**Chapter 9 Urinary Tract**

1. **Cancer of the bladder**
   * An adequate fluid intake aids in the prevention of urinary calculi and infection. Odor producing foods can produce offensive odors that may impact the pt lifestyle and relationships.
   * Lack of activity leads to urinary stasis which promotes urinary calculi development and infection.
   * Dermatitis with alkaline encrustations may occur when alkaline urine comes in contact with exposed skin.
   * Yeast infections, fungal infection are another common peristomal skin problem.
   * Painless hematuria is the most common clinical finding in bladder cancer
     + Other symptoms include:
       - Urinary frequency
       - Dysuria
       - Urinary urgency
   * Chills could indicate the onset of acute infection that can progress to septic shock.
   * Cystoscopy
     + Pink-tinged urine and bladder spasms are common after.
     + Lower abdominal pain is caused by bladder spasms
       - Warm water can help relax the muscle.
   * Ileal Conduit
     + Permanent urinary diversion in which the portion of the ileum is surgically resected and one end of the segment is closed. The ureters are surgically attached to this segment of the ileum and the open end of the ileum is brought to the skin surface of the abdomen to form the stoma.
     + The client must wear a pouch to collect the urine that continually flows through the conduit.
     + The bladder is removed during the surgical procedure and the ileal conduit is not reversible.
     + Diversion of urine to the sigmoid colon is called an ureteroileosigmoidostomy.
     + An opening in the bladder that allows urine to drain externally cystostomy.
     + If the appliance becomes too full, it is likely to pull away from the skin completely or to leak urine onto the skin.
     + If the urine is deep yellow, the pt should increases fluid intake.
       - Pt should increase fluid intake to about 3,000 mL/day.
       - Adequate fluid intake helps to flush mucus from the ileal conduit. [also aids in preventing UTI]
     + Inserting a gauze wick into the stoma helps prevents urine leakage when changing the appliance.
     + A reusable should be routinely cleaned with soap and water.
     + The ostomy should be changed approximately every 3-7 days and whenever a leak develops.
     + A skin barrier is essential to protecting the skin from the irritation of the urine.
     + Aspirin is an irritant to the stoma and can lead to ulceration.
     + Ostomy pouch should be emptied when it is one-third to one-half full.
     + Distilled vinegar solution acts as a good deodorizing agent after an appliance has been cleaned with soap and water.
     + The most important reason for a attaching the appliance to a standard urine collection at night is to prevent urine reflux into the stoma and ureters, which can result in infection.
   * Pelvic surgery
     + Post-op
       - Increased chance of thrombophlebitis owing to the pelvic manipulation that can interfere with circulation and venous stasis.
       - Peritonitis is a potential complication of any abdominal surgery
         1. Ascites is the most frequently indication of liver disease.
         2. Inguinal hernia may be caused by an increase in the intra-abdominal pressure or a congenital weakness of the abdominal wall.
   * Percutaneous needle biopsy
     + Assess for bleeding and hematoma
     + Remain prone for 8-24 hours after
     + Pressure dressing
     + VS q 15 minsX4
     + Collect serial urine specimens to assess for hematuria.
2. **Renal Calculi**
   * High fluid intake is essential for all pt’s at risk for RC.
   * Depending on the composition of the stone, the pt also may be placed on specific diet
     + May need to limit purine, calcium, or oxalate
     + High purine diet contributes to formation of uric acid,
       - Low-purine diet🡪 milk, all fruit, tomatoes, cereals, and corn.
       - Alkaline ash diet🡪 milk, fruits(except cranberries, prunes, and plums) and vegetables (except legumes and green vegetables)
   * Renal Colic🡪Sudden severe pain in the flank are caused by infection or blockage from calculi
     + During renal colic the pain is excruciating
     + Intermittent pain that is less colicky indicates that the calculi may be moving along the urinary tract
       - Fluids should be encouraged to promote movement and the urine should be strained to detect passage of the stone.
   * Intravenous pyelogram (IVP)
     + Assess for allergy to iodine and shellfish
     + NPO for 8 hours before procedure
     + Bowel preparation is important before an IVP to allow visualization of the ureters and bladder
     + Encourage fluids to ↓ the risk of renal complications caused by the contrast agent
   * Ureteral catheter
     + Should drain freely without bleeding
     + The catheter is rarely irrigated🡪 any irrigation, done by the physician
     + Never clamped
   * Paralytic ileus
     + Ambulation stimulates peristalsis
     + Pt with paralytic ileus🡪 NPO
   * Allopurinal (Zyloprim)
     + Used to treat renal calculi composed of uric acid
     + Adverse effects🡪 drowsiness, maculopapular rash, abdominal pain, N/V/A, and bone marrow depression.
3. **Acute Renal Failure**
   * Diet🡪 high carbohydrate, low protein
   * Potassium restricted food🡪 gelatin dessert,
     + High potassium- bran and whole grain, most dried, raw and frozen fruits and vegetables, most milk and milk products, chocolate, nuts, raisins, coconut, and strong brewed coffee.
   * Peritoneal Dialysis
     + Solution should be warmed to body temperature in a warmer or heating pad
       - Do not use a microwave
       - Main reason to warm solution is that the warm solution helps dilate peritoneal vessels, which increases urea clearance🡪 also contributes comfort by preventing chilly sensation
     + Place pt in supine or low fowlers position
   * Hemodialysis
     + No BP, IV therapy, or venipuncture in the arm that has external cannula
     + Tourniquet or clamp should be kept at the bedside because dislodgement of the cannula would cause arterial hemorrhage
     + Patency is assessed by auscultating for bruits every shift.
       - The absence of a bruit indicates closing of the shunt
       - S/SX of external access shunt infection- redness, tenderness, swelling, and drainage from around this site.
       - Sluggish capillary refill time and coolness of the extremity indicates ↓ blood flow to the extremity.
     + Regional anticoagulation can be achieved by infusing heparin in the dialyzer and protamine sulfate, its antagonist, into the client. (pg. 515 # 48; also look at # 45?)
     + During dialysis pt gets H/A🡪 disequilibrium syndrome
       - S/SX: H/A, N/V, confusion, and even seizure.
       - Typically occurs near the end of the hemodialysis treatment.
       - It is the result of rapid changes in solute composition and osmolality of the extracellular fluid.
       - If this occurs, slow the rate of dialysis.
   * Dialysis aggravates of low hemoglobin concentration.
   * Oliguria is the most common initial symptom
     + Pulmonary edema can develop during an oliguria phase because of ↓ UO and fluid retention.
     + Metabolic acidosis develops because the kidneys cannot excrete hydrogen ions and bicarbonate is used to buffer the hydrogen.
     + HTN may develop as a result of fluid retention.
     + Hyperkalemia develops as the kidneys lose the ability to excrete potassium.
   * Respiration manifestations of ARF
     + SOB
     + Orthopnea
     + Crackles
     + Pulmonary edema
   * Three categories of ARF
     + Prerenal
       - Causes occur outside of the kidney and include poor perfusion and decreased circulation volume resulting from such factors as trauma, septic shock, impaired cardiac function, and dehydration.
     + Intrarenal
       - Structural damage to the kidney resulting from acute tubular necrosis
       - Caused by hypersensitivity, renal vessel obstruction, and nephrotoxic agent.
     + Postrenal
       - Obstruction within the urinary tract, such as from kidney stones, tumors, or benign prostatic hypertrophy
   * Urea🡪end product of protein metabolism is excreted by the kidneys. Impairment in renal function caused by reduced renal blood flow result in an increase in the plasma urea level.
   * Kayexalate
     + Causes the body to excrete potassium through the GI tract
   * Recovering from ARF
     + The kidneys have a remarkable ability to recover from serious insult. Recovery may take 3-12 months.
     + Teach the pt how to recognize s/sx of ↓ renal function and to notify physician
4. **Urinary tract infection**
   * The sensation of thirst diminishes after the age of 60, causing fluid intake to ↓ and dissolved particles in the extracellular fluid compartment become more concentrated.
   * Specific gravity is a reflection of the concentrating ability of the kidneys.
   * All urine for creatinine clearance determination must be saved in a container with no preservatives and refrigerated or kept on ice.
     + The first urine is discarded
   * Cystitis
     + S/SX: severe burning on urination, urgency, frequency
       - Hematuria may occur but is not as common
     + Causes: ascending infection from the urethra.
     + Teach pt🡪 hot tub baths promote relaxation and help relieve urgency, discomfort, and spasm. Apply heat to the perineum
       - Encourage liberal fluid intake
       - Caffeinated beverages, such as tea, coffee, and cola, can be irritating to the bladder and should be avoided.
       - Void at least every 2-3 hours because it reduces urinary stasis.
   * Pyridium [Phenazopyridine hydrochloride]
     + Urinary analgesic
     + Works directly on the bladder mucosa to relieve the distressing symptoms of dysuria.
     + Turns the urine bright orange-red
       - May stain underwear
     + Adverse effects: H/A,GI disturbances, and rash
   * Macrodantin [nitrogurantoin]
     + Take with meals and increase fluid intake to minimize GI distress
     + May turn urine brown
     + Take full prescription
     + Do not take with antacids- will interfere with drug absorption
   * Stasis of the urine in the bladder is one of the chief causes of bladder infection, and a pt that voids infrequently is at greater risk for reinfection.
     + A tub bath does not promote UTI as long as the client avoids harsh soaps and bubble baths.
   * Measures to prevent reoccurrence of cystitis
     + Avoiding tight pants, non-cotton underwear, and irritating substances, such as bubble baths and vaginal soaps and sprays.
     + ↑ intake of Citrus juice can be a bladder irritant.
     + Douching is not recommended- it can alter pH of the vagina, ↑ risk of infection.
5. **Pyleonephritis**
   * Commonly the result of recurrent UTI’s.
   * Can lead to chronic renal failure
   * Usually begins with colonization and infection of the lower urinary tract via the ascending urethral route, and the pt should have an adequate intake of fluids to promote the flushing action of urination.
   * Common S/SX:
     + CVA tenderness, burning on urination, urgency, frequency, chills, fever and fatigue.
   * Pt that has history of DM, UTI’s, and renal calculi are at ↑ risk for pyelonephritis.
     + Also pregnant women, and people with structural alterations of the urinary tract
     + History of HTN may put the pt at risk for kidney infection.
   * BUN and creatinine are the test most commonly used to assess renal function
     + Creatinine is the most reliable indicator
6. **Chronic renal failure**
   * Excess fluid volume [common complication of CRF]
     + Crackles, weight gain, ↑ BP
     + Fluid status should be monitored carefully
   * Peritoneal Dialysis
     + Disadvantage
       - Long-term management of CRF
     + during dwell time, the dialysis solution is allowed to remain in the peritoneal cavity for the time ordered by the physician [usually 20-45 min]
       - during this time the nurse should monitor respiratory status because the pressure of the dialysis solution on the diaphragm can create respiratory distress.
       - Labs are taken before treatment before and every 4-8 hours during
     + If pt has a permanent catheter
       - Blood tinged drainage should not occur🡪 persistent blood tinged drainage could indicate damage to the abdominal vessels, and the physician should be notified.
       - Bleeding is originating in the peritoneal cavity
     + Fluid return with PD is accomplished by gravity flow.
       - Actions that enhance gravity flow include turning the pt from side to side, raising the HOB, and gently massaging the abdomen.
       - Pt usually confined to a recumbent position during the dialysis.
     + Hypotension is complication
       - Record I&O’s, VS, and observe pt behavior
     + Broad-spectrum antibiotics may be administered to prevent infection
     + Aseptic technique is imperative
     + Peritonitis🡪 most common and serious complication
       - Characterized by cloudy dialysate drainage, diffuse abdominal pain, and rebound tenderness.
     + Weight loss is expected because of the removal of fluid.
   * Continuous Ambulatory Peritoneal Dialysis [CAPD]
     + Major benefit🡪 free pt from daily dependence on dialysis center, hospital, etc.
     + Have fewer dietary restriction than standard peritoneal dialysis
       - The constant slow diffusion of CAPD helps prevent accumulation of toxins and allows for a more liberal diet.
       - Cloudy drainage indicates bacterial activity in the peritoneum.
         1. Other s/sx of infection is fever, hyperactive bowel sounds, and abdominal pain.
         2. Redness at the insertion site indicates local infection, not peritonitis.

