Chapter 30

Urinary Elimination
Question

• Is the following statement true or false?

Kidneys, ureters, bladder, and urethra, along with the internal and external sphincters, work together to produce urine, collect it, and excrete it from the body.
True.

Kidneys, ureters, bladder, and urethra, along with the internal and external sphincters, work together to produce urine, collect it, and excrete it from the body.
Overview of Urinary Elimination

- Components of the urinary system: kidneys, ureters, bladder, and urethra
- Accessory structures of the urinary system: ring-shaped muscles; internal and external sphincters
  - Components, along with accessory structures, work together to produce urine, collect it, and excrete it from the body
Overview of Urinary Elimination (cont’d)

• Urinary elimination: process of releasing excess fluid and metabolic wastes
  – Normal conditions: average person eliminates approximately 1500 to 3000 mL of urine each day
  – Need to urinate becomes apparent when the bladder distends with approximately 150 to 300 mL of urine
Overview of Urinary Elimination (cont’d)

- Patterns of urinary elimination
  - Physiologic
  - Emotional
  - Social

- Examples: amount of food consumed, volume of fluid intake, and the amount of fluid losses
Overview of Urinary Elimination (cont’d)

- Measures to promote urination
  - Providing privacy; assuming a natural position for urination
  - Maintaining an adequate fluid intake
  - Using stimuli such as running water from a tap to initiate voiding
## Characteristics of Urine

<table>
<thead>
<tr>
<th>CHARACTERISTIC</th>
<th>NORMAL</th>
<th>ABNORMAL</th>
<th>COMMON CAUSES OF VARIATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume</td>
<td>500–3,000 mL/day</td>
<td>&lt;400 mL/day</td>
<td>Low fluid intake</td>
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<tr>
<td></td>
<td>1,200 mL/day average</td>
<td>&gt;3,000 mL/day</td>
<td>Excess fluid loss</td>
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<tr>
<td>Color</td>
<td>Light yellow</td>
<td>Dark amber</td>
<td>Kidney dysfunction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Brown</td>
<td>High fluid intake</td>
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<tr>
<td></td>
<td></td>
<td>Reddish-brown</td>
<td>Diuretic medication</td>
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<tr>
<td></td>
<td></td>
<td>Orange, green, blue</td>
<td>Endocrine diseases</td>
</tr>
<tr>
<td>Clarity</td>
<td>Transparent</td>
<td>Cloudy</td>
<td>Dehydration</td>
</tr>
<tr>
<td>Odor</td>
<td>Faintly aromatic</td>
<td>Foul</td>
<td>Liver/gallbladder disease</td>
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<tr>
<td></td>
<td></td>
<td>Strong</td>
<td>Blood</td>
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<tr>
<td></td>
<td></td>
<td>Pungent</td>
<td>Water-soluble dyes</td>
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<td></td>
<td></td>
<td></td>
<td>Infection</td>
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<td></td>
<td></td>
<td></td>
<td>Stasis</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Infection</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dehydration</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Certain foods</td>
</tr>
</tbody>
</table>
Urine Specimen Collection

• Purpose: to identify microscopic or chemical constituents of client’s urine
  - Voided specimens: sample of fresh urine collected in a clean container
  - Clean-catch specimens: voided sample of urine considered sterile
    - Also termed midstream specimen because of how it is collected
Collecting a Clean-Catch Specimen

The nurse teaches the female client as follows:

- Wash your hands.
- Remove the lid from the specimen container.
- Rest the lid upside down on its outer surface, taking care not to touch the inside areas.
- Sit on the toilet and spread your legs.
- Separate your labia with your fingers.
- Cleanse each side of the urinary meatus with a separate antiseptic swab, wiping from front to back toward the vagina.
- Use the final clean, moistened swab to wipe directly down the center of the separated tissue.
- Begin to urinate.
- After releasing a small amount of urine into the toilet, catch a sample of urine in the specimen container.
- Take care not to touch the mouth of the specimen container to your skin.
- Place the specimen container nearby on a flat surface.
- Release your fingers and continue voiding normally.
- Wash your hands.
- Cover the specimen container with the lid.

