

RENAL FAILURE: CHRONIC

Chronic renal failure (CRF) is the end result of a gradual, progressive loss of kidney function. Causes include chronic infections (glomerulonephritis, pyelonephritis), vascular diseases (hypertension, nephrosclerosis), obstructive processes (renal calculi), collagen diseases (systemic lupus), nephrotoxic agents (drugs, such as aminoglycosides), and endocrine diseases (diabetes, hyperparathyroidism). This syndrome is generally progressive and produces major changes in all body systems. The final stage of renal dysfunction, end-stage renal disease (ESRD), is demonstrated by a glomerular filtration rate (GFR) of 15%–20% of normal or less.

CARE SETTING

Primary focus is at the community level, although inpatient acute hospitalization may be required for life-threatening complications.

RELATED CONCERNS

Anemias (iron deficiency, pernicious, aplastic, hemolytic)
Fluid and electrolyte imbalances
Heart failure: chronic
Hypertension: severe
Metabolic acidosis (primary base bicarbonate deficiency)
Psychosocial aspects of care
Upper gastrointestinal/esophageal bleeding
Additional associated nursing diagnoses are found in:
Renal dialysis
Renal failure: acute
Seizure disorders/epilepsy

Patient Assessment Database

ACTIVITY/REST

May report: Extreme fatigue, weakness, malaise
Sleep disturbances (insomnia/restlessness or somnolence)
May exhibit: Muscle weakness, loss of tone, decreased range of motion (ROM)

CIRCULATION

May report: History of prolonged or severe hypertension
Palpitations; chest pain (angina)
May exhibit: Hypertension; JVD, full/bounding pulses; generalized tissue and pitting edema of feet, legs, hands
Cardiac dysrhythmias, distant heart sounds
Weak thready pulses, orthostatic hypotension reflects hypovolemia (rare in end-stage disease)
Pericardial friction rub
Pallor; bronze-gray, yellow skin
Bleeding tendencies

EGO INTEGRITY

May report: Stress factors, e.g., financial, relationship, and so on
Feelings of helplessness, hopelessness, powerlessness
May exhibit: Denial, anxiety, fear, anger, irritability, personality changes

ELIMINATION

May report: Decreased urinary frequency; oliguria, anuria (advanced failure)
Abdominal bloating, diarrhea, or constipation
May exhibit: Change in urine color, e.g., deep yellow, red, brown, cloudy

Oliguria, may become anuric

FOOD/FLUID

- May report:** Rapid weight gain (edema), weight loss (malnutrition)
Anorexia, heartburn, nausea/vomiting; unpleasant metallic taste in the mouth (ammonia breath)
Use of diuretics
- May exhibit:** Abdominal distension/ascites, liver enlargement (end-stage)
Changes in skin turgor/moisture
Edema (generalized, dependent)
Gum ulcerations, bleeding of gums/tongue
Muscle wasting, decreased subcutaneous fat, debilitated appearance

HYGIENE

- May report:** Difficulty performing activities of daily living (ADLs)

NEUROSENSORY

- May report:** Headache, blurred vision
Muscle cramps/twitching, “restless leg” syndrome; burning numbness of soles of feet
Numbness/tingling and weakness, especially of lower extremities (peripheral neuropathy)
- May exhibit:** Altered mental state, e.g., decreased attention span, inability to concentrate, loss of memory, confusion, decreasing level of consciousness, stupor, coma
Gait abnormalities
Twitching, muscle fasciculations, seizure activity
Thin, dry, brittle nails and hair

PAIN/DISCOMFORT

- May report:** Flank pain; headache; muscle cramps/leg pain (worse at night)
- May exhibit:** Guarding/distraction behaviors, restlessness

RESPIRATION

- May report:** Shortness of breath; paroxysmal nocturnal dyspnea; cough with/without thick, tenacious sputum
- May exhibit:** Tachypnea, dyspnea, increased rate/depth (Kussmaul’s respiration)
Cough productive of pink-tinged sputum (pulmonary edema)

SAFETY

- May report:** Itching skin, frequent scratching
Recent/recurrent infections
- May exhibit:** Scratch marks, petechiae, ecchymotic areas on skin
Fever (sepsis, dehydration); normothermia may actually represent an elevation in patient who has developed a lower-than-normal body temperature (effect of CRF/depressed immune response)
Bone fractures; calcium phosphate deposits (metastatic calcifications) in skin, soft tissues, joints; limited joint movement

SEXUALITY

- May report:** Decreased libido; amenorrhea; infertility

SOCIAL INTERACTION

- May report:** Difficulties imposed by condition, e.g., unable to work, maintain social contacts or usual role function in family

TEACHING/LEARNING

- May report:** Family history of polycystic disease, hereditary nephritis, urinary calculus, malignancy
History of DM (high risk for renal failure); exposure to toxins, e.g., nephrotoxic drugs, drug overdose, environmental poisons

Current/recent use of nephrotoxic antibiotics, angiotensin-converting enzyme (ACE) inhibitors, chemotherapy agents, heavy metals, nonsteroidal anti-inflammatory drugs (NSAIDs), radiocontrast agents

Discharge plan **DRG projected mean length of inpatient stay: 5.9 days**

considerations: May require alteration/assistance with medications, treatments, supplies; transportation, homemaker/maintenance tasks

Refer to section at end of plan for postdischarge considerations.

DIAGNOSTIC STUDIES

Urine:

Volume: Usually less than 400 mL/24 hr (oliguria) or urine is absent (anuria).

Color: Abnormally cloudy urine may be caused by pus, bacteria, fat, colloidal particles, phosphates, or urates. Dirty, brown sediment indicates presence of RBCs, hemoglobin, myoglobin, porphyrins.

Specific gravity: Less than 1.015 (fixed at 1.010 reflects severe renal damage).

Osmolality: Less than 350 mOsm/kg is indicative of tubular damage, and urine/serum ratio is often 1:1.

Creatinine clearance: May be significantly decreased (less than 80 mL/min in early failure; less than 10 mL/min in ESRD).

Sodium: More than 40 mEq/L because kidney is not able to reabsorb sodium.

Protein: High-grade proteinuria (3–4+) strongly indicates glomerular damage when RBCs and casts are also present.

Blood:

BUN/Cr: Elevated, usually in proportion. Creatinine level of 12 mg/dL suggests ESRD. A BUN of >25 mg/dL is indicative of renal damage.

CBC: Hb decreased because of anemia, usually less than 7–8 g/dL.

RBCs: Life span decreased because of erythropoietin deficiency, and azotemia.

ABGs: pH decreased. Metabolic acidosis (less than 7.2) occurs because of loss of renal ability to excrete hydrogen and ammonia or end products of protein catabolism. Bicarbonate and PCO₂ decreased.

Serum sodium: May be low (if kidney “wastes sodium”) or normal (reflecting dilutional state of hypernatremia).

Potassium: Elevated related to retention and cellular shifts (acidosis) or tissue release (RBC hemolysis). In ESRD, ECG changes may not occur until potassium is 6.5 mEq or higher. Potassium may also be decreased if patient is on potassium-wasting diuretics or when patient is receiving dialysis treatment.

Magnesium, phosphorus: Elevated.

Calcium/phosphorus: Decreased.

Proteins (especially albumin): Decreased serum level may reflect protein loss via urine, fluid shifts, decreased intake, or decreased synthesis because of lack of essential amino acids.

Serum osmolality: Higher than 285 mOsm/kg; often equal to urine.

KUB x-rays: Demonstrates size of kidneys/ureters/bladder and presence of obstruction (stones).

Retrograde pyelogram: Outlines abnormalities of renal pelvis and ureters.

Renal arteriogram: Assesses renal circulation and identifies extravascularities, masses.

Voiding cystourethrogram: Shows bladder size, reflux into ureters, retention.

Renal ultrasound: Determines kidney size and presence of masses, cysts, obstruction in upper urinary tract.

Renal biopsy: May be done endoscopically to examine tissue cells for histological diagnosis.

Renal endoscopy, nephroscopy: Done to examine renal pelvis; flush out calculi, hematuria; and remove selected tumors.

ECG: May be abnormal, reflecting electrolyte and acid-base imbalances.

X-ray of feet, skull, spinal column, and hands: May reveal demineralization/calcifications resulting from electrolyte shifts associated with CRF.

NURSING PRIORITIES

1. Maintain homeostasis.
2. Prevent complications.
3. Provide information about disease process/prognosis and treatment needs.
4. Support adjustment to lifestyle changes.

DISCHARGE GOALS

1. Fluid/electrolyte balance stabilized.
2. Complications prevented/minimized.
3. Disease process/prognosis and therapeutic regimen understood.

4. Dealing realistically with situation; initiating necessary lifestyle changes.
5. Plan in place to meet needs after discharge.

<p>NURSING DIAGNOSIS: Cardiac Output, risk for decreased</p> <p>Risk factors may include Fluid imbalances affecting circulating volume, myocardial workload, and systemic vascular resistance (SVR) Alterations in rate, rhythm, cardiac conduction (electrolyte imbalances, hypoxia) Accumulation of toxins (urea), soft-tissue calcification (deposition of calcium phosphate)</p> <p>Possibly evidenced by [Not applicable; presence of signs and symptoms establishes an <i>actual</i> diagnosis.]</p> <p>DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:</p> <p>Circulation Status (NOC) Maintain cardiac output as evidenced by BP and heart rate within patient’s normal range; peripheral pulses strong and equal with prompt capillary refill time.</p>

ACTIONS/INTERVENTIONS	RATIONALE
(In addition to those in CP: Renal Failure: Acute; ND: Cardiac Output, risk for decreased.)	

<p>ACTIONS/INTERVENTIONS</p> <p>Hemodynamic Regulation (NIC)</p> <p>Independent</p> <p>Auscultate heart and lung sounds. Evaluate presence of peripheral edema/vascular congestion and reports of dyspnea.</p> <p>Assess presence/degree of hypertension: monitor BP; note postural changes, e.g., sitting, lying, standing.</p> <p>Investigate reports of chest pain, noting location, radiation, severity (0–10 scale), and whether or not it is intensified by deep inspiration and supine position.</p> <p>Evaluate heart sounds (note friction rub), BP, peripheral pulses, capillary refill, vascular congestion, temperature, and sensorium/mentation.</p>	<p>RATIONALE</p> <p>S₃/S₄ heart sounds with muffled tones, tachycardia, irregular heart rate, tachypnea, dyspnea, crackles, wheezes, and edema/jugular distension suggest HF.</p> <p>Significant hypertension can occur because of disturbances in the renin-angiotensin-aldosterone system (caused by renal dysfunction). Although hypertension is common, orthostatic hypotension may occur because of intravascular fluid deficit, response to effects of antihypertensive medications, or uremic pericardial tamponade.</p> <p>Although hypertension and chronic HF may cause MI, approximately half of CRF patients on dialysis develop pericarditis, potentiating risk of pericardial effusion/tamponade.</p> <p>Presence of sudden hypotension, paradoxical pulse, narrow pulse pressure, diminished/absent peripheral pulses, marked jugular distension, pallor, and a rapid mental deterioration indicate tamponade, which is a medical emergency.</p>
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ACTIONS/INTERVENTIONS	RATIONALE
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<p>Hemodynamic Regulation (NIC)</p> <p>Independent</p> <p>Assess activity level, response to activity.</p> <p>Collaborative</p> <p>Monitor laboratory/diagnostic studies, e.g.:</p> <ul style="list-style-type: none"> Electrolytes (potassium, sodium, calcium, magnesium), BUN/Cr; Chest x-rays. <p>Administer antihypertensive drugs, e.g., prazosin (Minipress), captopril (Capoten), clonidine (Catapres), hydralazine (Apresoline).</p> <p>Prepare for dialysis.</p> <p>Assist with pericardiocentesis as indicated.</p>	<p>Weakness can be attributed to HF and anemia.</p> <p>Imbalances can alter electrical conduction and cardiac function.</p> <p>Useful in identifying developing cardiac failure or soft-tissue calcification.</p> <p>Reduces systemic vascular resistance and/or renin release to decrease myocardial workload and aid in prevention of HF and/or MI.</p> <p>Reduction of uremic toxins and correction of electrolyte imbalances and fluid overload may limit/prevent cardiac manifestations, including hypertension and pericardial effusion.</p> <p>Accumulation of fluid within pericardial sac can compromise cardiac filling and myocardial contractility, impairing cardiac output and potentiating risk of cardiac arrest.</p>
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<p>NURSING DIAGNOSIS: Protection, risk for ineffective</p> <p>Risk factors may include</p> <p>Abnormal blood profile (suppressed erythropoietin production/secretion; decreased RBC production and survival; altered clotting factors; increased capillary fragility)</p> <p>Possibly evidenced by</p> <p>[Not applicable; presence of signs and symptoms establishes an <i>actual</i> diagnosis.]</p> <p>DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:</p> <p>Coagulation Status (NOC)</p> <p>Experience no signs/symptoms of bleeding/hemorrhage. Maintain/demonstrate improvement in laboratory values.</p>
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ACTIONS/INTERVENTIONS	RATIONALE
<p>Energy Management (NIC)</p> <p>Independent</p> <p>Note reports of increasing fatigue, weakness. Observe for tachycardia, pallor of skin/mucous membranes, dyspnea, and chest pain. Plan patient activities to avoid fatigue.</p> <p>Monitor level of consciousness and behavior.</p> <p>Evaluate response to activity, ability to perform tasks. Assist as needed and develop schedule for rest.</p> <p>Limit vascular sampling, combine laboratory tests when possible.</p> <p>Bleeding Precautions (NIC)</p> <p>Observe for oozing from venipuncture sites, bleeding/ecchymotic areas following slight trauma, petechiae; joint swelling or mucous membrane involvement, e.g., bleeding gums, recurrent epistaxis, hematemesis, melena, and hazy/red urine.</p> <p>Hematest GI secretions/stool for blood.</p> <p>Provide soft toothbrush, electric razor; use smallest needle possible and apply prolonged pressure following injections/vascular punctures.</p> <p>Collaborative</p> <p>Monitor laboratory studies, e.g.: RBCs, Hb/Hct;</p> <p>Platelet count, clotting factors;</p> <p>Prothrombin time (PT) level.</p>	<p>May reflect effects of anemia and cardiac response necessary to keep cells oxygenated.</p> <p>Anemia may cause cerebral hypoxia manifested by changes in mentation, orientation, and behavioral responses.</p> <p>Anemia decreases tissue oxygenation and increases fatigue, which may require intervention, changes in activity, and rest.</p> <p>Recurrent/excessive blood sampling can worsen anemia.</p> <p>Bleeding can occur easily because of capillary fragility/altered clotting functions and may worsen anemia.</p> <p>Mucosal changes and altered platelet function due to uremia may result in gastric mucosal erosion/GI hemorrhage.</p> <p>Reduces risk of bleeding/hematoma formation.</p> <p>Uremia (e.g., elevated ammonia, urea, other toxins) decreases production of erythropoietin and depresses RBC production and survival time. In CRF, Hb and Hct are usually low but tolerated; e.g., patient may not be symptomatic until Hb is below 7.</p> <p>Suppression of platelet formation and inadequate levels of factors III and VIII impair clotting and potentiate risk of bleeding. <i>Note:</i> Bleeding may become intractable in ESRD.</p> <p>Abnormal prothrombin consumption lowers serum levels and impairs clotting.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p>Bleeding Precautions (NIC)</p> <p>Collaborative</p> <p>Administer fresh blood, packed RBCs (PRCs) as indicated.</p> <p>Administer medications, as indicated, e.g.:</p> <ul style="list-style-type: none"> Erythropoietin preparations (Epogen, EPO, Procrit); Iron preparations: folic acid (Folvite), cyanocobalamin (Rubesol-1000); Cimetidine (Tagamet), ranitidine (Zantac); antacids; Hemostatics/fibrinolysis inhibitors, e.g., aminocaproic acid (Amicar); Stool softeners (e.g., Colace); bulk laxative (e.g., Metamucil). 	<p>May be necessary when patient is symptomatic with anemia. PRCs are usually given when patient is experiencing fluid overload or receiving dialysis treatment. Washed RBCs are used to prevent hyperkalemia associated with stored blood.</p> <p>Corrects many of the symptoms of CRF resulting from anemia by stimulating the production and maintenance of RBCs, thus decreasing the need for transfusion.</p> <p>Useful in managing symptomatic anemia related to nutritional/dialysis-induced deficits. <i>Note:</i> Iron should not be given with phosphate binders because they may decrease iron absorption.</p> <p>May be given prophylactically to reduce/neutralize gastric acid and thereby reduce the risk of GI hemorrhage.</p> <p>Inhibits bleeding that does not subside spontaneously/respond to usual treatment.</p> <p>Straining to pass hard-formed stool increases likelihood of mucosal/rectal bleeding.</p>

