

TETRACYCLINES

Indications Rickettsial infections (rocky mountain spotted fever), chlamydia, lyme disease, mycoplasmal infections, chronic severe acne, cholera, gastric/duodenal ulcer caused by H. pylori

PK Excreted in bile, urine, breast milk, undergo enterohepatic circulation

GI GI, deposition of drug in bones and teeth, liver failure, phototoxicity, vertigo, avoid in pregnant

TETRACYCLINES

SHORT CHLORTETRACYCLINE

TETRACYCLINE

OXYTETRACYCLINE

INTERMEDIATE DEMECLOCYCLINE treats SIADH

METHACYCLINE

LONG DOXYCYCLINE treat infections in pts with anuria (eliminates via bile, feces)

MINOCYCLINE achieves high CNS concentrations in the absence of inflammation, metabolized in liver

MACROLIDES/KETOLIDES

AZITHROMYCIN show cross-resistance with erythromycin longest t1/2

Advantages: less GI disturbances

CLARITHROMYCIN show cross-resistance with erythromycin

Advantage: lower incidence of GI disturbances, less frequent dosing

ERYTHROMYCIN MOA: Interferes with aminoacyl translocation, preventing the transfer of the tRNA bound at the A site of the 50S rRNA complex to the P site of the rRNA complex

Destroyed by gastric acid and must be **enteric coated** shortest t1/2

MACROLIDES/KETOLIDES (cont)

TELITHR OMYCIN Effective against macrolide-resistant organisms

Indications: respiratory tract infections, including community-acquired bacteria pneumonia, acute exacerbations of chronic bronchitis, sinusitis and strepto pharyngitis

Indications: community acquired pneumonia (mycoplasma, legionella, chlamydia), pertussis, campylobacter jejuni gastroenteritis, MAC (azalides)

PK: Well distributed, CNS penetration limited except with inflammation. Most of drug is concentrated in the liver and excreted in the bile, some inactivated in the liver by demethylation.

AE: GI, jaundice, ototoxicity

Bacteriostatic, bactericidal at high doses

OTHERS

CLINDAMYCIN **Indications:** penicillin-resistant anaerobic infections

Clinical use: SSTI

Pharmacology: high bone concentrations

Toxicity: diarrhea, allergy, skin rashes, pseudomembranous colitis caused by overgrowth of C. diff

CHLORAMPHENICOL **Indications:** Rickettsiae (typhus and Rocky Mountain spotted fever); bacterial meningitis

Clinical use: eye infections

AE: GI disturbances, gray baby syndrome, aplastic anemia

PEARL: Because of its toxicity and resistance, its use is restricted to life-threatening infections for which no alternative exists

STREPTOGRAMINS

QUINUPRISTIN-DALFOPRISTIN **AE:** venous irritation, athralgia and myalgia, hyperbilirubinemia

OXAZOLIDINONES

LINEZOLIDE **PK:** completely absorbed, widely distributed throughout the body, excreted renally and non-renally
AE: GI upset

AMINOGLYCOSIDES

STREPTOMYCIN 2nd line agent for the treatment of tuberculosis in combination with other agents to prevent emergence of resistance

AE: vestibular disturbances

GENTAMICIN Intrathecal
Indications: mainly used in combo for severe infections (sepsis and pneumonia) caused by resistant strains of gram negative bacteria, infected burns/wounds/lesions, prevention of catheter infections

GENT+B-LACTAM Synergistic effect against pseudomonas, proteus, enterobacter, klebsiella, serratia, stenotrophomonas, and other gram negative rods that are resistant to multiple antibiotics

TOBRAMYCIN Inhalation
 Cautioned in pts with preexisting renal, vestibular or hearing disorders

STREPTO+PCN Used for tuleremia and enterococcal carditis

KANAMYCIN (topical only) Kanamycin-resistant strains may be cross-resistant to amikacin

AMIKACIN Semisynthetic derivative of kanamycin, less toxic
Indications: tx microorganisms resistant to gentamicin and tobramycin

NEOMYCIN (topical only) **Indications:** reduce the risk of infections during bowel surgery

AMINOGLYCOSIDES (cont)

SPECTIN OMYCIN **Indications:** alternative treatment for drug-resistant gonorrhea or gonorrhea in pcn-allergic pts
 No cross-resistance with other drugs used in gonorrhea
AE: pain at injection site, fever, nausea

AE: Ototoxicity (reversible), **nephrotoxicity** (reversible), neuromuscular blockade

PK: Levels in most tissue are low. No CNS penetration. High accumulation in renal cortex and lymph of inner ear. Excreted into the urine by glomerular filtration. Accumulation occurs in patients with renal failure, not metabolized

Used against aerobic gram negative bacilli
 Exhibit concentration-dependent killing
 Postantibiotic effect

