Ofloxacin

**Antibiotic Class:**
Quinolone

**Antimicrobial Spectrum:**
Gram positive bacteria: methicillin-susceptible *Staphylococcus epidermidis, Staphylococcus saprophyticus*
Gram negative bacteria: *Enterobacteriaceae, H. influenzae, other Haemophilus spp., N. gonorrhoeae, N. meningitides, M. catarrhalis, P. aeruginosa,*

**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:**
400mg dose; Cmax: 1.5mg/ml; Volume of distribution: 1.7 L/kg; Table 2

**Adverse Effects:**
CNS: headache, insomnia, dizziness; hallucinations, depression, psychotic reactions (rare)
Connective tissue: tendon injury
Renal: interstitial nephritis
Cardiovascular: QTC prolongation, torsades de pointes, arrhythmias

**Dosage:**
Oral: 200mg, 300mg, 400mg tablet
Intravenous: 200mg/50ml
Opthalmic/Otic: 0.3% solution

Adults:
Chronic bronchitis: 400 mg PO/IV every 12 hr x 10 days
Community-acquired pneumonia: 400 mg PO/IV every 12 hr x 10 days
Cystitis: (E. coli, K. pneumoniae) 200 mg PO/IV every 12 hr x 3 days
Cystitis: (other approved organisms) 200 mg PO/IV every 12 hr x 7 days
Gonorrhea: 400 mg IV or ORALLY as a single dose
Nongonococcal cervicitis/urethritis: 300 mg PO/IV every 12 hr x 7 days
Pelvic inflammatory disease: 400 mg PO/IV every 12 hr x 10-14 days
Prostatitis: 300 mg PO/IV every 12 hr for 6 weeks
Skin/skin structure infection: 400 mg PO/IV every 12 hr x 10 days
Urinary tract infection, complicated: 200 mg PO/IV every 12 hr x 10 days
Conjunctivitis: Day 1 and 2, 1-2 drops in affected eye every 2-4 hr; day 3-7, 1-2 drops 4 times a day
Corneal ulcers: Day 1 and 2, 1-2 drops in affected eye every 30 minutes while awake; day 3-7, 1-2 drops every hour while awake; day 7-9, 1-2 drops 4 times a day
Otitis externa: 10 drops into affected ear once a day x 7 days
Otitis media with perforated Tympanic membranes: 10 drops into affected ear twice a day x 14 days

Pediatric:
Conjunctivitis: (1 year of age and older) Day 1 and 2, 1-2 drops in affected eye every 2-4 hr; day 3-7, 1-2 drops 4 times a day
Corneal ulcers: (1 year of age and older) Day 1 and 2, 1-2 drops in affected eye(s) every 30 minutes while awake; day 3-7, 1-2 drops every hour while awake; day 7-9, 1-2 drops 4 times a day
Otitis externa: (6 months-13 years of age) 5 drops in affected ear once a day for 7 days; (13 years and older) 10 drops into affected ear(s) once a day x 7 days
Otitis media, acute with tympanostomy tubes: (1-12 years of age) 5 drops in affected ear twice a day x 10 days
Otitis media, chronic suppurative with perforated Tympanic membranes: (12 years and older) 10 drops in affected ear twice a day x 14 days

Table 4

Disease state based dosing:
Renal failure: CrCl < 20 mL/min, one-half the usual dose q24 hr
Hepatic failure: severe hepatic impairment (cirrhosis), maximum of 400 mg q24 hr

Contraindications/Warnings/Precautions:
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)
- Patients with glucose 6-phosphate dehydrogenase deficiency
- 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, sucralfate – reduced bioavailability of quinolones (can cause therapeutic failure)
Theophylline, caffeine, xanthines: clearance of these is inhibited with fluoroquinolones

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: