

### 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** 2<sup>nd</sup> 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

