Beta lactam antibiotics 2

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Contents

- Cephalosporin
- Monobactams
- Carbapenems

Cephalosporins

Cephalosporins

- Structure closely related to penicillins
- Mode of action

Inhibit bacterial cell wall synthesis

- Bactericidal

Pharmacokinetics

- Most are excreted unchanged in urine
- Urinary excretion is inhibited by probenacid.
- Ceftrioxone- urinary and billiary excretion
- Widely distributed

Adverse effects

- Allergic reactions –skin rashes, anaphylaxis

(Cross allergy between penicillin and cephalosporin in 10% of subjects)

Thrombocytopenia

Hemolytic anemia

Interstitial nephritis

Diarrhea/pseudomembranous colitis

Classification

1st generation	2nd generation	3rd generation
Uncomplicated respiratory /urinary tract infections	More resistant to beta lactamase .Staph, Streptococcal ,Niesseria, Haemophilus infections	More gram negative cover with retaining gram positive cover

1st generation cephalosporins

- Cefazolin –parenteral
- Cefalector - oral
- Cefalexin – oral

- Indications-simple respiratory and urinary tract infections

2nd generation cephalosporins

- Cefuroxime -IV/ oral
- Otitis media,pneumonia, post operative infection prophylaxis

3rd generation cephalosporins

Parenteral

- Cefotaxime- broad spectrum –for serious infections
- Ceftrioxone- broad spectrum
- Ceftazidime –more active against pseudomonas,gram negative cover less

Oral

- Cefixime

Carbepenems

- Has the widest spectrum of currently available antibiotics
- Most gram negative and positive bacteria and anaerobes are sensitive
- Only occasional pseudomonas are relatively resistant
- Examples

-imipenem

-meropenem

Monobactams

- To treat complicated gram negative sepsis
- Ex-Aztreonam