

## NS 256 Exam 3 Blueprint

*Note the blueprint is not guaranteed to be 100% inclusive. It is however created with the best intent to be all encompassing. Information is from the assigned module readings and the assignments. Previous knowledge from other courses used to build on for pharmacology, is considered testable*

**Dosage calculation:** 10-12 questions

**Medications:** 38-40 questions

### 1. Tamoxifen

- ☐ therapeutic use
  - treats metastatic breast cancer
  - prevents the occurrence of breast cancer in women who are at high risk
- ☐ Adverse drug reactions
  - hot flashes
  - retinopathy, cataracts, decreased visual acuity
  - Thromboembolism evidenced by weakness on the right side of the body depending on the embolism it travels
  - Endometrial hyperplasia, which increases risk of uterine cancer evidenced by abnormal menstrual bleeding
- ☐ client instructions
  - report abnormal menstrual bleeding to the provider

### 2. Ritonavir

- ☐ therapeutic use
  - treatment of HIV and increased therapeutic effects of other antiviral drugs
- ☐ adverse drug reactions
  - fat distribution (thin extremities, face and buttocks, increased abdominal fat, gynecomastia, "buffalo hump")
  - increased cholesterol and triglyceride levels, which may lead to atherosclerosis and cardiovascular disease
  - reduce bone density which may lead to osteoporosis
  - Nausea vomiting and weight loss
  - Hyperglycemia and diabetics blood sugar masking
  - Increased levels in triglycerides
- ☐ interventions
  - monitor fat redistribution effects and clients' response to them
  - monitor cholesterol and triglyceride levels
- ☐ Labs to monitor
  - Monitor AST and ALT levels

### 3. Mercaptopurine

- ☐ therapeutic use

- treats acute lymphocytic and acute myelogenous leukemia in adults and children and many cause remission in chronic leukemia
- Adverse drug reactions
  - Bone marrow suppression
  - Liver toxicity
- interventions
  - monitor clients' weight and I&O
- Client instructions
  - take prescribe anti medic as needed
  - report fever sore throat, easy bruising, unusual fatigue to the provider
  - wash fruits and veggies well and cook food properly
  - institute frequent oral care to prevent stomatitis (super yeast infection in the mouth)
  - use a soft toothbrush and an electric razor to prevent bleeding and take measures to prevent bleeding
  -

#### 4. Cyclophosphamide

- therapeutic use
  - broad spectrum chemotherapy agent and used by itself for other agents to treat many things
- adverse drug reactions
  - hyperkalemia
  - Bone marrow suppression
  - Liver toxicity
- interventions
  - monitor temperature and signs of infection (elevated temp may be late signs of leukopenia)
- client instructions
  - inform the client that hair will grow back during cyclophosphamide treatment
  - void before dose is given increased fluid intake as able
  - report hematuria (blood in urine) or pain with voiding to the provider
- Administration and prevention of adverse drug reactions

#### 5. Cisplatin

- therapeutic use
  - use in combination to other chemotherapy agents to treat metastatic testicular or ovarian cancer
  - treatment of cancers of the head and neck or carcinoma of the bladder/ uterine lining
- adverse drug reactions
  - bone marrow suppression related to the size of dose (all cells): nadir for thrombocytes and leukocytes reached between days 18-23 following the transplant
  - kidney toxicity
  - ototoxicity

- peripheral neuropathy
- interventions
  - premedicated with prescribed anti magic 30 mins before beginning infusion
- monitoring and preventive measures to reduce risk

## 6. Vincristine

- therapeutic use:
  - treats some cancers
- Adverse drug reactions
  - peripheral neuropathy
    - less strength in hands
    - deep tendon reflexes diminished especially the Achilles tendon and decreased sensation in the hands
  - tissue damage due to iv infiltration
  - Hair loss will occur in about 20% of pts
  - severe constipation
    - hard stool and with fewer than normal # of stools
    - abdomen slightly distended and bowel sounds will be hypoactive
- interventions
  - antidote: apply heat and local subcutaneous injection of hyaluronidase to help disperse the extravasated drug
  - monitor client for alopecia
  - monitor carefully for constipation, monitor bowel sounds and palpate the abdomen frequently
  -

