Urinary Elimination

M. Sc. Alaa Hamza Hermis

Urinary Elimination

- Kidneys and ureters
- Bladder
- Urethra

Kidneys and ureters

- Maintain composition and volume of body fluids
- Filter and excrete blood constituents not needed; retain those that are needed
- Excrete waste product (urine(

✓ Nephrons remove the end products of metabolism and regulate fluid balance.

✓ Urine from the nephrons empties into the kidneys.

Bladder

Smooth muscle sac innervated by autonomic nervous system) ANS(

Serves as a reservoir for urine

Composed of three layers of muscle tissue called detrusor muscle

Sphincter guards opening between urinary bladder and urethra

Urethra conveys urine from bladder to exterior of body

Urethra

- Conveys urine from the bladder to the exterior
- Male urethra functions in excretory and reproductive systems
- No portion of female urethra is external to the body

Act of urination (micturition, voiding(

Process of emptying the bladder

- Detrusor muscle contracts, internal sphincter relaxes, urine enters posterior urethra
- Muscles of perineum and external sphincter relax
- Muscle of abdomen wall contracts slightly
- Diaphragm lowers, micturition occurs

Factors affecting micturition

- ✓ Developmental considerations
- ✓ Food and fluid intake
- ✓ Activity and muscle tone (mobility(
- ✓ Pathologic conditions
- ✓ Medications, especially diuretics

Psychosocial Factors

Developmental considerations

- **Children**
- Toilet training 2 to 3 years old, enuresis
- **Effects of aging**
- Nocturia
- Increased frequency
- Urine retention and stasis. (Decreased bladder emptying--residual urine(
- Voluntary control affected by physical problems

Disease associated with renal problems

- Congenital urinary tract abnormalities
- Polycystic kidney disease
- Urinary calculi
- Hypertension
- Diabetes mellitus
- Gout
- Connective tissue disorder

Effect of medications on urine production and elimination

- Diuretics: prevent reabsorption of water and certain electrolytes in tubules
- Cholinergic medication: stimulate contraction of detrusor muscle, producing urination
- Analgesics and tranquilizers: suppress CNS, diminish effectiveness of neural reflex.

Medications affecting color of urine

- Anticoagulants: red urine
- Diuretics: pale yellow urine
- Pyridium: orange to orange- red urine
- Elavil: green or blue-green urine
- Levodopa: brown or black urine

Using of nursing process

- Assessing data about voiding patterns, habits, past history of problems
- Physical examination of the bladder, if indicated, and urethral meatus; assessment of skin integrity and hydration; and examination of the urine
- Correlation of these findings with results of procedures and diagnostic tests.

Assessing a problem with voiding

- Explore its duration, severity, and precipitating factors.
- Note the patient's perception of the problem
- Check the adequacy of the patients' self-care behaviors.

Physical assessment of urinary functioning

- Kidneys: palpation of the kidneys is usually performed by an advanced health care practitioner as part of a more detailed assessment.
- Urinary bladder: palpate and percuss the bladder or use a bedside scanner.
- Urethral orifice: inspect for signs of infection, discharge, or odor.
- Urine: assess for color, odor, clarity, and sediment.

Urine specimens urinalysis

- Clean-catch or midstream specimens
- Sterile specimens from indwelling catheter
- -24hour urine specimen
- Specimens from infants and children

Nursing diagnosis

- **Urinary functioning as the problem**
  - **Incontinence**
  - **Pattern alteration**
  - **Urinary retention**
- **Urinary functioning as the etiology**
  - **Anxiety**
  - **Caregiver role strain**
  - **Risk for infection**
- **Impaired urinary elimination R/T UTI AEB dysuria**
- **Functional urinary incontinence R/T mobility deficits AEB inability to ambulate to the bathroom.**
- **Stress urinary incontinence R/T weak pelvic muscle**
- **Urinary retention R/T Enlarged prostate**

Promoting Normal Urination

- ✓ Maintaining normal voiding habits
  - Schedule
  - Urge
  - Privacy
  - Position
  - Hygiene
- ✓ Promoting fluid intake: 2000- 2400 ml per day
- ✓ Strengthening muscle tone
- ✓ Assisting with toileting

Patients at risk for UTIs

- Individuals with indwelling urinary catheter
- Sexuality active women
- Women who use diaphragms for contraception
- Postmenopausal women
- Individuals with diabetes mellitus
- Older adults

Types of urinary incontinence

- Stress: intra-abdominal pressure(cough or sneeze(
- Urge: sensing an urgent need to go
- Transient: appears suddenly and lasts 6 months or less
- Mixed: urine loss with features of two or more types of incontinence
- Overflow: overdistention and overflow of bladder
- Functional: caused by factors outside the urinary tract
- Reflex: emptying of the bladder without sensation of need to void(spinal cord injury(
- Total: continuous, unpredictable loss of urine

Reason for catheterization

- Relieving urinary retention
- Obtaining a sterile urine specimen
- Obtaining a urine specimen when usual methods can't be used
- Emptying bladder before, during, or after surgery
- Monitoring critically ill patients
- Increasing comfort for terminally ill patients