

B-LACTAMS

PENICILLINS

CARBAPENEMS

CEPHALOSPORINS

MONOBACTAMS

GLYCOPEPTIDES

Tetracyclines – impairs the bactericidal effects of B-lactams

PENICILLINS

MOA Bind to transpeptidases and block cross-linking of peptidoglycan residues resulting in weak cell walls and bacterial lysis in bacteria that are actively growing

PK Excreted really
Penetration into the eye, prostate, and CNS is poor,
Absorption impaired by food-take 1-2 hrs before or after meal to prevent protein binding, acid inactivation

AE Hypersensitivity, anaphylaxis, super infections, diarrhea, convulsions (high dose, renal failure, epileptic pts) , hematologic toxicities, nephritis, cation toxicity

PENICILLINS

PENICILLIN G Unstable in acidic pH, given IV over IM
More active against gram-negative organisms (i.e., Neisseria) than penicillin V.

PENICILLIN V More resistant to acid

Penicillin G procaine and **Penicillin G benzathine** (i.m.) - formulated to delay absorption, resulting in prolonged blood and tissue concentrations.

ANTI-STAPHYLOCOCCAL PENICILLINS

METHICILLIN No longer used in US

NAFCILLIN Excreted biliary

OXACILLIN Excreted by kidney and biliary

DICLOXACILLIN Excreted by kidney and biliary

CLOXACILLIN Excreted by kidney and biliary

Indications: MSSA, MSSE, Bone, joint, urinary tract, skin, endocarditis, meningitis

AMINOPENICILLIN (EXTENDED-SPECTRUM)

AMPICILLIN UTI, sinusitis, otitis, lower respiratory tract infections

AMOXICILLIN

Indications: Respiratory infections, UTI, skin, bacterial meningitis, septicemia, endocarditis, GI infections (**typhoid fever**, dysentery)

More expensive

ANTI-PSEUDOMONAL (UREIDO-PENICILLIN)

CARBENICILLIN No longer used in US

PIPERACILLIN Most potent

TICARCILLIN

PIPERACILLIN-TAZOBACTAM

TICARCILLIN-CLAVULANIC ACID

Indications: Folliculitis, osteomyelitis, endocarditis, UTI, respiratory tract, wounds, bacteremia, CNS

Formulation of ticarcillin and piperacillin with β -lactamase inhibitors (formulation with clavulanic acid or tazobactam, respectively), extends the antimicrobial spectrum to include penicillinase-producing organisms

NOTES PENICILLINS

PROBENICID Increases serum levels of penicillins

NAFCILLIN Only one not excreted renally

AMOXICILLIN Only one that doesn't undergo acid inactivation (absorption not impaired by food)