Clarithromycin

Antibiotic Class:
Macrolide

Antimicrobial Spectrum:
Staphylococcus aureus, Bacillus cereus, Bordetella pertussis, Chlamydia trachomatis, Corynebacterium diphtheriae, Gardnerella vaginalis, H. influenzae, Legionella pneumophila, Moraxella catarrhalis, Mycobacterium spp., Mycoplasma pneumoniae, Pasteurella multocida, S. pneumoniae, S. pyogenes.

Mechanism of Action:
Macrolides inhibit protein synthesis. They impair the elongation cycle of the peptidyl chain by specifically binding to the 50 S subunit of the ribosome.

Pharmacodynamics:
Macrolides produce time-dependent killing

Pharmacokinetics:
250mg dose: Cmax: 6.8mg/L; Half-life: 4.4 hours; Volume of distribution: 3-4 L/kg; Table 3

Adverse Effects:
Gastrointestinal: abdominal cramps, nausea, diarrhea, anorexia, pancreatitis
Genitourinary: vulvovaginal candidiasis, renal failure
Cardiovascular System: prolongation of QT interval
Hepatic: hepatotoxicity, jaundice
Hematologic: eosinophilia, thrombocytosis, lymphopenia
Central Nervous System: headache, fatigue
Endocrine/Metabolic: hyperglycemia
Dermatologic: itching, nail discoloratiom

Dosage:
Oral: 500mg extended release tablet, 250mg/500mg immediate release tablet
125mg/5ml, 187.5mg/5ml, 250mg/5ml powder for reconstitution to suspension

Dosing in adults:
Chronic bronchitis, acute exacerbation: 250-500mg PO q12h x 7-14 days
Chronic bronchitis, acute exacerbation (extended-release): 1000mg PO q24h x 7 days
Helicobacter pylori, DUAL THERAPY: Clarithromycin 500mg PO q8h and omeprazole x 14 days (an additional 14 days of omeprazole for ulcer healing and symptom relief)
Helicobacter pylori, DUAL THERAPY: Clarithromycin 500mg PO q8-12h and ranitidine bismuth citrate 14 days (an additional 14 days of ranitidine for ulcer healing and symptom relief)
Helicobacter pylori, TRIPLE THERAPY: Clarithromycin 500mg PO q12h, lansoprazole, and amoxicillin x 10 or 14 days
Helicobacter pylori, TRIPLE THERAPY: Clarithromycin 500mg PO q12h, omeprazole, amoxicillin x 10 days (when ulcer present at time of initiation of therapy-an additional 18 days of omeprazole for ulcer healing and symptom relief)
Mycoplasma avium complex disease, prophylaxis: 500mg PO q12h
Mycoplasma avium complex disease, treatment: 500 mg PO q12h in combination with other antimycobacterial medications

Pharyngitis/tonsillitis: 250mg PO q12h x 10 days
Pneumonia, community-acquired: 250mg PO q12h x 7 to14 days
Pneumonia, community-acquired (extended-release): 1000 mg PO q24h x 7 days
Sinusitis, acute maxillary: 500mg PO q12h x 14 days
Sinusitis, acute maxillary (extended-release): 1000mg PO q24h x 14 days
Skin/skin structure infection, uncomplicated: 250mg PO q12h x 7-14 days

Dosing in pediatrics:
Mycoplasma avium complex disease, prophylaxis: 7.5 mg/kg PO q12h (maximum dose 500mg q12h)
Mycoplasma avium complex disease, treatment: 7.5 mg/kg PO q12h (maximum dose 500mg q12h) in combination with other antimycobacterial medications
Otitis media, acute (≥6 months): 15 mg/kg/day divided q12 h x10 days, Maximum dose 1g/day
Pharyngitis/tonsillitis (≥6 months): 15 mg/kg/day divided q12h x 10 days, Maximum dose 1g/day
Pneumonia, community-acquired (≥6 months): 15 mg/kg/day divided q12h x 10 days, Maximum1g/day
Sinusitis, acute maxillary (≥6 months): 15 mg/kg/day (divided q12h) x 10 days, Maximum1g/day
Skin and skin structure infections (≥6 months): 15 mg/kg/day divided q12h x 10 days, Maximum 1g/day

Disease state based dosing:
Hepatic failures: No adjustment necessary
Renal failures: Patients with a CrCl < 30ml/min should receive half the usual dose with same frequency

Contraindications/Warnings/Precautions:
Contraindicated: Coadministration with astemizole, cisapride, ergotamine, terfenadine
Precautions: May prolong the QTc interval

Drug Interactions:
Due to its hepatic metabolism, caution should be exercised when administering this agent with other drugs metabolized in the liver. The following drug interactions are clinically relevant but do not represent the comprehensive list of documented or potential drug-drug interactions.
Amiodarone: Incereased risk of cardiotoxicity (QTc prolongation)
Cyclosporine: Concomitant administration may increase cyclosporine levels. Close monitoring of cyclosporine levels is recommended
Phenytoin: Concomitant administration may increase phenytoin levels. Close monitoring of phenytoin levels is recommended
Digoxin: Coadministration may lead to increased risk of digoxin toxicity
Warfarin: Coadministration may lead to enhanced anticoagulation.
Rifabutin: Coadministration may lead to increased risk of rifabutin toxicity and decrased clarithromycin levels

Pregnancy:
Category C: Risk unknown. Human studies inadequate

Monitoring Requirements:
Therapeutic: Periodic WBC, chest X-ray if pneumonia, cultures, temperature

Brand names/Manufacturer: