Renal System NCLEX Review

Renal System Disorders

Urinary Tract Infections

- infection occurring at different locations throughout the urinary tract
- nosocomial urinary infections or hospital-acquired urinary infections most commonly caused by urinary catheterization
- gram-negative enteric bacteria (Escherichia Coli) most common causative organism
- Fungal, Parasitic, and viral infections may be responsible for urinary tract infections (UTIS) in clients who have taken antibiotics long term, have diabetes mellitus, or are immune compromised.
- Cystitis is more common in women because women have a shorter urethra than men and the urethra in the woman is located close to the rectum.
- Sexually active and pregnant women are most vulnerable to cystitis.

Cystitis

- infection of the lower urinary tract involving the bladder
- more common in women, children, and older men

Assessment

- increased urgency and frequency of urination
- dysuria
- Foul-smelling urine
- Pyuria

Note: Altered mentation is a sign of a UTI in older adults; frequency and urgency may not be specific symptoms of UTI because of urinary elimination changes that occur with aging.

Diagnostic tests

Urinalysis

- examination of the urine for color, odor, Ph, specific gravity, osmolarity, glucose, Protein, nitrate, blood, white blood cells, red blood cells, and microorganisms

Procedure:

- Provide the client a urine collection container.
- Instruct the client to wash the perineal area with warm, soapy water.
- Instruct the client to collect first voiding morning urine.
- Instruct the client on the correct technique of obtaining a midstream sample if a clean catch sample is required.

Urine culture and sensitivity

- specimen is obtained to confirm presence of microorganisms.
- result of less than 10,000 organisms per milliliter is negative for infection; 10,000–100,000 organisms per milliliter generally is not significant.
- organisms greater than 100,000 per milliliter significant for infection

Pre-procedure

- instruct the female client to separate the labia and cleanse the meatus from front to back with 3–4 antiseptic wipes.
- Instruct the male client to cleanse the tip of the penis (retracting the foreskin if present) with 3–4 antiseptic wipes.
- Instruct the client to begin the urinary stream in the toilet to flush out the urethra, followed by urinating in the sterile collection container.

Procedure

- if the client is unable to urinate, insert a urinary catheter to obtain the sample.
- if the client has an indwelling urinary catheter, remove a sample with a syringe and needle.
- For infants and young children, collect the sample using a U-bag.
- For clients with urinary diversion, insert a urinary catheter into the stoma to obtain a sample.

Nursing Interventions

- Antibiotic therapy
- Administer prescribed urinary analgesic such as phenazopyridine (Pyridium).
- Increase fluid intake to 2500–3000 ml per day unless contraindicated.
- Avoid caffeinated beverages, citrus juices, chocolate, alcohol, and spices, which may irritate the bladder.
- Instruct female clients to wipe from front to back after elimination.
- Instruct the client to avoid taking bubble baths and using perineal products.
- Encourage the client to urinate when the urge is present and to fully empty the bladder with each voiding.

Acute Pyelonephritis

- Inflammation of the kidney caused by bacterial infection, usually caused by E. Coli

Assessment

- Fever
- chills
- Fatigue
- dysuria
- increased urgency and frequency of urination
- costovertebral tenderness and flank pain
- Increased WBCs in the urine

Diagnostic Tests

- Urinalysis

Nursing implementation:

- Bedrest during acute phase
- Antibiotic therapy, analgesics, antiseptics
- Encourage fluid intake (3000ml/day)

Glomerulonephritis

- Damage to the glomerulus caused by immunological reactions that result in inflammatory changes within the glomerulus
- Commonly caused by strept A, autoimmune diseases, klebsiella pneumonia
- Usually occurs 10 days after skin or throat infection

Signs and symptoms:

- Fever
- Hematuria
- Dyspnea
- Weight gain with fluid overload
- Moderate to severe hypertension
- Generalized facial and periorbital edema
- Abdominal flank pain
- Oliguria

Nursing implementation:

- Administer medications to treat infection, alleviate inflammation, and treat hypertension and volume overload
- (Antibiotics, corticosteroids, antihypertensives, diuretics)
- Fluid and sodium reduction if needed
- Daily weights
- Monitor intake and output
- Dialysis or plasma electrophoreses if renal failure develops

Renal Calculi

- Calculi are stones that can form anywhere in the urinary tract, frequently the kidneys
- Problems resulting from calculi are severe intermittent pain, obstruction, tissue trauma, secondary hemorrhage, and infection.
- The stone can be located through radiography of the kidneys, ureters, and bladder; IV pyelography; computed tomography (CT) scanning; and renal ultrasonography.
- A stone analysis is done after passage to determine the type of stone and assist in determining treatment.
- Urolithiasis refers to the formation of urinary calculi; these form in the ureters.
- Nephrolithiasis refers to the formation of kidney calculi; these form in the renal

parenchyma.
- When a calculus occludes the ureter and blocks the flow of urine, the ureter dilates, producing hydroureter (see figure above).
- If the obstruction is not removed, urinary stasis results in infection, impairment of renal function on the side of the blockage, hydronephrosis (see figure above), and irreversible kidney damage.

