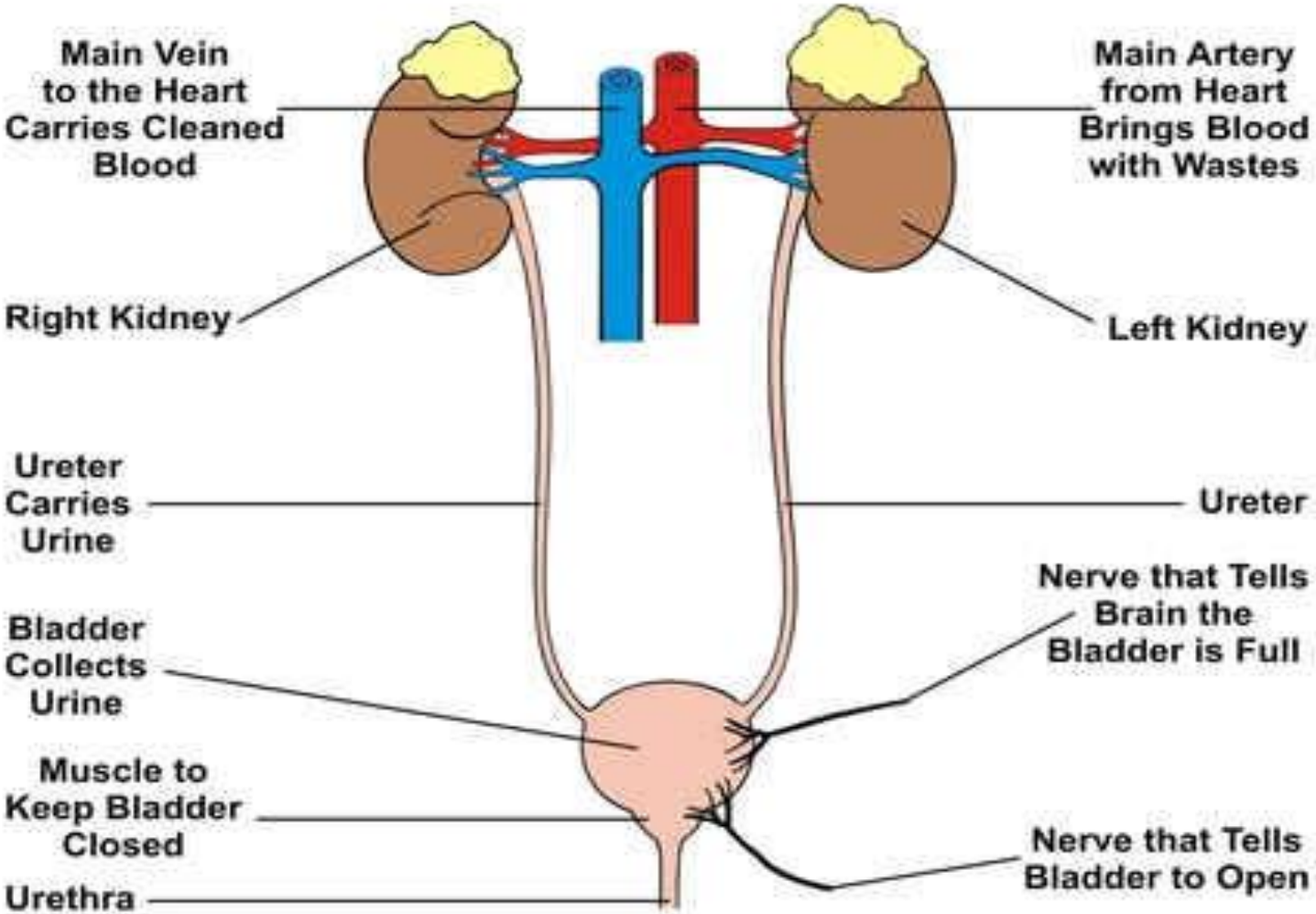
GENITOURINARY SYSTEM & DISORDERS

LUCENT NCLEX REVIEWS

URINARY SYSTEM



Kidney Function

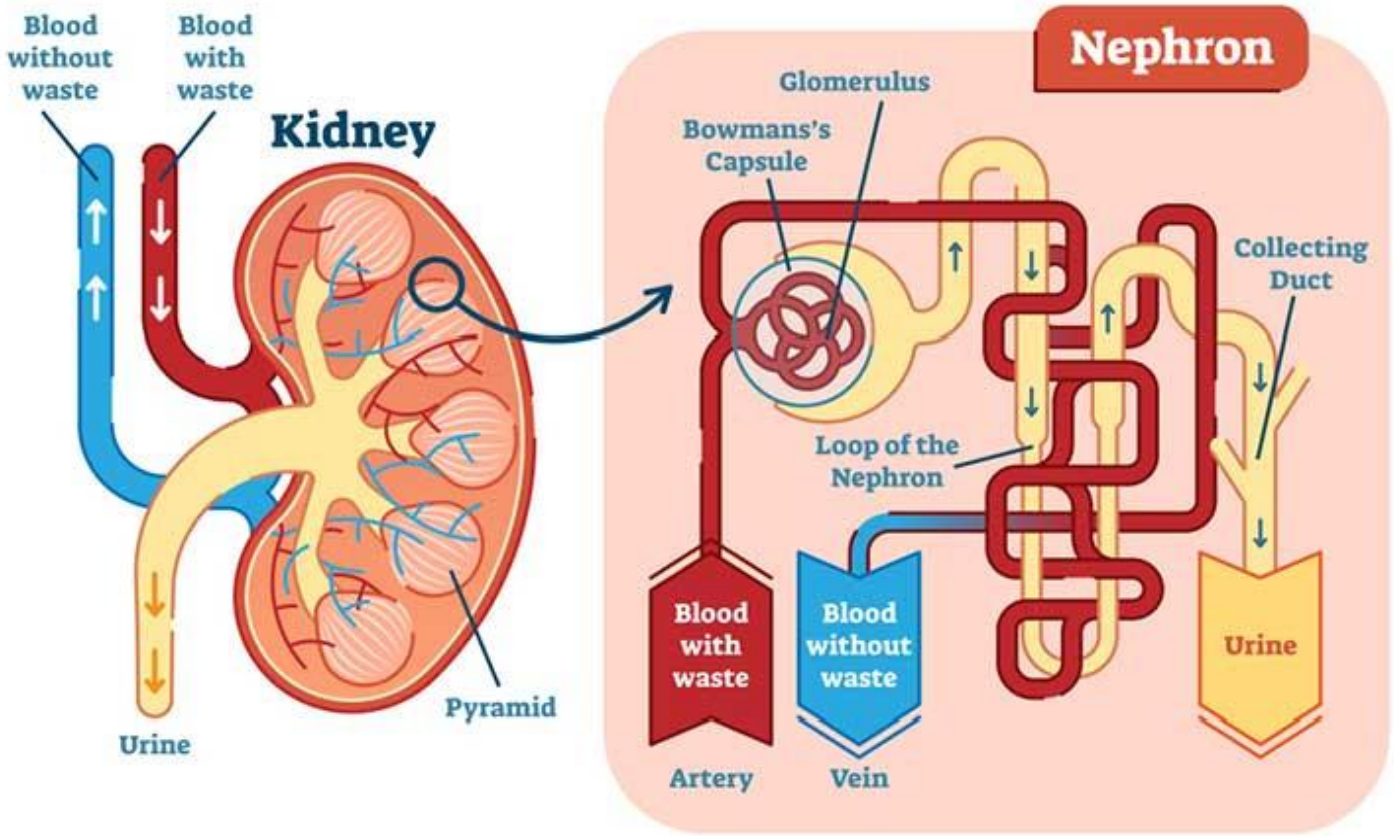
NORMAL

- Nephrons produces urine to eliminate waste
- Secretes erythropoietin to increase RBC
- Metabolism of Vit D
- Produces bicarbonates and secretes acids
- Excretes excess K

ABNORMAL

- Impaired urine production & azotemia
- Anemia
- Ca/Ph imbalance
- Metabolic acidosis
- Hyperkalemia

Nephrons



Key Signs and Symptoms of Urological Problems

EDEMA

- associated with fluid retention
- Renal dysfunctions usually produce ANASARCA

PAIN

- Suprapubic pain= bladder
- Colicky pain on the flank= kidney

HEMATURIA

- Painless hematuria may indicate URINARY CANCER!
- Early-stream hematuria= urethral lesion
- Late-stream hematuria= bladder lesion

DYSURIA

- Pain with urination= lower UTI

Key Signs and Symptoms of Urological Problems

POLYURIA

- More than 2 Liters urine per day

OLIGURIA

- Less than 400 mL per day

ANURIA

- Less than 50 mL per day

Urinary Urgency

Urinary retention

Urinary frequency

Urinary Assessment

Physical Examination

- Inspection
- Auscultation
- Percussion
- Palpation

IAPP

Laboratory examination

- Urinalysis (UA): cloudy & smelly, WBC, *nitrites - Kidney infection, urine culture & sensitivity, Culture first then antibiotics*
- BUN and Creatinine levels of the serum; Serum electrolytes
- Radiographic
  - IVP
  - KUB x-ray ; KUB ultrasound
  - CT and MRI
  - Cystography

Implementation Steps for selected problems

Provide PAIN relief

- Assess the level of pain
- Administer medications usually narcotic

Maintain Fluid and Electrolyte Balance

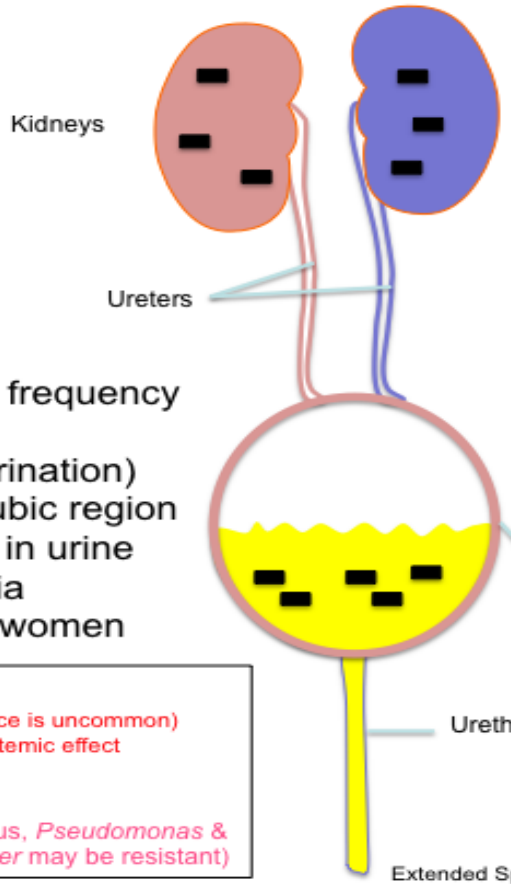
- Encourage to consume at least 2 liters of fluid per day
- In cases of ARF, limit fluid as directed
- Weigh client daily to detect fluid retention

Ensure Adequate urinary elimination

- Encourage to void at least every 2-3 hours
- Promote measures to relieve urinary retention:
- Catheterization if indicated

Urinary Tract Infections

UTIs



Cystitis
(Bladder infection)
- increased urinary frequency
- urgency
- dysuria (painful urination)
- pain above the pubic region
- WBCs & bacteria in urine
- possible hematuria
- more common in women

Empiric Rx:
Nitrofurantoin (resistance is uncommon)
- localized to urine, little systemic effect

Alternatives:
TMP/SMX (if not resistant)
Fosfomycin (less efficacious, *Pseudomonas* & *Acinnetobacter* may be resistant)

Pyelonephritis
(Kidney infection)
- **flank pain**
- **high fever**
- malaise
- WBCs & bacteria in urine
- urinary symptoms similar to cystitis

Empiric Rx:
IV ceftriaxone (3rd Gen Ceph)
- penetrates tissue, ~good spectrum

Alternative:
Piperacillin/Tazobactam (Zosyn ®)

Pathogens:
- *E. coli* (75-95%)
- *Proteus*
- *Klebsiella*
- *Enterobacter*
- *Staph* (less common)

ESBLs: Rx Carbapenems
(meropenem, ertapenem)

Extended Spectrum Beta Lactamases – inactivate Pen's,Ceph's & Aztreonam

Urinary Tract Infections (UTI)

- Bacterial invasion of the kidneys or bladder (usually caused by Escherichia coli)
- Predisposing factors include
  - Poor hygiene
  - Irritation from bubble baths
  - Urinary reflux
  - Residual urine, urinary stasis
- Pathophysiology *(invading organism ascends the urinary tract)*
  - Ureter= ureteritis
  - Bladder= cystitis
  - Urethra=Urethritis
  - Pelvis= Pyelonephritis

Urinary Tract Infections (UTI)

Assessment findings: ***Lower UTI***

- Low-grade fever, WBC in urine
- Abdominal pain
- Enuresis
- Pain/burning on urination
- Urinary frequency
- Hematuria

Assessment findings: ***Upper UTI***

- Fever and CHIILS
- Dull flank pain extending towards umbilicus
- Costovertebral angle tenderness
- Ascending from lower urine tract

Urinary Tract Infections (UTI)

Laboratory Examination

- Urinalysis (UA, C&S)
- cloudy & smelly, WBC, nitrites - Kidney infection, urine culture & sensitivity, Culture first then antibiotic

Pharmacology

- Sulfa drugs (Bactrim, Spetra)
- Macrodantin, Keflex, Pyridium
  - Highly concentrated in the urine
  - Effective against E. coli!
- Quinolones (Cipro)
- IV Ceftriaxone, Piperacillin/Tazobactam (Zosyn)
- Carbapenems (meropenems, ertapenems)

Nursing Interventions

- Administer antibiotics as ordered
- Provide warm baths and allow client to void in water to alleviate painful voiding.
- Force fluids. Nurses may give 3 ltrs of fluid per day
- Encourage measures to acidify urine (cranberry juice, acid-ash diet).
- Provide client teaching & discharge planning concerning
- Avoidance of tub baths
- Avoidance of bubble baths that might irritate urethra
- Importance for girls to wipe perineum from front to back
- Increase in foods/fluids that acidify urine.

Urethritis – Nursing Care

- S/S same as cystitis, discharge, urethra tender, bacteria in edematous urethral tissue & don't appear in u/a
- Causes: viral, Trichomonas & monilial infection, Chlamydia & gonorrhea
- Split urine C&S, C&S discharge
- Rx: antibiotics, sitz bath, proper cleansing, no vaginal deodorant, avoid sex

Cystitis – Nursing Care

- Health promotion: identify hi risk pts, teaching fluid intake, hygiene, empty bladder frequently
- Prevent nosocomial infection
- Increase fluid intake, avoid bladder irritants, teach drug therapy & s/e, teach s/s UTI
- Follow up care with urine C&S, can relapse in 1-2 weeks

PREVENTING CYSTITIS

Drink 8 to 10 Glasses of Fluid Per Day...

Women Should Wipe From Front to Back

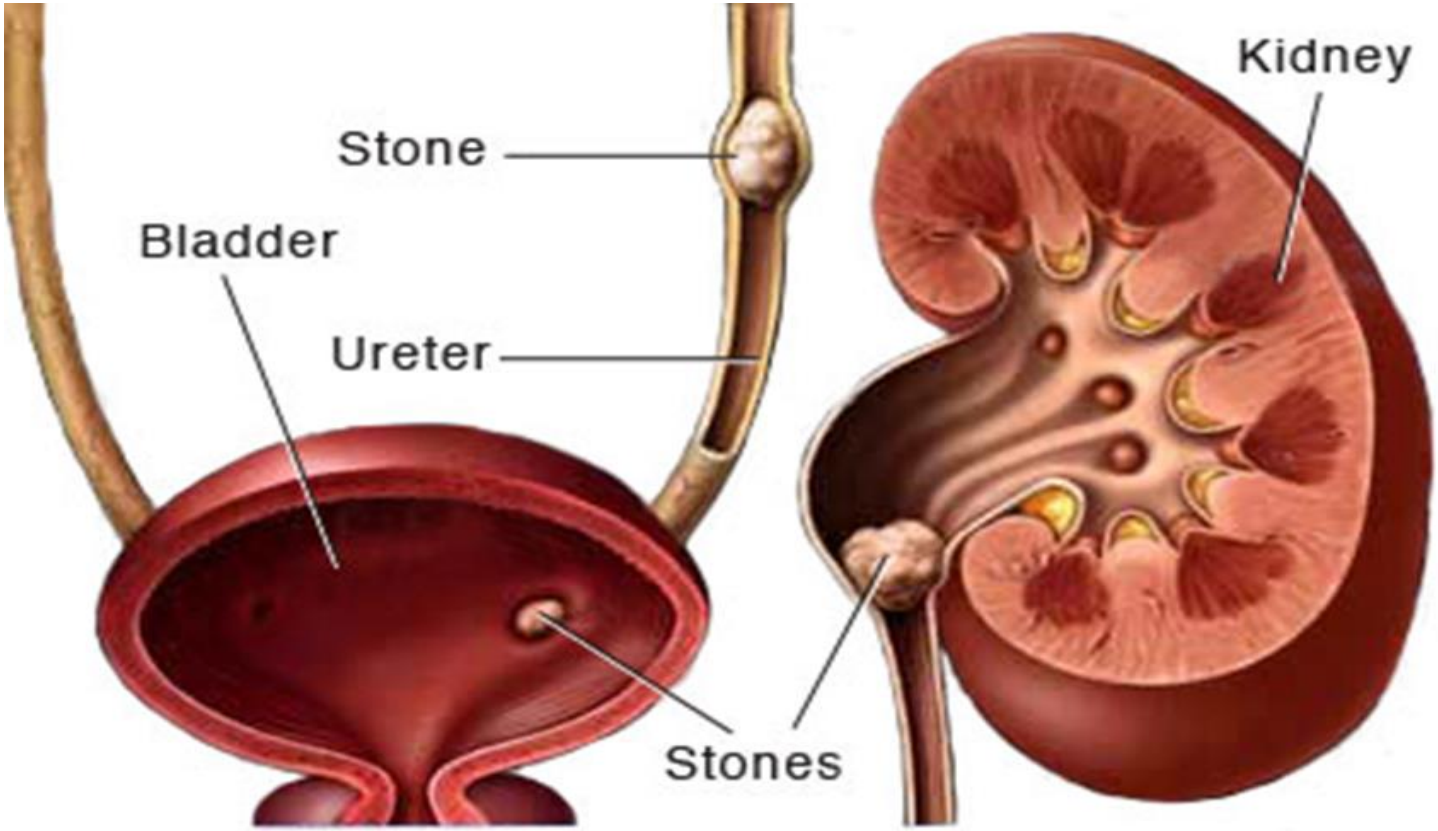
Avoid Vaginal Deodorants And Bubble Baths...

Urinate After Intercourse...

Pyelonephritis – Nursing Care

- Hospital admission
- Rest
- IV fluids and oral as tolerated
- IV antibiotics, later continue to PO (levofloxacin PO 7 days)
- Analgesia: may include narcotics
- Anti-spasmodics
- Mid-stream urine sample 2 weeks after antibiotics are completed