## 7. Topotecan

- Therapeutic use
  - treats cancers that other anticancer drugs have failed to treat
- adverse drug reactions
  - alopecia occurs in about half of clients
  - bone marrow suppression
- Client instructions on adverse drug reactions likely to occur and monitoring
  - report fever, sore throat, easy bruising, unusual fatigue to the provider
  - institute frequent oral care to prevent stomatitis (yeast superinfection in the mouth)
  - use a soft toothbrush and electric razor to prevent bleeding and take measurements to prevent bleeding
  - inform client that alopecia may occur
- interactions
  - filgrastim makes bone marrow suppression worse with concurrent administration, give filgrastim 24 after tropectain infusion is complete

## 8. Trastuzumab

- therapeutic use
  - treats a specific type of metastatic breast cancer
- adverse drug reactions

- allergic reaction: bronchospasm with wheezing, hypotension, shortness of breath, and urticaria
- infusion reaction, chills, fever, flu-like symptoms during infusion
- cardiac symptoms: heart failure and dysrhythmias
- CNS symptoms: headache, insomnia, dizziness, and paresthesias
- Client instructions on adverse drug reactions to report

## 9. **Methotrexate**

- therapeutic use
  - An antidote to prevent severe bone marrow depression
  - treatment of several types of cancer
  - treatment of rheumatoid arthritis and psoriasis, both disorders have an autoimmune component
- adverse drug reactions
  - bone marrow suppression of all types of cells
    - Anemia= pale color
    - leukopenia causes fever
    - thrombocytopenia causes nose bleeds and bleeding gums
- administration instructions
  - give leucovorin a reduced form of folic acid as an antidote for severe bone marrow suppression occurring with folic acid analogs
  - low neutrophil count means that the med stops and neutropenic precautions are initiated
    - if neutrophil count is under 500/ mm<sup>3</sup>
    - neutropenic precautions include private rooms, limited number of health care providers, limited number of invasive procedures, equipment kept in room, notify the prescriber immediately if fever and look for source of infection
- client instructions
  - report fever, sore throat, easy bruising, and unusual fatigue to the provider

## 10. **Enfuvirtide**

- therapeutic use
  - treats HIV disease that is advanced or when there is resistance to other types of drugs
- adverse drug reactions
  - pneumonia: cough, shortness of breath, and fever
  - allergic reactions: chill and fever, rash nausea, hypotension, and elevated liver enzymes
- Client instructions on administration
  - refrigerate unused portion but allow to warm to room temp before injecting
  - injection should be give twice daily into the muscle, and injected subcutaneously
  - prepare dose by injecting sodium chloride into the vile and gently roll the vile

- want to rotate injection sites
- give medication in anterior thigh, upper arm or abdomen
- report tenderness, redness, swelling, hardened areas, itching, or other skin reactions to the provider
- report cough, fever or shortness of breath to the provider

### 11. Raltegravir

- therapeutic use
  - treats HIV resistant to other HIV drugs and is always given with other drugs to prevent resistance
- Contraindications/ precautions to use-who should not get the medication
  - children <16 years

### 12. Anastrozole

- therapeutic use
  - treats early or advanced estrogen receptor-positive breast cancer in postmenopausal women
- adverse drug reactions
  - hot flashes
  - retinopathy, cataracts, decreased visual acuity
  - thrombolysis or embolism
  - endometrial hyperplasia increased risk evidenced by vaginal bleeding
  - osteoporosis
- client instructions
  - if the provider approves take acetaminophen for muscle pain
  - increased intake of calcium and vitamin D
- Contraindications, drug-drug interaction
  - estrogen and postmenopausal estrogen therapy is contraindicated

### 13. Flutamide

- therapeutic use
  - treats prostate cancer in its early stages and after metastasis
  - this treatment is started when GnRH treatment is started
- adverse drug reactions
  - decreased libido and impotence
  - gynecomastia: growth of breast tissue
  - hot flashes
  - liver toxicity: anorexia, abdominal pain, jaundice, nausea and dark urine
- Administration and medication regimen
  - pt will also be taking leuprolide

### 14. Delavirdine

- therapeutic use
  - treats symptoms of HIV
- Adverse drug reactions-monitoring
  - rash (frequent) can develop into stevens-johnson syndrome or erythema multiforme
- client instructions
  - report rash and pruritus of the skin to the provider

- report persistent nausea, vomiting and diarrhea
- comply with period liver function and testing