Causes

- Family history of stone formation
- Diet high in calcium, vitamin D, protein, oxalate, purines, or alkali
- Obstruction and urinary stasis
- Dehydration
- Use of diuretics, which can cause volume depletion
- UTIs and prolonged urinary catheterization
- Immobilization
- Hypercalcemia and hyperparathyroidism
- Elevated uric acid level, such as in gout

Assessment

- Renal colic, which originates in the lumbar region and radiates around the side and down to the testicles in men and to the bladder in women
- Ureteral colic, which radiates toward the genitalia and thighs
- Sharp, severe pain of sudden onset
- Dull, aching pain in the kidney
- Nausea and vomiting, pallor, and diaphoresis during acute pain
- Urinary frequency, with alternating retention
- Signs of a UTI
- Low-grade fever
- High numbers of red blood cells, WBCs, and bacteria noted in the urinalysis report
- Gross hematuria

Interventions

- Monitor vital signs, especially temperature, for signs of infection.
- Monitor intake and output.
- Assess for fever, chills, and infection.
- Monitor for nausea, vomiting, and diarrhea.
- Encourage fluid intake up to 3000 mL/day, unless contraindicated, to facilitate the passage of the stone and prevent infection; monitor for obstruction.
- Administer fluids intravenously as prescribed if unable to take fluids orally or in adequate amounts to increase the flow of urine and facilitate passage of the stone.
- Provide warm baths and heat to the flank area (massage therapy should be avoided).
- Administer analgesics at regularly scheduled intervals as prescribed to relieve pain.
- Assess the client’s response to pain medication.
- Assist the client in performing relaxation techniques to assist in relieving pain.
- Encourage client ambulation, if stable, to promote the passage of the stone.
- Turn and reposition the immobilized client to promote passage of the stone.

- Instruct the client in the diet restrictions specific to the stone composition if prescribed
- Prepare the client for surgical procedures if prescribed.

NOTE: For the client with renal calculi, strain all urine for the presence of stones and send the stones to the laboratory for analysis

A. Cystoscopy

- Cystoscopy may be done for stones in the bladder or lower ureter.
- One or two ureteral catheters are inserted past the stone.
- The catheters are left in place for 24 hours to drain the urine trapped proximal to the stone and to dilate the ureter.
- A continuous chemical irrigation may be prescribed to dissolve the stone.

B. Extracorporeal shock wave lithotripsy (ESWL)

- A noninvasive mechanical procedure for breaking up stones located in the kidney or upper ureter so that they can pass spontaneously or be removed by other methods
- A stent may be placed to facilitate passing stone fragments.
- Fluoroscopy is used to visualize the stone and ultrasonic waves are delivered to the area of the stone to disintegrate it.
- The stones are passed in the urine within a few days.
- The client is taught to watch for signs of urinary obstruction, bleeding, or hematoma formation.
- Instruct the client to increase fluid intake to flush out the stone fragments.

C. Percutaneous lithotripsy

- An invasive procedure in which a guide is inserted under fluoroscopy near the area of the stone; an ultrasonic wave is aimed at the stone to break it into fragments.
- Percutaneous lithotripsy may be performed via cystoscopy or nephroscopy (a small flank incision is needed for nephroscopy).
- The client might have an indwelling urinary catheter.
- A nephrostomy tube may be placed to administer chemical irrigations to break up the stone; the nephrostomy tube may remain in place for 1 to 5 days.
- Encourage the client to drink 3000 to 4000 mL of fluid/day as prescribed following the procedure.
- Instruct the client to monitor for complications of infection, hemorrhage, and extravasation of fluid into the retroperitoneal cavity.

D. Ureterolithotomy

- An open surgical procedure performed if lithotripsy is not effective for removal of a stone in the ureter
- An incision is made through the lower abdomen or flank and then into the ureter to remove the stone.
- The client may have a drain, ureteral stent catheter, and/or indwelling bladder catheter.

E. Pyelolithotomy and nephrolithotomy

- Pyelolithotomy is an incision into the renal pelvis to remove a stone; a large flank incision is required and the client may have a drain and indwelling bladder catheter.
- Nephrolithotomy is an incision into the kidney made to remove a stone; a large flank incision is required, and the client may have a nephrostomy tube and an indwelling bladder catheter.

F. Partial or total nephrectomy

- Performed for extensive kidney damage, renal infection, severe obstruction from stones or tumors, and prevention of stone recurrence
- Monitor the incision, particularly if a drain is in place, because it will drain large amounts of urine.
- Protect the skin from urinary drainage, changing dressings frequently if necessary; place an ostomy pouch over the drain to protect the skin if urinary drainage is excessive.
- Monitor the nephrostomy tube, which may be attached to a drainage bag, for a continuous flow of urine.
- Do not irrigate the nephrostomy or bladder catheters unless specifically prescribed.
- Encourage fluid intake to ensure a urine output of 2500 to 3000 mL/day or more as prescribed.

Renal Trauma

- variety of traumatic injuries that occur as a result of violent crime, increased speed in transportation, or sports
- more common in men under the age of 30 years

Assessment

- reported injury to the abdomen, flank, or back area
- hematuria

Diagnostic Tests

- urinalysis – explanation same as above
- hemoglobin, hematocrit, and WBC count
- intravenous urography or Intravenous pyelogram
- renal arteriography - a special x-ray of the blood vessels of the kidneys
- computed tomography

Nursing Interventions

- Restore fluid volume.
- IV fluid and electrolyte replacement
- Plasma volume expanders such as albumin or dextran
- Frequent monitoring of vital signs
- hourly urine output
- Instruct the client on safety measures to prevent future renal trauma, such as wearing seat

belts, avoiding excessive vehicle speeds, wearing protective clothing for contact sports, and avoiding contact sports when only one kidney is present.

Renal Failure

- kidney disease in which the Function of the kidneys is severely compromised, or the kidneys cease to function.

Types

1. **Acute Kidney Injury**

- Acute kidney injury (AKI) is the rapid loss of kidney function from renal cell damage.
- Occurs abruptly and can be reversible
- AKI leads to cell hypoperfusion, cell death, and decompensation of renal function.
- The prognosis depends on the cause and the condition of the client.
- Near-normal or normal kidney function may resume gradually.

Prerenal: Outside the kidney; caused by intravascular volume depletion such as with blood loss associated with trauma or surgery, dehydration, decreased cardiac output (as with cardiogenic shock), decreased peripheral vascular resistance, decreased renovascular blood flow, and prerenal infection or obstruction.

Intrarenal: Within the parenchyma of the kidney; caused by tubular necrosis, prolonged prerenal ischemia, intrarenal infection or obstruction, and nephrotoxicity

Postrenal: Between the kidney and urethral meatus, such as bladder neck obstruction, bladder cancer, calculi, and postrenal infection

Phases of AKI and interventions

- Onset: Begins with precipitating event
- Oliguric phase

1. For some clients, oliguria does not occur, and the urine output is normal; otherwise, the duration of oliguria is 8 to 15 days; the longer the duration, the less chance of recovery.
2. Sudden decrease in urine output; urine output is less than 400 mL/day.
3. Signs of excess fluid volume: Hypertension, edema, pleural and pericardial effusions, dysrhythmias, heart failure, and pulmonary edema
4. Signs of uremia: Anorexia, nausea, vomiting, and pruritus
5. Signs of metabolic acidosis: Kussmaul’s respirations
6. Signs of neurological changes: Tingling of extremities, drowsiness progressing to disorientation, and then coma
7. Signs of pericarditis: Friction rub, chest pain with inspiration, and low-grade fever
8. Laboratory analysis

Diagnostic findings in the oliguric phase

- Increased blood urea nitrogen (BUN) and creatinine
- Increased potassium (hyperkalemia)
- Decreased sodium (hyponatremia)
- Decreased pH (acidosis)
- Fluid overload (hypervolemic)
- High urine specific gravity (> 1.020 g/ mL)

Diagnostic findings in the diuretic phase

- Decreased fluid volume (hypovolemia)
- Decreased potassium (hypokalemia)
- Further decrease in sodium (hyponatremia)
- Low urine specific gravity (< 1.020 g/ mL)

Diagnostic laboratory work returns to normal range in recovery phase)

- With early recognition or potential for AKI, client may be treated with fluid challenges (IV boluses of 500 to 1000 mL over 1 hour).
- Restrict oral fluid intake; if hypertension is present, daily fluid allowances may be 400 to 1000 mL plus the measured urinary output.
- Administer medications, such as diuretics, as prescribed to increase renal blood flow and diuresis of retained fluid and electrolytes.

