ofloxacin (oh-flux' a-syn)

Fluoroquinolones

**Indications**

PO: Treatment of the following bacterial infections: Urinary tract and gynecologic infections, including cystitis, cervicitis, nongonococcal urethritis and cervicitis, acute pyelonephritis, pelvic inflammatory disease, and prostatitis. Respiratory tract infections, including acute exacerbations of chronic bronchitis and community-acquired pneumonia. Uncomplicated and complicated skin and skin structure infections. 

**Pharmacodynamics**

Inhibits bacterial DNA synthesis by inhibiting DNA gyrase enzyme.

**Therapeutic Effects**

Death of susceptible bacteria.

**Spectrum**

Antibacterial activity against:

- Gram-positive organisms including:
  - Staphylococcus aureus
  - Streptococcus pyogenes
  - Enterococcus faecalis
  - Group A streptococci
  - Staphylococcus epidermidis

- Gram-negative organisms including:
  - Escherichia coli
  - Klebsiella pneumoniae
  - Enterobacter aerogenes
  - Pseudomonas aeruginosa
  - Proteus mirabilis
  - Acinetobacter baumannii
  - Haemophilus influenzae
  - Neisseria gonorrhoeae
  - Chlamydia pneumoniae
  - Mycoplasma pneumoniae
  - Chlamydia trachomatis
  - Legionella pneumophila
  - Helicobacter pylori
  - H. influenzae
  - H. ducreyi
  - Helicobacter pylori

- Anaerobic organisms including:
  - Bacteroides fragilis
  - Clostridium difficile
  - Bacteroides thetaiotaomicron
  - Bacteroides vulgatus

- Additional spectrum includes:
  - Chlamydia trachomatis
  - Mycoplasma genitalium

**Pharmacokinetics**

Absorption:

- Well absorbed (98%) following oral administration.

**TIME/ACTION PROFILE (blood levels)**

- Peak:
  - Po: 1–2 hr
  - IV: 0.5–1 hr

**Half-life:**

- 5–7 hr.

**Metabolism and Excretion:**

- Widely distributed. High tissue and urinary levels are achieved.
  - Absorption:
    - Well absorbed (98%) following oral administration.
  - Protein binding:
    - Variable binding
  - Metabolism:
    - CYP3A4
  - Elimination:
    - 70–80% excreted unchanged by the kidneys.
    - 30–40% eliminated by the liver.

**Contraindications/Precautions**

**Contraindicated in:**

- Hypersensitivity (cross-reactivity within class may exist);
- QTc interval prolongation;
- Uncontrolled thyrotoxicosis or hyperthyroidism;
- Concurrent use of Class III antiarrhythmics (quinidine, procainamide) or Class III antiarrhythmics (amiodarone, sotalol) (70% of QRS interval prolongation and torsade de pointes).

**Precautions:**

- Use with extreme caution in:
  - Children (safety and effectiveness not established);
  - Pregnancy;
  - Breastfeeding;
  - Patients with myasthenia gravis (may worsen symptoms);
  - Older patients (elderly patients may experience toxicity, confusion, sedation, vertigo, and weakness);
  - Patients with congestive heart failure or severe hepatic impairment (dose reduction recommended for QIC ≥50 mEq/L).

**Interactions**

- **Drug-Drug:**
  - Concurrent use of other fluorquinolones, especially moxifloxacin, may lead to toxicity. Administration without a washout period is not recommended. 
  - Concurrent use of Class IA antiarrhythmics (disopyramide, quinidine, procainamide) or Class III antiarrhythmics (amiodarone, sotalol) may lead to toxicity. 
  - Concurrent use of cyclosporine and probenecid may lead to toxicity. Administration with probenecid is contraindicated. 
  - Concurrent use of iron or zinc salts may lead to toxicity. Administration without a washout period is not recommended. 
  - Concurrent use of antacids, sucralfate, and bismuth subsalicylate may lead to toxicity. Administration without a washout period is not recommended. 

- **Drug-Food:**
  - Food decreases absorption. May increase the effects of oral anticoagulants, antihypertensive medications, and hypoglycemic agents. 
  - Concurrent use of oral anticoagulants, antihypertensive medications, and hypoglycemic agents may lead to toxicity. Administration without a washout period is not recommended. 

- **Drug-Medications:**
  - Concurrent use of amiodarone, dofetilide, and other Class III antiarrhythmics may lead to toxicity. 
  - Concurrent use of Class IA antiarrhythmics (disopyramide, quinidine, procainamide) or Class III antiarrhythmics (amiodarone, sotalol) may lead to toxicity. 
  - Concurrent use of Class IA antiarrhythmics (disopyramide, quinidine, procainamide) or Class III antiarrhythmics (amiodarone, sotalol) may lead to toxicity. 

**Adverse Reactions/Side Effects**

**CNS:**

- Dizziness, drowsiness, headache, agitation, confusion, paresthesias, seizures, rash, pruritus, photosensitivity, photophobia.

**CV:**

- Mitrval valve prolapse, angina, myocardial ischemia, QT interval prolongation, T-wave flattening, ventricular tachycardia, torsade de pointes, QT interval prolongation, ventricular fibrillation, ventricular tachycardia.