However, a local infection that is left untreated can progress to the peritoneum.

* + A pt with renal failure develops hyperphosphatemia that causes a corresponding excretion of the body’s calcium stores, leading to renal osteodystrophy.
    - To ↓ this loss, aluminum hydroxide gel is prescribed to bind phosphate in the intestine and facilitate their excretion.
  + Amphojel [aluminum hydroxide gel]
    - Administered to bind phosphate in ingested foods and must be given with or immediately after meals and snack.
  + Magnesium is normally excreted by the kidneys. When the kidneys fail, magnesium can accumulate and causes severe neurologic problems.
    - Milk of magnesia is harsher than Metamucil, but magnesium toxicity is more serious problem.
  + Uremia can cause ↓ alertness, so the nurse needs to validate the pt’s comprehension frequently
    - Because the pt’s ability to concentrate is limited, short lessons are most effective.
  + Diet🡪 restrict protein, sodium, and potassium intake
    - The degree of the restriction depends on the degree of renal impairment
    - The pt should receive a high-carbohydrate diet along with appropriate vitamins and minerals.
  + Altered sexual function commonly occurs in chronic renal failure
    - Caused by ↓ hormone levels, anemia, peripheral neuropathy, or medication.
    - Pt should rest before sexual activity.

1. **Urinary Incontinence**
   * Stress incontinence🡪
     + Reduce fluid intake to avoid incontinence at the risk of developing dehydration and UTI
     + Establish a voiding schedule
     + Loss of urine when coughing
     + Avoid caffeine and alcoholic beverages.
     + Perform kegel exercises to strengthen the sphincter and structural support of the bladder.
     + HX of 3 pregnancies is most likely the cause of the pt’s stress incontinence.
     + Primary goal is to decrease the number of incontinence episodes and the amount of urine expressed in an episode.
   * Urge incontinence🡪
     + Involuntary urination with little or no warning.
   * Urinary retention🡪 inability to empty the bladder
   * Frequent dribbling of urine is common in male clients after some types of prostate surgery and may occur in women after the development of a vesicovaginal or urethrovaginal fistula.
2. **Clean- catch urine culture specimen**
   * Female clients🡪 clean the labia from front to back, void into the toilet, and then void into the cup.
     + The first voided specimen of the day has the highest bacterial counts.