Diuretic phase

- Urine output rises slowly, followed by diuresis (4 to 5 L/day).
- Excessive urine output indicates that damaged nephrons are recovering their ability to excrete wastes.
- Dehydration, hypovolemia, hypotension, and tachycardia can occur.
- Level of consciousness improves.
- Laboratory analysis (see Box 58-4)
- Administer IV fluids as prescribed, which may contain electrolytes to replace losses.

Recovery phase (convalescent)

- Recovery is a slow process; complete recovery may take 1 to 2 years.
- Urine volume returns to normal.
- Memory improves.
- Strength increases.
- The older adult is less likely than a younger adult to regain full kidney function.
- Laboratory analysis (see Box 58-4)
- AKI can progress to chronic kidney disease (CKD).

NOTE: The signs and symptoms of AKI are primarily caused by the retention of nitrogenous wastes, the retention of fluids, and the inability of the kidneys to regulate electrolytes.

Nursing Interventions

- Monitor vital signs, especially for signs of hypertension, tachycardia, tachypnea, and an irregular heart rate.
- Monitor urine and intake and output hourly and urine color and characteristics.
- Monitor daily weight (same scale, same clothes, same time of day), noting that an increase of ½ to 1 lb/day (0.25 to 0.5 kg/day) indicates fluid retention.
- Monitor for changes in the BUN, serum creatinine, and serum electrolyte levels.
- Monitor for acidosis (may need to be treated with sodium bicarbonate).
- Monitor urinalysis for protein level, hematuria, casts, and specific gravity.
- Monitor for altered level of consciousness caused by uremia.
- Monitor for signs of infection because the client may not exhibit an elevated temperature or an increased WBC count.
- Monitor the lungs for wheezes and rhonchi and monitor for edema, which can indicate fluid overload.
- Administer the prescribed diet, which is usually a low- to moderate-protein (to decrease the workload on the kidneys) and high carbohydrate diet; ill clients may require nutritional support with supplements, enteral feedings, or parenteral nutrition.
- Restrict potassium and sodium intake as prescribed based on the electrolyte level.
- Administer medications as prescribed; be alert to the mechanism for metabolism and excretion of all prescribed medications.
- Be alert to nephrotoxic medications, which may be prescribed (please see table above for Nephrotoxic Medications.
- Be alert to the HCP’s adjustment of medication dosages for kidney injury.
- Prepare the client for dialysis if prescribed; continuous renal replacement therapy may be used in AKI to treat fluid volume overload or rapidly developing azotemia and metabolic acidosis.
- Provide emotional support by allowing opportunities for the client to express concerns and fears and by encouraging family interactions.
- Promote consistency in caregivers.

Chronic Kidney Disease (CKD)

- CKD is a slow, progressive, irreversible loss in kidney function, with a GFR less than or equal to 60 mL/minute for 3 months or longer.
- It occurs in stages (with loss of 75% of functioning nephrons, the client becomes symptomatic) and eventually results in uremia or end-stage kidney disease (with loss of 90% to 95% of functioning
- Hypervolemia can occur because of the kidneys’ inability to excrete sodium and water; hypovolemia can occur because of the kidneys’ inability to conserve sodium and water.

NOTE: CKD affects all major body systems and may require dialysis or kidney transplantation to maintain life.

Primary causes

- May follow AKI
- Diabetes mellitus and other metabolic disorders
- Hypertension

- Chronic urinary obstruction
- Recurrent infections
- Renal artery occlusion
- Autoimmune disorders

Assessment

- Assess body systems for the manifestations of CKD (Box 58-5).
- Assess psychological changes, which could include emotional lability, withdrawal, depression, anxiety, denial, dependence-independence conflict, changes in body image, and suicidal behavior.

Interventions

- Same as the interventions for AKI.
- Administer a prescribed diet, which is usually a moderate-protein (to decrease the workload on the kidneys) and high carbohydrate, low-potassium, and low-phosphorus diet.
- Provide oral care to prevent stomatitis and reduce discomfort from mouth sores.
- Provide skin care to prevent pruritus.
- Teach the client about fluid and dietary restrictions and the importance of daily weights.
- Provide support to promote acceptance of the chronic illness and prepare the client for long-term dialysis and transplantation or explain to the client about his or her choice to decline dialysis or transplantation; with elderly clients, provide information that kidney function is declining and in time may reach end-stage renal disease and require dialysis; encourage healthy lifestyle and discuss choices.

Anemia

- Anemia results from the decreased secretion of erythropoietin by damaged nephrons, resulting in decreased production of red blood cells.
- Monitor for decreased hemoglobin and hematocrit levels.
- Administer hematopoietic medications such as epoetin alfa or darbepoetin alfa, as prescribed to promote maturity of the red blood cells.
- Administer folic acid as prescribed.
- Administer iron orally as prescribed, but not at the same time as phosphate binders.
- Administer stool softeners as prescribed because of the constipating effects of iron.
- Note that oral iron is not well absorbed by the GI tract in CKD and causes nausea and vomiting; parenteral iron may be used if iron deficiencies persist despite folic acid or oral iron administration.
- Administer blood transfusions; prescribed only when necessary (acute blood loss, symptomatic anemia) because they decrease the stimulus to produce red blood cells.
- Blood transfusions also cause the development of antibodies against human tissues, which can make matching for organ transplantation difficult.

Gastrointestinal bleeding

- Urea is broken down by the intestinal bacteria to ammonia; ammonia irritates the GI mucosa, causing ulceration and bleeding.
- Monitor for decreasing hemoglobin and hematocrit levels.
- Monitor stools for occult blood.
- Avoid the administration of acetylsalicylic acid because it is excreted by the kidneys; if administered, aspirin toxicity can occur and prolong the bleeding time.

Hyperkalemia

- Monitor vital signs for hypertension or hypotension and the apical heart rate; an irregular heart rate could indicate dysrhythmias.
- Monitor the serum potassium level; an elevated serum potassium level can cause decreased cardiac output, heart blocks, fibrillation, or asystole

- Provide a low-potassium diet
- Administer electrolyte-binding and electrolyte-excreting medications such as oral or rectal sodium polystyrene sulfonate as prescribed to lower the serum potassium level.
- Administer prescribed medications: 50% dextrose and regular insulin IV may be prescribed to shift potassium into the cells; calcium gluconate IV may be prescribed to reduce myocardial irritability from hyperkalemia; and sodium bicarbonate IV may be prescribed to correct acidosis.
- Administer prescribed loop diuretics to excrete potassium.
- Avoid potassium-retaining medications such as spironolactone and triamterene because these medications will increase the potassium level.
- Prepare the client for peritoneal dialysis (PD) or hemodialysis as prescribed.

NOTE: Place the client with kidney disease on continuous telemetry. The client can develop hyperkalemia, resulting in the risk for dysrhythmias.

Hypermagnesemia

- Results from decreased renal excretion of magnesium.
- Monitor for cardiac manifestations such as bradycardia, peripheral vasodilation, and hypotension.
- Monitor CNS changes, such as drowsiness or lethargy.
- Monitor neuromuscular manifestations, such as reduced or absent deep tendon reflexes or weak or absent voluntary skeletal muscle contractions.
- Administer loop diuretics as prescribed to excrete magnesium.
- Administer calcium as prescribed for resulting cardiac problems.
- Avoid medications that contain magnesium, such as antacids; some laxatives and enemas may also contain magnesium.
- During severe elevations, avoid foods that increase magnesium levels

Hyperphosphatemia

- As the phosphorus level rises, the calcium level drops; this leads to the stimulation of parathyroid hormone, causing bone demineralization.
- Treatment is aimed at lowering the serum phosphorus level.
- Administer phosphate binders as prescribed with meals to lower serum phosphate levels.

- Administer stool softeners and laxatives as prescribed because phosphate binders are constipating.
- Teach the client about the need to limit the intake of foods high in phosphorus.

Hypertension

- Caused by failure of the kidneys to maintain BP homeostasis.
- Monitor vital signs for elevated BP.
- Maintain fluid and sodium restrictions as prescribed.
- Administer diuretics and antihypertensives as prescribed

Hypervolemia

- Monitor vital signs for an elevated BP.
- Monitor intake and output and daily weight for indications of fluid retention.
- Monitor for periorbital, sacral, and peripheral edema.
- Monitor the serum electrolyte levels.
- Monitor for hypertension and notify the HCP if there are sustained elevations.
- Monitor for signs of heart failure and pulmonary edema, such as restlessness, heightened anxiety, tachycardia, dyspnea, basilar lung crackles, and blood-tinged sputum; notify the HCP immediately if signs occur.
- Maintain fluid restriction.
- Avoid the administration of large amounts of IV fluids.
- Administer diuretics as prescribed.
- Teach the client to maintain a low-sodium diet.
- Teach the client to avoid over-the-counter medications without checking with the HCP.