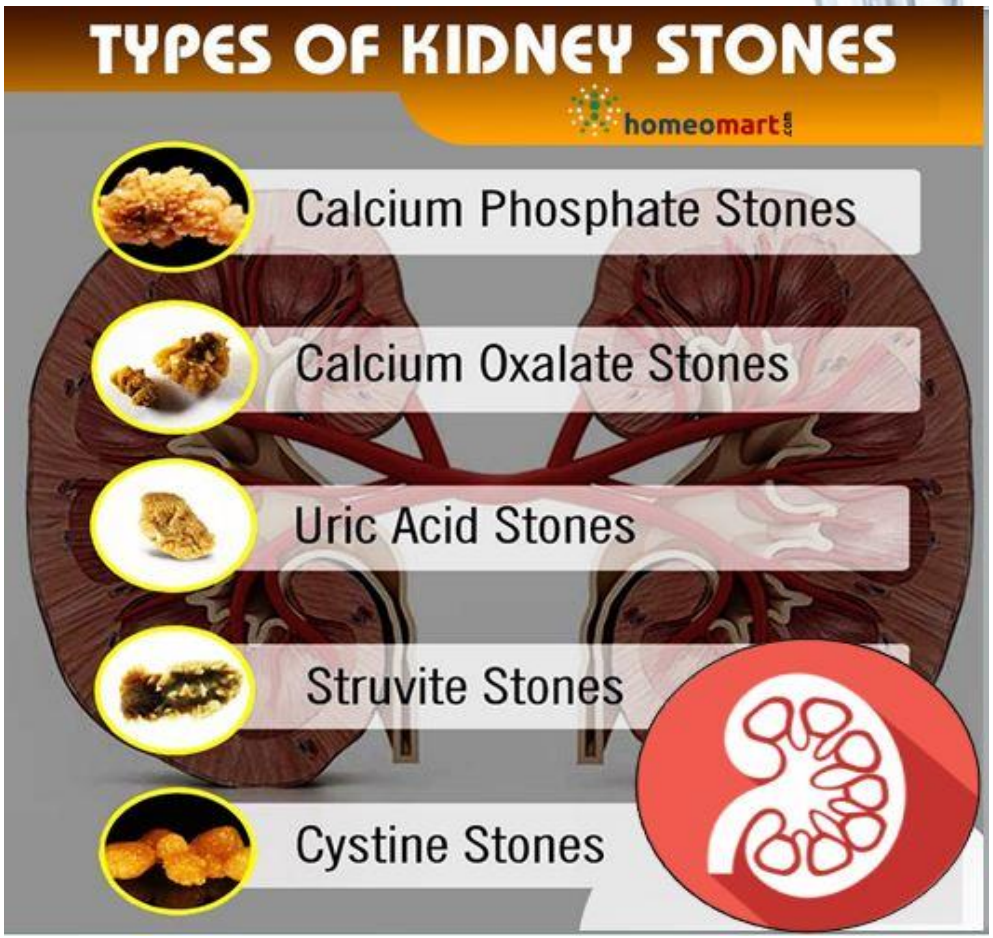
Renal Calculi



Nephrolithiasis/Urolithiasis

Presence of stones anywhere in the urinary tract

- Calcium,
- oxalate and
- uric acid



RENAL CALCULI

- ↑ Incidence in Males
- Nausea & Vomiting
- Agonizing Flank Pain
  May Radiate To:
  Groin
  Testicles
  Abdominal Area
- Sharp, Sudden, Severe Pain:
  (May be intermittent depending on stone movement)
- Hematuria
- Dysuria
- Urinary Frequency

- Diagnosis
  Ultrasound, CT Scan
  IVP
  Renal Stone Analysis
  Retrograde pyelogram
  Cystoscopy
  Measure Urine pH

- Risk Factors - Etiology
  Infection
  Urinary Stasis & Retention
  Immobility
  Dehydration
  ↑ Uric Acid
  ↑ Urinary Oxalate
  Family History

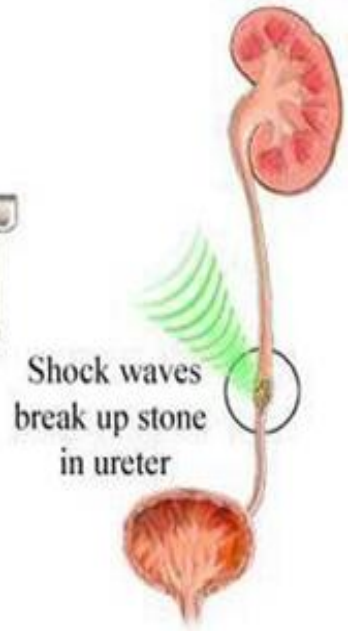
Medical Management

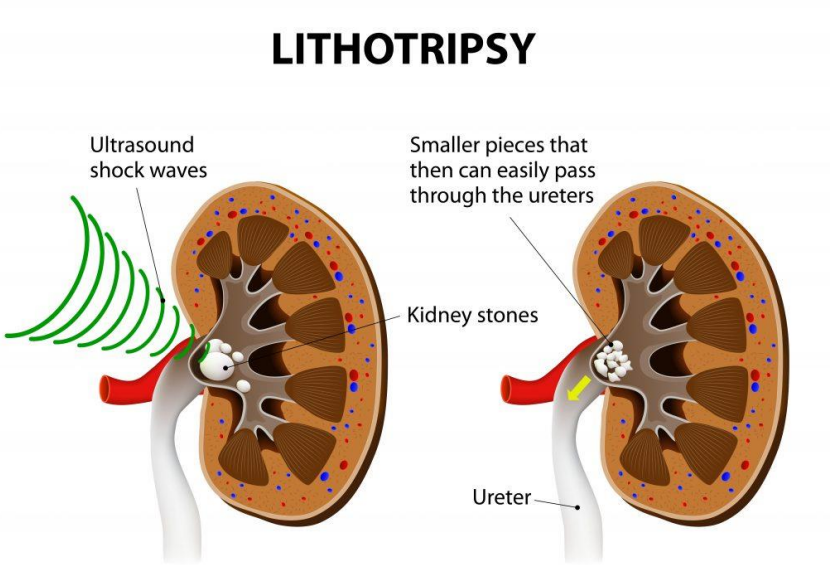
Surgery

- Percutaneous nephrostomy: tube is inserted through skin and underlying tissues into renal pelvis to remove calculi.
- Percutaneous nephrostolithotomy: delivers ultrasound waves through a probe placed on the calculus
- Extracorporeal shock-wave lithotripsy: delivers shock waves from outside the body to the stone, causing pulverization
- Pain management：Morphine or Meperidine
- Diet modification

LITHOTRIPSY

Extracorporeal shock wave lithotripsy (ESWL) machine





Nursing Interventions

- Strain all urine through gauze to detect stones and crush all clots.
- Force fluids (3000—4000 cc/day).
- Encourage ambulation to prevent stasis.
- Relieve pain by administration of analgesics as ordered and application of moist heat to flank area.
- Monitor intake and output
- Provide modified diet, depending upon stone consistency: Calcium, Oxalate and Uric acid stones

Nursing Interventions

Calcium stones

- limit milk/dairy products; provide acid-ash diet to acidify urine (cranberry or prune juice, meat, eggs, poultry, fish, grapes, and whole grains)

Oxalate stones

- avoid excess intake of foods/ fluids high in oxalate (tea, chocolate, rhubarb, spinach); maintain alkaline-ash diet to alkalinize urine (milk; vegetables; fruits except prunes, cranberries, and plums)

Uric acid stones

- reduce foods high in purine (liver, beans, kidneys, venison, shellfish, meat soups, gravies, legumes); maintain alkaline urine
- Administer allopurinol (Zyloprim) as ordered, to decrease uric acid production

Nursing Interventions

Provide client teaching and discharge planning concerning

- Prevention of Urinary stasis by maintaining increased fluid intake especially in hot weather and during illness; mobility; voiding whenever the urge is felt and at least twice during the night
- Adherence to prescribed diet
- Need for routine urinalysis (at least every 3—4 months)
- Need to recognize and report signs/ symptoms of recurrence (hematuria, flank pain)

Acute Renal Failure

Sudden interruption of kidney function to regulate fluid and electrolyte balance and remove toxic products from the body

- **Three phases of ARF**
  - *Oliguric, Diuretic, Recovery*
- **Types of ARF**
  - Pre-renal failure
  - Intra-renal failure
  - Post-renal failure

Nursing Assessment

- History of taking drugs (salicylates, antibiotics, NSAIDS)
- Alteration in urine output
- Edema, weight gain
- Changes in mental status

NCLEX HINT

Electrolytes are profoundly affected by kidney problems

Na & CL are the primary extracellular ions; K & Ph are the primary intracellular ions

Acute Renal Failure

Diagnostic findings Oliguric Phase

- Increased BUN and Creatinine
- Increased K (hyperkalemia
- Increased Na (hypernatremia
- Decrease Ph (metabolic acidosis)
- Fluid overload (hypervolemia)
- High urine specific gravity (>1.020

Diagnostic findings Diuretic Phase

- Decreased fluid volume
- Decreased K; Further decreased in Na
- Low urine specific gravity (<1.020

Normal values return Recovery Phase

Nursing Diagnosis

- Excess fluid volume related to……
- Deficient fluid volume related to….
- Anxiety related to…….
- Imbalanced nutrition related to….

Nursing Interventions

- Monitor intake and output, usually 400 to 500 m/24hrs in oliguric phase
- Document and report changes in fluid volume status
- Monitor lab values
- Weigh daily
- Kayexalate prescribed if K is high

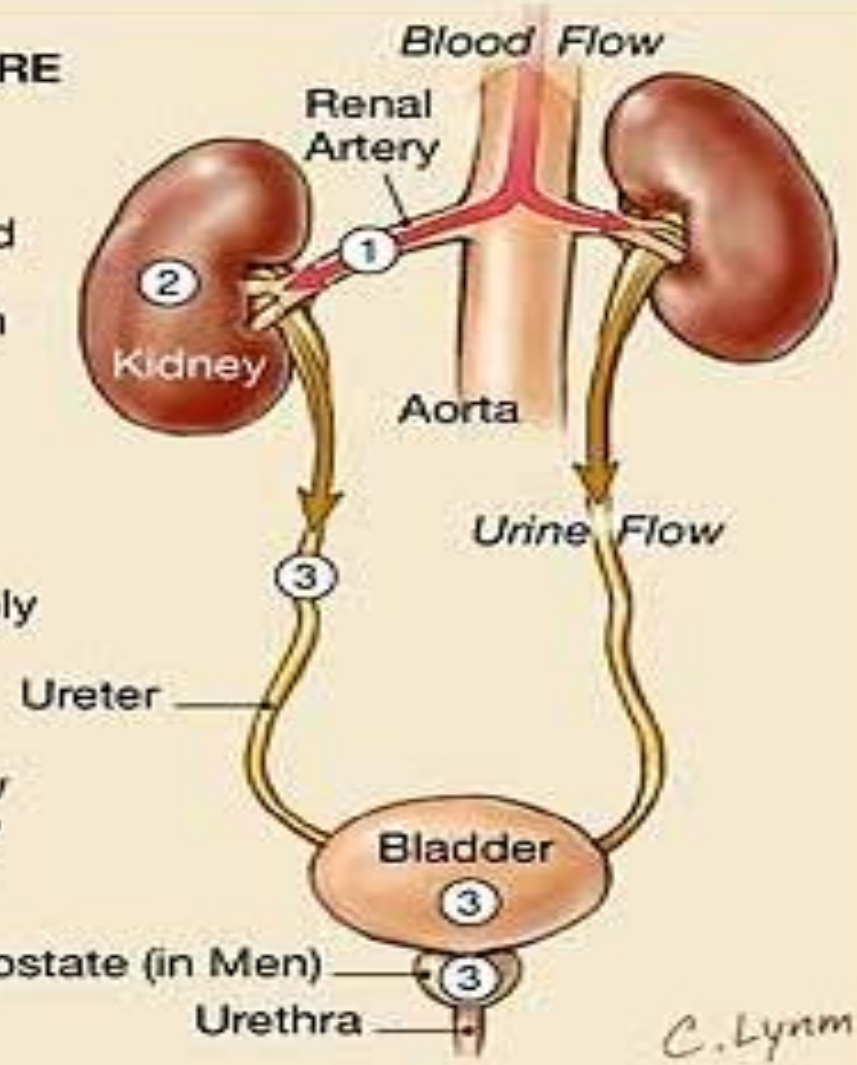
Acute renal failure

CAUSES OF ACUTE RENAL FAILURE

① **Prerenal**
Sudden and severe drop in blood pressure (shock) or interruption of blood flow to the kidneys from severe injury or illness

② **Intrarenal**
Direct damage to the kidneys by inflammation, toxins, drugs, infection, or reduced blood supply

③ **Postrenal**
Sudden obstruction of urine flow due to enlarged prostate, kidney stones, bladder tumor, or injury



NURSINGKAMP Acute Renal Failure ARF1 Overview = Acute! ★ Intervention

Phases of Acute Renal Failure/Acute Kidney Injury—Watch for S/S of Hyperkalemia!

