

Anti Microbial Drugs Names

Penicillins

Cephalosporins

Macrolides

Fluoroquinolones

Glycopeptide Antibiotic

Sulfonamides and Trimethoprim

Penicillins

Drug Name

Penicillin G, Penicillin V, Amoxicillin, Ampicillin

Common Name

Almost all end in "cillin"

Indications (why we use the drug)

Pneumonia
Meningitis
Endocarditis
Pharyngitis
Syphilis
Prophylaxis- against bacterial endocarditis in at-risk clients prior to dental procedures

Potential Side Effects

Diarrhea, epigastric distress, nausea, vomiting, rash, pain at IM injection site, phlebitis at IV injection site

Life threatening Side Effects

Allergic reaction (anaphylaxis)
amoxicillin specific: seizures (high doses), clostridium difficile (CDIF) assoc. diarrhea

Penicillins (cont)

Nursing Implications

- Ask about allergies to penicillins
- monitor for allergic reaction
- assess for infection before and after therapy
- obtain specimen for culture BEFORE therapy
- monitor for bowel function for CDIF and report to PCP
- monitor kidney function (nephrotic)
- if PT is taking PO (by mouth) penicillins advise PT to take with food and finish entire course of antibiotic, even if symptoms are resolved

mechanism of action

Binds to bacterial cell wall membrane, causing a cell death. Known as "beta-lactam"

Notes

- 1st class of antibiotics
- high levels of antibiotic resistance to early penicillins

Fluoroquinolones

Drug Names

Ciprofloxacin
Ofloxacin
Moxifloxacin
Levofloxacin
Norfloxacin

Name Commonality

Almost all end in "oxacin"

Fluoroquinolones (cont)

Indication

- UTI
- respiratory infections
- GI tract infections
- Infections of bones, joints, skin, soft tissues
- Anthrax prophylaxis in those that have inhaled anthrax spores

Potential Side Effects

Dizziness, headache, insomnia, diarrhea, nausea, Achilles' tendon rupture, phototoxicity (severe sunburn)

Life threatening Side Effects

Elevated intracranial pressure (ICP)
seizures
suicidal thoughts
hepatotoxicity
Clostridium Difficile (CDIF) assoc. diarrhea
hypersensitivity reaction
SJS
Torsade de Pointes

Nursing Implications

- Monitor for allergic reaction
- Assess for infection before and after therapy
- Obtain specimen for culture before therapy
- Monitor for skin rash and SJS
- Monitor bowel function for CDIF assoc. diarrhea
- Advise PT to observe and report swelling, pain, or inflammation at Achilles' tendon side and to stop taking med
- Teach PT to avoid prolonged sun exposure

Mechanism of Action

Inhibit enzymes necessary for bacterial DNA replication (DNA gyrase and topoisomerase IV)

Cephalosporins

Drug Name

- 1st gen: Cephalexin
- 2nd gen: Cefaclor
- 3rd gen: Ceftriaxone
- 4th gen: Cefepime
- 5th gen: Ceftazidime

Name Commonality

All start with "cef"

Indications

Note: dependent on generation

- skin and skin structure infections
- bone and joint infections
- complicated and uncomplicated UTIs
- Gynecological infections
- lower respiratory tract infections
- intra-abdominal infections
- septicemia
- meningitis
- Otitis Media
- Perioperative (surgery) prophylaxis

Potential Side Effects

- Pain at IM injection site
- phlebitis at IV injection site
- rash

Life threatening Side Effects

Seizures (at high doses), CDIF associated diarrhea, allergic reaction (anaphylaxis), SJS (Steven-Johnson Syndrome)

Cephalosporins (cont)

Nursing Implications

- Ask about Allergies both Cephalosporins and Penicillins
- monitor for allergic reactions
- assess for infection before and after therapy
- Obtain specimen for culture before therapy
- Monitor bowel function for CDIF associated diarrhea
- Monitor for skin rash frequently and discontinue at 1st sign of use (SJS)
- Monitor for kidney function (nephrotic)

Mechanism of Action

Bind to the bacterial cell wall membrane causing cell death. (Aka beta-lactam)

Note: each generation is likely to reach cerebrospinal fluid (CSF), less susceptible to antibiotic resistance and more effective against gram-negative organisms.

