Cefmetazole

Antibiotic Class:

Second-Generation Cephalosporin (2nd generation cephamycin)

Antimicrobial Spectrum:

Staphylococcus aureus (methicillin susceptible), Coagulase negative Staphylococci, Streptococcus pneumoniae (penicillin susceptible), Streptococcus spp (less activity for Gram positives compared to 1st and 2nd generation cephalosporins), Haemophilus influenzae, Moraxella catarrhalis, Neisseria meningitides, Neisseria gonorrhoeae, Enterobacteriaceae, E. coli Bacteroides spp.

Mechanism of Action:

Cephalosporins exert bactericidal activity by interfering with bacterial cell wall synthesis and inhibiting cross-linking of the peptidoglycan. The cephalosporins are also thought to play a role in the activation of bacterical cell autolysins which may contribute to bacterial cell lysis.

Pharmacodynamics:

Cephalosporins exhibit time-dependent killing (T > MIC)

Pharmacokinetics:

Dose of 2g: Cmax: 140 mcg/L; Protein binding: 85%; Half-life: 1-1.5 hours; Table 10

Adverse Effects:

Hypersensitivity: Maculopapular rash, Urticaria, Pruritis, Anaphylaxis/angioedema, eosinophilia

Hematologic: Hypoprothrombinemia, Neutropenia, Leukopenia, Thrombocytopenia

GI: Diarrhea, *C. difficile* disease Renal: Interstitial nephritis

Table 14

Dosage:

IV: Powder for reconstitution: 1g, 2g

Dosing in adults: 2g IV q 6-12h

Dosing in pediatrics: Not Recommended

Disease state based dosing:

Renal failure: CrCl > 90: Standard dosing

CrCl 50-90mL/min: 1-2g q12h CrCl 30-49mL/min: 1-2g q16h CrCl 10-29mL/min: 1-2g q24h CrCl < 10mL/min: 1-2g q48h Hepatic failure: No dosing changes recommended at this time.

Contraindications/Warnings/Precautions:

Precautions: hypersensitivity to penicillins, history of gastrointestinal disease, particularly colitis, renal impairment, concomitant alcohol intake (disulfiram reactions)

Drug Interactions:

Live Typhoid Vaccine - decreased immunological response to the typhoid vaccine

Pregnancy:

Category B: No evidence of risk in humans but studies inadequate.

Monitoring Requirements:

Therapeutic: Culture and sensitivities, serum levels, signs and symptoms of infection, white blood cell count

Toxic: Urinalysis, BUN, SCr, AST and ALT, skin rash, Neutropenia and leukopenia, Prothrombin time in patients with renal or hepatic impairment or poor nutritional state, as well as patients receiving a protracted course of antimicrobial therapy, and patients previously stabilized on anticoagulant therapy.

Brand names/Manufacturer: Zefazone®/Upjohn