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Medical Diagnosis/Disease: Urinary tract infection (UTI)

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

Anatomy and Physiology and Normal Structures

The urinary system contains 2 kidneys, which are responsible for regulating the volume of extracellular fluid and eliminating waste products from the body. Kidneys are made up of nephrons (functional units). Blood comes into the kidneys through the renal arteries (which branch off from the aorta) and leaves via the renal veins and goes into the inferior vena cava. In the kidneys, these arteries branch into smaller arteries and arterioles. These arterioles connect to the nephrons, where blood is filtered, and urine is starting to form. The nephron is composed of bowman's capsule (glomerular) and renal tubule. Blood enters the bowman's capsule and is filtered in the glomerulus. It is reabsorbed in the renal tube and then flows into the collecting tubule where all the urine is gathered into the renal pelvis before it is released into the ureters at the ureteropelvic junction. Then urine moves through the ureters (small muscular tubes that use muscle contraction to move the urine from the kidneys to the bladder) and enters the bladder through the ureterovesical junctions. The bladder is composed of layers of intertwined smooth muscle fibers (which contract when the bladder empties and relax when the bladder relaxes. In the bladder, there is the trigone (covered by the dome, posterior, and right and left lateral walls), a triangle shaped region near the junction of urethra and the bladder. When bladder is ready to be emptied, the brain sends a signal to the sphincter in the urethra, allowing urine to flow from the bladder out of the body. The female urethra is 1-2 in, and the male urethra is about 8-10 in. The normal adult urine output is 1500ml/day

Pathophysiology of Disease

The urinary system above the urethra is sterile and anything on/outside the opening of the urethra that travels upward, can cause a UTI. Normal mechanism that protects the body from infection include voiding and completely emptying the bladder, ureterovesical junction competence, and always propelling the urine forward, and acidic urine of 6.0 or less. Most infections are caused by gram negative bacilli normally found in the GI tract but can also be caused by *streptococci, enterococci, and staph*. Things like indwelling catheters, cystoscopy exams, wiping incorrectly, or not cleaning up or urinating after sexual intercourse can cause UTIs. UTIs can also be caused by kidney obstructions or kidney damage cause by stones. CAUTI are the most common healthcare associated infection (usually caused by *E coli*.). If untreated UTIs can lead to sepsis. The two types of UTI are complicated and uncomplicated. Uncomplicated only involve the bladder. Complicated involves structural and functional problem in the tract.

NCLEX IV *(7)*: Reduction of Risk

Anticipated Diagnostics

Labs

- Dipstick UA (clean catch specimen)
- Urine for culture and sensitivity

Additional Diagnostics

- CT
- Ultrasound
- Cystoscopy

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

Contributing Risk Factors

-Catheters -pregnancy
-Cystoscopy
-kidney stones
-diabetes -bubble baths
-obesity -feminine sprays
-renal impairment
-renal retention
-poor personal hygiene
-multiple sex partners (female)
-habitual delay or urine

Signs and Symptoms

-dysuria -flank pain
-hesitancy -fatigue
-incomplete emptying
-incontinence -anuria
-nocturia enuresis
-urinary frequency
-hematuria or sediment in urine
-fever/chills
-cloudy/fowl urine

NCLEX IV *(7)*: Reduction of Risk

Possible Therapeutic Procedures

Non-surgical
-Antibiotics (see below)
- Lithotripsy (if UTI caused by kidney stone)

Surgical

Prevention of Complications

(What are some potential complications associated with this disease process)
-Repeated infections (drink cranberry juice, wipe front to back, urinate after sex)
-permanent kidney damage (treat UTI immediately)
-a narrowed urethra in men (trouble urinating)
-sepsis (if infection moves up into kidneys)

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

Anticipated Medication Management

-Trimethoprim/sulfamethoxazole
-Nitrofurantoin - Cephalexin
Fosfomycin -Ampicillin- complicated
Cephalosporins- complicated
Fluoroquinolones- complicated
Fluconazole -fungal UTI only
Urinary analgesic (EX: phenazopyridine) -dysuria

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

Non-Pharmacologic Care Measures

Heating pad
Cranberry juice
Rest
Drink lots of fluids

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

What stressors might a patient with this diagnosis be experiencing?

-pain
-Constantly going to the bathroom
-Loss of control (body and urine)
-Financial strain
-Caregiver reversal (inpatient)

Client/Family Education

List 3 potential teaching topics/areas

• Take/finish antibiotics as prescribed even if symptoms improve. reduces recurrent infections

•practice appropriate hygiene including wiping front to back, empty bladder after intercourse, avoid douches/soap in vaginal area

• drink lots of fluids throughout the day, this will make you pee a lot and reduce bacteria in the bladder

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)

-PCP (outpatient)/Hospitalist (inpatient)
-Urologist
-Nursing
-pharmacy
-Nephrologist
Proctologist (males) (if UTI is caused by prostate issues)

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: Acute Pain; Urethral and flank pain
Clinical Reasoning: symptoms of UTI are pain when urinating and flank pain

Goal/EO: pt will report 2/10 pain when urinating and pain of 0/10 at rest during my time of care

Ongoing Assessments: Monitor VS r/t pain (BP/HR/RR) q4hrs+ PRN; monitor 1&Os q4; ask pt about preferred fluids to drink at start of my shift; assess pain using numeric scale q4hr and PRN; assess PQRST of pain q4hr and PRN; assess current knowledge of pain relief measure at start of shift; assess pain goals at start of shift

NI: 1. Administer Levofloxacin as prescribed

2. Administer Analgesics as prescribed

3. Apply heating pad to suprapubic or lower back area PRN for pain

4.encourage diversional activities such as watching tv, reading a book, or listening to music q2+PRN

5. provide quiet rest periods during moments of discomfort PRN

6. Educate Pt about importance of finishing antibiotic therapy, regardless of symptom relief at start of shift

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Problem # 2 impaired Urinary incontinence
Clinical Reasoning: UTI causes incontinence, urgency, and incomplete bladder emptying

Goal/EO: Pt has 1 or fewer episode of incontinence before discharge

Ongoing Assessments: assess pts recognition of the need to urinate at the start of my shift, assess preferred elimination methods (BRP, BSC, bedpan) at start of my shift; assess preferred assistive devices at the start of my shift; monitor 1&O's q4+PRN; assess current fluid intake at beginning and throughout my shift; assess preferred fluid at start of shift; assess knowledge of proper urinal and perineal hygiene at the start of my shift

NI: 1. Administer Levofloxacin as prescribed

2.provide plenty of toileting opportunities throughout my shift and leave a urinal or bedpan by the bedside at all times

3. Encourage preferred fluid throughout my shift

4. Ensure that assistive devices are always available at bedside as appropriate

5. educate pt. about personal proper hygiene (wiping front to back, empty bladder after intercourse, avoid douches/soap in vaginal area) prior to discharge

6. Educate pt. about the importance of finishing all the antibiotic, even if symptoms are improved

ATI Virtual Clinical Questions and Reflection:

1) Identify two members of the healthcare team collaborating in the care of this patient:
    a. **Craig -RN**
    b. **Shirley- Charge RN**
2) What were some steps the nursing team demonstrated that promoted patient safety?
    a. **Keeping the call bell within reach**
    b. **Communicating all changes in client care fast and efficiently**
    c. **Performed a medication reconciliation with pharmacy when given the big bag of meds**
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, I do believe that this healthcare team utilized therapeutic communication. They all made sure to note changes to the patient's health and notify the appropriate channels. The nurses notified the charge nurse and the doctor about declines in pt. status and that was evaluated promptly. The nurse Craig also did a good job at using therapeutic communication to assess the pts anxiety related to not having the surgery.**

