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Medical Diagnosis/Disease: UTI

NCLEX IV (8): Physiological Integrity/Physiological Adaptation

Anatomy and Physiology

Normal Structures

The kidneys are the principal organs of the urinary system. The primary functions of the kidneys are to regulate the volume and composition of extracellular fluid and excrete waste products from the body. The kidneys also function to control BP, make erythropoietin, activate vitamin D, and regulate acid-based balance. The paired kidneys are bean-shaped organs located retroperitoneally on either side of the vertebral column at about the level of the twelfth thoracic vertebra to the third lumbar vertebra. Each kidney weighs 4 to 6oz and is about 5in long. The right kidney is lower than the left. An adrenal gland lies on top of each kidney. Each kidney is surrounded by a considerable amount of fat and connective tissue that cushions, supports, and helps the kidney maintain its position.

Pathophysiology of Disease

The urinary tract above the urethra is normally sterile. Several mechanical and physiological defense mechanisms aid in maintaining sterility and preventing UTIs. These defenses include normal voiding with complete emptying of bladder, ureterovesical junction competence, and ureteral peristaltic activity that propels urine towards the bladder. Antibacterial characteristics of urine are maintained by an acidic pH, high urea concentration, and abundant glycoproteins that interfere with growth of bacteria. A change in any of these defense mechanisms cause increased risk for UTI. The organisms that usually cause UTIs originate in the perineum and are introduced via the ascending route from the urethra. Most common infections are caused by gram-negative bacilli, normally found in the GI tract. Gram positive organisms (strep, enterococci, and staph) can also cause UTIs.

NCLEX IV (7): Reduction of Risk

Anticipated Diagnostics

Labs

Dipstick urinalysis
Urine culture

Additional Diagnostics

Voided midstream technique
Urine culture with sensitivity testing
Ultrasound
CT

NCLEX II (3): Health Promotion and Maintenance

Contributing Risk Factors

Female anatomy
Sexual activity
Certain types of birth control
Menopause
Hx or UTI or kidney stones
Hx of diabetes
Catheter use

Signs and Symptoms

Painful urination
Lower UTI:
Bladder shortage
Bladder emptying
Dysuria
Frequency
Urgency
Suprapubic discomfort or pressure
Hematuria
Upper UTI
Fever
Chills
Flank pain

NCLEX IV (7): Reduction of Risk

Possible Therapeutic Procedures

Non-surgical
Increase fluid intake
Medications
Surgical
Cystoscopy
Ureteral reimplantation

Prevention of Complications

(What are some potential complications associated with this disease process)
Repeated infections
Permanent kidney damage
Narrowed urethra in men
Sepsis

NCLEX IV (6): Pharmacological and Parenteral Therapies

Anticipated Medication Management

Trimethoprim and sulfamethoxazole
Fosfomycin
Nitrofurantoin
Cephalexin
Ceftriaxone

NCLEX IV (5): Basic Care and Comfort

Non-Pharmacologic Care Measures

Encourage fluid intake
Cranberry juice
Use a heating pad
Avoid drinks that irritate the bladder

NCLEX III (4): Psychosocial/Holistic Care Needs

What stressors might a patient with this diagnosis be experiencing?

Pain with urination
Frequent urination
Hospitalization
Role reversals

Client/Family Education

List 3 potential teaching topics/areas

- Teach to wipe from front to back
- Teach to empty bladder after sex
- Teach to avoid potentially irritating feminine products

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)

Infectious disease

Urology

MD

Nurse

Nephrologist

Anatomy and Physiology cont.

The parenchyma is the actual tissue of the kidney. The outer layer of the parenchyma is the cortex, and the inner layer is the medulla. The medulla consists of a number of pyramids. The apices of the pyramids are the papillae, through which urine passes to enter the calyces. The minor calyces widen and merge to form major calyces, which form a funnel-shaped sac called the renal pelvis. The minor and major calyces transport urine to the renal pelvis. From there is drains from the ureter to the bladder. The nephron is the functional unit of the kidney. Each kidney has around 1 million. The urinary bladder is located behind the symphysis pubis and anterior to the vagina and rectum. Its primary functions are to serve as a reservoir for urine and to eliminate waste products from the body. Like the stomach, the bladder is stretchable and sac-like that contracts when its empty. Normal adult urine output is around 1500mL/day, which varies with food and fluid intake. 200-250mL of urine in the bladder cause moderate distention and the urge to urinate. When the quantity of urine reaches 400-600mL, the person feels uncomfortable. The urethra is a small tube that incorporates the smooth muscle of the bladder neck and extends to the straited muscle of the external meatus. The urethra's primary functions are to control voiding and serve as a conduit for urine from the bladder to the outside of the body during voiding. The female urethra is 1-2in long and lies behind the symphysis pubis but anterior to the vagina. The male urethra is 8-10in long, starts at the bladder neck and extends the length of the penis.

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 elimination

Clinical Reasoning: Possibly evidenced by dysuria, urinary frequency due to a UTI.

Goal/EO: Patient will achieve normal urinary elimination pattern, as evidenced by absence sign of urinary disorders (urgency, oliguria, dysuria)

Ongoing Assessments:

1. Asses the patient's pattern of elimination qshift.
2. Assess the characteristics of urine (color, cloudiness, smell) q4hrs.
3. Palpate for bladder distention and observe for overflow q4hrs.
4. Note reports of urinary frequency, urgency, burning, incontinence, nocturia qshift.

NI: 1. Teach female patients to wipe from front to back prior to providing care.

2. Encourage the drinking of cranberry juice to help prevent and control symptoms of UTI prior to discharge.

3. Encourage adequate fluid intake to 2-4L/day or per MD orders.

4. Recommend good hand washing and proper perineal care qshift.

5. Refer to urinary continence specialist as indicated by worsening UTI qshift.

6. Administer medications as indicated per MD order to treat UTIs.

Problem # 2: acute pain: inflammation and infection of urinary tract

Clinical Reasoning: Possible burning during urination, facial grimacing when urinating

Goal/EO: Patient will use pharmacological and nonpharmacological pain relief strategies qshift.

Ongoing Assessments:

1. Assess the client's description of pain (quality, nature, and severity of pain) prior to providing care.
2. Assess signs and symptoms of UTI (dysuria, urinary frequency, and urgency, nocturia) qshift.
3. Monitor labs and diagnostics (WBC, urinalysis, bacteria in the urine, urine culture/sensitivity) qshift.
4. Assess risk factors for UTI (STI, catheter use, and previous surgeries) prior to providing care.

NI: 1. Apply heating pad to the suprapubic area or lower back q4hrs.

2. Administer analgesics or NSAIDs per MD order and PRN for pain.

3. Encourage patient to increase oral fluid intake unless contraindicated (2-3L/day) or per MD orders.

4. Encourage the client to void frequently (every 2-3hrs) to empty bladder completely and prevent reinfection PRN for urinary frequency.

5. Use non-pharmacological techniques for pain management (relaxation, guided imagery, television) qshift.
6. Teach importance of completing antibiotic therapy prior to discharge.

ATI Virtual Clinical Questions and Reflection:

- 1) Identify two members of the healthcare team collaborating in the care of this patient:
 - a. **Nurse Craig**_____
 - b. **Pharmacy**_____
- 2) What were some steps the nursing team demonstrated that promoted patient safety?
 - a. **Consulting pharmacy to do a medication reconciliation with home meds.**
 - b. **Consulting the provider to see what medications the patient should be taking; reading back the orders to ensure the correct meds and dosages were going to be given.**
- 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, because they provided therapeutic communication by sympathetically talking to the client and ensuring all her questions and concerns would be answered by the nurse and the provider.
 - 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: _____
- 3) If **no**, write what you now understand the priority nursing problem to be: **I can understand that impaired gas exchange was the priority problem.**
- 4) 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: because the patient was in respiratory distress, they applied 6L of O2 via nasal cannula and provided meds relating to her CHF.
 - ii. If **no**, describe:

- 5) After completing the scenario, what is your patient at risk for developing?
- My patient is at risk for developing sepsis.
 - Why? Because she was going into distributive shock, which is a medical emergency in which not enough blood is getting to the heart, brain, and kidneys, which explains the restlessness and dysuria.
- 6) What was your biggest “take-away” from participating in the care of this patient? How did this impact your nursing practice?

My biggest takeaway from participating in the care of this patient would be someone coming in with a simple UTI needs to be treated quickly because they are at risk for developing serious conditions, like shock or sepsis as my patient did. It is important to monitor all body systems upon a patient coming into the ED and being thorough with the initial and baseline assessment. It is also important to assess for underlying conditions the patient may have too. It impacted my nursing practice by allowing me to see how quickly the mentality of someone with a UTI and other conditions may change and decline.

SOAP Note Based on Priority Problems

Priority Patient Problem #1: Impaired gas exchange_____

<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): Urosepsis</p> <p>PMH: CHF Diabetes</p> <p>Allergies: None</p> <p>Current Medications: Levofloxacin Glyburide Acetaminophen Lorazepam Lactated ringers</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: 37.2C, HR: 88, RR: 22, BP: 128/84, O2sat: 91%</p> <p>Labs: Hgb 11.3, Hct 33%, WBC 13000, BUN 3.2, cholesterol 225 (all other labs normal)</p> <p>Diagnostics: Urinalysis: cloudy, slight amber, specific gravity 1.039, protein 2mg/dL, leukocyte esterase is positive</p>
<p>Assessment:</p> <p><i>Focused assessments on your priority problem.</i></p>	<p>Patient is agitated and restless. Is on O2 6L via nasal cannula. Decreased urine output since admitted from ED; urine is cloudy and amber color. Has an indwelling catheter with 100mL output at 0700 (admitted at 0500). Is on bucks traction due to fall out of bed and hip fracture; too unstable due to CHF for surgery at this time. Possible distributive shock due to urosepsis.</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:</p> <p>Keep on 6L O2 via nasal cannula Monitor for further restlessness and agitation Keep bucks traction in tact and continue to lay flat Administer meds as ordered my PO Repeat urinalysis in 6hrs</p> <p>Teaching & Resources:</p>
	<p>Teach to continue to urinate Teach to drink plenty of fluids Teach to stay on medication regimen even if feeling better Report any signs or symptoms of reinfection of urinary tract</p>