**GI:**

- Nausea, vomiting, constipation, diarrhea, flatulence, abdominal pain.

**GU:**

- Urinary tract infections, cystitis, prostatitis.

**Hematologic:**

- Thrombocytopenia, neutropenia, leukopenia, eosinophilia.

**Musculoskeletal:**

- Tendinitis, tendon rupture.

**Ocular:**

- Conjunctivitis.

**Skin:**

- Photosensitivity, rash, urticaria, angioedema, bullous dermatitis, Stevens-Johnson syndrome, toxic epidermal necrolysis, neutropenia.

**Other:**

- Hypersensitivity reactions including ANAPHYLAXIS. 

**Geriatric:**

- Higher risk of tendinitis/tendon rupture.

**Doseage Forms**

- **Tablets:**
  - 200 mg: 3–4 times daily
  - 400 mg: 2 times daily

- **Injection:**
  - 200 mg/5 mL: 2 times daily

- **Off-Label:**
  - Ophthalmic:
    - Prophylaxis of keratitis:
      - Children: 0.3% once daily
      - Adults: 0.5% twice daily
    - Treatment of bacteriologic keratitis:
      - Children: 0.5% twice daily
      - Adults: 0.3% 3 times daily

**Patient Information**

- Avoid concurrent use of amiodarone, dofetilide, and other Class III antiarrhythmics.

**Education:**

- Avoid concurrent use of amiodarone, dofetilide, and other Class III antiarrhythmics.

**Monitoring:**

- Monitor for toxicity, especially in patients with cardiac rhythm disorders.

**Storage:**

- Store at room temperature.
11 hr (for 6 weeks). Urinary tract infections—200 mg q 12 hr.

Renal Impairment
PO (Adults): CCr 20–50 mL/min—100% of the usual dose q 24 hr; CCr
H11021
20 mL/min—50% of the usual dose q 24 hr.

Otic (Adults and Children 6 mo):
Otitis externa 6 mo to 13 yr—5 drops instilled into affected ear once daily for 7 days. Acute otitis media in patients 1–12 yr:
H11350
10 drops instilled into the affected ear once daily for 7 days. Chronic suppurative otitis media in patients 1–12 yr: 10 drops instilled into the affected ear once daily for 14 days.

NURSING IMPLICATIONS
Assessment
Assess patient for infection (vital signs; appearance of wound, sputum, urine, and stool; WBC; urinalysis; frequency and urgency of urination; cloudy or foul-smelling urine) at beginning of and during therapy.
Obtain specimens 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 drug and notify physician or other health care professional immediately if these problems occur. Keep antihistamines and resuscitation equipment close by in case of an anaphylactic reaction.

Lab Test Considerations: May cause
H181
serum AST, ALT, LDH, bilirubin, and alkaline phosphatase.
May also cause ↑ serum glucose.

Potential Nursing Diagnoses
Risk for infection (Indications)
Implementation
PO: Administer on an empty stomach 1 hr before or 2 hr after meals, with a full glass of water. Products or foods containing calcium, magnesium, aluminum, iron, or zinc should not be ingested for 4 hr before and 2 hr after administration.
Otic: Warm solution by holding bottle in hand for 1–2 min to avoid dizziness from instillation of cold solution. Patient should lie with the affected ear upward, before instilling drops. Maintain position for 5 min. Repeat for opposite ear, if necessary. For otitis media: Pump the tragus 4 times by pushing inward to facilitate penetration into middle ear after instillation.

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.
Advise patients to notify health care professional immediately if they are taking theophylline.
Encourage patient to maintain a fluid intake of at least 1500–2000 mL/day to prevent crystalluria.
Advise patient that antacids or medications containing calcium, magnesium, aluminum, iron, or zinc will decrease absorption and should not be taken within 4 hr before and 2 hr after taking this medication.
May cause dizziness and drowsiness. Caution patient to avoid driving or other activities requiring alertness until response to medication is known.
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. Patients with this history should not receive ofloxacin.
Cautions patient to use sunscreen and protective clothing to prevent photosensitive reactions during and for 5 days after therapy. Notify health care professional if a sunburn-like reaction or skin eruption occurs.
Advise patient that frequent mouth rinses, good oral hygiene, and sugarless gum or candy may minimize dry mouth.

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- Instruct patients being treated for gonorrhea that partners also must be treated.
- Advise patient to report signs of superinfection (furry overgrowth on the tongue, vaginal itching or discharge, loose or foul-smelling stools).
- Advise patient to notify health care professional of all Rx or OTC medications, vitamins, or herbal products being taken and to consult with health care professional before taking other medications.
- Instruct 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.
- Instruct patient to notify health care professional immediately if rash, jaundice, signs of hypersensitivity, or tendon (shoulder, hand, Achilles, and other) pain, swelling, or inflammation occur. If tendon symptoms occur, avoid exercise and use of the affected area. Increased risk in >65 yrs old, kidney, heart and lung transplant recipients, and patients taking corticosteroids concurrently. Therapy should be discontinued.
- Otic: Instruct parent in correct administration technique.

**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?