

# 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. meningitidis*, *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; C<sub>max</sub>: 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

Ophthalmic/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:**