1. Onset – Begins with the onset of the event, ends when oliguria develops, and lasts for hours to days.
2. Oliguria – Begins with the kidney insult, urine output is 100 to 400 mL/24 hr with or without diuretics, and lasts for 1 to 3 weeks.
3. Diuresis – Begins when the kidneys start to recover, diuresis of a large amount of fluid occurs, and can last for 2 to 6 weeks.
4. Recovery – Continues until kidney function is fully restored and can take up to 12 months.

Acute Renal Failure/Acute Kidney Injury- Where the location of the damage is

Pre-Renal-Outside the Kidney

Look for Underlying Cause! - "5H-VIBES"

- H- Hypotension
- H- Hypovolemia
- H- Hemorrhage
- H-Heart Failure
- H- Hypo perfusion
- V-Vomiting - Diarrhea Fluid Loss
- I - Infection- Sepsis
- B -Burns- Fluid Shift
- E—Elevated BUN not Creatinine
- S - Surgeries

BUN/Creatinine Ratio 20:1

Na	CL	BUN	GLU
K	CO2	Cr	

Intra-Renal-Inside the Kidney

The Kidney itself is damaged "MAP4H"

- M-Motrin—NSAIDS
- A-Amphotericin
- P-Pre-Renal Causes
- 4-<400cc Output 24 hours
- H- Hydrogen Ions Acidotic
- H- H2 Blockers
- H- Hypoxic Episode

BUN/Creatinine Ratio 15:1

Both BUN and Creatinine are Elevated then look at GFR

Na	CL	BUN	GLU
K	CO2	Cr	

Glomerular Filtration Rate <60

Post-Renal-After the Kidney

Kidney works but its blocked "3CPINK"

- 3C-Clots, Cancer, Crystals
- P- Prostate Problems
- I- Infection
- N-Neurogenic Bladder
- K- Kidney Stones

★ No triple D's Diuretics, Dopamine, Dobutamine until Volume status assessed

"BFF" Bladder Scan—Foley Then Furosemide

Causes of ARF Hemodynamic Causes

CVP<4 - MAP<60 PAWP <8

Normal Glomerular Filtration Rate(GFR) is the standard determinate of kidney functioning a normal rate is Greater than >60

Nursing Interventions

- Monitor vital signs as needed.
- Assess every hour for hypervolemia.
- Restrict FLUID intake
- Administer diuretics and antihypertensive
- Promote optimal nutritional status.
- Administer TPN as ordered.
- With enteral feedings, check for residual and notify physician if residual volume increases.
- Restrict protein intake to 1 g/kg/day
- Restrict POTASSIUM intake
- HIGH CARBOHYDRATE DIET, calcium supplements

Chronic Renal Failure

Chronic Renal Failure

- Progressive, irreversible damage to the nephrons and glomeruli
- Causes: recurrent kidney infections, vascular changes (Diabetes/Hypertension) etc.
  May be diffuse or limited to one kidney
- Regardless of the cause: Decreased: GFR, tubular function & tubular reabsorption capabilities. Dysfunction fluids & electrolytes, acid base disturbances, & systemic problems develops

Prepared by: D. Chaplin

Table 1: Urine output In Renal Failure

Normal	0.5-1mL/kg/hr
Non-oliguria	>400mL/day
Oliguria	50-400mL/day
Anuria	<50mL/day

Stages of Chronic Kidney Disease

Stage 1
90% Kidney Function
Possibly Symptom-Free

Stage 2
60-89% Kidney Function
Some Symptoms May Appear

Stage 3
40-59% Kidney Function
Changes in Urination, Swelling of Extremities, Kidney Pain, Etc.

Stage 4
15-29% Kidney Function
High Blood Pressure, Anemia, Bone Disease, Heart Disease Possible

Stage 5
<15% Kidney Function
End-Stage Renal Disease
Dialysis or Transplant Needed

CHRONIC RENAL FAILURE (CRF)

ESRD -END STAGE RENAL DISEASE

↓15 ml/min GFR

- Neurological
  - Weakness / Fatigue
  - Confusion
- Cardiovascular
  - ↑BP
  - Pitting Edema
  - Periorbital Edema
  - ↑CVP
  - Pericarditis
- Pulmonary
  - SOB
  - Depressed Cough
  - Thick Sputum
- GI
  - Ammonia Odor to Breath
  - Metallic Taste
  - Mouth / Gum Ulcerations
  - Anorexia
  - Nausea / Vomiting
- Psychological
  - Withdrawn
  - Behavior Changes
  - Depression
- Hematological
  - Anemia
  - Bleeding Tendencies
  - ↑ Serum K
- Skin
  - Dry Flaky
  - Pruritus
  - Ecchymosis
  - Purpura
  - Yellow-Gray Skin Color
- Musculoskeletal
  - Cramps
  - Renal Osteodystrophy
  - Bone Pain

Hemodialysis

Evaluate access site for:
Patency & signs of infection
DO NOT take BP or obtain blood samples from extremity that has access site.

Lab Information

- Azotemia
- Increased BUN and creatinine
- Decreased urine specific gravity
- Decreased calcium
- Decreased platelets
- Elevated proteins
- Elevated sodium
- Elevated phosphorus and Mg
- 24 hour creatinine clearance test
- WBC elevated
- CBC = Anemia

Nursing Diagnosis

- Excess fluid volume related to…
- Decreased cardiac output related to…….
- Imbalanced nutrition related to ..

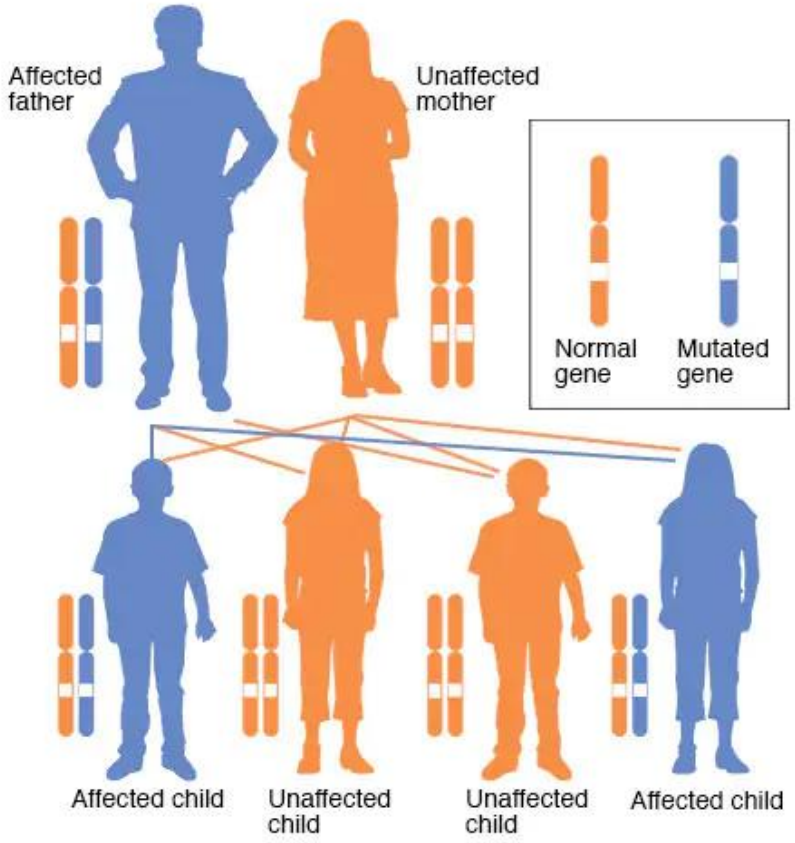
Nursing Intervention

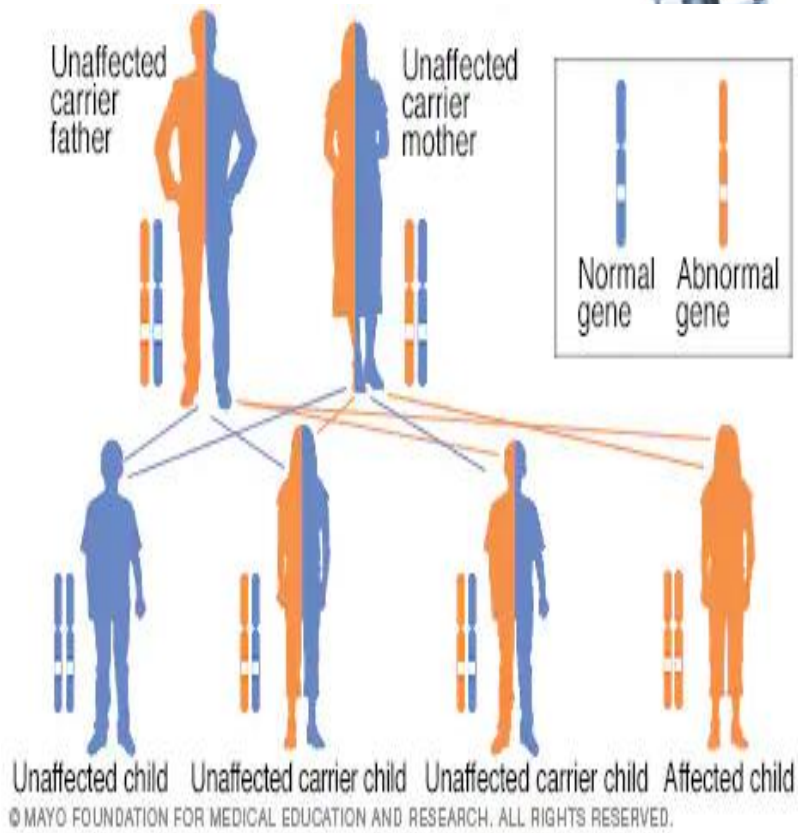
- Weigh daily
- Monitor strict I & O
- Monitor serum electrolyte levels
- Check JVD for fluid overload
- Monitor edema, pulmonary edema,
- Provide low sodium, low potassium, low phosphate diet

Polycystic Kidney Disease

- Polycystic kidney disease (PKD) is an inherited disorder in which clusters of cysts develop primarily within your kidneys, causing your kidneys to enlarge and lose function over time.

(ADPKD) & (ARPKD)





Polycystic Kidney Disease (PKD)

Adult PKD	Childhood PKD
• Autosomal dominant[Q] inheritance • Mutations in PKD1, PKD2 and PKD3 genes (PKD1 produces **Polycystin** protein[Q]). • Asymptomatic till middle age • Clinical features include hematuria, hypertension, UTI and renal stones. • Extra renal manifestations 1. Cysts in other organs like liver[Q] (most commonly), pancreas, spleen and ovary. 2. Berry aneurysm[Q]. 3. Colonic diverticula[Q]. 4. Mitral valve prolapse and aortic regurgitation[Q]. • Grossly, bilaterally enlarged kidneys with multiple cysts containing serous or hemorrhagic fluid[Q].	• Autosomal recessive[Q] inheritance. • Mutation in PKHD1 gene which produces **fibrocystin** protein[Q]. • Presents in infancy with renal insufficiency. • Associated with multiple hepatic cysts and congenital hepatic fibrosis[Q]. • Grossly, bilaterally enlarged kidney with small cysts in cortex and medulla having their long axis at right angle to capsule.

Signs & Symptoms

- High blood pressure
- Back or side pain
- Blood in your urine
- A feeling of fullness in your abdomen
- Increased size of your abdomen due to enlarged kidneys
- Headaches
- Kidney stones
- Kidney failure
- Urinary tract or kidney infections

Complication

- High Blood pressure
- Loss of Kidney function
- Chronic pain
- Growth of cyst in the liver
- Development of aneurysm in the brain
- Pregnancy complication
- Heart valve abnormalities
- Colon pronlems

Prevention

- a genetic counselor can help you assess your risk of passing the disease to your offspring.
- Take the blood pressure medications prescribed by your doctor as directed.
- Eat a low-salt diet containing plenty of fruits, vegetables and whole grains.
- Maintain a healthy weight. Ask your doctor what the right weight is for you.
- If you smoke, quit.
- Exercise regularly. Aim for at least 30 minutes of moderate physical activity most days of the week.
- Limit alcohol use.

DIALYSIS – who needs it?

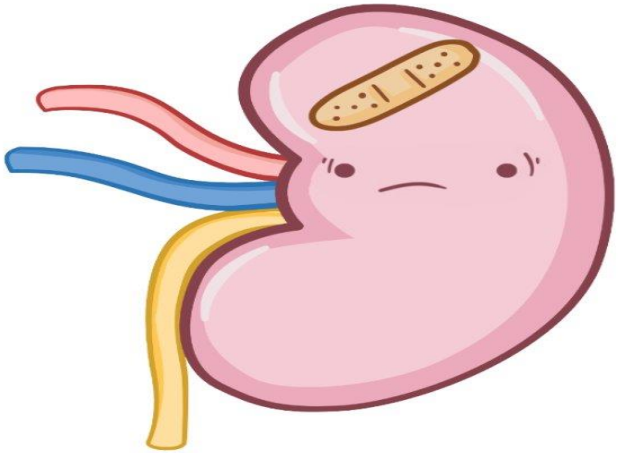
A ACIDOSIS

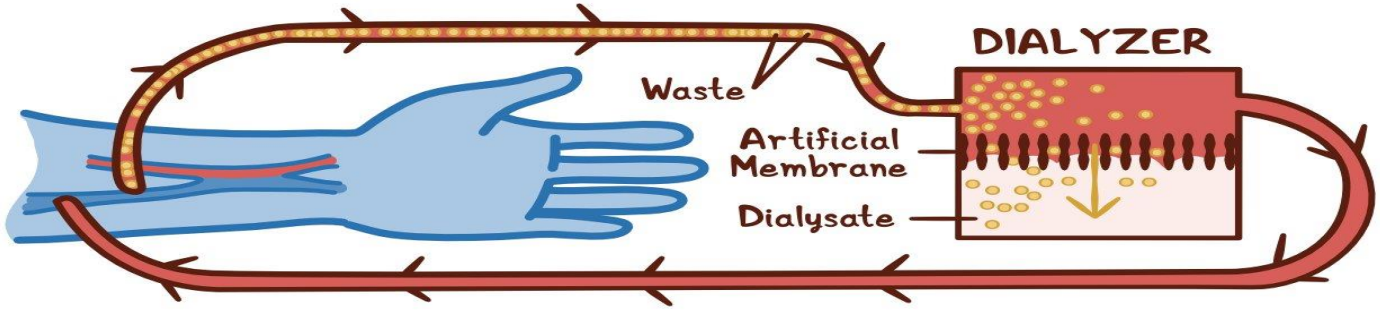
E ELECTROLYTES

I INTOXICANTS/ DRUGS

O OVERLOAD FROM FLUID

U UREMIC SYMPTOMS





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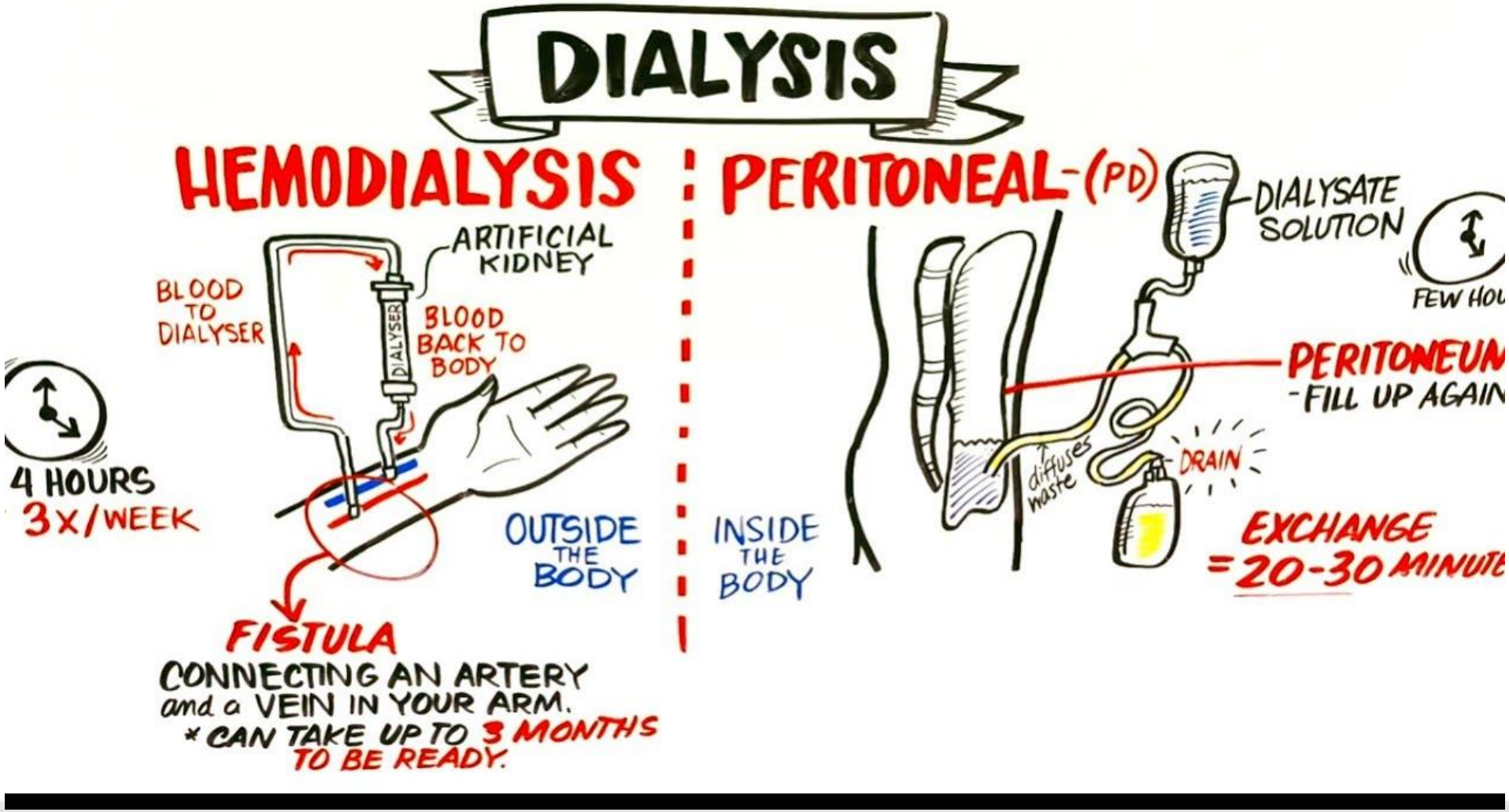
Dialysis

A procedure that is used to remove fluid and uremic wastes from the body when the kidneys cannot function

- **Two methods**
  - Hemodialysis
  - Peritoneal dialysis
    - CAPD (Continuous Ambulatory Peritoneal Dialysis)
      - Done at night, complication is peritonitis
    - CCPD (Continuous Cycle Peritoneal Dialysis)

      connects their peritoneal dialysis catheter to a cycler at night and performs the exchange while sleeping; Disconnects in the AM.; has more freedom
- Continuous Renal Replacement Therapy (CRRT)
- **DIALYSIS –** Diffusion, Osmosis, Ultrafiltration

DIALYSIS



Nursing Management - HD

Can all patients tolerate hemodialysis? Pts with unstable cardiovascular system

- Must have a circulatory access: Is done 3-4 times/week
  - A-V shunt, Fistula, Graft,
  - Temporary catheters (Asch catheter)

*utilized for short term access while the permanent access “matures”.

Typically used for 90 days or less.

*Do not use any of the above for IV access (drawing blood, administering meds. etc.)

- When a patient has an alternate circulatory access what is the associated nursing care?
- *Thrill – cat purring sensation *Bruit * Feel a thrill…Hear the bruit!