**Chapter 10 Reproductive**

1. **Vaginal infection** 
   * Bacterial vaginosis is a clinical syndrome resulting from the replacement of the normal vaginal Lactobacillus species with overgrowth of anaerobic bacteria that cause a cluster of symptoms.
     + S/SX: Presence of thick, white, adherent vaginal discharge with a fishy odor is evidence
     + Most common vaginal infection in reproduction-age women
     + 50% of these women are asymptomatic
     + Bacterial vaginosis is not associated with menarche, menopause, or aging.
   * Douching may disrupt normal flora and change the pH, which would result in overgrowth of other bacteria.
     + Can cause bacteria to ascend into the uterus
   * Flagyl [Metronidazole]
     + Interacts with alcohol and can cause a serious disulfiram type reaction, with severe, prolonged vomiting.
   * Candidiasis🡪 causes white discharge that results in redness and itching
     + DM, HIV, cancer causing immunosuppression, correlate with an increasing severity of candidiasis.
   * Trichomoniasis🡪 causes a diffuse, yellow-green discharge and is a sexually transmitted infection [STI]
   * Antibiotic may ↓ the effectiveness of oral contraceptives.
     + Pt should be instructed to continue oral contraceptives and use a barrier method as a back-up method.
   * IUD- intrauterine device
     + Candidates for the IUD should be in a monogamous relationship.
       - B/c of the ↑ risk of pelvic inflammatory disease
   * Toxic Shock Syndrome-TSS
     + Caused by staphylococcal infection
     + Antibiotic will be prescribed
2. **Uterine Fibroids**
   * Pt with uterine fibroids and dysmenorrhea are at risk for iron deficiency anemia
     + HGB <12 g/dL considered low in women
   * Hysterectomy
     + Pre-op
       - NPO for 8 hours
     + Post-op
       - Gas pains🡪 can be relieved by walking; gas is more easily expelled with exercise
       - ↑ temperature on the second day post-op suggests a respiratory infection which most often occur during the first 48 hours after surgery
     + pt develops vaginal bleeding that saturates a blue pad in 1 hour🡪 notify doctor
   * Hyperventilation
     + Pt breaths to rapidly and deeply that they exhale excessive amounts of carbon dioxide
       - s/sx🡪 dizziness
   * When a dressing sticks to a wound, it is best to moisten the dressing with sterile NS and then remove it carefully.
     + Trying to remove a dry dressing is likely to irritate the skin and wound.
     + May contribute to tension or tearing along the suture line.
   * Menopause
     + The average age of menopause is 50-52 years, although some variation exists.
     + With menopause, FSH, LH levels ↑ dramatically
     + Hot flashes occur in about 80% of women
     + Contraception should be used until menses has ceased for a full year.
3. **Breast disease**
   * Hormone fluctuation cause breast discomfort
   * Best time in the menstrual cycle to examine the breast is during the first week after menstruation.
     + During this time the breast are least likely to be tender or swollen🡪 b/c estrogen is at its lowest level
   * About half of malignant breast tumors occur in the upper outer quadrant of the breast.
   * Atropine sulfate
     + Cholinergic blocker
     + Given pre-op to reduce secretions in the mouth and respiratory tract
   * Radical Mastectomy
     + Drainage tube placed in the wound
       - Removal of fluids assists in wound healing and is intended to decrease the incidence of hematoma, abscess formation, and infection.
       - To facilitate drainage from the arm on the affected side, the client’s arm should be elevated on pillows with her hand higher than her elbow and her elbow higher than her shoulder.
     + Lymph nodes can be removed from the axillary area🡪 each node is biopsied.
   * Tamozifen
     + Anti-estrogen drug
     + Effective against metastatic breast cancer
     + Improves the survival rate in breast cancer
     + Adverse effect- hot flashes
   * Radiation therapy
     + Avoid lotions, ointments, and anything that may cause irritation to the skin, such as exposure to sunlight, heat or talcum powder.
     + most common reaction [of the skin] is redness of the surface tissues
       - dryness, tanning, and capillary dilation are also common
4. **Benign Prostatic Hypertrophy- BPH**
   * Monitor I&O’s; assess for urinary retention, test urine for hematoma
   * S/SX:
     + Difficulty starting the flow of urine, frequency, hesitancy, decreased force of the urine stream, interruptions in the urine stream, when voiding, and nocturia.
   * Ipratropium
     + Bronchodilator
     + It’s anticholinergic effects can aggravate urine retention
       - So do not give with BPH
   * Distended bladder🡪 check for rounded swelling around the pubis
     + Rapid emptying🡪may cause hypotension and shock due to the sudden change of pressure.
     + Empty bladder slowly.
   * Catheterization
     + Liberal lubrication [especially on male pt’s b/c of tortuous urethra]
   * Ureterocutaneous fistula
     + Can be caused by prolonged pressure at the penoscrotal angle
     + Taping indwelling catheter to a male client is to prevent pressure at the penoscrotal angle.
   * Transurethral Resection of the Prostate- TURP
     + Spinal anesthesia
       - If paralysis of vasomotor nerves in the upper spinal cord occurs, the pt is likely to develop respiratory paralysis.
       - Artificial ventilation is required until the effect of the anesthesia subside.
     + The decision to insert a catheter post-op depends on the amount of bleeding that is expected.
     + Continuous bladder irrigation post-op
       - The rate at which the solution enters the bladder should be increased when the drainage becomes brighter red.
       - This helps flush the catheter well so that clots do not plug it
     + Belladonna and opium suppositories are prescribed and administered to reduce bladder spasm that cause pain after TURP
     + Dribbling of urine can occur for several months after a TURP
       - Inform pt that this is expected
       - Teach perineal exercises that strengthen sphincter tone.
     + About 2 weeks after a TURP, when desiccated tissue is sloughed out, a secondary hemorrhage could occur
       - Should go to ER if urine turns bright red at anytime
   * Terazosin
     + Antihypertensive drug used in BPH
   * Ampicillin
     + May be given with or without food
     + Adequate fluid intake to promote urinary output and to flush out bacteria from urinary tract
     + Encourage to void frequently and empty bladder completely
     + Taking the antibiotic at bedtime, after emptying the bladder helps to ensure an adequate concentration of the drug during the night.
   * Rectal and prostate examinations can increase serum PSA [prostate-specific antigen]
5. **Sexually Transmitted Disease**
   * Genital Herpes
     + Abstain from sexual intercourse while lesions are present
     + Condoms should be used at all times b/c virus can be transmitted even without lesion present
   * HIV
     + STD transmitted through blood and body fluids
       - Blood transfusions
       - Sex with affect partner
       - Sharing IV needles
     + If HSV [herpes simplex virus] diagnosed in the presence of HIV, considered to be diagnostic for AIDS
     + Most common opportunistic infection in HIV initially presents as oral candidiasis [thrush]
     + Didanosine [Videx]
       - Always check AST, ALT, amylase
     + Zidovudine [AZT]
       - Interferes with replication of HIV and thereby slows progression of HIV to AIDS
   * HPV
     + Women with HPV are much more likely to develop cervical cancer than women who have never had the disease
     + Cervical cancer is now considered a STD
     + HPV does not cause sterility, uterine fibroid tumors, or irregular menses.
   * Syphilis
     + Chancre of syphilis is characteristically a painless, moist ulcer.
       - Does not appear as pimples or warts, does not itch this making diagnosis difficult
       - Often disappear even without treatment
       - The serous drainage is very infectious
     + Cutaneous lesions on the palms and soles, and alopecia are signs of secondary syphilis.
   * Gonorrhea
     + May progress to pelvic-inflammatory disease
     + Can be cured with proper treatment
     + Dysuria and a mucopurulent urethral discharge characterize gonorrhea in men
       - Gonococcal symptoms are so painful and bothersome in men that they usually seek treatment with the onset of symptoms
       - Women may not seek treatment because they may be symptom free or have very mild symptoms
6. **Cancer of the Cervix**
   * If detected early and treated aggressively, cure rate approaches 100%
   * Lithotomy🡪 position for vag exam
   * Pap smear does not show abnormal viral cells unless specific gene typing is done for HPV
   * Risk for Cervical cancer
     + Young age at first pregnancy
     + Family history
     + Sex with multiple partners
     + History of STD🡪syphilis, HPV, gonorrhea
   * Early stages of cervical cancer is usually asymptomatic
     + Light bleeding or serosanguineous discharge may be first noticeable symptom
     + Pain, leg edema, urinary and rectal symptoms, and weight loss are late signs
   * Internal Radium Implant
     + Inform patient that her next 2 or 3 period could be heavy and prolonged.
     + Pt should report excessive bleeding.
     + Dislodged radioactive material should not be touched with bare or gloved hands. Forceps are used to place the material in the lead-lined container, which shields the radiation.
     + The three factors related to radiation safety are time, distance, and shielding.
     + During an intracavity implant, the woman is kept flat in bed to prevent dislodgment of the radioactive substance. The implant may be left in place for 24-72 hours. 🡪 Usually the tumor is removed before implant insertion.
     + Perineal care is omitted during radium implant therapy, although any vaginal discharge should be reported.
     + Low residue diet🡪 bowel movements can be difficult with the radium applicator in place. Purpose of this diet is to decrease bowel movement
     + N/V, and a foul vaginal discharge are common adverse effects of internal radiation therapy
     + Radiation syndrome🡪
       - N/V/A and malaise.
   * HPV infection or genital warts can lead to dysplastic changes of the cervix, referred to as cervical intraepithelial neoplasia.
7. **Ovarian Cancer**
   * Malignant tumor of the ovary
   * Usually found in advanced stages because it is asymptomatic in early stages.
   * Risk factors🡪
     + Related to environmental, endocrine, and genetic factors
   * Enlargement of the abdomen due to accumulation of fluid is the most common sign
8. **Gynecological Surgery**
   * Pt should not drive until she can use the brake pedal without abdominal pain.
   * Avoid activities that may increase pelvic congestion, such as dancing or brisk walking, for several months
   * Activities such as swimming and leisurely walking may be both physically and mentally helpful.
9. **Testicular Disease**
   * Epididymitis causes acute tenderness and pronounced swelling of the scrotum.
     + Gradual onset of unilateral scrotal pain, urethral discharge and fever are other key signs
     + Most frequently caused by STD🡪 chlamydia, gonorrhea
   * After a warm bath or shower, the testes hang lower and are both relaxed and in the ideal position for manual evaluation and palpitation.
     + Normal testes fell smooth, egg-shaped, and firm to the touch, without lumps. The surface should feel smooth and rubbery.
     + Malignancies are usually non-tender, non-painful hard lumps
   * AFP and hCG are considered markers that indicate the presence of testicular disease. Elevated AFP and hCG and decreased testosterone are markers for testicular disease
   * Cryptorchidism🡪 undescended testes
     + Carries a great risk for testicular cancer
     + Unilateral orchiectomy alone does not result in impotence if the other testis in normal
     + Bilateral orchiectomy (removal of testes) results in reduction of the major circulating androgen, testosterone, as a palliative measure to reduce symptoms and progression or prostate cancer.
10. **Cancer of the Prostate**
    * Most prostate cancer is adenocarcinoma and is palpable on rectal examination because it arises from the posterior portion of the gland.
    * Prostatectomy🡪 removal of entire prostate gland, prostate capsule, and seminal vesicle
      + May include lymphadenectomy
      + Complication🡪 incontinence, impotence, and rectal injury with the radical prostatectomy
      + Loss of the prostate gland interrupts the flow of semen, so there will be no ejaculation fluid.
        - The sensation of orgasm remain intact
      + Cryosurgery freezes prostate tissue, killing tumor cells without prostatectomy
    * Complication of hormonal manipulation include: hot flashes, N/V, gynecomastia, and sexual dysfunction.
    * Manipulation of the prostate during a rectal exam may falsely increase the PSA levels.
      + PSA determination and the digital rectal exam are both necessary as screening tools for prostate cancer
    * On digital rectal exam, key signs of prostate cancer are a hard prostate, induration of the prostate, and an irregular, hard nodule.
    * S/SX of prostate cancer:
      + Constipation, weight loss, and lymphadenopathy
    * Prostatitis🡪 boggy, tender, prostate
    * Diethylstilbestrol🡪 causes engorgement and tenderness of the breast [gynecomastia]
11. **Erectile Dysfunction [ED]**
    * Viagra should not be taken more than once a day
    * No effects in the absence of sexual stimulation
    * Notify doctor if pt experiences sudden or decrease vision loss in one or both eyes
    * Antihypertensive especially beta blockers [propranolol (Inderal)] can cause impotence.
    * Alcohol and smoking can affect a man’s ability to have and maintain an erection