The male client should follow the same steps as above but should perform the following cleansing routine:

- Retract your foreskin, if you are uncircumcised, or cleanse in a circular direction around the tip of the penis toward its base using a premoistened antiseptic swab.
- Repeat with another swab.
- Continue retracting the foreskin while initiating the first release of urine and until you have collected the midstream specimen.
Specimens of Urine

• Catheter specimens: urine specimen collected under sterile conditions using a catheter, which is usually done when clients are catheterized for other reasons such as to control incontinence in an unconscious client

• 24-hour specimens: collection of all urine produced in a full 24-hour period
Location for Collecting a Catheter Specimen
Abnormal Urinary Elimination Patterns

- Identifying abnormal urine characteristics
  - Laboratory analysis is a valuable diagnostic tool
    - Hematuria: urine containing blood
    - Albuminuria: urine containing albumin, a plasma protein
Abnormal Urinary Elimination Patterns (cont’d)

- Pyuria: urine containing pus
- Proteinuria: urine containing plasma proteins
- Glycosuria: urine containing glucose
- Ketonuria: urine containing ketones
Abnormal Urinary Elimination Patterns (cont’d)

- Anuria: absence of urine or a volume of 100 mL or less in 24 hours; kidneys not producing sufficient urine

- Urinary retention: the client produces urine but does not release it from the bladder
Abnormal Urinary Elimination Patterns (cont’d)

- Oliguria: urine output is less than 400 mL per 24 hours; indicates inadequate elimination of urine
  - Residual urine: more than 50 mL of urine remains in the bladder after voiding
  - Urinary stasis: lack of movement of urine from bladder
Abnormal Urinary Elimination Patterns (cont’d)

• Polyuria: greater than normal urinary volume; may accompany minor dietary variations, such as increased fluid intake
  – Disorders: diabetes mellitus, an endocrine disorder caused by insufficient insulin; and diabetes insipidus, an endocrine disease caused by insufficient antidiuretic hormone

• Nocturia: nighttime urination
Abnormal Urinary Elimination Patterns (cont’d)

- Dysuria: difficult or uncomfortable voiding and a common symptom of trauma to the urethra or a bladder infection
  - Frequency: need to urinate often
  - Urgency: strong feeling that urine must be eliminated quickly

- Incontinence: inability to control either urinary or bowel elimination; abnormal after a person is toilet-trained
Question

Which abnormal urinary elimination pattern is characterized by a greater than normal urinary volume accompanied by minor dietary variations?

a. Polyuria  
b. Oliguria  
c. Dysuria  
d. Hematuria
Answer

a. Polyuria

Polyuria is an abnormal urinary elimination pattern in which greater than normal urinary volume accompanies minor dietary variations. Oliguria is urine output less than 400 mL per 24 hours. Dysuria means uncomfortable voiding and is a common symptom of trauma to the urethra. Hematuria means urine containing blood.
Assisting Clients With Urinary Elimination

- Clients who are weak or cannot walk to the bathroom may need a commode; clients confined to bed use a urinal or bedpan
  - Commode: chair with an opening in the seat under which a receptacle is placed
  - Urinal: cylindrical container for collecting urine; mostly used for males
Placement of Urinal
Assisting Clients With Urinary Elimination (cont’d)

• Urinal (cont’d):
  - If the client needs help placing the urinal:
    - Pull the privacy curtain
    - Don gloves
    - Ask the client to spread his legs
    - Hold the urinal by its handle
Assisting Clients With Urinary Elimination (cont’d)

- Urinal (cont’d):
  - If the client needs help placing the urinal (cont’d):
    - Direct the urinal at an angle between the client’s legs so that the bottom rests on the bed
    - Lift the penis and place it well within the urinal
Assisting Clients With Urinary Elimination (cont’d)

- Using a bedpan: a seatlike container for elimination

- Fracture pan, a modified version of a conventional bedpan
  - Clients with musculoskeletal disorders who cannot elevate their hips to sit on a bedpan in the usual manner use a fracture pan
Two Types of Bedpans: Fracture Pan (Left), Conventional Pan (Right)
Question

• What is the appropriate indwelling catheter size for adults according to the French scale?

