

ACTIVE LEARNING TEMPLATE: Medication

STUDENT NAME Alysha Strawn

MEDICATION Penicillin

REVIEW MODULE CHAPTER _____

CATEGORY CLASS Antibiotics

PURPOSE OF MEDICATION

Expected Pharmacological Action

weaken and destroy the cell wall of bacteria that are sensitive by binding the enzyme necessary for cell wall formation: transpeptidase. They then activate the enzyme autolysin that opens the cell wall during replication.

Therapeutic Use

used to treat infections of the ear, throat, and certain UTI's.

Complications

Candidiasis (yeast infection), C-diff, nausea, diarrhea, vomiting, drug allergy

Medication Administration

comes in extended release form. **DO NOT CHEW**

Contraindications/Precautions

Drug allergy to penicillin. Clients with renal impairment, those with hypersensitivity to procaine and benzathine.

Nursing Interventions

monitor the GI symptoms, ask to report symptoms of candida in the vagina or mouth.

Interactions

Penicillins can reduce the effectiveness of contraceptives. Probenecid increases blood levels of penicillin which can be both therapeutic or cause problems. Using w/ bacteriostatic agents is not recommended.

Client Education

report to provider immediately if they experience bloody or watery diarrhea. Have them report any vaginal or oral discomfort to the provider.

Evaluation of Medication Effectiveness

reduction in symptoms including fever, swelling, heart-rate, BP, pain and discomfort.

Because humans don't have a cell wall, penicillins don't damage the host and are extremely safe.

ACTIVE LEARNING TEMPLATE: Medication

STUDENT NAME Aysha Strawn

MEDICATION Cephalosporins

REVIEW MODULE CHAPTER _____

CATEGORY CLASS Antibiotics

PURPOSE OF MEDICATION

Expected Pharmacological Action

Weaken & destroy the cell wall of bacteria that are sensitive by inhibiting the enzyme necessary for cell wall formation, transpeptidase.

Therapeutic Use

Killing (bactericidal) against many aerobic gram-positive bacteria. Later generations are more effective against aerobic gram-negative & anaerobic bacteria.

Complications

diarrhea, nausea, vomiting, rarely C-diff, allergic reaction. one (cefotetan) can increase risk of bleeding and hemorrhage.

Medication Administration

Capsules, tablets, or as an oral suspension. may also be available for oral and injectable use.

Contraindications/Precautions

Anyone w/ a hypersensitivity to penicillins. people with carnitine deficiency. Anyone w/ a milk-protein allergy.

Nursing Interventions

monitor for bloody or watery stools. monitor for allergic reaction. monitor INR, monitor for phlebitis.

Interactions

Alcohol or other drugs promotes bleeding. combination of IV calcium & ceftriaxone causes a precipitate to occur that can lodge in the lungs and kidneys.

Client Education

watch for bloody and watery diarrhea, watch for difficulty breathing. burning, pain, or swelling @ the IV site.

Evaluation of Medication Effectiveness

reduction of infection symptoms, reduced fever, reduced WBC count.

ACTIVE LEARNING TEMPLATE: Medication

STUDENT NAME Aysha Strawn

MEDICATION Monobactams

REVIEW MODULE CHAPTER _____

CATEGORY CLASS Antibiotics

PURPOSE OF MEDICATION

Expected Pharmacological Action

Weaken and destroy the cell wall of sensitive bacteria. They inhibit the enzyme for cell wall formation, transpeptidase. They differ from penicillins and cephalosporins because they are not effective against anaerobic or gram positive bacteria.

Therapeutic Use

Used to fight infections that are gram negative aerobic bacteria caused. Used to treat lower respiratory tract infections, urinary tract infections, abdominal and gynecologic infections.

Complications

Pain, thrombophlebitis and inflammation at the IV site. They can contribute to the development of a super infection. Seizures & diff. Abdominal distress & rash, wheezing, nasopharyngeal pain, chest discomfort and bronchospasm.

Medication Administration

Intramuscular, IV forms, and as a powder to be used for inhalation. IM should be given in large muscle and rotate sites. IV should be given slowly like an IV bolus or infusion.

Contraindications/Precautions

Allergy to aztreonam or history of allergy to penicillins or cephalosporins. Those w/ a decrease in renal function.

Nursing Interventions

For IV, monitor the site for redness, swelling, and pain. Monitor respiratory status, bowel function, and anaphylactic reactions.

Interactions

Aztreonam is incompatible in IV solution w/ other multiple drugs. Address compatibility chart before mixing it w/ another drug, or give separately from other IV drugs. Probenecid & furosemide may increase blood levels of aztreonam.

Client Education

Report any pain, redness, or swelling at IV site. Clients take the inhaled form 3 times a day for 28 days, then follow up w/ a period of 28 days off.

Evaluation of Medication Effectiveness

Reduction of infection symptoms, elimination of infection and improvement in labs.

ACTIVE LEARNING TEMPLATE: Medication

STUDENT NAME Aysha Straun

MEDICATION Carbapenems

REVIEW MODULE CHAPTER _____

CATEGORY CLASS Antibiotics (Anti-infectives)

PURPOSE OF MEDICATION

Expected Pharmacological Action

Weaken and destroy the cell walls of bacteria. Bactericidal against gram-positive cocci, gram negative cocci and bacilli, and anaerobic bacteria. They resist beta-lactamase so bacteria can't develop a resistance to them.

Therapeutic Use

Treat serious infections. They treat infections with multiple types of organism cause. Very effective against a broad range of bacteria.

Complications

GI symptoms such as nausea, vomiting, diarrhea. Risk of super infection development due to their antimicrobial action that kills both good and bad bacteria. Anaphylaxis.

Medication Administration

only available in IM and IV forms. You cannot interchange these forms. Pay close attention to admin route, flow rate, and dilution when mixing IV doses.

Contraindications/Precautions

People w/ penicillin or carbapenem allergies. Seizure disorders, renal impairment, hx of allergy to cephalosporins.

Nursing Interventions

Pay attention to flow rate to help minimize nausea and vomiting. Treat w/ anti-emetic if needed. Monitor IV site for infiltration. Monitor for secondary infections like vaginal or oral candidiasis. Lab testing: AST, BUN, LDH, bilirubin, and increased creatinine.

Interactions

Clients who take other antibiotics may experience a decrease in effects.

Client Education

report nausea, pain, swelling or redness at IV site. Any other symptoms like mouth pain, difficulty chewing, swallowing. Females need to report vaginal irritation or discharge.

Evaluation of Medication Effectiveness

Reduction in infection symptoms.

ACTIVE LEARNING TEMPLATE: Medication

STUDENT NAME Aysha Strawn

MEDICATION Vancomycin REVIEW MODULE CHAPTER _____

CATEGORY CLASS Antibiotics

PURPOSE OF MEDICATION

Expected Pharmacological Action

weakens and destroys the cell walls of bacteria by inhibiting transpeptidase.

Therapeutic Use

effective treatment against gram positive bacteria and MRSA infections.

Complications

Renal failure, tachycardia, hypotension, rash, pruitus, urticaria, flushing of face and trunk. Red man Syndrome. Tissue damage to IV site.

Medication Administration

Admin orally - mix w/ syrup.
for C-diff, orally is the **only** admin.
for all other infections, give IV. **Extremely incompatible in combination with other drugs.**

Contraindications/Precautions

hypertensive, renal insufficiency, only administer if benefits outweigh the risks.

Nursing Interventions

monitor trough concentration levels and serum creatinine levels. infuse over 60 minutes or longer. watch for red man syndrome. closely monitor vancomycin blood levels.

Interactions

Aspirin, aminoglycosides, cyclosporins, loop diuretics all increase the risk of ototoxicity and nephrotoxicity. Do not administer vanced w/ any other medicine in the IV line.

Client Education

report facial flushing and feelings of faintness during infusion. Have clients report pain, swelling, or redness. Finish all medications. report tinnitus, vertigo, hearing loss.

