

- IV \Rightarrow Ampicillin + Sulbactam, ticarcillin + Clavulanic acid
IM }
Piperacillin + tazobactam, nafcillin + oxacillin }
Antistaphylococcal

- Oral \Rightarrow Penicillin V, amoxicillin, dicloxacillin.

- Depot forms, given IM:
procaine penicillin G, benzathine penicillin G.

- all penicillines are excreted via glomerular filtration
- Nafcillin + oxacillin \Rightarrow metabolized in the Liver.

- Probenecid \Rightarrow inhibits secretion of penicillins.

- Penicillinases is formed by most staphylococci and many gram negative organisms

Inhibitors of these bacterial enzymes are:

① Clavulanic acid ② tazobactam ③ Sulbactam

- Structural change in PBP leads to:

① Methicillin Resistance to staphylococcus

② Penicillin G resistance to pneumococci + enterococci

- Pseudomonas aeruginosa \Rightarrow changes in the porin structure in the outer cell wall \Rightarrow leads to Resistance.

- Narrow spectrum: Penicillin G

therapy:

- ① Streptococci
- ② Meningococci
- ③ gram-positive bacilli
- ④ Spirochetes

Resistant:

- ① Staphylococcus aureus
 - ② Neisseria gonorrhoeae
- ↳ via production of:
 β -lactamases.

- Penicillin G \rightarrow drug of choice for Syphilis.

- Activity is enhanced against enterococci w/ Aminoglycosides.

- Penicillin V is an oral drug used mainly in oropharyngeal infections.

- Very Narrow - Spectrum:

- ① Methicillin
- ② Nafcillin
- ③ Oxacillin

Rare \uparrow Nephrotoxic.

\Rightarrow they are used to treat staphylococci infections.

epidermidis \leftarrow aureus \rightarrow But Methicillin maybe resistant.

- Wider spectrum: ^A ① Ampicillin ② Amoxicillin

Therapy:

- ① Enterococci
- ② Listeria monocytogenes
- ③ E. coli
- ④ Proteus mirabilis
- ⑤ H. influenza
- ⑥ Moraxella catarrhalis.

\Rightarrow In enterococcal + listeria infections, we use Ampicillin w/ Aminoglycosides for synergistic Activity.

^B

- ① Piperacillin
- ② ticarcillin

therapy:

- against several gram(-) rods, ex \rightarrow pseudomonas, Enterobacter, and in some cases \rightarrow klebsiella species.

\Rightarrow Most drugs in this group has synergistic Activity w/ Aminoglycosides.