### 15. Zidovudine

- therapeutic use
  - treats symptoms HIV infections and prevents maternal HIV transmission to the fetus
- Adverse drug reaction of decreased neutrophils, interventions to take
  - severe anemia and neutropenia
  - anemia is expected 2-4 weeks after starting treatment
  - neutropenia is often seen 6 weeks after treatment
  - bone marrow suppression
- interventions
  - dose may be reduced or withheld for
    - hgb <7.5 g/dl
      - or down 25% from the baseline
      - dose is reduced or withheld and packed red blood cells are transfused
      - plan to administer epoetin alfa, Epogen, as prescribed
    - or neutrophil count <750/mm<sup>3</sup>
      - or down at least 50% from the baseline
      - plan to administer granulocyte colony-stimulating factor (filgrastim) administered as needed to increase white blood cell count
  - administration
    - when given to pregnant females, give an oral dose five times daily from 14 weeks gestation until delivery, during delivery, administer IV infusions until the neonate is delivered and the cord is clamped

### 16. Maraviroc

- therapeutic use
  - treats only those clients who have HIV-1 that binds with CCR5 and is resistant to other HIV drugs
- adverse drug reactions
  - cough and upper respiratory infections
  - liver damage: symptoms of allergic reaction such as rash are often seen before the liver damage occurs
- interventions
  - monitor lab values for an increase in eosinophils or elevated immunoglobulin E
- Drug-drug interactions and dosing
  - CYP3A4 inhibitors raise maraviroc blood levels
    - include protease inhibitors and delavirdine (Rescriptor)
    - may need to lower maraviroc dosage
  - CYP3A4 induced decreased maraviroc levels
    - includes rifampin (Rifadin), efavirenz (Sustiva), phenytoin, and St John's wort

- Increase in dosage may be required

### 17. Imatinib

- therapeutic use
  - initial treatment of chronic myeloid leukemia treats lymphoblastic leukemia and treats certain metastatic gastrointestinal tumors
- Adverse drug reactions to report
  - gastrointestinal symptoms: n/ v/ d
  - musculoskeletal pain and muscle cramping
  - bone marrow suppression (neutropenia and thrombocytopenia and platelets)
  - fluid retention (may lead to pulmonary edema)
- interventions
  - monitor for bleeding, bruising, petechiae
  - minor for edema and crackles in the lungs

### 18. Paclitaxel

- therapeutic use
  - treats the following cancers: ovarian, breast, sarcoma and non-small lung cancers
- Adverse drug reactions-assessment findings indicating
  - bradycardia that usually lasts only during the infusion
  - peripheral neuropathy
  - allergic reactions: pts are premeditated with antihistamine, corticosteroid and proton pump inhibitor given 30 mins before infusion
- interventions
  - check deep tendon reflexes periodically, especially Achilles reflex
- administration instructions
  - taxol: contains a solvent system and requirement pretreatment with an antihistamine, a corticosteroid and a histamine2-receptor blocker 30 mins before infusion to prevent allergic reactions: non PVC tubing and iv bad necessary: infuse over three hours using an in-line iv filter
- client instructions
  - report palpitations or chest pain to the staff
  - report fever, sore throat, easy bruising, unusual fatigue to the provider
  - immediate report swelling of the mouth, throat, neck, rash, itching, and difficulty breathing to the staff

### 19. Doxorubicin

- Adverse drug reactions-diagnostic test to monitor
  - extravasation occurring at veins near joints, such as the hand, wrist, antecubital space, or edematous extremity may result in tissue necrosis, tendon, and nerve injury
  - monitor for dysrhythmias and assess vital signs following treatment with doxorubicin
    - client instructions: report rapid heartbeat, palpitations, shortness or breath and chest pain following treatment
  - slow IV rate for red streak along the vein or skin flushing

## 20. Carmustine

- therapeutic use
  - use alone with another agent to treat different types of cancers
- Adverse drug reaction-nadir timing and diagnostic testing to monitor for adverse drug reactions
  - decreased lung function, possibly leading to irreversible pulmonary fibrosis
  - Bone marrow suppression
    - Thrombocytopenia 4-6 weeks after therapy
      - can cause black tarry stools
    - Luekopenia 4-6 weeks after therapy
      - can cause sore throat
- interventions
  - avoid starting iv in veins near the joint of the hand, antecubital space, use central lines when possible
  - infuse sodium bicarbonate and 0.9% sodium chloride into infiltrated IV line
  - infuse sodium bicarbonate and 0.9% NaCl into subcutaneous tissue
  - apply cold compress to the site and monitor frequently

## 21. Cytarabine

- therapeutic use
  - treats leukemias as part of a multi-drug regime
  - treats non-Hodgkin's lymphomas
  - maintains remissions of the above cancers
- adverse drug reactions
  - intrathecal form: arachnoiditis, causing nausea, vomiting, headache and fever
  - bone marrow suppression. lowest level of blood cells counts 5-7 after dosing
- administration instructions
  - intrathecal form: daily for 4 consecutive days or one dose every four days
- Infection
  - notify the provider or fever, sore throat, easy bruising and unusual fatigue to the provider

## 22. Amoxicillin

- therapeutic use
  - -cillin is a type of penicillin
  - treat broad spectrum infections caused by gram positive cocci
- interventions
  - prepare to treat rash/ hives with antihistamines; anaphylaxis with epi and respiratory support
  - bloody or watery stools would indicate c-diff this drug would be stopped another drug like vanco is ordered
- administration



- give at the beginning of meals to decrease GI symptoms and increase absorption
- client instructions
  - report watery or blood diarrhea to the provider
  - take drug at the start of meals
  - report vaginal burning, itching and discharge
  - use another form of birth control in addition to oral contraceptives
- Drug-drug interaction and action to take

### 23. Gentamicin

- therapeutic use
  - gram negative aerobic bacilli in severe infections
- adverse drug reactions
  - elevated trough level of the drug (early signs include tinnitus, headache, and vertigo) can cause ototoxicity
    - early signs are tinnitus, headache and vertigo.
    - late signs: hearing loss
    - eighth cranial nerve should be evaluated by audiometry
  - nephrotoxicity manifested by polyuria, dilute urine, proteinuria/ casts in the urine, elevated BUN, creatinemia.
- interventions
  - monitor for and report tinnitus and other symptoms of early ototoxicity
  - monitor lab values (BUN, creatinine, urine for protein and casts) and report elevations and monitor urine specific gravity
- Trough level-when to draw
  - Peak levels are drawn 30 mins after an IM dose or completion of an infusion
  - trough levels are drawn one hour before the next dose

### 24. Amphotericin B

- therapeutic use
  - treats severe systemic fungal infections
- adverse drug reactions
  - infusion reactions (occurs 1-2 hours after IV infusion begins and subsides within 4 hrs) chills, fever, tachycardia, hypotension, headache, nausea and decreased over the course of therapy which is generally several weeks)
  - renal toxicity manifested by elevated BUN, creatinine and hypokalemia
    - pt should be well hydrated during infusion to prevent renal toxicity
  - red blood cell suppression anemia, manifested by fatigue decreased, red blood cell count and decreased hemoglobin and hematocrit
- interventions
  - administer prescribed diphenhydramine and acetaminophen before starting infusion to prevent an infusion reaction
  - monitor BUN, creatinine, and blood potassium every few days during treatment and notify the provider of any abnormal value related to renal toxicity
- client instructions

- report increasing fatigue
- Administration protocol to prevent adverse drug reactions
- 25. Ciprofloxacin**
  - therapeutic use
    - treats a wide range of bacterial infections and prevents anthrax
  - adverse drug reactions
    - achilles tendon rupture which manifests as pain in back of ankle
    - photosensitivity
      - should wear SPF 30 or greater and fully cover body from sun
  - client instructions
    - report tendon pain to the provider
    - avoid exposure to sunlight or sunlamp
    - take antacids, iron, calcium, dairy products and sucralfate 2 hours after or 6 hours before oral ciprofloxacin
    - encourage patients to drink at least 1500 to 200 mL of fluids daily
  - Administration and OTC/ Food interactions

## **26. Vancomycin**

- therapeutic use:
  - severe infections MRSA and C-diff infections
- adverse drug reactions
  - renal failure secondary to nephrotoxicity
  - rare: ototoxicity
  - tinnitus
  - red man syndrome (hypotension, tachycardia, flushing of the face and trunk, urticaria and pruritis)
- interventions
  - administer over 1 hour by IV infusion
  - monitor BUN and creatinine levels
  - should be diluted properly before administration
- client instructions
  - instruct clients to report tinnitus or perceive loss of hearing
  - instruct clients to report and increase or decrease in urine output
- Monitoring/ assessment findings related to adverse drug reactions

## **27. Cefotetan**

- therapeutic use:
  - treats infections caused by gram positive cocci
- Adverse drug reactions, recognizing assessment findings
  - disulfiram-like reaction: nausea, vomiting, severe headache, hypotension caused by drinking alcohol
  - anaphylaxis is hypotension
  - cause a super infection with c-diff
  - hemorrhage
- interventions
  - prothrombin and bleeding time should be monitored

