kidneys is 1200 mL/min.

Macro structure:

- located behind the peritoneum on each side of the vertebral column.
- each is surrounded by fat and CT
- each covered by a capsule for protection
- entry sites for renal artery and nerves (hilus), exit to renal vein and ureter

V.S.

Micro structure:

- each kidney has >1 million nephrons (1 nephron = 1 unit)
- each contain tubular system, bowmans capsule, and glomerulus.
- nephrons are the functional unit

urine

Urine is composed of: 95% water, 2.8% dissolved salts, 2% urea, 0.2% creatinine/ammonia/uric acid

↓

how is it formed?

1. Blood is filtered at the glomerulus (filtration).
2. The hydrostatic pressure inside capillaries cause blood to filter into the Bowman capsule.
3. The filtration membrane allows water and small solutes to pass into the nephron. (reabsorb 80% of electrolytes, glucose, H_2O, HCO_3, amino acid, creatinine and secretion of H^+)
4. When filtrates exit the glomerulus, they enter the renal tubules (reabsorb Na/Cl).
5. Through the renal tubules, H_2O and nutrients are reabsorbed into the capillaries. waste ions, and hydrogen then become urine.
6. Urine goes from renal tubules to renal pelvis, ureter, and then to the bladder.

pH

Urine pH usually 6-7.5

Tubular function:

- reabsorbs essential materials
- excretes nonessential materials

Potential Patient Problems (Nursing Diagnoses)

To Be Completed Before the Simulation

Anticipated Patient Problem: Impaired urinary elimination

Clinical Reasoning: UTI

Goal 1: pt. will have an urinary output of 30 ml/hr during my time of care.

Goal 2: pt. will verbalize the understanding of peri-care Q once per shift.

Relevant Assessments (Prework) What assessments pertain to your patient's problem? Include timeframes.	**Multidisciplinary Team Intervention** (Prework) What will you do if your assessment is abnormal?
Assess I + O's Q 1 hr.	Encourage to try to urinate Q 1 hr to promote the bladder to empty.
Assess labs such as WBC Q PRN or once per shift.	Administer Levofloxacin as ordered Q as prescribed.
Assess urinalysis Q PRN.	Educate on the intake of cranberry products, such as juice, to bring down PH levels.
Assess urine for hematuria in hat Q PRN or Q 1 hr.	Educate on the importance of fluid intake PO Q PRN.
Assess knowledge of how UTI's develop Q once per shift.	Educate on peri-care Q once per shift or PRN.
Assess for physical signs or symptoms such as a fever Q 2 hr.	Continue antibiotic (levofloxacin) Q as ordered.

To Be Completed Before the Simulation

Anticipated Patient Problem: Acute pain

Clinical Reasoning: Urinary tract is inflamed

Goal 1: pt. will not be in pain (0/10) by the end of my care.

Goal 2: pt. will verbalize the understanding of staying on top of pain management by the end of my care.

Relevant Assessments (Prework) What assessments pertain to your patient's problem? Include timeframes.	**Multidisciplinary Team Intervention** (Prework) What will you do if your assessment is abnormal?
Assess pain using the numeric pain scale Q 4 hrs. or PRN.	Cluster time of care Q PRN or Q 4hr.
Assess BP and HR Q 2 hrs.	Educate on distraction techniques such as deep breathing Q once per shift or PRN.
Assess pt.'s expectations for pain management Q once per shift.	Educate on pain management and how to stay on top of pain Q once per shift or PRN.
Assess non-verbal pain such as grimacing during ADL's Q 2 hrs.	Notify the primary RN for the need of PRN meds prior to ADL's.
Assess pain characteristics Q 4 hrs. or PRN.	Administer analgesics as ordered Q as prescribed.
Assess what makes pain better or worse Q 4 hrs. or PRN.	Provide a heat pack as ordered Q PRN.

To Be Completed During the Simulation:

Actual Patient Problem: Decreased Cardiac Output

Clinical Reasoning: dyspnea, crackles in lungs bilaterally, hx of CHF, metabolic acidosis

Goal: SpO2 will stay above 92% on 4L NC during my time of care. Met: ☐ Unmet: ☑

Goal: Pt. will not need more than 6L NC during my time of care. Met: ☑ Unmet: ☐

Actual Patient Problem: Impaired Urinary Elimination

Clinical Reasoning: cloudy urine, WBC 13(↑), 100 mL of UO

Goal: Pt. will have a urine output of 30 mL/hr during my time of care. Met: ☐ Unmet: ☑

Goal: Pt. will have no signs of UTI during my time of care. Met: ☐ Unmet: ☑
→ (cloudy, ↓ UO, burning, pain)

Additional Patient Problems: Impaired skin integrity (Stage II pressure injury)
Acute pain (hip fx)

Below will be your notes, add more lines as needed. **Relevant Assessments:** Indicate pertinent assessment findings. **Multidisciplinary Team Intervention:** What interventions were done in response to your abnormal assessments? **Reassessment/Evaluation:** What was your patient's response to the intervention?

Patient Problem	Time	Relevant Assessments	Time	Multidisciplinary Team Intervention	Time	Reassessment/ Evaluation
decreased cardiac output	09:50	breathing loud, trouble talking, SpO2 88% on RA	09:52	HOB raised, applied 2L via NC	09:55	deep breaths taken, replied "yes" to "is it better?"
decreased cardiac output	10:16	breathing harder, "are you okay?" replied "no", restless, temp 100.6 F, RR 28, SpO2 89% 2L NC, crackles in lungs bilaterally, "I don't feel so good", "I'm cold"	10:18	NC increased to 4L, notified provider auscultated lungs again, 0.25mg PO digoxin ordered BID, 20mg furosemide IVP ordered for now and if <500mL of UO in 6 hours give another dose of furosemide 20mg IVP, EKG ordered, albuterol 0.5 solution q6h nebulizer	10:20	administered 0.25mg digoxin PO, 20mg furosemide IVP
acute pain	10:28	OOB on floor, "help me", hip fx	10:30	not a surgical candidate due to CHF (high risk), explained bucks traction	10:33	"I'm really frightened", placed in bucks traction
acute pain & impaired skin integrity	10:35	laying flat on back in bucks traction, pain 4/10, Stage II pressure injury on coccyx	10:36	barrier cream applied, assessments Q2hr, wound care consulted	10:37	pain 2/10 in leg
impaired urinary elimination, decreased cardiac output	10:40	SpO2 85% on 6L, confused, shivering, "I don't understand what's going on!", restless, RR 32 and shallow, urine cloudy	10:40	increased NC to 6L, charge RN called for help, notified provider about presenting shock symptoms	10:41	ABG, UA, IV 0.9% NS at 150 mL/hr ordered by provider
decreased cardiac output	10:42	ABG revealed metabolic acidosis, at risk for sepsis	10:42	notified provider of ABG's and septic risk	10:42	unable to reaccess ABG

ATI Virtual Clinical Questions and Reflection:

1) Identify two members of the healthcare team collaborating in the care of this patient:
   a. Angela
   b. Debbie
2) What were some steps the nursing team demonstrated that promoted patient safety?
   a. asking for name/DOB prior to med. admin.
   b. calling for help when needed
   c. letting the provider know of updates
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: Yes, things were explained well and they let the patient talk and allowed for questions.
   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? no
   a. If **yes,** write it here: _____
   b. If **no,** write what you now understand the priority nursing problem to be: decreased cardiac output
3) Review your Patient Problem Form: Did you see many of your anticipated nursing assessments and interventions used? yes.
   a. Were there interventions you included that *were not* used in the scenario that could help this patient?
      i. If **yes**, describe: a heat pack was not applied/ordered, did not educate much on pain, peri-care, or cranberry products.
      ii. If **no**, describe: _____
4) After completing the scenario, what is your patient at risk for developing?
   a. Sepsis
   b. Why? The labs showed that the infection was getting worse, symptoms were getting worse.

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 was that even though there was a UTI and you can plan on what to do for that, other problems can arise such as the hip fracture. You have to be prepared for new diagnoses and adapt to the different interventions for them.

ACTIVE LEARNING TEMPLATE: # Medication

STUDENT NAME Caroline Maull

MEDICATION lorazepam REVIEW MODULE CHAPTER

CATEGORY CLASS benzodiazepine

PURPOSE OF MEDICATION

Expected Pharmacological Action

increases action of inhibitory gamma-aminobutyric acid in the CNS

Therapeutic Use

helps anxiety, muscle relaxant, anti-tremor, antiemetic, anti-convulsant

Complications

-weakness, hypotension, nausea/vomiting, HA, confusion, dizziness, drowsiness

Medication Administration

PO: adults, 0.5-2mg Q4-6hr PRN
max dosage: 10 mg/day

Contraindications/Precautions

hypersensitivity to lorazepam, use of CNS depressants, hx of drug abuse, renal impairment, respiratory depression

Nursing Interventions

·prior to administration:
- BP, HR, RR
· assess for anxiety
· after administration:
- BP, HR, RR

Interactions

ETOH, CNS depressants, valproic acid, herbals containing sedative properties (kava kava, chamomile, valerian)

Client Education

- DO NOT d/c med abruptly!
- avoid ETOH + CNS depressant
- report any suicidal ideations
- avoid tasks that require alertness/awareness when first taking

Evaluation of Medication Effectiveness

- anxiety is lowered or has improved

ACTIVE LEARNING TEMPLATE: Medication

STUDENT NAME Caroline Maull

MEDICATION Levofloxacin REVIEW MODULE CHAPTER

CATEGORY CLASS fluoroquinolone

PURPOSE OF MEDICATION

Expected Pharmacological Action

Prevents bacterial cell wall replication and inhibits the DNA enzyme

Therapeutic Use

to treat infections

Complications

-Superinfection, GI symptoms: nausea, vomiting, diarrhea, drowsiness, HA, antibiotic associated colitis

Medication Administration

PO or IV: adults, 250-750mg Q24hr.

Contraindications/Precautions

hypersensitivity to levofloxacin, CNS disorders, bradycardia, renal impairment.

Nursing Interventions

- assess I+O's
- baseline EKG
- monitor CBC + WBC
- monitor renal function tests

Interactions

LABS: can increase serum glucose

DRUGS: NSAIDs, warfarin, antacids, meds. that prolong the QT interval (amiodarone)

Client Education

- take the full course as prescribed
- REPORT nausea, vomiting, or diarrhea
- fluid intake

Evaluation of Medication Effectiveness

no signs of infection remain (WBC ↓)