  a. 14F
  b. 12F
  c. 20F
  d. 24F
Answer

a. 14F

The appropriate indwelling catheter size for adults according to the French scale is 14F. Inappropriate indwelling catheter sizes for adults are 12F, 20F, and 24F.
Managing Incontinence

• 6 types of urinary incontinence
  – Stress, urge, reflex, functional, total, and overflow

• Continence training: to restore control of urination involves teaching the client to refrain from urinating until an appropriate time and place
# Types of Incontinence

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Example</th>
<th>Common Causes</th>
<th>Nursing Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress</td>
<td>The loss of small amounts of urine when intra-abdominal pressure rises</td>
<td>Dribbling is associated with sneezing, coughing, lifting, laughing, or rising from a bed or chair.</td>
<td>Loss of perineal and sphincter muscle tone secondary to childbirth, menopausal atrophy, prolapsed uterus, or obesity</td>
<td>Pelvic floor muscle strengthening, weight reduction</td>
</tr>
<tr>
<td>Urge</td>
<td>Need to void perceived frequently, with short-lived ability to sustain control of the flow</td>
<td>Voids commences when there is a delay in accessing a restroom.</td>
<td>Bladder irritation secondary to infection; loss of bladder tone from recent continuous drainage with an indwelling catheter</td>
<td>Restriction of fluid intake of at least 2,000mL/day, omit bladder irritants, such as caffeine or alcohol, administration of diuretics in the morning</td>
</tr>
<tr>
<td>Reflex</td>
<td>Spontaneous loss of urine when the bladder is stretched with urine, but without prior perception of a need to void</td>
<td>The person automatically releases urine and cannot control it.</td>
<td>Damage to motor and sensory tracts in the lower spinal cord secondary to trauma, tumor, or other neurologic conditions</td>
<td>Cutaneous triggering, straight intermittent catheterization</td>
</tr>
<tr>
<td>Functional</td>
<td>Control over urination lost because of inaccessibility of a toilet or a compromised ability to use one</td>
<td>Voids occurs while attempting to overcome barriers such as doorways, transferring from a wheelchair, manipulating clothing, acquiring assistance, or making needs known.</td>
<td>Impaired mobility, impaired cognition, physical restraints, inability to communicate</td>
<td>Clothing modification, access to a toilet, commode, or urine assistance to a toilet according to a preplanned schedule</td>
</tr>
<tr>
<td>Total</td>
<td>Loss of urine without any identifiable pattern or warning</td>
<td>The person passes urine without any ability or effort to control.</td>
<td>Altered consciousness secondary to a head injury, loss of sphincter tone secondary to prostatectomy, anatomic leak through a urethral/vaginal fistula</td>
<td>Absorbent undergarments, external catheter, indwelling catheter</td>
</tr>
<tr>
<td>Overflow</td>
<td>Urine leakage because the bladder is not completely emptied; bladder distended with retained urine</td>
<td>The person voids small amounts frequently, or urine leaks around a catheter.</td>
<td>Overstretched bladder or weakened muscle tone secondary to obstruction of the urethra by debris within a catheter, an enlarged prostate, distended bowel, or postoperative bladder spasms</td>
<td>Hydration, adequate bowel elimination, patience of catheter, Credé’s maneuver</td>
</tr>
</tbody>
</table>

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Catheterization

- Catheterization: act of applying or inserting a hollow tube

- Types of catheters
  - External catheters: urine-collecting device applied to the skin
    - Example: condom catheter
Catheterization (cont’d)

- Straight catheters: urine drainage tube inserted but not left in place

- Retention catheters (also called indwelling catheters): left in place for a period of time
  - Example: Foley catheter
Catheterization (cont’d)

- Inserting a catheter: techniques for inserting straight and retention catheters are similar, although the steps for inflating the retention balloon do not apply to a straight catheter.

- Closed drainage system: device used to collect urine from a catheter.
Catheterization (cont’d)

- Closed drainage system components:
  - Calibrated bag
  - Tubing of sufficient length
  - Hanger
Catheterization (cont’d)

- Providing catheter care: hygiene measures used to keep the meatus and adjacent area of the catheter clean

- Catheter irrigation: flushing the lumen of a catheter
  - Open system: retention catheter is separated from the drainage tubing to insert the tip of an irrigating syringe
Providing Catheter Care

NURSING GUIDELINES

Providing Catheter Care

1. Plan to cleanse the meatus and a nearby section of the catheter at least once a day. Regular cleansing reduces colonizing microorganisms.

2. Gather clean gloves, soap, water, washcloth, towel, and a disposable pad. Organization facilitates efficient time management.

3. Wash your hands or perform an alcohol-based handrub (see Chap. 10). Hand hygiene reduces the potential for transmitting microorganisms.

4. Place a disposable pad beneath the hips of a female and beneath the penis of a male. The pad protects the bed linen from becoming wet or soiled.

5. Don clean gloves and wash the meatus, the catheter where it meets the meatus, the genitalia, and the perineum (in that order) with warm, soapy water. Rinse and dry. Follow agency policy for using antiseptic or antimicrobial agents. These methods remove gross secretions and transient microorganisms while following principles of asepsis.

6. Remove soiled materials and gloves, and repeat hand hygiene measures. These steps remove colonizing microorganisms.
Catheterization (cont’d)

- Catheter irrigation (cont’d)
  - Closed system: irrigated without separating the catheter from the drainage tubing
  - Continuous irrigation: ongoing instillation of solution using a 3-way catheter
Catheterization (cont’d)

• Indwelling catheter removal: catheter is removed when it needs to be replaced or when its use is discontinued
Removing a Foley Catheter

NURSING GUIDELINES

Removing a Foley Catheter

- Wash your hands or perform an alcohol-based handrub (see Chap. 10) and don clean gloves. These measures follow standard precautions.
- Empty the balloon by aspirating the fluid with a syringe. This step ensures that all the fluid has been withdrawn.
- Gently pull the catheter near the point where it exits from the meatus. Doing so facilitates withdrawal.
- Inspect the catheter and discard if it appears to be intact. This ensures safety.
- Clean the urinary meatus. This promotes comfort and hygiene.
- Monitor the client’s voiding especially for the next 8 to 10 hours; measure the volume of each voiding. Findings determine whether or not elimination is normal as well as characteristics of the urine.
Urinary Diversions

- Urinary diversion: one or both ureters are surgically implanted elsewhere
  - This procedure is done for various life-threatening conditions
  - Urostomy: urinary diversion that discharges urine from an opening on the abdomen
    - Peristomal skin: skin around the stoma
Question

Which exercise is suggested for paralyzed clients with reflex incontinence?

a. Kegel exercise
b. Crede’s maneuver
c. Cutaneous triggering
d. Double-voiding
c. Cutaneous triggering

Cutaneous triggering is suggested for paralyzed clients with reflex incontinence. Kegel exercise is beneficial for stress incontinence. Crede’s maneuver increases abdominal pressure to overcome the resistance of the internal sphincter muscle. Double-voiding is beneficial for older clients with chronic residual urine.
Nursing Implications

- Potential nursing diagnoses:
  - Self-care deficit: toileting
  - Risk for infection, impaired skin integrity
  - Functional; stress; urge; reflex; total urinary incontinence
  - Impaired urinary elimination
General Gerontologic Considerations

• Older adults are likely to experience urinary urgency and frequency due to diminished bladder capacity and degenerative changes in the cerebral cortex
  – Education regarding Kegel exercises may promote strengthening of the pelvic floor muscles

• Enlargement of the prostate can totally obstruct urinary outflow and make catheterization difficult or impossible
General Gerontologic Considerations (cont’d)

- Chronic residual urine: excessive urine in the bladder after urinating
  - Teach double-voiding: client voids, then waits a few more minutes to allow any residual urine to be voided

- Diuretic therapy commonly prescribed for older adults; can increase the risk for urinary incontinence
General Gerontologic Considerations (cont’d)

- Loss of urinary control threatens older adult independence and self-esteem; may result in self-restricting activities
  - Planned toileting breaks every 60 to 90 minutes diminishes urge incontinence
- Institutionally, incontinence may occur due to untimely assistance for toileting
- Careful evaluation necessary regarding absorbent products or medications