moxifloxacin (mox-i-fllox-a-sin)  

**Indications**  
Treatment of the following bacterial infections: Respiratory tract infections, including acute sinusitis, acute exacerbations of chronic bronchitis, and community-acquired pneumonia (CAP). Uncomplicated and complicated skin and skin structure infections, intra-abdominal infections.

**Action**  
Inhibits bacterial DNA synthesis by inhibiting DNA gyrase enzyme.  
Therapeutic Effects: Death of susceptible bacteria.  

**Spectrum:** Active against gram-positive pathogens, including: Staphylococcus aureus, Streptococcus pyogenes, Streptococcus pneumoniae (including multi-drug resistant strains). Gram-negative spectrum notable for activity against: Escherichia coli, Klebsiella pneumoniae, Haemophilus influenzae, Haemophilus parainfluenzae, Moraxella catarrhalis. Additional spectrum includes: Chlamydophila pneumoniae, Mycoplasma pneumoniae.

**Pharmacokinetics**  
Absorption: Well absorbed (90%) following oral administration.  
Distribution: Widely distributed; tissue concentrations may exceed plasma concentrations.  
Metabolism and Excretion: Mostly metabolized by the liver; 20% excreted unchanged in urine, 25% excreted unchanged in feces.  
Half-life: 12 hr.

**TIME/ACTION PROFILE (blood levels)**  
**ROUTE** | **ONSET** | **PEAK** | **DURATION**  
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**IV** | rapid | end of infusion | 24 hr  
**PO** | within 1 hr | 1–3 hr | 24 hr

**Contraindications/Precautions**  
Contraindicated in: Hypersensitivity (cross-sensitivity within class may exist); QTc interval prolongation; Uncorrected hypokalemia or hypomagnesemia; Concurrent use of Class IA antiarrhythmics (disopyramide, quinidine, procainamide) or Class III antiarrhythmics (amiodarone, tocainide) (risk of QTc interval prolongation and torsade de pointes); History of esophageal stricture (may worsen symptoms including muscle weakness and breaking of vôlume).  
Use Cautiously in: Known or suspected CGVH disorder. Concurrent use of erythromycin, azithromycin, and ticarcillin.  

**Adverse Reactions/Side Effects**  
CNS: ELEVATED INTRACRANIAL PRESSURE (including pseudotumor cerebri), SEIZURES, agitation, anxiety, confusion, depression, dizziness, hallucinations, headache, insomnia, nightmares, paranoia, tremor.  
CV: TORSADE DE POINTES, QT interval prolongation.  
GI: PSEUDOMEMBRANOUS COLITIS, diarrhea, nausea, abdominal pain, dyspepsia, liver enzymes, vomiting.  
Derm: STEVENS-JOHNSON SYNDROME, photosensitivity.  
MS: tendinitis, tendon rupture.  
Neuro: peripheral neuropathy.  
Misc: anaphylaxis, other allergic reactions including angioedema.  

**Interactions**  
Drug-Drug: Concurrent use of amiodarone, disopyramide, erythromycin, procainamide, deltorip, quinidine, some antipsychotics, doxazosin, or ticarcillin (risk of torsade de pointes in susceptible individuals; avoid concurrent use). May ↑ risk of bleeding with warfarin. Some supplements and medications that increase the risk of bleeding, including: Fish oil, echinacea, garlic, ginkgo, pomegranate, and saw palmetto. May ↑ risk of bleeding with cyclosporine (concurrent use may increase the risk of nephrotoxicity). Concurrent corticosteroid therapy may ↑ risk of tendon rupture.  

**Route/Dosage**  
PO, IV (Adults):  
Bacterial sinusitis—400 mg once daily for 10 days; Community-acquired pneumonia—400 mg once daily for 7–14 days.  

**Overdosage**  
PO, IV (Adults): Symptoms include: Tachycardia, hypotension, or shock. Treatment may include: Well-groomed supportive care.
Exacerbation of chronic bronchitis—400 mg once daily for 5 days.
Complicated intra-abdominal infection—400 mg once daily for 5–14 days.
Skin/skin structure infections—400 mg/day for 7–21 days.

NURSING IMPLICATIONS

Assessment

- Assess for infection (vital signs, appearance of sputum, WBC) at beginning of and during therapy.
- Obtain speculum for culture and sensitivity prior to initiating therapy. First dose may be given before receiving results.
- Observe patient for signs and symptoms of anaphylaxis (rash, pruritus, laryngeal edema, wheezing). Discontinue drug and notify physician or other health care professional immediately if these problems occur. Keep epinephrine, an antihistamine, and resuscitation equipment close by in case of an anaphylactic reaction.

- Monitor bowel function. Diarrhea, abdominal cramping, fever, and bloody stools should be reported to health care professional promptly as a sign of pseudomembranous colitis. May begin up to several weeks following cessation of therapy.
- Assess for rash periodically during therapy. May cause Stevens-Johnson syndrome. Discontinue therapy if severe or if accompanied with fever, general malaise, fatigue, or joint aches. Blister, oral lesions, conjunctivitis, hepatitis and/or coagulopathy.

- Monitor for signs and symptoms of peripheral neuropathy (pain, burning, tingling, numbness, and/or weakness) during therapy. Symptoms may be irreversible; discontinue moxifloxacin if symptoms occur.

- Lab Test Considerations: Monitor for potassium, sodium, calcium, magnesium, and liver function tests.

Potential Nursing Diagnoses

Risk for infection (Patient/Family Teaching)

Implementation

- PO: May be administered without regard to meals. Products or foods containing calcium, magnesium, aluminum, zinc, or iron should not be ingested for 4 hr before or 8 hr after administration.

- IV Administration
  - Intravenous Infusion: Diluent: Premixed bags are diluted in sodium chloride 0.9%. Dilution may be further diluted with dextrose injection 5%. Concentration: 1.6 mg/mL. Rate: Administer over 60 min. Avoid rapid or bolus infusion.

- Y-Site Compatibility: alemtuzumab, amifostine, anidulafungin, argatroban, bivalirudin, bleomycin, bumetanide, busulfan, calcium acetate, calcium chloride, calcium gluconate, carboplatin, carmustine, caspofungin, ceftaroline, chlorpromazine, cyclophosphamide, cyclosporine, cytoxan, dacarbazine, daclizumab, danazol, daunorubicin, dexamethasone, dextrose, diethylenetriamine pentaacetic acid (DTPA), doxorubicin, doxifluridine, dophosphoryl, dothiepin, enalaprilat, epinephrine, erlotinib, etoposide, etoposide phosphate, famotidine, fenoldopam, fludarabine, gallium nitrate, gemcitabine, glycopyrrolate, granisetron, haloperidol, heparin, hetastarch, hydralazine, hydrocortisone sodium succinate, idarubicin, insulin, irinotecan, isoproterenol, ketorolac, labetalol, leucovorin, licarnosine, magnesium sulfate, mannitol, medroxyprogesterone acetate, mepacrine, mephenytoin, mexiteline, mesna, methotrexate, metoclopramide, metoprolol, minocycline, minoxidil,morphine, mycophenolate, naloxone, nesiritide, nicardipine, nitroglycerin, norepinephrine, ondansetron, oxaliplatin, oxycodone, paclitaxel, palonosetron, pamidronate, pancuronium, pemetrexed, penicillin, pentamidine, phenindione, phenytoin, potassium acetate, potassium chloride, potassium phosphate, procainamide, prochlorperazine, propranolol, quinidine, ranitidine, onconechin, sodium bicarbonate, sodium phosphate, streptokinase, succinylcholine, tacrolimus, telithromycin, thromboprophylaxis, trazodone, valproic acid, vancomycin, vitamin K, warfarin, zidovudine, zolmitriptan.
moxifloxacin

contra-indications: teniposide, theophylline, thiotepa, tigecycline, tirofiban, topotecan, vasopressin, vecuronium, verapamil, vinblastine, vincristine, vinorelbine, zoledronic acid.

Y-site Incompatibility: allopurinol, aminophylline, amphotericin B lipid complex, dantrolene, fluorouracil, fosphenytoin, furosemide, nitroprusside, pantoprazole, phenytoin, vancomycin, voriconazole.

Patient/Family Teaching

● Instruct patient to take medication as directed at evenly spaced times and to finish drug completely, even if feeling better. Take missed doses as soon as possible, unless almost time for next dose. Do not double doses. Advise patient that sharing of this medication may be dangerous.

● Encourage patient to maintain a fluid intake of at least 1500–2000 mL/day to prevent crystalluria.

● May cause dizziness and drowsiness. Caution patient to avoid driving or other activities requiring alertness until response to medication is known.

● Advise patient to notify health care professional of any personal or family history of QTc prolongation or proarrhythmic conditions such as recent hypokalemia, significant bradycardia, or recent myocardial ischemia or if fainting spells or palpitations occur. Patients with this history should not receive moxifloxacin.

● Caution patient to use sunscreen and protective clothing to prevent phototoxicity reactions during and for 5 days after therapy. Notify health care professional if a sunburn-like reaction or skin eruption occurs.

● Advise patient to notify health care professional if fever and diarrhea develop, especially if stool contains blood, pus, or mucus. Advise patient not to treat diarrhea without consulting health care professional.

● Advise patient to notify health care professional immediately if rash, jaundice, signs of hypersensitivity, or tender (shoulder, hand, Achilles, and other) pain, swelling, or inflammation occurs. If tendon symptoms occur, avoid exercise and use of the affected area. Increased risk in ≤65 yr old, kidney, heart and lung transplant recipients, and patients taking corticosteroids concurrently. Therapy should be discontinued.

Evaluation/Desired Outcomes

Resolution of the signs and symptoms of bacterial infection. Time for complete resolution depends on organism and site of infection.

Why was this drug prescribed for your patient?

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