Hypocalcemia

- Results from a high phosphorus level and the inability of the diseased kidney to activate vitamin D
- The absence of vitamin D causes poor calcium absorption from the intestinal tract.
- Monitor the serum calcium level.
- Administer calcium supplements as prescribed.
- Administer activated vitamin D as prescribed.
- Encourage foods that are high in calcium.

Infection

- The client is at risk for infection caused by a suppressed immune system, dialysis access site, and possible malnutrition.
- Monitor for signs of infection.
- Avoid urinary catheters when possible; if used, provide catheter care per protocol.
- Provide strict asepsis during urinary catheter insertion and other invasive procedures.
- Instruct the client to avoid fatigue and avoid persons with infections.
- Administer antibiotics as prescribed, monitoring for nephrotoxic effects.

Metabolic acidosis

- The kidneys are unable to excrete hydrogen ions or manufacture bicarbonate, resulting in acidosis.
- Administer alkalizer such as sodium bicarbonate as prescribed.
- Note that clients with CKD adjust to low bicarbonate levels and as a result do not become acutely ill.

Muscle cramps

- Occur from electrolyte imbalances and the effects of uremia on peripheral nerves
- Monitor serum electrolyte levels.
- Administer electrolyte replacements and medications to control muscle cramps as prescribed.
- Administer heat and massage as prescribed.

Neurological changes

- The buildup of active particles and fluids causes changes in the brain cells and leads to confusion and impairment in decision-making ability.
- Peripheral neuropathy results from the effects of uremia on peripheral nerves.
- Monitor the level of consciousness and for confusion.
- Monitor for restless leg syndrome, which is also common during dialysis treatments.
- Teach the client to examine areas of decreased sensation for signs of injury.

Ocular irritation

- Calcium deposits in the conjunctivae cause burning and watering of the eyes.
- Administer medications to control the calcium and phosphate levels as prescribed.
- Administer lubricating eye drops.
- Protect the client from injury.

Potential for injury

- The client is at risk for fractures caused by alterations in the absorption of calcium, excretion of phosphate, and vitamin D metabolism.
- Provide for a safe environment.
- Avoid injury; tissue breakdown causes increased serum potassium levels

Pruritus

- To rid the body of excess wastes, urate crystals are excreted through the skin, causing pruritus.
- The deposit of urate crystals (uremic frost) occurs in advanced stages of kidney disease.
- Monitor for skin breakdown, rash, and uremic frost.
- Provide meticulous skin care and oral hygiene.
- Avoid the use of soaps.
- Administer antihistamines and anti-pruritics as prescribed to relieve itching.
- Teach the client to keep the nails trimmed to prevent local infection from scratching.

Psychosocial problems

- Listen to the client's concerns to determine how the client is handling the situation.
- Allow the client time to mourn the loss of kidney function.
- With client permission, include the family members in discussions of the client's concerns.
- Provide education about treatment options and support the client's decision; elderly clients with CKD may progress slowly toward end-stage kidney disease or require dialysis, and clients may decide on no treatment and opt for end-of-life care.
- Offer information about support groups

Uremic Syndrome

- Systemic clinical and laboratory manifestations of severe and/or end-stage kidney disease due to accumulation of nitrogenous waste products in the blood caused by the kidneys' inability to filter out these waste products.

Assessment

- Oliguria
- Presence of protein, red blood cells, and casts in the urine
- Elevated levels of urea, uric acid, potassium, and magnesium in the urine
- Hypotension or hypertension
- Alterations in the level of consciousness
- Electrolyte imbalances
- Stomatitis
- Nausea or vomiting
- Diarrhea or constipation

Interventions

- Monitor vital signs for hypertension, tachycardia, and an irregular heart rate.
- Monitor serum electrolyte levels.
- Monitor intake and output and for oliguria.
- Provide a limited but high-quality protein diet as prescribed.
- Provide a limited sodium, nitrogen, potassium, and phosphate diet as prescribed.
- Assist the client to cope with body image disturbances caused by uremic syndrome.