Evaluation of Medication Effectiveness

Reduction of infection symptoms

ACTIVE LEARNING TEMPLATE: Medication

STUDENT NAME Alysha Strawn

MEDICATION Tetracycline

REVIEW MODULE CHAPTER _____

CATEGORY CLASS Anti-infectives

PURPOSE OF MEDICATION

Expected Pharmacological Action

Inhibit protein synthesis, they inhibit the transfer of RNA from binding w/ messenger RNA.

Therapeutic Use

Chlamydia & mycoplasma infections. Typhus, Rocky Mountain spotted fever. Acne treatment. effective against gram positive & gram negative bacteria. Parasites

Complications

Significant impact on bones and teeth. Hepatotoxicity/ in pregnant or postpartum women. Photosensitivity. GI: nausea, vomiting, diarrhea, abdominal pain.

Medication Administration

work best on empty stomach, 1-2 hours before meal. can be given IM, oral, topical, liquid form. shake solution well. out of date tetracyclines can cause kidney dysfunction.

Contraindications/Precautions

Pregnancy, infants and children under 8 yr. allergies to tetracyclines, anyone undergoing exposure to ultraviolet light. caution w/ clients w/ liver or kidney impairment

Nursing Interventions

Monitor gastrointestinal disturbances. Take w/ nondairy foods. monitor liver function. watch for jaundice. Monitor bowel function, lymphadenopathy, facial swelling. Monitor for superinfections.

Interactions

Calcium containing foods. Antacids that contain calcium, magnesium, or aluminum. Antidiarrheals containing kaolin, dairy products, & supplements that contain iron or zinc. decrease effectiveness of oral contraceptives.

Client Education

Do not take w/ calcium containing foods. watch for jaundice, abdominal pain, & fatigue. monitor for secondary infections warn them about photosensitivity and to wear sunscreen.

Evaluation of Medication Effectiveness

reduction of infection symptoms.

ACTIVE LEARNING TEMPLATE: Medication

STUDENT NAME Aysha Strawn

MEDICATION Macrolides

REVIEW MODULE CHAPTER _____

CATEGORY CLASS Anti-infectives

PURPOSE OF MEDICATION

Expected Pharmacological Action

Broad spectrum antibiotics that inhibit protein synthesis. bacteriostatic: block the reproduction of bacteria

Therapeutic Use

Treatment of Legionnaires disease, whooping cough, acute diphtheria. Diphtheria carriers who also have chlamydia or certain types of pneumonias. ophthalmic solution for eye infections in neonates.

Complications

GI symptoms: nausea, vomiting, diarrhea, abd. pain, ventricular dysrhythmias (very rare) - normally when prolonged QT interval is present. Avoid anti-dysrhythmic drugs when taking. ototoxicity which causes transient hearing loss, vertigo, tinnitus. risk of super-infection.

Medication Administration

4 Forms:

- Erythromycin base (tablets, capsules, topical ophthalmic ointment)
 - Erythromycin stearate (tablets)
 - Erythromycin ethylsuccinate (tablets)
 - Erythromycin lactobionate (IV form)
- take oral 1-2 hours after meal w/ 8oz of water.

Contraindications/Precautions

Clients w/ a history of long QT syndrome, history of allergy. Clients w/ gastrointestinal or liver diseases. Hypokalemia and Hypomagnesemia.

Nursing Interventions

Monitor for NVD. Check labs regularly for liver function. Report signs and symptoms of ototoxicity. Ask clients about cardiac abnormalities.

CYP3A inhibitors can significantly decrease erythromycin's metabolism, increasing blood levels, causing v-tach or Torsades de Pointes.

Interactions

Chloramphenicol & Clindamycin. Digoxin, warfarin, Theophylline. Drugs that inhibit CYP3A enzyme: verapamil, azole antifungals, protease inhibitors for HIV, diltiazem, pimozide.

Client Education

If abdominal pain occurs, take w/ food. Report heart palpitations or fainting spells. Report hearing loss, vertigo, tinnitus, bloody or watery diarrhea.

Evaluation of Medication Effectiveness

Reduction of infection symptoms.

ACTIVE LEARNING TEMPLATE: Medication

STUDENT NAME Aysha Strawn

MEDICATION Aminoglycosides

REVIEW MODULE CHAPTER _____

CATEGORY CLASS anti-infectives

PURPOSE OF MEDICATION

Expected Pharmacological Action

They inhibit protein synthesis and inhibit transfer RNA from binding w/ messenger DNA. Bactericidal. most effective against gram-negative aerobic bacilli.

Therapeutic Use

Narrow spectrum antibiotics used to treat E-coli, Klebsiella pneumoniae, Pseudomonas aeruginosa. topical form treats skin and eye infections.

Complications

Ototoxicity: tinnitus, headache, ataxia, vertigo.
Nephrotoxicity: polyuria, dilute urine, protein & casts in urine, elevation in BUN and creatinine.

Medication Administration

Available in topical, ophthalmic, IM, IV, & intrathecal forms. Don't apply topical cream to large areas of the body. Neomycin (Active ingredient) is extremely ototoxic & nephrotoxic. IM injections should go deep in the muscle.

Contraindications/Precautions

Allergy to aminoglycoside, clients w/ hearing loss, tinnitus, vertigo, renal and/or chronic neuromuscular disorders. clients w/ disorders like myasthenia gravis. can cause congenital deafness in pregnant women.

Nursing Interventions

Report signs of tinnitus, headache, vertigo to provider. evaluate both cranial nerve function, monitor blood trough levels, monitor kidney and liver function (BUN & creatinine). limit to no more than 10 days of treatment to prevent serious adverse effects.

Interactions

Avoid other ototoxic and nephrotoxic drugs. don't mix in same IV solution as penicillin, cephalosporins, heparin. used w/ neuromuscular blockers can prolong respiratory paralysis.

Client Education

Reinforce IMMEDIATE contact provider at the onset of tinnitus, headache, vertigo, or hearing loss. Encourage to drink plenty of water.

Evaluation of Medication Effectiveness

Improvement of infection symptoms.

ACTIVE LEARNING TEMPLATE: Medication

STUDENT NAME Aysha Strawn

MEDICATION Fluoroquinolones

REVIEW MODULE CHAPTER _____

CATEGORY CLASS Anti-Infectives

PURPOSE OF MEDICATION

Expected Pharmacological Action

Cause the death of susceptible bacterial cells by inhibiting the 2 enzymes necessary for replication of DNA cell division, DNA gyrase and topoisomerase. Bactericidal against many aerobic gram-negative, some aerobic gram-positive bacteria; very few anaerobic bacteria.

Therapeutic Use

Treat a wide range of bacterial infections, including severe UTI. Protect those exposed to anthrax or inhalation of spores. Can treat clients w/ severe infections in a home setting.

Complications

Mild CNS symptoms: confusion, dizziness, & headache. Gastrointestinal side effects include nausea, vomiting, abdominal pain, diarrhea, rupture of Achilles tendon. Photosensitivity. Children under the age of 18. Seizures, increased intracranial pressure, suicidal ideation, hepatotoxicity, anaphylaxis, CDAD.

Medication Administration

Oral & IV solutions. With oral admin, give w/ antacids, iron, calcium, and sucralfate 2 hours after or 6 hours before administration. IV is incompatible w/ other drugs. Infuse over at least 60 minutes.

Contraindications/Precautions

Allergy to fluoroquinolones. Those w/ tendon pain. Anyone w/ a serious CNS disorder such as seizures, GI disorders, depression, or renal impairment. Clients receiving warfarin.

Nursing Interventions

Monitor CNS symptoms. Monitor for c/d/diarrhea. Achilles tendon pain. Sunscreen always when going outside. Monitor for anaphylaxis.

Interactions

Antacids, iron preparations, calcium, dairy products, sucralfate, erythromycin, quinidine, some antipsychotics, and tricyclic antidepressants can increase risk of torsade de pointes. Increased risk of hypoglycemia when taken w/ antidiabetic medication.

Client Education

Report CNS symptoms. Report for c/d/diarrhea. Achilles tendon pain. Sunscreen always when going outside. Encourage to drink 1500-2000 mL of fluids per day. Take antacids, iron, calcium, dairy products, & sucralfate 2 hours after or 6 hours before taking. Decrease caffeine intake.

Evaluation of Medication Effectiveness

Reduction of infection symptoms.

ACTIVE LEARNING TEMPLATE: Medication

STUDENT NAME Aysha Strawn

MEDICATION Sulfonamides

REVIEW MODULE CHAPTER _____

CATEGORY CLASS Antibacterials

PURPOSE OF MEDICATION

Expected Pharmacological Action

Inhibit folic acid synthesis which is a requirement for synthesis of DNA, RNA, and cellular proteins. effective against gram-positive cocci, gram-negative bacilli, some protozoa and fungi.

Therapeutic Use

Treatment of UTI's, Pneumocystis pneumonia, Shigella enteritis, acute bronchitis, acute otitis media in children.

Complications

GI: NVD, Steven Johnson Syndrome, blood dyscrasias, agranulocytosis, aplastic anemia, thrombocytopenia, Super Infections, renal damage. Kernicterus in newborns.

Medication Administration

Available as fixed dose combination tablets, liquid solution, and IV form. Give 8oz of water and encourage 1200-1500 mL fluid intake per day follow guidelines for dilution and flow rate.

Contraindications/Precautions

Women who are pregnant or nursing, Atwy allergies to sulfa drugs, megaloblastic anemia, pharyngitis, strep, hyperkalemia, severe impairment of urine creatine clearance. clients w/ decreased liver and renal function. clients w/ bone marrow suppression

Nursing Interventions

Report severe GI symptoms. Monitor platelets, RBCs, & WBCs. Monitor for superinfection. Monitor for skin rash or hives. Monitor I&O and encourage patient to drink plenty of fluids. Monitor CBC and urinalysis frequently.

Interactions

Alcohol, warfarin, phenytoin, tolbutamide, oral anti-diabetic drugs, oral contraceptives (decreases efficacy)

Client Education

Tell clients to drink 1200-1500 mL of water per day. Encourage to take meds w/ food to decrease GI upset. Tell to report if skin irritation/problems arise. Report pallor, fatigue, easy bruising, sore throat. Report diarrhea that's bloody or watery, mouth pain, diff urinating.

Evaluation of Medication Effectiveness

Reduction of Infection and Infection Symptoms



ACTIVE LEARNING TEMPLATE: Medication

STUDENT NAME Aysha Strawn

MEDICATION Urinary Tract Antiseptics

REVIEW MODULE CHAPTER _____

CATEGORY CLASS Antibiotic

PURPOSE OF MEDICATION

Expected Pharmacological Action

Interfere w/ RNA & DNA producing enzymes. Effective against many gram-positive & gram negative bacteria.

Therapeutic Use

Broad Spectrum antibiotics used to treat and prevent UTIs.

Complications

GI symptoms: N/V/D. Hypersensitivity: pulmonary distress, chest pain, chills, cough → Pulmonary Fibrosis
Permanent peripheral neuropathy, myelin sheath damage
Muscle weakness, hemolytic anemia, thrombocytopenia
Neutropenia, brown urine (harmless), dizziness, drowsiness, headache, photosensitivity.

Contraindications/Precautions

Allergies to the drug. Kidney dysfunction, low creatinine clearance, hx of jaundice from gallbladder disease.
Pregnant, lactating, or in labor. Infants under 1 y/o
Asthma or respiratory disorder, liver disorder, electrolyte imbalance, vitamin B12 deficiency.

Interactions

Antacids decrease absorption. Avoid using with drugs with the potential for pulmonary toxicity.

Evaluation of Medication Effectiveness

Decrease of infection symptoms and abnormal labs.

Medication Administration

oral capsules, swallow whole.
liquid form can be diluted in milk or juice and have client rinse mouth out afterward.

Nursing Interventions

monitor for GI symptoms, monitor for neuropathy, monitor lab values of patient's blood components (RBC, WBC, platelets), monitor I & O's.

Client Education

have them take w/ food or milk. call provider immediately if dyspnea, cough, or fever occur. report numbness, tingling, and weakness. report fatigue, easy bruising, and recurrent infections.