Common-class because they are broad-spectrum, well tolerated, and easy to administer.

Sulfonamides & Trimethoprim

Drug Names

- Trimethoprim-sulfamethoxazole
- Sulfadiazine
- Trimethoprim

Name Commonality

N/A

Indications

- UTI
- Otitis Media
- Chancroid
- Pertussis (Whooping cough)
- Shingles
- Pneumocystis jirovecii pneumonia
- Bronchitis

Sulfonamides & Trimethoprim (cont)

Potential Side Effects

- Nausea, vomiting, rash, phlebitis

Life threatening Side Effects

- CDIF associated diarrhea
- Hepatic Necrosis
- erythema multiforme
- toxic epidermal necrolysis
- Agranulocytosis
- Aplastic Anemia
- Hypersensitivity reaction
- SJS

Nursing Implications

- Assess for infection before and after therapy
- Obtain Specimen for culture before therapy
- Monitor IV site closely
- Monitor for allergic reaction
- Do not administer to PT w/ allergy to sulfa drugs, thiazide diuretics, loop diuretics, sulfonamide-type oral hypoglycemics (glipizide)
- Assess for rash and stop at sign of SJS
- Encourage liberal fluid intake
- Monitor urine output
- DO NOT give to women who are pregnant or breastfeeding, or to infants younger than 2 months
- Monitor K⁺ levels (hyperkalemia)
- Obtain regular CBC to monitor for hematologic disorders - Monitor bowel function for CDIF associated diarrhea and provide to PCP

Mechanism of Action

Inhibits bacterial growth by stopping synthesis of tetrahydrofolate, which is essential for DNA, RNA, and protein production

Macrolides

Drug Name

Erythromycin
Azithromycin
Clarithromycin

Name Commonality

Almost all end in "mycin"

Indications

Alternative for PTs who have a penicillin allergy
Legionnaires' Disease
Pertussis (whooping cough) and other respiratory infections
acute diphtheria
chlamydial infections
Pneumonia (due to Mycoplasma pneumoniae)
Streptococcal infections

Potential Side Effects

Abdominal Pain
Diarrhea
Nausea
Vomiting

Life-Threatening Side Effects

Ventricular arrhythmias
Torsades de Pointes
Hepatotoxicity
CDIF assoc. diarrhea
acute generalized exanthematous pustulosis
drug reaction with eosinophilia and systemic symptoms (DRESS)
SJS
toxic epidermal necrolysis

Macrolides (cont)

Nursing Implications

- Monitor for allergic reactions
- Assess for infection before and after therapy
- Obtain specimen for culture before therapy
- Monitor for skin rash frequently and discontinue at first sign of SJS
- May cause increase in certain labs (serum bilirubin, AST, ALT, LDH, alkaline phosphatase)
- administer with meals
- monitor for CDIF assoc. diarrhea and report to PCP
- monitor for ototoxicity
- monitor for dysrhythmias
- Erythromycin inhibits metabolism of antihistamines, theophylline, Carbamazepine, warfarin, and digoxin

Mechanism of Action

Inhibits bacterial protein synthesis

Glycopeptide Antibiotic

Drug Names

Vancomycin

Name Commonality

N/A

Glycopeptide Antibiotic (cont)

indications

- Treatment of potential life-threatening infections when less toxic alternatives are contraindicated
- Particularly useful in staphylococcal infections (MRSA, methicillin resistant staphylococcus aureus)
- Endocarditis
- Meningitis
- Pneumonia
- Septicemia
- Soft tissue infections in Pt who have allergies to penicillins or infections w/penicillin resistance

Potential Side Effects

Nephrotoxicity, phlebitis, Nausea, Vomiting, Hypotension, Ototoxicity

Life Threatening Side Effects

Hypersensitivity reaction (Anaphylaxis)

Nursing Implications

- Assess for infection before and after therapy
- Obtain specimen for culture before therapy
- Monitor IV site closely (vancomycin very irritating) and rotate infusion site
- Monitor BP during therapy for hypotension
- Monitor for ototoxicity (toxic to ear and auditory nerve)
- Monitor for nephrotoxicity
- Monitor for allergic reaction

Mechanism of Action

Binds to bacterial cell wall, resulting in cell death