**Chapter 11 Neurologic**

1. **Head injury**
   * Maintain ICP by elevating the HOB and monitoring neurologic status
   * Must monitor the systolic and diastolic BP to obtain the MAP, which represents the pressure needed for each cardiac cycle to perfuse the brain.
     + MAP= [systolic BP + (2 x diastolic BP)] / 3
   * MVA
     + Confusion, agitation, and restlessness are subtle clinical manifestations of ↑ ICP
   * Highest priority of a pt with multiple injuries is to establish an open airway
   * Increasing ICP causes unequal pupils as a result of pressure on the third cranial nerve
     + Increasing ICP causes an increase in the systolic pressure
   * Drainage for the nose
     + The clear drainage from the nose must be analyzed to determine if it is nasal drainage or cerebral spinal fluid
     + Do not give tissue to pt b/c it is important to know how much drainage is occurring
     + Do not compress the nose because it will obstruct the flow
   * Neural control of respiration takes place in the brain stem
     + Deterioration and pressure produce irregular respiratory patterns
     + Rapid, shallow respirations, asymmetric chest movement, nasal flaring, are more characteristic of respiratory distress or hypoxia
   * Normal ICP is 15 or less for 15-30 sec or longer
     + Hyperventilation causes vasoconstriction which reduces CSF and blood volume, two important for reducing sustained ICP of 20.
   * A fever increases the metabolic rate which in turn increase ICP
   * A decrease in a pt’s LOC in an early indicator of deterioration
     + Such as: restlessness, irritability🡪 may be subtle
       - Widening pulse pressure, ↓ in pulse rate, and dilated fixed pupils occur later if the ↑ ICP is not treated.
   * The HOB is usually elevated 30-45 degree to drain the venous sinuses and thus decrease the ICP
     + Trendelenburg position🡪 ↑ ICP
   * Mannitol
     + Monitor I&O’s
     + Given to primarily to pull water from the extracellular fluid of the brain
   * Spinal cord transection
     + Spinal shock is the immediate response to spinal cord transection
       - Monitor for Hypotension and hypothermia
       - Ensure adequate airway and respirations🡪 there may be respiratory compromise due to intercostal muscle involvement
   * Motor Function test after halo-traction placement
     + C4-C5: shoulder shrugging against downward pressure of the examiners hands
     + C5-C6: arm pulling up from a resting position against resistance
     + C7: arm straightening out from a flexed position against resistance
     + C8: hand grasp check
   * Pt with a C3 or C4 fracture has neck control but may tire easily using sore muscles around the incision area to hold up his head.
   * Coughing is contraindicated for a client at risk for increase ICP
   * Diabetes Insipidus- may occur in conjunction with head injuries as well as with other disorders.
   * Recovery from serious head injury is a long-term process that may continue for months or years.
   * Decerebrate posturing🡪
     + Occurs in pt’s with damage to upper brain stem, midbrain, or pons is demonstrated clinically by arching of the back, rigid extension of the extremities, pronation of the arms and planter flexion of the feet,
   * Decorticate posturing🡪
     + Internal rotation, adduction of arms, with flexion of elbows wrist and fingers.
     + damage to corticospinal tracts and cerebral hemispheres
   * Cluster breathing consists of clusters of irregular breaths followed by periods of apnea on an irregular basis. A lesion in the upper medulla or lower pons is usually the cause of cluster breathing.
   * Elevating the HOB to 30 degrees is contraindicated for infratentorial craniotomies b/c it can cause herniation of the brain down onto the brains tem and spinal cord resulting in sudden death.
2. **Seizure**
   * Ease the pt to floor, then maintain airway, obtain VS, record seizure activity
   * Tonic- clonic seizure
     + Tonic phase🡪 loss of consciousness, dilated pupils, and muscular stiffening or contraction. Last about 20-30seconds
     + Clonic phase🡪 involve repetitive movements,
     + The seizure ends with confusion, drowsiness, and resumption of respiration.
   * Partial seizures
     + Starts in one region of the cortex and may stay focused or spread (example: jerking in the extremity spreading to other areas of the body.
   * Absence seizure
     + Usually occurs in children
     + Vacant stare with a brief loss of consciousness that often goes unnoticed
   * Complex partial seizure
     + Facial grimacing with patty and smacking
   * Beverages containing caffeine, such as coffee, tea, and sofa are withheld before a EEG
     + b/c of the stimulation effects of caffeine of the brain waves.
     + Do not skip meal before an EEG because low blood sugar could alter brain wave pattern
   * Trauma is one of the primary cause a brain damage and seizure activity in adults
     + Other common causes of seizure: is neoplasms, withdrawal from drugs and alcohol, and vascular disease.
   * Gabapenton [Neurotin]
     + May impair vision
     + Changes in vision, concentration, or coordination should be reported to doctor.
     + Should not be stopped abruptly because of the potential for status epilepticus
     + Do not take with antacids
   * Priority for a pt in the postictal phase is to assess the pt’s breathing pattern for effective rate, rhythm , and depth
   * Carbamazepine- [Tegretol] -
     + Anticonvulsant that helps prevent further seizures
       - Anticonvulsants should NEVER be stopped suddenly- they need to be tapered
       - Sudden stop of drug can lead to life threatening status epilecticus
   * During the seizure
     + The RN should not movement of pt’s head, eyes and muscle rigidity, especially when the seizure first begins
       - To obtain clues about the location of the trigger focus in the brain
     + Also note the progression and duration, respiratory status, loss of consciousness pupil size and incontinence of urine and stool
   * When a dressing sticks to a wound, it is best to moisten the dressing with sterile NS and then remove it carefully.
     + Trying to remove a dry dressing is likely to irritate the skin and wound.
     + May contribute to tension or tearing along the suture line.
   * Aura- a premonition of an impending seizure.
     + Usually of sensory nature- olfactory, visual, gustatory, or auditory
   * Topamax- [Topirmate] –
     + Toxic effects- nephrolithiasis
       - Encourage pt’s to drink 6-8 glasses of water a day to dilute urine and flush the renal tubules to avoid stone formation
   * Dilantin- [Phenytoin] -
     + Common adverse effect of long-term use- overgrowth of gingival tissue
     + Encourage good oral hygiene
   * Clonazepam- crosses the placental barrier
3. **Stroke**
   * Glasgow Coma Scale
     + Provides three objectives neurologic assessments: on a scale of 3-15
       - Spontaneity of eye opening
       - Best motor response
       - Best verbal command
   * Coumadin [ Warfarin Sulfate]
     + Maximum dose is not achieved until 3-4 days after starting the medication
     + Effects continue for 4-5 days after discontinuing the medication
     + Vitamin K is antidote
   * t-PA
     + treatment within 3 hours after the onset of a stroke have better outcomes
     + the time from the onset of a stroke to t-PA treatment is critical
     + Control of BP is critical during the first 24 hours after treatment b/c an intracerbral hemorrhage is the major adverse effect of thrombolytic therapy
   * Thrombolytic Stroke
     + Crucial to monitor the pupil size and pupillary response to indicate changes around the cranial nerves
   * Hemorrhagic Stroke
     + Suctioning-
       - Provide sedation-↑ agitation with suction will ↑ ICP
       - Hyperoxygenate- should be done before and after to prevent hypoxia
         1. b/c hypoxia cause vasodilation of the cerebral vessels and ↑ICP
       - Suction the airway- no more than 10 seconds
       - Suction the mouth- once the mouth is suctioned the suction catheter should be discarded
   * The use of ankle-high tennis shoes has been found to be most effective in preventing plantar flexion (footdrop)
     + Footboards stimulate spasms and are not routinely recommended
   * Expressive Aspasia- condition in which the pt understands what is heard or written but cannot say what he or she wants to say.
     + Provide a communication or picture board
   * Dysphagia- difficulty swallowing
     + Most difficulty ingesting thin liquids, which are easily aspirated
     + Liquids should be thickened to avoid aspiration.
   * Homonymous Hemianopia- blindness in half of the visual field
     + To expand the visual pt should be taught to turn the head from side to side when walking
   * Brain damage
     + May be emotionally labile and may cry or laugh for no explainable reason
4. **Parkinson’s Disease**
   * Progresses in severity; no known cure
     + Involves a degeneration of dopamine-producing neurons
   * Sinemet -
     + Can cause further symptoms of depression
     + Do not take with MAOI- can cause hypertensive crisis
   * The first sign of Parkinson’s is usually tremors
     + Rigidity is the second sign
     + Bradykinesia is the third sign- Akinesia is a later stage of bradykinesia
   * Priority- maintain a safe environment
   * Voluntary and purposeful movements often temporarily decrease or stop the tremors associated with Parkinson’s disease
   * May experience a freezing gait when they are unable to move forward.
     + Instruct the pt to march in place, step over lines in the floor, and visualize stepping over a low allows them to move forward
   * Primary goal of PT-
     + Maintain joint flexibility and muscle strength
   * Levedopa
     + Prescribed to decrease severe muscle rigidity
   * Pallidotomy
     + Goal is to improve functional ability
     + Creates lesions in the globus pallidus to control extrapyramidal disorders that affect control of movement and gait
5. **Multiple Sclerosis**
   * Progressive, chronic neurologic disease characterized by patchy demyelination throughout the CNS
     + Affects speech, coordination, and vision, but NOT cognition
   * Goals
     + Maintain joint mobility
     + Prevent deformities
     + Maintain muscle strength
     + Rehabilitation
     + Preventing and treating depression
   * S/SX: muscle spasticity and weakness, fatigue, visual disturbances, hearing loss, and bowel and bladder incontinence.
     + Hyperexcitability and euphoria may occur
   * Baclofen- centrally acting skeletal muscle relaxant
     + Helps relieve the muscle spasms
     + Adverse effect- drowsiness [pt should not drive]
   * Water imbalance, as well as electrolyte imbalance tens to aggravate the signs and symptoms of MS
   * Train pt to use unaffected muscles to promote coordination
6. **Unconscious Client**
   * Aspirin overdose
     + Activated charcoal powder is administered to absorb remaining particles
   * Cholinergic Agents
     + Excess amounts produce urinary and fecal incontinence, increased salivation, diarrhea, and diaphoresis.
       - In severe overdose- CNS depression, seizures and muscle fasciculations, bradycardia or tachycardia, weakness and respiratory arrest due to respiratory muscle paralysis.
   * Maintaining intact skin is a priority for the unconscious client🡪 pt should be turned every 1 hour to prevent complications of immobility.
   * Clean the unconscious pt’s mouth carefully
     + Apply a thin coat of petroleum jelly and move the endotracheal tube to the opposite side daily to prevent dryness, crusting, inflammation, and parotiditis.
       - Temperature should be monitored by a route other than oral [rectal, tympanic]
   * The goal of performing passive ROM is to maintain joint mobility
     + Active ROM is needed to preserve bone and muscle mass.
   * When the blink reflex is absent or the eyes do not close completely, the cornea may become dry and irritated.
     + Corneal abrasion can occur
     + Taping the eyes closed will prevent injury
   * Restlessness is an early indicator of hypoxia
   * Gastric residuals are checked before administration of enteral feeding to determine whether gastric emptying is delayed
     + A residual of less than 50% of the previous feeding volume is usually considered acceptable.
     + If the amount of gastric residual is excessive the nurse should notify the doctor and withhold the feeding.
   * A pt who is brain dead typically demonstrates nonreactive dilated pupils and nonreactive absent corneal and gag reflexes.
     + May still have spinal reflexes, such as deep tendon and Babinski reflexes.
7. **Pain**
   * Ergotamine tartrate [ Gynergen]
     + Is used to help abort a migraine attack
   * Pain perception is an individual experience
   * An epidural catheter is used for post-op pain management to block the pain sensation below the point of insertion

**Chapter 12 Musculoskeletal**

1. **Rheumatoid Arthritis**
   * Complains of early morning stiffness or stiffness after sitting still for a while
   * Proper body alignment during rest periods is encouraged to maintain correct muscle and joint placement.
     + Lying in the prone position is encouraged to avoid further curvature of the spine and internal rotation of the shoulders
   * Methotrexate can cause bone marrow depression
   * Plaquenil-
     + Complication- difficult seeing out of one eye can be possible retinal degenerations
   * Superficial heat applications, such as tub baths, showers, and warm compresses, can be helpful in relieving pain and stiffness. Exercise can be performed more comfortable and more effectively after heat application
   * Arthrocentesis
     + Performed to aspirate excess synovial fluid, pus, or blood from a joint cavity, to relieve pain, or to diagnose inflammatory disease such as rheumatoid arthritis.
     + Aspiration of fluid into the syringe can be very painful because of the size and inflammation of the joint
     + Usually a steroid medication is injected locally to alleviate the inflammation
     + Rest the joint for up to 24 hours afterwards to help relieve pain and promote rest to the inflamed joint
     + The may be bleeding after the procedure so the nurse should check the dressing
2. **Osteoarthritis**
   * Degenerative joint disease with local manifestations such as local joint pain, unlike rheumatoid arthritis, which has systemic manifestations such as anemia and osteoporosis.
   * Weight loss occurs in rheumatoid arthritis, whereas most clients with osteoarthritis are overweight
   * Bone density scan
     + Metal will interfere with the test [jewelry, earrings, and dental amalgrams] may inhibit organ visualization and can produce unclear images.
   * Capsaicin cream
     + Produces analgesia
     + Pt should wash their hands immediately after applying – to avoid contact between the cream and mucous membranes.
     + Avoid wearing tight bandages over areas where cream has been applied because swelling may occur from inflammation of the arthritis in the joint and lead to constriction on the peripheral neurovascular system.
   * Corticosteroids - are used for pt with osteoarthritis to obtain a local effect
     + Only given via intra-articular injection
     + Oral corticosteroids are avoided because they can because an acceleration of osteoarthritis.
   * Weight bearing exercise plays a very important role in stimulating regeneration of cartilage
3. **Hip Fracture**
   * Hip spica cast is used for treatment of femoral fractures
     + It extends from above the nipple line to the base of the foot of both extremities in a double hip spica.
     + Constipation can occur due to lack of mobility and can cause abdominal distention or bloating
     + If it becomes too tight due to distention, the case will compress the superior mesenteric produces against the duodenum causing abdominal pain, abdominal pressure, N/V
   * With an intra-capsular hip fracture, the affected leg is shorter than the unaffected leg because of the muscle spasms and external rotation 🡪 pt will experience severe pain.
   * Insertion of a pin for internal fixation of an extracapsular fractured hip provides good fixation of the fracture.
   * The primary purpose of the drainage tube is to prevent fluid accumulation in the wound.
     + Fluid, when it accumulates, creates dead space. Elimination of the dead space by keeping the wound free of fluid greatly enhances wound healing and helps prevent abscess formation.
     + The drainage tube does not eliminate the need for wound irrigation
   * Total Hip Replacement [THR]
     + Posterolateral total hip replacement
       - Should not adduct the hip joint, which would lead to dislocation of the ball out of socket.
       - Encouraged to keep toes pointed outward when using a walker
       - An abduction pillow should be kept between the legs to keep the hip joint in an abducted position.
       - Rotate between lying supine and lateral on the unoperated side, but not on the operated side
       - Ice- to reduce swelling.
     + Via an anterolateral approach
       - Has almost the opposite precautions as those for a client who has had a THR through the posterolateral approach
       - The hip joint should NOT be actively abducted
       - AVOID turning the toes or knee outward
       - Keep the legs side by side without a pillow or wedge
     + Post-op
       - Being unable to move the affected leg suggests neurologic impairment.
       - ↓ in pulse, diminished cap refill, and coolness to touch of the affected extremity suggest vascular compromise.
       - If numbness is present the nurse should suspect nerve damage
   * Femoral Head Prosthesis
     + A high-backed straight chair with arm-rests is recommended to help keep the pt in the best possible alignment
   * Crutches
     + Scatter rugs are the single greatest hazard in the home, especially for elderly people who are unsure and unsteady with walking.
     + Support weight primarily on the hands to avoid to prevent damage from excessive pressure on the axillae, elbows or upper arms
4. **Joint Replacement Surgery**
   * Aquatic exercise is best🡪
     + Cushions the joint and allows the pt to burn off calories.
     + Promotes circulation, muscle toning, and lung expansion, which promote healthy preoperative conditioning.
     + The joint has dislocated when the pt with a Total joint prosthesis develops severe sudden pain and an inability to move the extremity
   * Knee Arthroplasty
     + Post-op🡪 the knee will be extended and immobilized with a firm compression dressing and an adjustable soft extension splint in place.
       - SCD [sequential compression device] will be applied.
       - The SCD can be discontinued when the pt is ambulatory, but while the pt is in bed the SCD needs to be maintained to prevent thromboembolism.
       - The SCD should be positioned on the bed- Not on pillows.
   * THR-
     + After THR, proper positioning by the nurse prevents dislocation of prosthesis
       - Supine position and keep the affected extremity in slight abduction using an abduction splint or pillows or buck’s extension traction.
     + Following THR the pt should use the overhead trapeze to assist with position changes
       - HOB should not be elevated more than 45 degrees- b/c anything above 45 degrees puts as train on the hip joint and may cause dislocation
         1. Toe pointing exercises- stimulate circulation to prevent formation of thrombi and potential emboli.
     + Infection is a serious complication of THR and may necessitate removal of the implant.
   * Dislocation precautions include-
     + Avoid extremes of internal rotation adduction, and 90-degree flexion of affected hip for at least 4 to 6 weeks after the procedure [THR]
     + Signs of prosthesis dislocation include
       - Acute groin pain in the affected hip, shortening of the affected hip, shortening of the affected leg, restricted ability or inability to move the affected leg, and reported “popping” sensation in the hip.
       - If the prosthesis becomes dislocated, the nurse should immediately notify physician
   * Total Knee Replacement
     + Knee is usually protected with a knee immobilizer [splint, cast, or brace] and is elevated when the client sits in a chair.
5. **Herniated Disk**
   * Standing with a flattened spine slightly tilted forward and slightly flexed to the affected side indicates a postural deformity.
   * Absent or diminished reflexes related to the level of herniation would indicate alteration in reflexes.
   * Ruptured Disc of L5- S1
     + Supine position with the pt’s legs flexed is most comfortable positioned because it allows for the disc to recess off of the nerve
   * Myelography🡪 used to determine the exact location of a herniated disk, involves the use of a radiopaque dye [usually an iodized oil, but in some instances a water-soluble compound]
   * Radiculopathy of L3-L4 involves pain radiating from the back to the buttocks to the posterior thigh to the inner calf.
   * Zofran🡪
     + Selective serotonin receptor antagonist that acts centrally to control the client’s nausea in the post-op phase.
   * Sweeping causes a twisting motion, which should be avoided b/c twisting can cause undue stress on the recently ruptured disc site, muscle spasms, and a potential recurrent disc ruptured
     + Should not bend at the waist
   * Laminectomy🡪
     + L4-L5, a pt who is returning to work should avoid sitting whenever possible- b/c of the increase pressure against the nerve root and incision site.
       - Should sit only in chairs that allow the knees to be higher than the hips and support the arms
     + By 6 weeks after the surgery the pt should have regained stamina,
     + Maintaining correct body posture
       - Place one foot on stepstool during prolonged standing
       - Sleeping on the back with a support under the knees
     + Exercise🡪 sit-ups not recommended
       - Knee to chest lifts, hip tilts, and pelvic tilt exercises are recommended to strengthen back and abdominal muscles
   * Applying Brace
     + Verify the order for the settings for the brace
     + Have the client in a side-lying position
     + Assist the pt to log roll and rise to a sitting position
     + Ask the pt to stand with arms held way from the body.
   * The pt should wear a thin cotton undershirt under the brace to prevent the brace from abrading directly against the skin
     + The cotton also aids in absorbing any moisture such as perspiration.
     + Apply extra padding[ to the iliac crests] is not recommended because the padding can become wrinkled, producing more pressure sites and skin breakdown.
   * Spinal fusion
     + Typically the donor site cause more pain than the fused site does b/c inflammation, swelling, and venous oozing around the nerve endings in the donor site, occur during the first 24-48 hours post-op
6. **Amputation due to Peripheral Vascular disease**
   * Affecting older adults
   * Uncontrolled DM is considered a risk factor
   * Pt with sever arterial occlusive disease and gangrene of the left great toe would have lost the hair on the leg due to ↓ circulation to the skin
   * Checking pedal pulses with Doppler
     + Should be tobacco- free for 30 minutes before the test to avoid false readings related to the vasoconstrictive effects of smoking on the arteries.
   * Slow steady walking is a recommended activity for the pt with PAD
   * Elevating the legs above the heart – strategy for reducing venous congestion.
   * Arterial Insufficiency
     + Daily lubrication, inspection, cleaning and patting dry of the feet should be performed infection
     + Sensory changes- pt may be unable to detect water that is too warm
     + Antiembolism stockings are inappropriate for clients with arterial insufficiency
   * Amputation
     + often cannot be accurately determined until during surgery, when the surgeon can directly assess the adequacy of the circulation of the residual limb
     + The stump is not elevated because adhesions may occur, interfering with the ability to fit a prosthesis
     + Phantom sensation- priority is to provide opioid analgesic to relieve pain.
       - Phantom sensation is a real sensation.
7. **Fractures**
   * Methocarbamol-
     + Muscle relaxant and acts primarily to relieve muscle spasms
     + S/SX of muscle relaxant toxicity🡪Hypotension, tachycardia, and depressed respirations
   * Priority of a fracture🡪 assess the neurovascular injury or compromise distal to the fracture
   * Cast
     + Do not pull out cast padding to scratch inside the cast b/c of the hazard of skin breakdown and subsequent potential for infection
     + Elevate above the heart to reduce edema
     + Double Hip Spica cast
       - Avoid eating food that can be constipating such as cheese
   * Open fracture
     + Wound- left open with a three-way drainage system in place to irrigate the debrided wound with NS or an antibiotic.
     + A pressure dressing would NOT be applied to an open wound; rather a wet-to-dry dressing most likely would be used.
   * Compartment syndrome-
     + Myoglobin may be released from damaged muscle cells into the circulation. This becomes trapped in the renal tubules, resulting in dark, scanty urine, possibly leading to acute renal failure.
8. **Femoral Fracture**
   * Skeletal traction
     + Involves the insertion of a wire or a pin into the bone to maintain a pull of 5-45lbs on the area. Promoting proper alignment of the fractured bones over a long term.
   * The Pearson attachment supports the lower leg and provides increased stability in the overall traction setup
   * Fat emboli-
     + Usually result in symptoms of acute respiratory distress syndrome, such as apprehension, chest pain, cyanosis, dyspnea, tachypnea, tachycardia…
   * Thomas Splint🡪
     + Half-ring that slips over the thigh and suspends the lower extremity in direct skeletal traction
       - May cause discomfort, pressure or skin irritation in the groin
     + Assess for signs of skin pressure in the groin area
   * Osteomyelitis
     + S/SX: fever, night sweats, chills, restlessness, and restrictive movement of the fractured bone
   * Diet high in protein, and vitamin C & D promotes healing.
9. **Spinal Cord Injury**
   * The priority concern is to immobilize the head and neck to prevent further trauma wena fractured vertebra is unstable and easily displaced.
   * SCI of the sacral region-
     + Will have bladder and bowel dysfunction, as well as loss of sensation and muscle control below the injury.
   * Spinal Cord transection
     + At T4- pt’s vascular status is the primary focus of the nursing assessment b/c the sympathetic feedback system is lost and the pt is at risk of hypotension and bradycardia.
     + Above T5- will likely develop diarrhea
       - And at risk for development of a paralytic ileus
   * The pt with SCI does not have poikilothermy [the ability to adjust body temperature to the environmental temperature.
     + Will not sweat below the level of transection and should be sensitive to the possibility of overheating in extremely hot climates
   * DVT in pt’s with SCI
     + Measuring leg girth is the most appropriate method because the usual signs, such as positive homan’s, pain, tenderness are not present
   * Spinal Shock,
     + The bladder is completely atonic and will continue to fill passively unless the pt is catheterized.
     + After the period of spinal shock the muscles gradually become spastic owing to an ↑ sensitivity of the lower motor neurons
   * Women with SCI
     + Can participate in sexual activity but might not experience orgasm.
     + Cessation in the nerve pathway may occur in SCI
     + An indwelling urinary catheter may be left in place during intercourse and need not be removed.

**Chapter 13 Cancer**

1. **Risk for Cancer**
   * Cancer of the colon
     + Risk factor – inflammatory bowel disease
   * Basal cell carcinoma
     + Occur most commonly in sun-exposed areas of the body
     + Skin cancer is highest in older people who live in the mountains or spend outdoor leisure time at higher altitude
   * Chemotherapy
     + b/c of the high risk for infertility with chemo, pelvic irritation, and retroperitoneal lymph node dissection that may follow an orchiectomy, cryopreservation of sperm is complete before treatment is started.
   * Breast Cancer
     + The upper outer quadrant is the area of the breast in which most breast tumors are found
   * Colorectal cancer
     + High fat, low fiber diet is a risk factor
   * High Fat diet increases the risk of several cancers, including breast, colon, and prostate cancer
     + High fiber, low fat diets are recommended to reduce the risk of colon cancer,
       - Stir frying, poaching, steaming, and broiling are all low-fat methods to prepare foods
   * Asbestos and alcohol, when combined with smoking, produce a synergistic effect and result in ↑ cancer risk and incidence
   * Cervical cancer
     + HPV exposure is associated with cervical cancer
   * CT scanning is the standard non-invasive method used in a workup for lung cancer b/c it can distinguish small differences in tissue density and can detect nodal involvement
2. **Pain**
   * There is a 1:3 ratio with equianalgesic dosing IV to oral morphine
3. **Receiving Chemotherapy**
   * Vincristine -
     + Side effect: constipation and a bowel protocol should be considered
   * Carbohydrates are the first substance used by the body for energy
   * Proteins are needed to maintain muscle mass, repair tissue, and maintain osmotic pressure in the vascular system
   * Fats, in a small amount, are needed for energy production
   * Chemo
     + Typically cause N/V when not controlled by antiemetic drugs
     + Antineoplastic drugs attack rapidly growing normal cells, such as in the GI tract
       - Stimulate the vomiting venter in the brain
     + Causes bone marrow suppression and risk for infection
     + Causes myelosuppression with a ↓ RBC, WBC, and platelets
     + Chemo slows cell division
   * Albumin🡪 3.5-5.0 g/dL
     + Low lever indicates catabolism and potential for malnutrition
4. **Receiving radiation therapy**
   * External Beam radiation
     + Hot, cold, and chemical application to the area treated should be avoided
     + Encourage the pt to use the extremity to prevent muscle atrophy and contractures
   * Radiation fields that include the ovaries usually result in premature menopause
     + Vaginal dryness occur without estrogen replacement
     + Cesium is a radiation isotope used for therapeutic irradiation of cancerous tissue
   * Radiation induce esophagitis with dysphagia
     + Common in pt who receive radiation to the chest
   * Diarrhea may occur with radiation to the stomach
   * Decreased energy level and ↓ WBC are potential complications of radiation therapy
5. **Requires symptoms Management**
   * Head and neck radiation can cause the complication of stomatitis and ↓ salivary flow
   * Major concern with IV administration of cytotoxic agents is vessel irritation of extravasation
   * Central line-
     + Assess insertion site;
     + Difficulty drawing or aspirating blood may indicate the line is occlusion
     + Having the pt cough or move position may change the status of the line if it is temporarily against a vessel wall
     + The distal tip of a central line lies in the superior vena cava or right atrium
   * Malignant Pleural Effusion
     + Is an accumulation of excessive fluid within the pleural space that occurs when cancer cells irritate the pleural membrane
     + Complaining of dyspnea and chest pain
       - Apply oxygen at 2 L via NC
       - Administer morphine 2 mg IV
       - Coach the pt to deep breath
       - Educate the pt in anticipation of a thoracentesis
         1. Thoracentesis- Usually successful for dx of underlying disease, palliation of symptoms and treating the acute respiratory distress.
   * Mastectomy
     + BPs or blood draws in the affected arm, sun exposure, trauma with a sharp razor, and immobilization increase the risk of lymphedema
       - Lymphedema –
         1. After breast cancer surgery is the accumulation of lymph tissue in the tissues of the upper extremity extending down from the upper arm
         2. Caused by the interruption or removal of lymph channels and nodes after axillary node dissection.
         3. Removal results in less- efficient filtration of lymph fluid and a pooling of lymph fluid in the tissues on the affected side.
   * Cellulitis
     + Treatment🡪 oral or IV antibiotics for 1-2 weeks, elevation of the affected extremity, and application of warm, moist packs to the site
   * Constipation lasting 3 days or longer is unusual – warrants immediate tx
6. **Who is coping with Loss, grief, Bereavement, and Spiritual Distress**
   * Denial is a defense mechanism used to shut out a situation that is too frightening
   * Many cancer survivors question why they are doing so good and other are not and feel guilty
7. **Ethical and legal issues r/t client with Cancer**
8. **End-of- Life care**

**Chapter 14 Surgery**

1. **Preparing for surgery**
   * Garlic has anticoagulant properties and may pose a problem with bleeding if enough has been taken too close to surgery.
   * A pimple close to the incision site may be reason for the surgeon to cancel the surgical procedure because it increases the risk of infection
   * Pt who are allergic to shellfish are allergic to iodine skin preparations [Iodophor and Betadine] or any other products containing iodine, such as dyes.
   * Serum potassium level of 5.8 mEq/L places the pt at risk for arrhythmias when under general anesthesia
   * Brittle nails indicate poor nutrition
   * The preadmission nurse, the first person in contact with the pt, starts the discharge planning for the pt undergoing surgery.
   * Malignant Hyperthermia
     + Congenital metabolic tendency
     + Occurs in the presence of certain kinds of anesthesia
     + Early signs🡪 tachycardia, hypotension, and muscle rigidity
     + Late signs🡪 rapid, extreme rise in temperature
     + Potentially and rapidly fatal in more than 50% of cases
     + Having large, bulky muscles is a risk factor
   * Pt who have had long-term multiple exposure to latex products are at increased risk for latex allergies.
   * Deep Breathing
     + Splinting the incision is important to avoid stress on the surgical site and to promote comfort so that the pt will adhere to the plan of care
     + The most important step is asking the pt to hold the inhaled breath for about 5 seconds, which keeps the alveoli expanded
     + Repeating the exercise 5-10 times hourly is the second most important point to emphasize in this teaching plan.
       - Splint the incision site
       - Inhale through the nose
       - Exhale through purse lips
       - Cough deeply from the lungs
   * Serum Creatinine level of 2.6 mg/dL indicates that the kidneys are not filtering effectively
     + Normal 🡪 0.5 – 1.0 mg/dL
   * Midazolam hydrochloride [Versed] –
     + Causes antegrade amnesia or decreased ability to remember events that occurred around the time of sedation.
     + Adverse effect: N/ mild agitation, blurred vision
     + When administering, the pt should take slow, deep breaths b/c it is a respiratory depressant
     + Should have an Ambu bag in room b/c it can cause respiratory arrest if administered too quickly.
   * Metoclopramide –
     + Antiemetic
     + Given b/c of its gastric emptying ability
   * Anticholinergic given before general anesthesia b/c of its ability to reduce oral and respiratory secretions.
   * Research findings have shown that enoxaparin and heparin given 6-12 hours pre-op reduce the incidence of DVT and PE by 60%
   * Early ambulation is the most significant general nursing measure to prevent post-op complications
2. **Receiving or recovering from Anesthesia**
   * Epidural anesthesia
     + The last area to regain sensation is the perineal area
       - Monitor and check for distended bladder
   * Spinal Anesthesia
     + Extensive conduction nerve block that is produced when a local anesthetic is introduced into the subarachnoid space at the lumbar level.
     + Usually injected into the L2 subarachnoid space
   * General anesthesia
     + Adults🡪 induced by breathing in an inhalant anesthetic mixed with oxygen through a facial mask and receiving IV meds to make a them sleepy
     + Children🡪 giving meds through a facial mask to make them sleepy
       - A pt that is 5’1 and 200lbs would be expected to retain the anesthetic agent longer because adipose tissue absorbs the drug before the desired systemic effect is reached for anesthesia maintenance.
   * Hypoxia
     + Earliest signs🡪 restlessness and agitation
     + Late signs🡪 ↓ LOC and somnolence
   * In order to prevent burns, the nurse should assess the pt’s temperature every 15 minutes when using and external warming device
3. **Client who has had Surgery**
   * Following surgery, pt’s are at ↑ risk for respiratory complications
   * The first cognitive response that returns after anesthesia is orientation to person
   * When a post-op pt has a temperature elevation > 100 in the first 24 hours after surgery, the temperature elevation is usually r/t atelectasis
   * If urine output is <30 mL/hr – assess for potential causes such as hypovolemia or hemorrhage
   * Brachial plexus Injury
     + S/SX: Numbness or tingling in the arm
   * Eviscerates
     + Abdominal organs protruding through the opened incision
     + Cover the open area with a sterile dressing moistened with sterile normal saline and then cover it with a dry dressing
     + Notify surgeon
   * Wet-Dry dressing
     + Should be able to dry out between dressing changes
     + The dressing should be moist, not dry, when applied
     + As the moist dressing dries, the wound will be debrided of necrotic tissue, exudate, and so forth
     + NS I most commonly used to moisten the sponge
     + The sponge should not be packed into the wound tightly b/c the circulation to the site could be impaired
     + The moist sponges should be placed so that all surfaces of the wound are in contact with the dressing
     + Then the sponges I covered and protected by a dry sterile dressing to prevent contamination from the external environment
   * Jackson Pratt drainage
     + After emptying🡪 compress the bulb, plug it to establish suction, and then document the amount and type of drainage emptied
     + Purpose is to remove bloody drainage from the deep tissue of the incision
       - Drain off purulent drainage from the sterile peritoneal cavity and prevent peritonitis
   * Morphine –
     + Antidote- Narcan
     + Overdose signs: RR of 2-4 breaths/min, bradycardia, and hypotension
   * Opioids –
     + Cause constipation
       - Pt may feel distended, with sharp cramping pain due to gas
         1. Can be treated with ambulation
   * Biliary drainage tubes [T-Tubes] are placed in the common bile duct and drain bile which is dark yellow- orange
     + It is not green unless it comes in contact with gastric fluid
   * ↓ BP and pulse pressure is narrowing 🡪 indicate impending shock
   * Hypokalemia- muscle cramping
   * Hypercalcemia- confusion
   * Protein deficit and fluid volume overload- edema
4. **Legal and Ethical issues associated with surgery**
   * Pg 665

**Chapter 15 Eyes, Ears, Nose, and Throat**

1. **Cataracts**
   * Cataract surgery-
     + Wear an eye shield at night to prevent rubbing the eyes
   * Neo-Synephrine [phenylephrine hydrochloride]
     + Acts as a mydriatic, causing the pupil to dilate
   * Acute Bacterial endophthalmitis
     + Vision loss is one result of ABE
     + Retrobulbar hemorrhage is a complication that may occur right before surgery and is a result of retrobulbar infiltration of anesthetic agent.
   * Instilling Eye Drops
     + Applying pressure against the nose at the inner canthus of the closed eye after administering eyedrops prevent the medication from entering the lacrimal [tear] duct.
   * Coughing is contraindicated after cataract extraction b/c it ↑ intraocular pressure
   * Sudden, sharp pain after eye surgery- indicative of intraocular hemorrhage
2. **Retinal detachment**
   * Patching the eye helps ↓ random eye movements that can enlarge and worsen retinal detachment
   * After surgery to correct a detached retina, prevention of ↑ increased intraocular pressure is the priority goal.
3. **Glaucoma**
   * Chronic-open angle Glaucoma [COAG]
     + There is an obstruction to the outflow of aqueous humor- the nerve destruction causes painless vision loss.
     + Usually asymptomatic in the early stages, peripheral vision gradually ↓ as the disorder progresses.
   * A miotic agent constricts the pupil and contracts ciliary musculature.
   * Tonometry- measures intraocular pressure.
   * Timolol maleate [Timoptic]-
     + Commonly administered to control glaucoma
   * Acute Angle-closure Glaucoma
     + Produces abrupt changes in the angle of the iris
     + S/SX: severe eye pain, colored halos around light, and rapid vision loss
     + Medical emergency
     + Rapidly leads to blindness if left untreated
   * Atropine sulfate -
     + Causes pupil dilation- this action is contraindicated in pt’s with glaucoma b/c it ↑ intraocular pressure
4. **Adult Macular Degeneration**
   * Involves loss of central vision
5. **Undergoing Nasal Surgery**
   * Deviated septum surgery
     + Avoid any activities that cause Valsalva’s maneuver [ straining at stool, vigorous coughing, exercise]
6. **Hearing Disorder**
   * Furosemide –
     + may cause ototoxicity
     + report hearing loss, dizziness, or tinnitus, to help prevent permanent ear damage
   * a sensorineural hearing loss results from damage to the cochlear or vestibulocochlear nerve.
   * Cerumen [ear wax]
     + Commonly gets impacted in older pt’s
     + Irrigation is the first strategy to loosen Cerumen
     + A cotton-tipped applicator or other device is NOT appropriate because it can cause damage to the eardrum
     + NS is the solution that is generally used to irrigate the ear
       - Sterile water will cause tissue damage
   * Aspirin
     + Tinnitus is an adverse reaction
   * Weber test and audiometric testing are useful for determining hearing loss
7. **Meniere’s Disease**
   * Low- sodium diet is frequently an effective mechanism for reducing the frequency and severity of the disease episodes.
   * NO cure
   * Often worsens
   * S/SX: associated with a change in the fluid volume of the inner ear
8. **Cancer of the Larynx**
   * Laryngectomy
     + A salivary fistula is suspected when there is saliva collecting beneath skin flaps or leaking through the suture line or drain site
     + Advise pt to provide humidification
     + Use protective shield when bathing, showering, or shampooing or cutting hari to prevent aspiration
   * Tracheostomy tubes
     + Carry several potential complications, including laryngeal nerve damage, bleeding, and infection

**Chapter 16 Integumentary System**

1. **Burns**
   * Pt who are transferred to a burn center
     + Children under age 10 or adults over age 50 with 2nd and 3rd degree burns on 10% or greater of their BSA
     + Pt between the ages 11-49 with 2nd-3rd degree burns on over 20% of BSA
     + Pt of any age with 3rd degree burns on more than 5% of their BSA,
     + Pt with smoke inhalation
     + Pt with chronic diseases such as DM and heart or kidney disease
   * Scald burns are not at high risk for infection and do NOT need to be cleaned, covered, or treated with antibiotic cream
   * Fluid shifting into the interstitial space cause intravascular volume depletion and ↓ perfusion to the kidneys
     + Monitor I&O’s, daily weights
   * Normal albumin – 3.5 -5 gm/dL
     + Exudative loss of albumin occurs in burns
   * Infection is a priority problem for the burned victim b/c of the loss of skin integrity and alteration in body defenses
   * Removing dressings from severe burns exposes sensitive nerve endings to the air which is painful
   * Nutritional support is extremely important
   * Gastric dilation and paralytic ileus commonly occur in pt with severe burns, making oral fluids and food contraindicated
   * Biologic dressing- such as porcine grafts
     + Enhance the growth of epithelial tissues, minimize the overgrowth of granulation tissue, prevent loss of water and protein, decrease pain, increase mobility, and help prevent infection.
   * Hyponatremia is a common electrolyte imbalance in the burn pt that occurs within the first week after being burned.
     + Metabolic acidosis usually occurs as a result of the loss of sodium bicarbonate.
   * Curling’s ulcer, or GI ulceration, occurs in about half of he pt’s with a burn injury
2. **General problems of the integumentary system**
   * The outer layer of skin is almost completely replaced every 3-4 weeks
   * Older pts have a decreased thermoregulation that is r/t ↓ blood supply and reabsorption of body fat.
   * Usual aging is associated with dry skin- however, seborrhea [oily skin and dandruff] is one result of the biochemical changes associated with Parkinson’s disease
3. **Pressure Ulcer**
   * Stage 1- non-blanchable macules that are red in color
   * Stage 2- breakdown of the dermis; epidermal sloughing and pain
   * Stage 3 – full thickness skin breakdown; tissue necrosis with subcutaneous tissue involvement
   * Stage 4 – bone, muscle, and supporting tissue are involved
4. **Skin Cancer**
   * Sunscreen should be applied 20-30 minutes before going outside, with a minimum of 15 SPF
   * The rays of the sun are most dangerous between 10 a.m. and 2 p.m.

**Chapter 17 Emergencies, Mass Casualties, and disaster**

1. **Emergencies**
   * Open fracture- risk for infection VERY high
   * Circulation can be impaired by circumferential burns and edema causing compartment syndrome
   * Escharotomy- incision through full thickness eschar
     + Performed to restore circulation
   * Proper hand placement during chest oppression is essential to reduce the risk of rib fractures,
     + Which may lead to pneumothorax and other internal injuries
   * AEDs are used for early defibrillation in causes of V FIB
2. **Mass Casualties**
   * When arsenic overexposure occurs, the symptoms include violent N/V, abdominal pain, skin irritation, severe diarrhea, laryngitis, and bronchitis.
   * Preserving forensic evidence is essential for investigative purposes following injuries that may be caused by criminal intent.
   * Tracking victims of disasters is important for casualty planning and management.
     + All victims should receive a tag, securely attached, that indicates that triage priority, any available identifying information, and what care if any, has been given along with time and date.
   * Triage
     + Level 1 – requiring immediate care
     + Level 2 – emergent and can be transported by ambulance and reach the hospital within 15 minutes
     + Level 3 – urgent and should be treated within 30 minutes
   * Victim of a neck injury should be immobilized and moved as little as possible
     + Placing a cervical collar causes movement of the spinal column and should not be done as a first-aid measure. ?? – pg. 696 question 15
3. **Disaster**
   * Anthrax
     + Treated with antibiotics and pt must continue prescription for 60 days, even if symptoms disappear
     + May have skin lesions at the point of contact, with macula or papule formation
     + The eschar will fall off in 1-2 weeks
     + Pt with anthrax are NOT contagious
   * SARS
     + Transmission can be contained by following universal precautions, which include mask, gown, eye protection, hand washing, and safe disposal of needles and sharps
     + Spread by respiratory
   * Deaths by gunshot wound are considered reportable deaths.
     + All evidence is reportable death, including tubes and IV lines, should remain intact until the coroner has been contacted.