## **28. Erythromycin**

- therapeutic use
  - treatment of common infections for clients who have a penicillin allergy
- Adverse drug reactions, managing and administration
  - gi symptoms: n/ v/ d and abdominal pain
  - ototoxicity: hearing loss, vertigo and tinnitus
  - superinfection: c-diff watery or bloody diarrhea
  - suerinfection: candida: manifesting as mouth pain white patches in the mouth or vagional discomfort and discharge
  - cardiac toxicity- serious ventricular dysrhythmias with prolonged QT manifesting as palpitations and fainting spells
- administration
  - give erythromycin base and erythromycin stearate on an empty stomach 1 hour before or 2 hours after a meal for best absorption give with at least 8 oz of water
  - gi symptoms might occur with food
- client instructions
  - take with food if GI symptoms occur
  - report palpitations and fainting spells to the provider
  - report palpation and fainting spells to the provider
  - report hearing loss, vertigo, and tinnitus to provider
  - report blood or watery diarrhea
  - report mouth pain with white patches on the oral mucosa or vaginal discomfort and discharge

## 29. Tetracycline

- therapeutic use
  - first drug of choice for syphilis in pts with a penicillin allergy
- Administration and drug-food interaction
  - give orally on an empty stomach 1 hr before or 2 hours after meals
  - do not give right before bedtime
  - shake well before measuring
- adverse drug reactions
  - permanent discoloration of the deciduous teeth of the fetus if take after the 4 month of pregnancy
  - permanent teeth are discolored if take by children under 8 years old
- contraindications
  - preg. risk 4 month and children under 8
- interactions
  - absorption is decreased by antidiarrheals contrarian kaolin; supplements and antacids containing calcium, magnesium or aluminum
  - dairy products and supplements with iron or zinc decreased absorption
  - decreases the effectiveness of oral contraceptive

## 30. Aztreonam

- therapeutic use
  - narrow-spectrum antibiotic that treats infections caused by gram-negative aerobic bacteria

- lower respiratory infections
  - urinary tract infection and abdominal infections
- adverse drug reactions
  - thrombophobphilitis or inflammation at the IV site
- interventions
  - change the iv sites if inflammation occurs
- Administration, actions to take related to adverse drug reactions
  - use a slow bolus or infusion

### 31. Imipenem

- therapeutic use
  - treats serious infections caused by multiple types of organisms
- adverse drug reactions
  - gi symptoms: nausea, vomiting ( may occur if IV infusion is too rapid)
  - allergy: hivs and difficulty breathing
  - liver injury
- Monitoring labs
  - lab testing should include AST, BUN, LDH, bilirubin and creatine precautions
  - renal impairment

### 32. Rifampin

- therapeutic use
  - adjunct therapy to treat TB
    - take with izonizade, ethambutol or pyrazinamide
- adverse drug reactions
  - red-orange color of body fluids- urine, saliva, tears and sweat harmless
  - liver toxicity
  - gi: n/ v/ d and cramping abdominal pain
- administration instructions
  - give oral dose 1 hour before or 2 hours after meals
- client instructions
  - report abdominal pain, nausea, unusual fatigue or jaundice to the provider
  - instruct clients not to ingest alcohol while on this medication
  - take with food or empty capsule into food if GI symptoms are problematic (Food decreased absorption)
  - consult provider for birth control change if taking contraceptives
    - decreases the blood levels of oral contraceptives
- Questioning prior to administering
  - allergy to drug
  - decreased blood levels of oral contraceptive, warfarin and other HIV drugs
  - isoniazid and pyrazinamide increase risk of liver toxicity

### 33. Acyclovir

- therapeutic use
  - treats severe viral infections in clients who are immunocompromised

- adverse drug reactions
  - iv: renal toxicity
    - pt should be hydrated during and 2 hours after the infusion to maintain urine output and prevent kidney damage
  - iv: thrombophlebitis at IV site : IV infiltration causes tissue damage
- interventions
  - infuse IV slowly, hydrate the client during and for 2 hours following the infusion to maintain urine output

### 34. Ketoconazole

- therapeutic use
  - severe systemic fungal infections and cutaneous fungal infections
- client instructions
  - report abdominal pain, jaundice, fatigue or anorexia to provider
  - take with food to minimize GI symptoms
  - take with coffee, tea, cola
- Food drug interaction
  - antacids, proton pump inhibitors and H2 antagonists greatly decreased absorption, take ketoconazole at least 2 hours before taking any of these drugs

### 35. Chloroquine

- therapeutic use
  - treats chloroquine-sensitive malaria
  - second-line therapy for ra and systemic lupus
- adverse drug reactions
  - visual symptoms
  - gi symptoms n/ d
- administration instructions
  - give at least 4 hours before or other antacids or laxative for adequate absorption
    - antacids and laxatives decrease the absorption
- client instructions
  - wearing sunglasses might help minimize the visual effects
  - report any visual changes to the provider

### 36. Metronidazole

- therapeutic use
  - treatment of anaerobic bacterial infections
- adverse drug reactions
  - cns symptoms peripheral neuropathy or seizures
  - darkening of the urine which is a harmless effect
  - alcohol causes a disulfarium type reactions
    - flush, nausea/ vomiting, hypotension, sweating, shortness of breath, dizziness and anxiety
- client instructions
  - do not be alerted by the darkening of the urine during treatment
  - instruction clients they may experience a metallic taste

- advise clients to avoid alcohol
- Drug/ food interactions-client instructions

### 37. Isoniazid

- therapeutic use
  - treatment of active TB
  - treatment of latent TB
- adverse drug reactions
  - peripheral neuropathy especially with alcohol use disorder
  - DRESS (drug reaction with eosinophilia and systemic symptoms) manifested by fever, rash, lymphadenopathy, swelling of the face in addition of other organ systems
- Administration, indication, duration of treatment
  - give isoniazid with one or more other drugs for active TB to prevent resistance
  - give isoniazid by itself daily for latent tb (6-9 month treatment)
  - can be taken with or without food but not within one hour of antacids that contain magnesium as it decreases absorption
- client instructions
  - report jaundice, abdominal pain and unusual fatigue to the provider
  - report numbness, tingling and pain in the hands or feet to the provider
    - can be resolved by vitamin b6 pyridoxine

### 38. Nitrofurantoin

- therapeutic use
  - treatment and prevention of UTI
- Adverse drug reactions to report
  - respiratory:
    - acute: chills, fever and cough that last 2-4 days after the medication is discontinued
    - subacute: manifested by cough, shortness of breath or dyspnea that lasts weeks to months and may be permanent (pulmonary fibrosis)
  - permanent peripheral neuropathy
    - more common in pts with renal impairment
  - blood cell dysfunction:
    - anemia: fatigue
    - thrombocytopenia: easy bruising
    - neutropenia: repeated infections
    - pt has reoccurrent uti and low white blood cell count
- client instructions
  - report numbness, tingling and weakness of the extremities

### 39. Trimethoprim/Sulfamethoxazole

- therapeutic dose
  - treats urinary tract infections, pneumonia, chronic bronchitis
- adverse drug reaction
  - blood cell deficiencies

- thrombocytopenia: a bruising and low platelet count
- anemia: seen in RBC, hemoglobin and hematocrite
- neutropenia: seen in the white blood cell count
- superinfection
  - c-diff
    - watery or bloody diarrhea
  - candida
    - white patches in mouth or vaginal discharge
- stevens johnson syndrome
  - fever, painful red to purple rash and blisters in the skin or mouth
- kernicterus
  - occurs in the fetus and infants due to high bilirubin levels which may cause brain damage,
- contraindications
  - women who are pregnant or nursing
  - children under 2 months of age

#### 40. interferon- interferon 2

- therapeutic use
  - treatment of cancers and treats chronic hepatitis C
- adverse drug reactions
  - flu-like symptoms: fever, muscle aches and fatigue
  - gastrointestinal symptoms: abdominal pain, anorexia, weight loss, diarrhea
  - bone marrow suppression
  - CNS symptoms: headache, dizziness, inability to sleep and tremors of the hands
- client instructions
  - instruct client to notify the provider of easy bruising, bleeding or fatigue

#### 41. cephalexin

- therapeutic use
  - type of cephalosporin start with - ceph
  - treats infections caused by gram-positive cocci
- adverse drug reactions
  - GI symptoms: D/N
  - risk for hemorrhage
- interventions
  - monitor and report blood stools or watery diarrhea to the provider
- client instructions
  - report unusual bruising/ bleeding to the provider
  - inform the client about the potential for nausea, vomiting and severe headache, and hypotension with the combination of the drug and alcohol