Nitrofurantoin

Antibiotic Class:
Nitrofuran

Antimicrobial Spectrum:
E. coli, Citrobacter spp., S. sapprophyticus, E. faecalis.

Mechanism of Action:
Inhibits bacterial enzymes responsible for cell wall synthesis

Pharmacodynamics:
No data

Pharmacokinetics:
Bioavailability: 90%, Tmax: 2 hours, Cmax (50mg PO): 0.4mcg/ml, Volume of distribution: 40L, Half-life: 1 hour

Adverse Effects:
CNS: Headache, dizziness, confusion
GI: nausea, vomiting, pancreatitis
Hematologic: Eosinophilia and fever
Other: Peripheral neuritis

Dosage:
Capsule, macrocrystal: 25, 50, 100 mg
Capsule, macrocrystal/monohydrate: 100 mg
Suspension, oral: 25 mg/5 mL

Adults – UTI, treatment: Oral: 50-100 mg/dose every 6 hours (not to exceed 400 mg/24 hours)
UTI, prophylaxis:: Oral: 50-100 mg/dose at bedtime
Children: UTI, treatment: Oral: Children >1 month: 5-7 mg/kg/day in divided doses every 6 hours; maximum: 400 mg/day
UTI, chronic therapy: Oral: 1-2 mg/kg/day in divided doses every 12-24 hours; maximum: 100 mg/day

Disease state based dosing:
Renal failure: Contraindicated in patients with CrCl < 60ml/min, hemodialysis, peritoneal dialysis, and hemofiltration
Hepatic failure: No data

Contraindications/Warnings/Precautions:
Precautions:

- Peripheral neuritis is frequently associated with nitrofurantoin use in the elderly with impaired renal function. Symptoms begin within 45 days of therapy and involve ascending motor and sensory polyneuropathy

Drug Interactions:
Phenytoin – Increased metabolism of phenytoin suggested
Magnessium trisilicate antacids – Decreased nitrofurantoin absorption
Probenecid – Decreased tubular secretion of nitrofurantoin
Quinolones – In-vitro antagonism – clinical significance unknown

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

Monitoring requirements:
Therapeutic: Culture and sensitivities, signs and symptoms of infection
Toxic: Signs/Symptoms of polyneuropathy

Brand names/Manufacturer: