**Moxifloxacin**

**Antibiotic Class:**
Quinolone

**Antimicrobial Spectrum:**
Gram positive bacteria: methicillin-susceptible *Staphylococcus aureus* (MSSA), methicillin-resistant *Staphylococcus aureus* (MRSA), *Streptococcus pneumoniae*, *Listeria monocytogenes*
Gram negative bacteria: *Enterobacteriaceae*, *H. influenzae*, *other Haemophilus spp.*, *N. gonorrhoeae*, *N. meningitides*, *M. catarrhalis*, *Stenotrophomonas maltophilia*, *S. maltophilia*
Mycobacteria: *Mycobacterium tuberculosis*, *M. fortuitum*, *M. kansasii*, *M. intracellulare*, *M. avium*
Atypicals: *Legionella pneumophilia*, *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 dependant (peak:MIC), and a combination of concentration and time-dependant killing (AUC:MIC).

**Pharmacokinetics:**
- 400mg dose
  - Cmax: 4.5mg/L
  - Volume of distribution: 2.7L/kg

**Adverse Reaction:**
Gastrointestinal: nausea, upper GI discomfort
CNS: headache, insomnia, dizziness; hallucinations, depression, psychotic reactions (rare)
Renal: Interstitial nephritis
Cardiovascular: QTC prolongation, torsades de pointes, arrhythmias

**Dosage:**
- Oral: 400mg tablet
- Intravenous: 400mg/250ml IV
- Ophthalmic: 0.5% solution

**Adult:**
- Chronic bronchitis: 400 mg PO/IV every 24 hr x 5 days
- Community-acquired pneumonia: 400 mg PO/IV every 24 hr x 7-14 days
- Conjunctivitis, bacterial: (0.5% ophthalmic solution) 1 drop to affected eye(s) 3 times a day x 7 days
- Sinusitis: 400 mg IV or ORALLY every 24 hr for 10 days
- Skin/skin structure infection: 400 mg PO/IV every 24 hr 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: No dosage adjustment recommended
Hepatic failure: No dosing adjustment recommended

**Dosing during Continuous Renal Replacement Therapy**
CVVH (Continuous venovenous hemofiltration): 400mg q12h
CVVHD (Continuous venovenous hemodialysis): 400mg IV q12h
CVVHDF (Continuous venovenous hemodiafiltration) 400mg IV q12h
Note: CVVH is mainly for fluid removal alone. Many institutions will employ more CVVHD or CVVHDF which combine dialysis with fluid removal.

**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)

**Pregnancy Risk Factor:**
C

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

**Brand names/Manufacturer:**
- ACTIRA (Bayer - AUSTRIA, NETHERLANDS, SPAIN)
- AVALOX (Bayer – GERMANY, BRAZIL, SWITZERLAND, ITALY)
- AVELON (Bayer - SOUTH AFRICA)
- AVELOX (Bayer – USA, FINLAND, SWEDEN, IRELAND, AUSTRALIA, MEXICO, AUSTRIA, CANADA, GREECE, CHILE, HUNGARY, DENMARK, CZECH REPUBLIC, NETHERLANDS, HONG KONG, BELGIUM, THAILAND, SINGAPORE, UK, NEW ZEALAND, MALAYSIA, PORTUGAL, CANADA)
- IZILOX (Bayer - FRANCE)
- MEGAXIN (Agis - ISRAEL)
- OCTEGRA (Bayer – AUSTRIA, ITALY, SPAIN, GREECE, CHILE, NETHERLANDS)
- PROFLOX (Therabel – BELGIUM, SPAIN, PORTUGAL)
- VIGAMOX (Alcon - USA)