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 **no,** write what you now understand the priority nursing problem to be: **Risk for Sepsis**
3) Review your Patient Problem Form: Did you see many of your anticipated nursing assessments and interventions used? **No**
    a. Were there interventions you included that *were not* used in the scenario that could help this patient?
        i. If **no,** describe**: I would say no to this because the patient was going into shock. Yes, she did receive the first dose of levofloxacin, but the pt. was having respiratory and cardiac issues, fell, and was deteriorating in level of consciousness and increased agitation. So, the interventions that I had for my client would not help, and the sepsis needs to be addressed ASAP!**
4) After completing the scenario, what is your patient at risk for developing?
    a. Septic shock/death
    b. Why? **If the client was suffering from urosepsis, this is something that needs to be treated quickly as it can lead to septic shock. The kidney filters blood and is returned to the body, so if the infection is in the kidneys and then is released into the inferior vena cava, the infection will get into the blood steam, and it will start circulating to every other organ in the body. If not treated quickly, this can cause multi system organ failure and can lead to death.**

5) What was your biggest "take-away" from participating in the care of this patient? How did this impact your nursing practice? **This client was very eye opening to me, especially as a nursing student. This client did not present as I thought. I did not realize how severe UTI hit the elderly population. Also, seeing sepsis as it progresses was very interesting. First, she had respiratory issues, then BP and HR went up, and then the client became disoriented and had increased agitation. This taught me that not every client. will present the same way and it is important to be vigilant for changes in health. It was very nice to see that therapeutic communication really helped in the care of this client. The assistive personnel and the registered nurse were the first to note changes and declines in the client's status, then were able to report it to the doctor so interventions could be made. This taught me how important it is to communicate changes in a timely manner, if not the client. suffers. Even when the client became agitated and scared after being told she would not be having the surgery, Craig the RN, used therapeutic communication and asks, "tell me more about your concerns".**

This alleviated a little bit of the client's fear. This is just another reason to be vigilant in how we are communicating with people and trying to always use out therapeutic communication skills.

SOAP Note Based on Priority Problems

Priority Patient Problem #1: Risk for Sepsis

Subjective: *This section explains the client symptoms. Include a narrative of the patient's complaints/concerns and/or information obtained from secondary sources.*	**History Present Illness (HPI):** 78 y.o female presented to the ED from home for Urosepsis. Reports chills and reports pain level of 4/10 stated, "I don't feel so good" and "I'm so cold" **PMH:** Diabetes and HF **Allergies:** NKA **Current Medications:** digoxin, potassium chloride, furosemide, isosorbide/
Objective: *This section is your clinical observations. Include pertinent vital signs, pertinent labs and diagnostics related to the priority problem.*	**Vital Signs**: at 0833 T:38.1/HR:98/RR:28/BP:130/94/SPo2:89% on 2L NC **Labs: WBC**: 13,000; **BUN** 21; **UA**: Slightly amber and cloudy. 1.039 specific gravity, 2 protein. **ABG**: ph.: 7.28; Co2: 35; HCO3: 20 **Diagnostics:** None r/t priority problem
Assessment: *Focused assessments on your priority problem.*	Lungs clear. RR: 32 and shallow/T: 38.3/SPo2: 85% on 4L NC. Pt reports chills and stated, "I'm so cold" and "I don't feel so good". Urine in foley bag is very cloudy and J.J has only put out 100 ml since transfer to med surg unit.
Plan ***Based on priority problem only** *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?*	**Plan:** 1. Push High iv antibiotics 2. Continue IVF NS 150ml/hr 3. Maintain 02 6L NC and titrate as needed 4. UA 5. Continue to monitor CBC 6. Administer Digoxin 0.25 mg PO daily for CHF 7. Administer 20 mg Furosemide daily for HF 8. Administer albuterol q4 PRN for breathing difficulties **Teaching & Resources:** - educate pt. about the signs and symptoms of sepsis and when to report it to the nurse (inpatient) -educate pt. about sign and symptoms of a UTI and when to call your doctor (once discharged) -may need skilled nursing facility or home healthcare once medically cleared because she fell and is confused and may need rehab afterwards to return to baseline -refer to case management- to follow up with home and living at home alone.