Nursing Management - HD

Pharmacokinetics

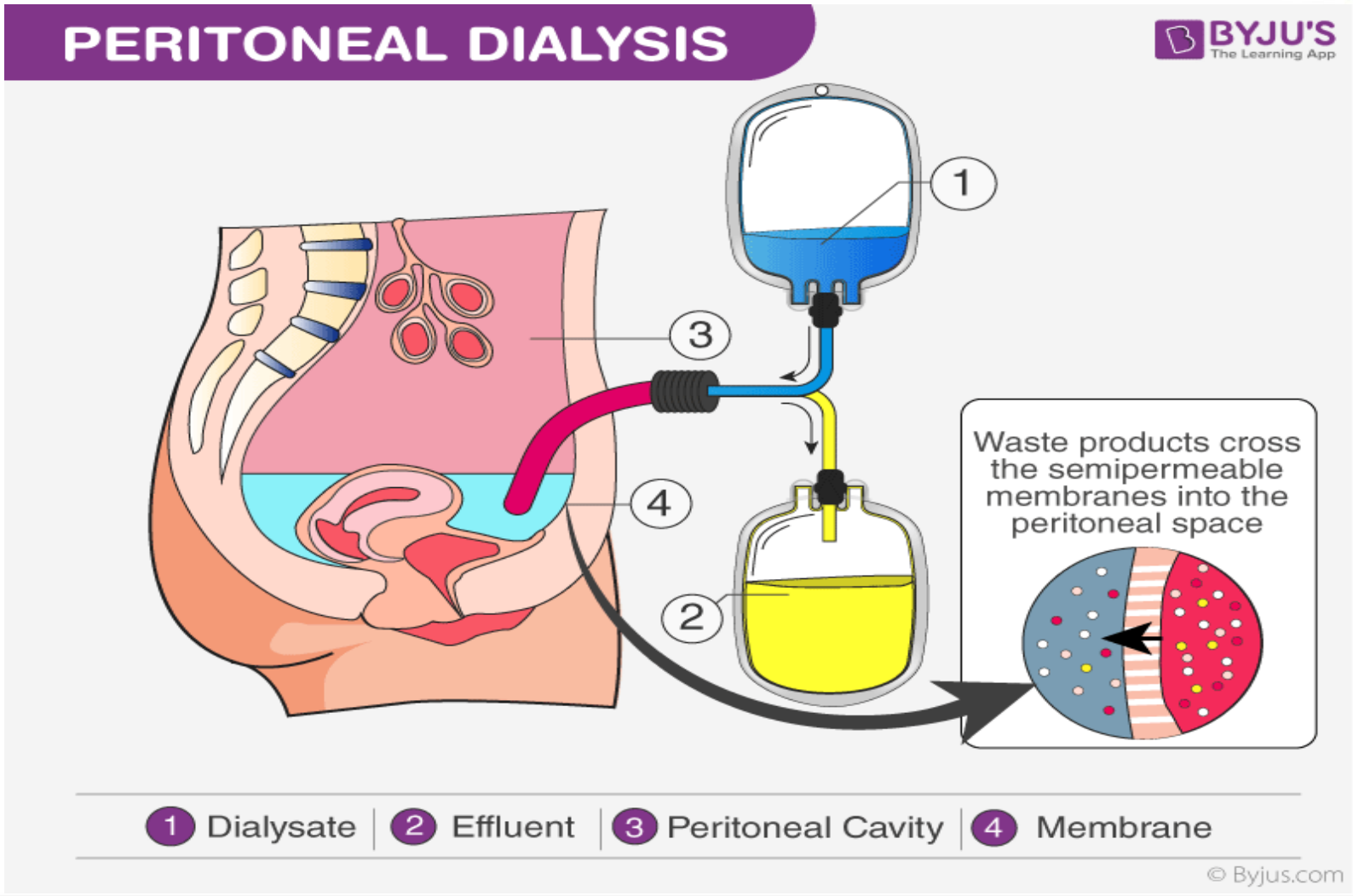
Drugs removed on haemodialysis

- Salicylates
- Methanol
- Barbiturates
- Lithium
- Aminoglycosides
- Cephalosporins

Drugs not removed on haemodialysis

- Digoxin
- Tricyclic antidepressants
- Phenytoin
- Benzodiazepines
- β-blockers
- Oral hypoglycaemic agents

Peritoneal Dialysis



Nursing Management- PD

This is when dialysate is warmed and infused into the peritoneal cavity by gravity through a catheter.

- The fluid (2000-2500 ml) stays in for an ordered amount of time ***(dwell time).*** Then the bag is lowered and the fluid along with the toxins, etc., are drained.
- **Why do we warm the fluid?**

  *Cold promotes vasoconstriction → limits blood flow

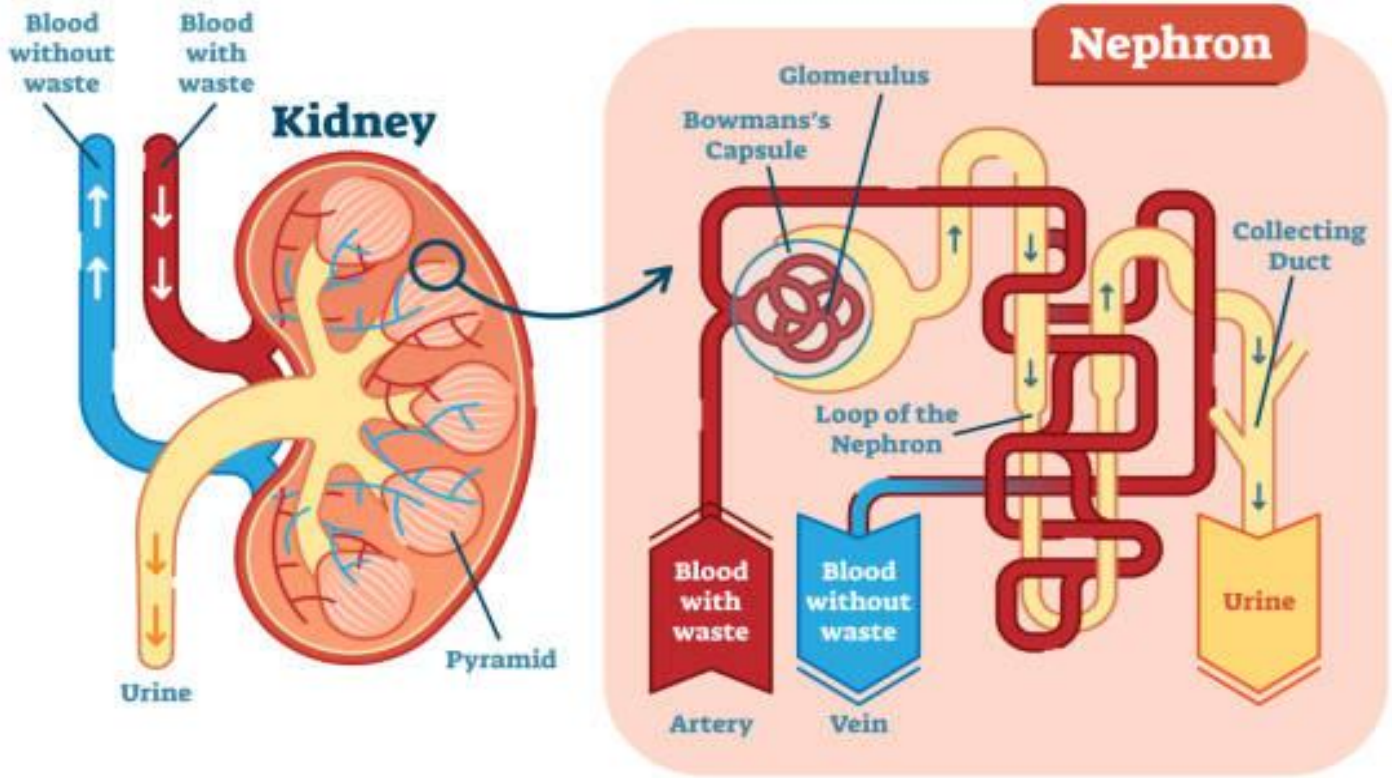
  *Want vasodilatation
- **What should the effluent/drainage/fluid look like?**

  straw-colored cloudy = means infection
- What type of patient gets peritoneal dialysis?
- What if all the fluid doesn't come out?

Glomerulonephritis

- Acute can lead to chronic
- Inflammation of glomerulus with tubular, interstitial & vascular changes
- Immunologic, antibody induced injury
- Antibodies react with nonglomerular antigens & randomly deposited, look “lumpy bumpy”
- Antibodies lodged in the glomerulus; gets scarring and decreased filtering
- Accumulation of antibody, antigen, compliment in glomeruli-> tissue injury
- Compliment activation-> leukocytes, release of histamine & vasoactive amines, clotting mechanism activated

Nephron Anatomy



Glomerulonephritis

- Sore throat
- Malaise
- Headache
- BUN & Creatinine
- Proteinuria
- Facial edema
- BP
- hematuria
- Flank pain (CVA tenderness)
- Urine specific gravity
- Fluid volume excess
- Anemia
- erythropoetin

Glomerulonephritis - Tx

- Get rid of strep
- Dialysis
- Bedrest
- I&Os and daily weights
- Increase carbohydrates (keeps us from breaking down proteins in the diet)

Nephrotic Syndrome

- Causes:
  - glomerulonephritis,
  - infections, multisystem diseases,
  - neoplasms, allergens
- S/S:
  - peripheral edema, proteinuria, hi lipids, low albumin, ascites, anasarca,
  - altered immune response -> infection, hypocalcemia, loss of clotting factors-> hypercoagulability, thrombus formation especially PE

Nephrotic Syndrome

Treatment

- relieve edema, control disease
- ACE inhibitors, NSAIDs, low Na diet, loop diuretic
- Lipid lowering agents
- Anticoagulants if thrombus
- Corticosteroids & Cytoxin
- COMMON RULE: LIMIT PROTEINS WITH KIDNEY PROBLEMS EXCEPT WITH NEPHROTIC SYNDROME

Nursing Care

- Assess edema: daily wt, I&O, measure girth
- Skin care, prevents trauma->weeping
- Monitor diuretic therapy, labs
- Low protein-> malnourished, anorexic, low Na & P diet; assess dietary needs, small frequent feedings
- Prevent infection
- Altered body image- psychological support

Glomerulonephritis vs. Nephrosis

SimpleNursing

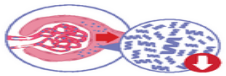
Glomerulo**nephritis**

- inflammation & scarring of the kidney

Cause:

Infection - typically Strep infection and usually gone in 14 days

Signs & Symptoms



- LESS protein loss
  UA: lower **Protein**uria
  - Recent Strep infection (Key assessment)
  - Fever
  - Blood Labs: **WBC HIGH**

Treatment:

- Treat cause INFECTION
- Educate - finish all antibiotics
- Limit Protein NCLEX TIP
- Meds -Antihypertensives
  - A - Ace & Arbs
    - "-pril" - Lisinopril
    - "-sartan" - Losartan
  - B - Betas
  - C - CCB
  - D - Diuretics - "-ide"
    - Loops "FurosemIDE"
    - Thiazide "HydrochlorothiazIDE"

Both are potassium wasters - so watch out for hypokalemia (potassium less than 3.5)

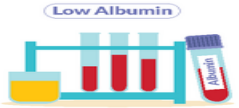
Nephrosis (Nephrotic syndrome)

- Inflammation & scarring
- Key difference HIGH massive amounts of protein dumped into urine

Cause:

Autoimmune diseases like Lupus where the body attacks itself
Triggers - 4 S's initiates an immune response
- **S** - stress
- **S** - sickness or sepsis (infection)
- **S** - smoking
- **S** - sun (hot temps)

Signs & Symptoms



MORE protein loss
UA: **HIGH Proteinuria**
Blood Labs: Low **Albumin**
"Hypo**albumin**emia"

Memory trick

- Nephrotic Syndrome
- Nasty protein loss

Deadly Complication

Renal Failure & HTN Crisis!

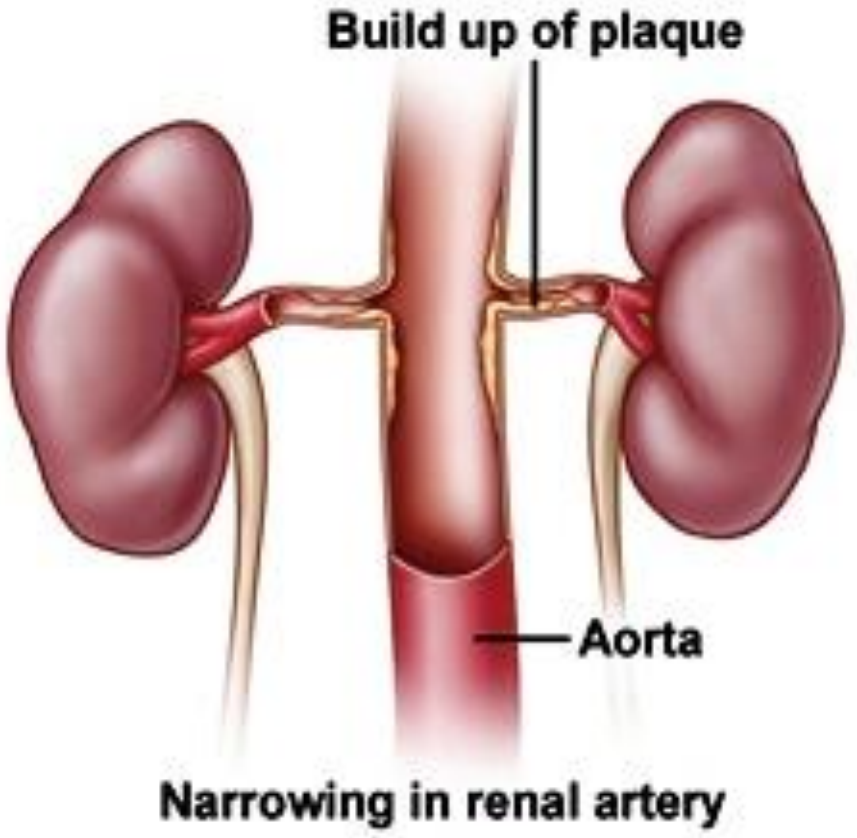
Report key signs:
- Headache & Mental Status Changes
- Nausea & Vomiting
- Oliguria - NO or low urine output
- New, Sudden, Rapid **Weight Gain**

Treatment:

- **Increase** Protein NCLEX TIP
- Treat cause & remove trigger
- Steroids "-sone" Predni**sone**

Nephrosclerosis

- Nephrosclerosis, hardening of the walls of the small arteries and arterioles of the kidney. This condition is caused by hypertension (high blood pressure).



Signs and Symptoms

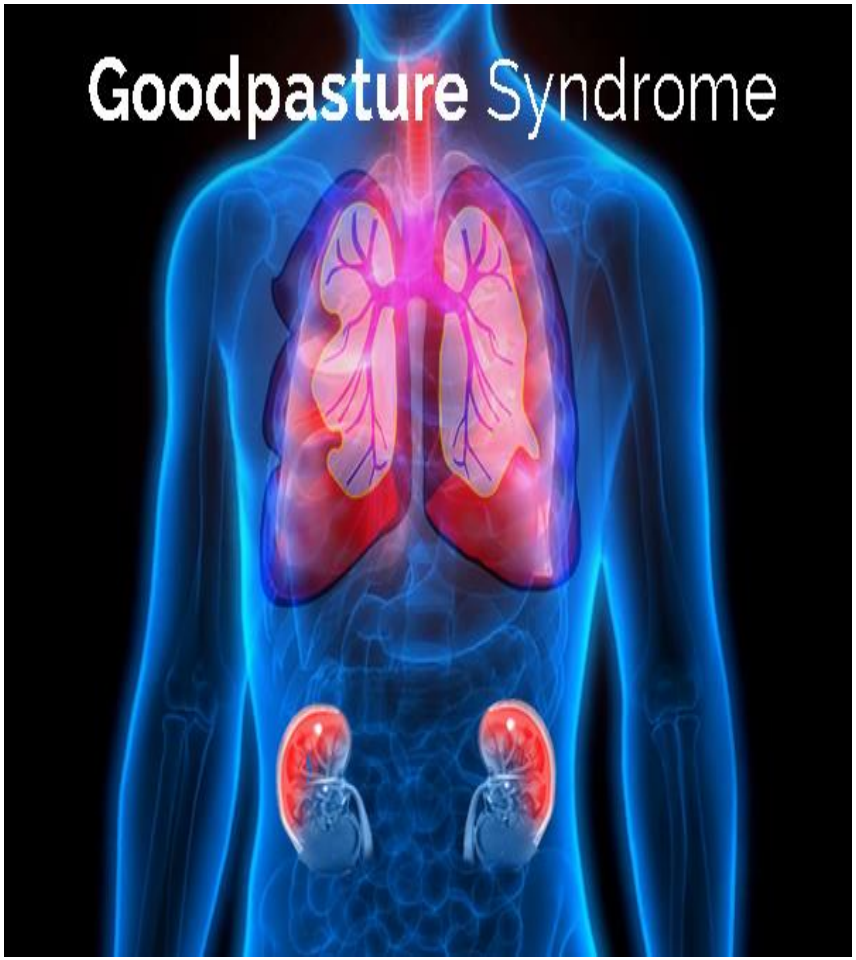
- loss of appetite;
- nausea;
- vomiting;
- itching;
- confusion;
- excessive sleepiness;
- unexplained weight loss;
- damage to the blood vessels of the eyes, skin, central nervous system (CNS), and peripheral nerves.

Treatment

- Focused on strict blood pressure control and support of kidney function and may include medications such as
- diuretics,
- angiotensin-converting enzyme inhibitors,
- angiotensin II receptor antagonists
- renin inhibitors
- calcium channel blockers
- beta-adrenergic blocking agents
- direct-acting vasodilators
- alpha 2-adrenergic agonists

Goodpasture Syndrome

- Goodpasture syndrome (or anti-GBM disease) is a rare, life-threatening autoimmune disease that affects the lungs and the kidneys. It happens when the immune system mistakenly attacks a protein called collagen because it recognizes it as a foreign substance.
- Untreated, Goodpasture syndrome can cause inflammation of the kidneys (**glomerulonephritis**) and can lead to permanent kidney failure. The disorder can cause severe bleeding in the lungs, which is the main cause of death from Goodpasture syndrome.

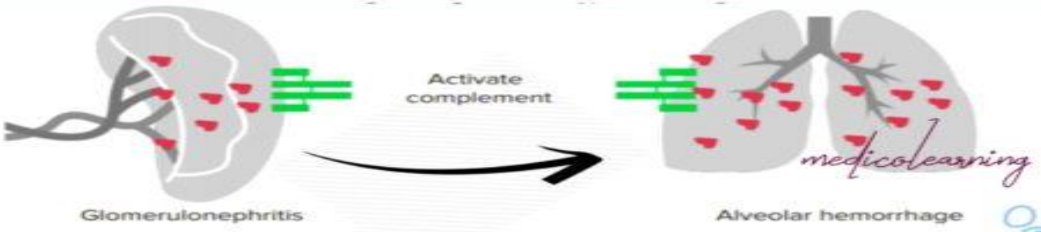

Goodpasture Syndrome


Goodpasture Syndrome
RISK FACTORS
Smoking
Metallic dust or chemical exposure
Cocaine inhalation
Various lung infections
Immune system medications
Cleveland Clinic

Goodpasture Syndrome

Flash Card

GoodPasture syndrome : Anti - GBM disease in which anti - GBM antibodies cross - react with alveolar basement membrane of lung .



- Goodpasture antigen : A peptide within the noncollagenous portion of a3 chain of collagen type IV of GBM .
- Epithelial crescents : Proliferation of parietal epithelial cells + monocytes and macrophages . Formed due to fibrin leaked through ruptured GBM .
- Uremia is the cause of death in Goodpasture syndrome .

•Goodpasture syndrome :

1. Anti - GBM disease
2. Epithelial crescent
3. Linear immunofluorescence .

Clinical features:

- Cough
- Dyspnea
- Hemoptysis
- Glomerulonephritis

Diagnosis:- Renal and lung biopsy showing antiglomerular basement membrane antibodies (anti - GBM)

Management :

- Supportive
- Prednisone
- Cyclophosphamide
- Plasmapheresis

Glomerular

Good Pasture

Pulmonary

Male Reproductive Disorders

*BPH

*Prostatic cancer

Male Reproductive Disorders

DIGITAL RECTAL EXAMINATION- DRE

- Recommended for men annually with age over 40 years
- Screening test for cancer
- Ask patient to BEAR DOWN

TESTICULAR EXAMINATION

- Palpation of scrotum for nodules and masses or inflammation
- BEGINS DURING ADOLESCENCE

Male Reproductive Disorders

Prostate specific antigen (PSA)

- Elevated in prostate cancer
- Normal is 0.2 to 4 nanograms/mL
- Cancer= over 4

BENIGN PROSTATIC HYPERPLASIA

- Enlargement of the prostate that causes outflow obstruction
- Common in men older than 50 years old

Assessment findings

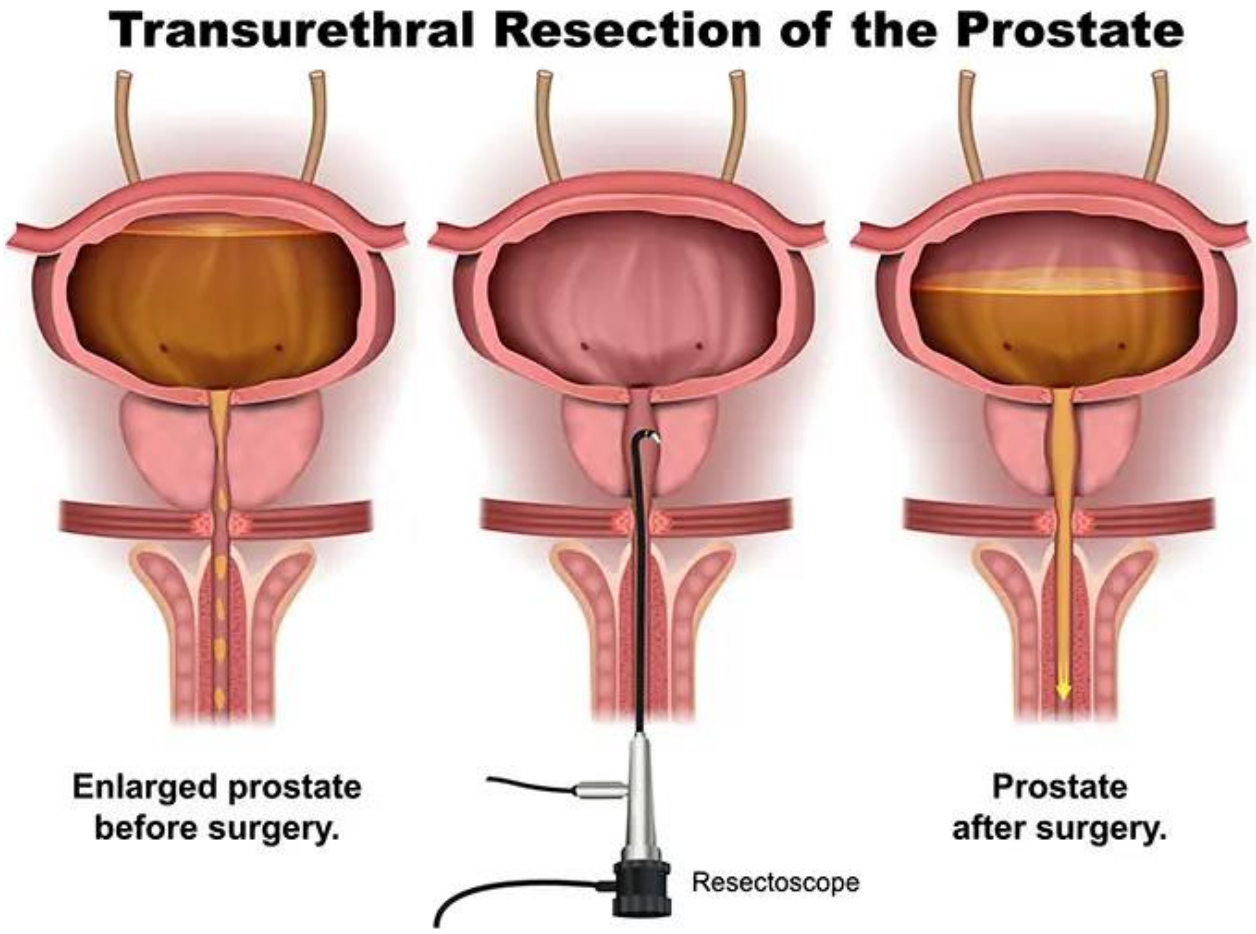
- DRE: enlarged prostate gland that is rubbery, large and NON-tender
- Increased frequency, urgency and hesitancy
- Nocturia, DECREASE IN THE VOLUME AND FORCE OF URINE STREAM

BENIGN PROSTATIC HYPERPLASIA

Medical management

- Immediate catheterization
- Prostatectomy
- TRANSURETHRAL RESECTION of the PROSTATE (TURP)
- Pharmacology: alpha-blockers, alpha-reductase inhibitors. SAW palmetto

TURP



Nursing Intervention

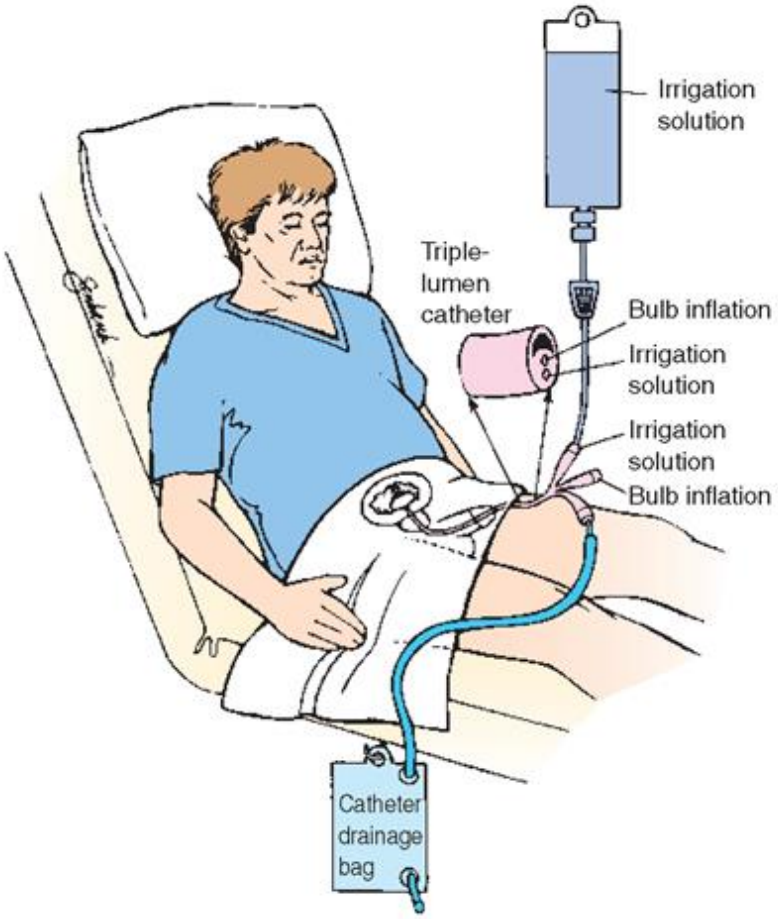
- Encourage fluids up to 2 liters per day
- Insert catheter for urinary drainage
- Administer medications – alpha adrenergic blockers and finasteride
- Avoid anticholinergics
- Prepare for surgery or TURP
- Teach the patient perineal muscle exercises. Avoid valsalva until healing

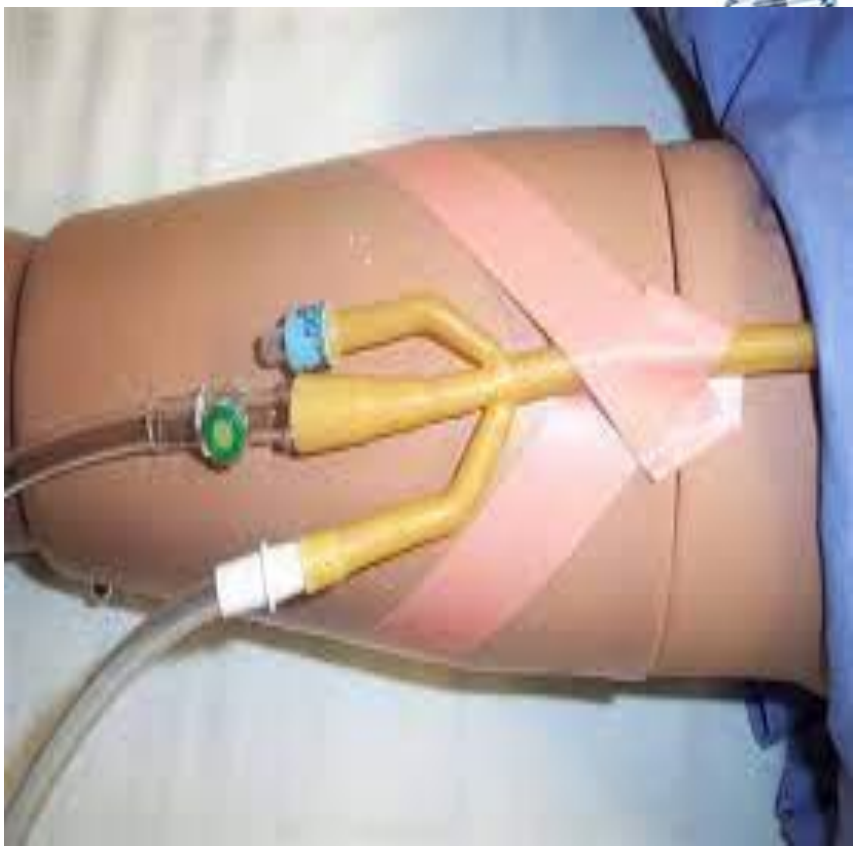
Nursing Intervention

INTERVENTION: TURP

- Maintain the three way bladder irrigation to prevent hemorrhage
- Only initially the drainage is pink-tinged and never reddish
- Administer anti-spasmodic to prevent bladder spasms

Continous Bladder Irrigation





Prostate Cancer

A slow growing malignancy of the prostate gland. Usually an adenocarcinoma. This usually spread via blood stream to the vertebrae

- Predisposing factor : Age

Assessment Findings

- DRE: hard, pea-sized nodules on the anterior rectum
- Hematuria
- Urinary obstruction
- Pain on the perineum radiating to the leg

Prostate Cancer

Diagnostic tests

- Prostatic specific antigen (PSA)
- Elevated SERUM ACID PHOSPHATASE indicates SPREAD or Metastasis

Medical and surgical management

- Prostatectomy
- TURP
- Chemotherapy: hormonal therapy to slow the rate of tumor growth
- Radiation therapy

Nursing Interventions

- Prepare patient for chemotherapy
- Prepare for surgery

Post-prostatectomy

  - Maintain continuous bladder irrigation. Note that drainage is pink tinged w/in 24 hours
  - Monitor urine for the presence of blood clots and hemorrhage
  - Ambulate the patient as soon as urine begins to clear in color

End of Lesson