**Gemifloxacin**

**Antibiotic Class:**
Quinolone

**Antimicrobial Spectrum:**
Gram-positive: methicillin-susceptible *Staphylococcus aureus* (MSSA) (highest quinolone activity vs. MSSA), methicillin-resistant *Staphylococcus aureus* (MRSA), *Streptococcus pneumoniae*, *Enterococcus faecalis*, *Listeria monocytogenes*
Gram-negative: *Enterobacteriaceae*, *H. influenzae*, other *Haemophilus* spp., *N. gonorrhoeae*, *N. meningitides*, *M. catarrhalis*, *Stenotrophomonas maltophilia*
Atypicals: *Legionella pneumophila*, *Chlamydia pneumonia*, *Mycoplasma pneumoniae*

**Mechanism of Action:**
Inhibition of topoisomerase (DNA gyrase) enzymes, which inhibits relaxation of supercoiled DNA and promotes breakage of double stranded DNA.

**Pharmacodynamics:**
Fluoroquinolones produce both concentration dependent (peak:MIC), and a combination of concentration and time-dependent killing (AUC:MIC).

**Pharmacokinetics:**
320mg dose; Cmax: 1.6mg/ml; Volume of distribution: 4.18; Table 2

**Adverse Effects:**
Gastrointestinal: nausea, upper GI discomfort
CNS: headache, insomnia, dizziness; hallucinations, depression, psychotic reactions (rare)
Renal: interstitial nephritis
Cardiovascular: QTC prolongation, torsades de pointes, arrhythmias
Skin: Rash (10% of patients with rash develop severe rash which may require discontinuation of therapy)

**Dosage:**
Tablet: 320mg

Adult:
Chronic bronchitis: 320mg PO q24h x 5 days
Community-acquired pneumonia: 320mg PO q24h x 7 days

Pediatric:
Efficacy and safety not established in patients less than 18 years of age

Table 4

Disease state based dosing:
Renal failure: CrCl < 40mL/min: 160mg PO q24 hours
Hemodialysis: 160mg PO q24 hours
Peritoneal dialysis: 160mg PO q24 hours

**Contraindications/Warnings/Precautions:**
Contraindications: Hypersensitivity to gemifloxacin, other fluoroquinolones, or to any of its components

Precautions:
- Prolongation of QT interval; avoid concurrent use with other drugs that prolong QT interval and in patients with risk factors for torsades de pointes (hypokalemia, significant bradycardia, cardiomyopathy)
- Renal insufficiency
- Patients with glucose 6-phosphate dehydrogenase deficiency
- Excessive exposure to sunlight should be avoided
- Diabetes mellitus; disturbances of blood glucose have been reported, usually in diabetic patients receiving concomitant treatment with an oral hypoglycemic agent or with insulin

**Drug Interactions:**
Divalent cations: aluminum, magnesium zinc, iron, calcium, antacids, sucralate – reduced bioavailability of quinolones (can cause therapeutic failure)

**Pregnancy:**
Category C: Risk unknown. Human studies inadequate.

**Monitoring Requirements:**
Therapeutic: Culture and sensitivities, signs and symptoms of infection
Toxic: Urinalysis, BUN, SCr, AST and ALT, Physical examination: encephalopathic changes

**Brand names/Manufacturer:** Factive®/Oscient