Josamycin

Antibiotic Class:
Macrolide

Antimicrobial Activity:
Gram-positive bacteria, *Mycoplasma pneumoniae*, *Neisseria gonorrhea*, *Neisseria meningitidis*, and *Bordetella pertussis*

Mechanism of Action:
Macrolides are inhibitors of protein synthesis. They impair the elongation cycle of the peptidyl chain by specifically binding to the 50 S subunit of the ribosome. Specificity towards prokaryotes relies upon the absence of 50S ribosomes in eukaryotes.

Pharmacodynamics:
Macrolides are considered time-dependent antibiotics, which means that their efficacy will be related to the time interval during which their concentration at the infected site remains above the MIC of the offending organism.

Pharmacokinetics:
Cmax: 1.2mg/L; Half-life: 2 hours; Table 3

Adverse Effects:
Gastrointestinal: abdominal pain, nausea, vomiting, diarrhea
Hepatic: hepatotoxicity
Hematologic: eosinophilia
Dermatologic: skin rashes
Other: hypersensitivity

Dosage:
Oral

Bronchitis: 500mg PO three times daily for up to 14 days
Mediterranean Spotted Fever: 1 gram PO every 8 hours for 5 days
Mycoplasma Pneumonia: 2 grams per day (in four equally divided doses) for 7 days

Disease state based dosing:
Hepatic failure: drug may accumulate in patients with severe liver disease; no specific dosing recommendations available.

Contraindications/Warnings/Precautions:
Contraindications: Hypersensitivity to josamycin or other macrolide antibiotics.
Precautions: Biliary occlusion, liver disease

Drug Interactions:
Astemizole (major severity):

MOA: decreased hepatic metabolism of astemizole resulting in QT prolongation.
Management: The concurrent use of astemizole and josamycin is not recommended.

Dofetilide (major severity):

MOA: inhibition of cytochrome P450 3A4-mediated dofetilide metabolism; additive cardiac effects
Management: The concurrent administration of macrolide antibiotics and dofetilide is not recommended.

Ergot Derivatives (major severity):

MOA: inhibition of cytochrome P450 3A4-mediated ergot derivative metabolism by a macrolide antibiotic resulting in acute ergotism
Management: The concurrent use of an ergot derivative and a macrolide antibiotic, such as josamycin, is contraindicated

Pregnancy:

FDA pregnancy risk category not available for Josamycin

Monitoring Requirements:

Therapeutic: Periodic WBC, cultures, temperature
Toxicity: Liver function tests

Brand names/Manufacturer: EN-141/Investigational in the USA