<p>NURSING DIAGNOSIS: Thought Processes, disturbed</p> <p>May be related to</p> <p>Physiological changes: accumulation of toxins (e.g., urea, ammonia), metabolic acidosis, hypoxia; electrolyte imbalances, calcifications in the brain</p> <p>Possibly evidenced by</p> <p>Disorientation to person, place, time</p> <p>Memory deficit; altered attention span, decreased ability to grasp ideas</p> <p>Impaired ability to make decisions, problem-solve</p> <p>Changes in sensorium: somnolence, stupor, coma</p> <p>Changes in behavior: irritability, withdrawal, depression, psychosis</p> <p>DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:</p> <p>Cognitive Ability (NOC)</p> <p>Regain/maintain optimal level of mentation.</p> <p>Identify ways to compensate for cognitive impairment/memory deficits.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p>Reality Orientation (NIC)</p>	
<p>Independent</p>	
<p>Assess extent of impairment in thinking ability, memory, and orientation. Note attention span.</p>	<p>Uremic syndrome's effect can begin with minor confusion/irritability and progress to altered personality or inability to assimilate information and participate in care. Awareness of changes provides opportunity for evaluation and intervention.</p>
<p>Ascertain from SO patient's usual level of mentation.</p>	<p>Provides comparison to evaluate progression/resolution of impairment.</p>
<p>Provide SO with information about patient's status.</p>	<p>Some improvement in mentation may be expected with restoration of more normal levels of BUN, electrolytes, and serum pH.</p>
<p>Provide quiet/calm environment and judicious use of television, radio, and visitation.</p>	<p>Minimizes environmental stimuli to reduce sensory overload/confusion while preventing sensory deprivation.</p>
<p>Reorient to surroundings, person, and so forth. Provide calendars, clocks, outside window.</p>	<p>Provides clues to aid in recognition of reality.</p>
<p>Present reality concisely, briefly, and do not challenge illogical thinking.</p>	<p>Confrontation potentiates defensive reactions and may lead to patient mistrust and heightened denial of reality.</p>
<p>Communicate information/instructions in simple, short sentences. Ask direct, yes/no questions. Repeat explanations as necessary.</p>	<p>May aid in reducing confusion, and increases possibility that communications will be understood/remembered.</p>
<p>Establish a regular schedule for expected activities.</p>	<p>Aids in maintaining reality orientation and may reduce fear/confusion.</p>
<p>Promote adequate rest and undisturbed periods for sleep.</p>	<p>Sleep deprivation may further impair cognitive abilities.</p>
<p>Collaborative</p>	
<p>Monitor laboratory studies, e.g., BUN/Cr, serum electrolytes, glucose level, and ABGs (Po₂, pH).</p>	<p>Correction of elevations/imbances can have profound effects on cognition/mentation.</p>
<p>Provide supplemental O₂ as indicated.</p>	<p>Correction of hypoxia alone can improve cognition.</p>
<p>Avoid use of barbiturates and opiates.</p>	<p>Drugs normally detoxified in the kidneys will have increased half-life/cumulative effects, worsening confusion.</p>
<p>Prepare for dialysis.</p>	<p>Marked deterioration of thought processes may indicate worsening of azotemia and general condition, requiring prompt intervention to regain homeostasis.</p>

NURSING DIAGNOSIS: Skin Integrity, risk for impaired

Risk factors may include

Altered metabolic state, circulation (anemia with tissue ischemia), and sensation (peripheral neuropathy)
Alterations in skin turgor (edema/dehydration)
Reduced activity/immobility
Accumulation of toxins in the skin

Possibly evidenced by

[Not applicable; presence of signs and symptoms establishes an *actual* diagnosis.]

DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:

Tissue Integrity: Skin and Mucous Membranes (NOC)

Maintain intact skin.

Risk Management (NOC)

Demonstrate behaviors/techniques to prevent skin breakdown/injury.

ACTIONS/INTERVENTIONS	RATIONALE
<p>Skin Surveillance (NIC)</p> <p>Independent</p> <p>Inspect skin for changes in color, turgor, vascularity. Note redness, excoriation. Observe for ecchymosis, purpura.</p> <p>Monitor fluid intake and hydration of skin and mucous membranes.</p> <p>Inspect dependent areas for edema. Elevate legs as indicated.</p> <p>Change position frequently; move patient carefully; pad bony prominences with sheepskin, elbow/heel protectors.</p> <p>Provide soothing skin care. Restrict use of soaps. Apply ointments or creams (e.g., lanolin, Aquaphor).</p> <p>Keep linens dry, wrinkle-free.</p> <p>Investigate reports of itching.</p> <p>Recommend patient use cool, moist compresses to apply pressure (rather than scratch) pruritic areas. Keep fingernails short; encourage use of gloves during sleep if needed.</p>	<p>Indicates areas of poor circulation/breakdown that may lead to decubitus formation/infection.</p> <p>Detects presence of dehydration or overhydration that affect circulation and tissue integrity at the cellular level.</p> <p>Edematous tissues are more prone to breakdown. Elevation promotes venous return, limiting venous stasis/edema formation.</p> <p>Decreases pressure on edematous, poorly perfused tissues to reduce ischemia.</p> <p>Baking soda, cornstarch baths decrease itching and are less drying than soaps. Lotions and ointments may be desired to relieve dry, cracked skin.</p> <p>Reduces dermal irritation and risk of skin breakdown.</p> <p>Although dialysis has largely eliminated skin problems associated with uremic frost, itching can occur because the skin is an excretory route for waste products, e.g., phosphate crystals (associated with hyperparathyroidism in ESRD).</p> <p>Alleviates discomfort and reduces risk of dermal injury.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p>Skin Surveillance (NIC)</p> <p>Independent</p> <p>Suggest wearing loose-fitting cotton garments.</p> <p>Collaborative</p> <p>Provide foam/flotation mattress.</p>	<p>Prevents direct dermal irritation and promotes evaporation of moisture on the skin.</p> <p>Reduces prolonged pressure on tissues, which can limit cellular perfusion, potentiating ischemia/necrosis.</p>

<p>NURSING DIAGNOSIS: Oral Mucous Membrane, risk for impaired</p> <p>Risk factors may include</p> <p>Lack of/or decreased salivation, fluid restrictions</p> <p>Chemical irritation, conversion of urea in saliva to ammonia</p> <p>Possibly evidenced by</p> <p>[Not applicable; presence of signs and symptoms establishes an <i>actual</i> diagnosis.]</p> <p>DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:</p> <p>Oral Health (NOC)</p> <p>Maintain integrity of mucous membranes.</p> <p>Identify/initiate specific interventions to promote healthy oral mucosa.</p>
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ACTIONS/INTERVENTIONS	RATIONALE
<p>Oral Health Maintenance (NIC)</p> <p>Independent</p> <p>Inspect oral cavity; note moistness, character of saliva, presence of inflammation, ulcerations, leukoplakia.</p> <p>Provide fluids throughout 24-hr period within prescribed limit.</p> <p>Offer frequent mouth care/rinse with 0.25% acetic acid solution; provide gum, hard candy, breath mints between meals.</p> <p>Encourage good dental hygiene after meals and at bedtime. Recommend avoidance of dental floss.</p>	<p>Provides opportunity for prompt intervention and prevention of infection.</p> <p>Prevents excessive oral dryness from prolonged period without oral intake.</p> <p>Mucous membranes may become dry and cracked. Mouth care soothes, lubricates, and helps freshen mouth taste, which is often unpleasant because of uremia and restricted oral intake. Rinsing with acetic acid helps neutralize ammonia formed by conversion of urea.</p> <p>Reduces bacterial growth and potential for infection. Dental floss may cut gums, potentiating bleeding.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p>Oral Health Maintenance (NIC)</p> <p>Independent</p> <p>Recommend patient stop smoking and avoid lemon/ glycerine products or mouthwash containing alcohol.</p> <p>Provide artificial saliva as needed, e.g., Ora-Lube.</p> <p>Collaborative</p> <p>Administer medications as indicated, e.g., antihistamines: cyproheptadine (Periactin).</p>	<p>These substances are irritating to the mucosa and have a drying effect, potentiating discomfort.</p> <p>Prevents dryness, buffers acids, and promotes comfort.</p> <p>May be given for relief of itching.</p>

<p>NURSING DIAGNOSIS: Knowledge, deficient [Learning Need] regarding condition, prognosis, treatment, self-care, and discharge needs</p> <p>May be related to</p> <p>Lack of exposure/recall, information misinterpretation Cognitive limitation</p> <p>Possibly evidenced by</p> <p>Questions/request for information, statement of misconception Inaccurate follow-through of instructions, development of preventable complications</p> <p>DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:</p> <p>Knowledge: Disease Process (NOC) Verbalize understanding of condition/disease process and potential complications.</p> <p>Knowledge: Treatment Regimen (NOC) Verbalize understanding of therapeutic needs. Correctly perform necessary procedures and explain reasons for the actions. Demonstrate/initiate necessary lifestyle changes. Participate in treatment regimen.</p>
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ACTIONS/INTERVENTIONS	RATIONALE
<p>(In addition to interventions outlined in CP: Renal Failure: Acute; Knowledge, deficient.)</p>	

ACTIONS/INTERVENTIONS	RATIONALE
<p>Teaching: Disease Process (NIC)</p>	
<p>Independent</p>	
<p>Review disease process/prognosis and future expectations.</p>	<p>Provides knowledge base from which patient can make informed choices.</p>
<p>Review dietary restrictions, including: Phosphorus (e.g., carbonated drinks, processed foods, poultry, corn, peanuts) and magnesium (e.g., whole grain products, legumes);</p>	<p>Retention of phosphorus stimulates the parathyroid glands to shift calcium from bones (renal osteodystrophy), and accumulation of magnesium can impair neuromuscular function and mentation.</p>
<p>Fluid and sodium restrictions when indicated.</p>	<p>If fluid retention is a problem, patient may need to restrict intake of fluid to 1100 cc (or less) and restrict dietary sodium. If fluid overload is present, diuretic therapy or dialysis will be part of the regimen. (Refer to CP: Renal Failure, Acute, ND: Fluid Volume excess.)</p>
<p>Discuss other nutritional concerns, e.g., regulating protein intake according to level of renal function (generally 0.6–0.7g/k of body weight per day of good quality protein, such as meat, eggs).</p>	<p>Metabolites that accumulate in blood derive almost entirely from protein catabolism; as renal function declines, proteins may be restricted proportionately. Too little protein can result in malnutrition. <i>Note:</i> Patient on dialysis may not need to be as vigilant with protein intake.</p>
<p>Encourage adequate calorie intake, especially from carbohydrates in the nondiabetic patient.</p>	<p>Spare protein, prevents wasting, and provides energy. <i>Note:</i> Use of special glucose polymer powders can add calories to enhance energy level without extra food or fluid intake.</p>
<p>Discuss drug therapy, including use of calcium supplements and phosphate binders, e.g., aluminum hydroxide antacids (Amphojel, Basaljel) and avoidance of magnesium antacids (Mylanta, Maalox, Gelusil); vitamin D.</p>	<p>Prevents serious complications, e.g., reducing phosphate absorption from the GI tract and supplying calcium to maintain normal serum levels, reducing risk of bone demineralization/fractures, tetany; however, use of aluminum-containing products should be monitored because accumulation in the bones potentiates osteodystrophy. Magnesium products potentiate risk of hypermagnesemia. <i>Note:</i> Supplemental vitamin D may be required to facilitate calcium absorption.</p>
<p>Stress importance of reading all product labels (drugs and food) and not taking medications without prior approval of healthcare provider.</p>	<p>It is difficult to maintain electrolyte balance when exogenous intake is not factored into dietary restrictions, e.g., hypercalcemia can result from routine supplement use in combination with increased dietary intake of calcium-fortified foods and medications containing calcium.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p>Teaching: Disease Process (NIC)</p> <p>Independent</p> <p>Review measures to prevent bleeding/hemorrhage, e.g., use of soft toothbrush, electric razor; avoidance of constipation, forceful blowing of nose, strenuous exercise/contact sports.</p> <p>Instruct in self-observation and self-monitoring of BP, including scheduling rest period before taking BP, using same arm/position.</p> <p>Caution against exposure to external temperature extremes, e.g., heating pad/snow.</p> <p>Establish routine exercise program within limits of individual ability; intersperse adequate rest periods with activities.</p> <p>Address sexual concerns.</p> <p>Identify available resources as indicated. Stress necessity of medical and laboratory follow-up.</p> <p>Identify signs/symptoms requiring immediate medical evaluation, e.g.:</p> <ul style="list-style-type: none"> Low-grade fever, chills, changes in characteristics of urine/sputum, tissue swelling/drainage, oral ulcerations; Numbness/tingling of digits, abdominal/muscle cramps, carpedal spasms; Joint swelling/tenderness, decreased ROM, reduced muscle strength; Headaches, blurred vision, periorbital/sacral edema, “red eyes”; Review strategies to prevent constipation, including stool softeners (Colace) and bulk laxatives (Metamucil) but avoiding magnesium products (milk of magnesia). 	<p>Reduces risks related to alteration of clotting factors/decreased platelet count.</p> <p>Incidence of hypertension is increased in CRF, often requiring management with antihypertensive drugs, necessitating close observation of treatment effects, e.g., vascular response to medication.</p> <p>Peripheral neuropathy may develop, especially in lower extremities (effects of uremia, electrolyte/acid-base imbalances), impairing peripheral sensation and potentiating risk of tissue injury.</p> <p>Aids in maintaining muscle tone and joint flexibility. Reduces risks associated with immobility (including bone demineralization), while preventing fatigue.</p> <p>Physiological effects of uremia/antihypertensive therapy may impair sexual desire/performance.</p> <p>Close monitoring of renal function and electrolyte balance is necessary to adjust dietary prescription, treatment and/or make decisions about possible options such as dialysis/transplantation.</p> <p>Depressed immune system, anemia, malnutrition all contribute to increased risk of infection.</p> <p>Uremia and decreased absorption of calcium may lead to peripheral neuropathies.</p> <p>Hyperphosphatemia with corresponding calcium shifts from the bone may result in deposition of the excess calcium phosphate as calcifications in joints and soft tissues. Symptoms of skeletal involvement are often noted before impairment in organ function is evident.</p> <p>Suggestive of development/poor control of hypertension, and/or changes in eyes caused by calcium.</p> <p>Reduced fluid intake, changes in dietary pattern, and use of phosphate-binding products often result in constipation that is not responsive to nonmedical interventions. Use of products containing magnesium increases risk of hypermagnesemia.</p>

POTENTIAL CONSIDERATIONS following acute hospitalization (dependent on patient's age, physical condition/presence of complications, personal resources, and life responsibilities)

Fluid Volume excess—compromised regulatory mechanism.

Fatigue—decreased metabolic energy production/dietary restriction, anemia, increased energy requirements, e.g., fever/

inflammation, tissue regeneration.

Therapeutic Regimen: ineffective management—complexity of therapeutic regimen, decisional conflicts: patient value system; health beliefs, cultural influences; powerlessness; economic difficulties; family conflict; lack of/refusal of support systems.

Hopelessness—deteriorating physiological condition, long-term stress, prolonged activity limitations.