chloroquine (klor-oh-kwin)

Classification
Therapeutic: antimalarials, antirheumatics (DMARDs)

Pregnancy Category UK

Indications

Action

Pharmacokinetics
Absorption: Well absorbed following oral administration. Distribution: Widely distributed; high tissue concentrations achieved. Crosses the placenta, enters breast milk. Metabolism and Excretion: 30% metabolized by the liver. Metabolite also has antiplasmodial activity; 70% excreted unchanged by the kidneys. Half-life: 3–5 days.

TIME/ACTION PROFILE (antimalarial activity)

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
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<tbody>
<tr>
<td>PO</td>
<td>rapid</td>
<td>1–2 hr</td>
<td>days–wks</td>
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</tbody>
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Contraindications/Precautions
Contraindicated in: Hypersensitivity; Hypersensitivity to other 4-aminoquinolones (hydroxychloroquine); Visual damage caused by chloroquine or other 4-aminoquinolones; Pregnancy (first trimester); Pure red blood cell aplasia; G6PD deficiency (↑ risk of severe hemolysis)

Use Cautiously in: Liver disease; Alcoholism; Patients receiving hepatotoxic drugs; Porphyria (may exacerbate condition); heniproteinuria; renal impairment; epilepsy; OB: Although safety not established, has been used; Pedi: May be predisposed to adverse effects.

Adverse Reactions/Side Effects
CNS: Seizures, anxiety, agitation, confusion, depression, dizziness, hallucinations, headache, insomnia, nystagmus, panic attacks, tremor, vertigo. EENT: Corneal opacities (reversible), hearing impairment, retinopathy, tinnitus, visual disturbances. CV: Cardiomyopathy, ECG changes (T-wave abnormalities, QRS prolongation), hypotension. GI: Amebic colitis, cramps, anorexia, diarrhea, hepatitis, ↑ liver enzymes, nausea, vomiting. Derm: Exanthematosus dermatitis, rash, urticaria, alopecia, dermatitis herpetiformis, photosensitivity, pigmentary changes, pruritus, skin eruptions, urticaria. Renal: Nephrotoxicity, oliguria, anuria, azotemia, thrombocytopenia. Neuro: Neuropathy, peripheral neuritis, weakness.

Interactions
Drug-Drug: Antacids may ↓ absorption (separate administration of these agents by at least 4 hr). Blood levels may be ↓ by interaction; Disulfiram, ketoconazole, clarithromycin, cyclosporine, fluconazole, nefazodone, paroxetine, protease inhibitors, quinidine, ritonavir (concurrent use with cimetidine, should be avoided). May ↑ absorption of ampicillin (separate administration of these agents by at least 2 hr). May ↑ serum levels of cyclosporine, theophylline, tricyclic antidepressants. May ↓ blood levels of carbamazepine, nevirapine, phenobarbital, phenytoin, rifampin. May ↑ the risk of hepatotoxicity when administered with other hepatotoxic agents. May ↑ blood levels of mirtazapine, nefazodone, paroxetine, risperidone, tricyclic antidepressants, and venlafaxine. Blood levels may be ↓ by cimetidine, carbamazepine, nevirapine, phenobarbital, phenytoin, and rifampin. May ↓ absorption of amoxicillin (separate administration of these agents by at least 2 hr). May ↓ blood levels of digoxin, cyclosporine, thioridazine, tricyclic antidepressants, and venlafaxine. Concurrent use with mefloquine may ↓ risk of seizures.

Drug-Food: Foods that acidify urine may ↓ renal excretion and ↑ effectiveness. Concurrent use with mefloquine may ↓ risk of seizures.

Route/Dosage
Doses below expressed as chloroquine base; 1 mg of chloroquine base = 1.67 mg chloroquine phosphate or 1.25 mg chloroquine hydrochloride.

Suppression/Prophylaxis of Malaria
PO (Adults): 300 mg once weekly, starting 2 wk prior to entering endemic areas and for 8 wk after leaving. If suppression therapy is not initiated prior to entering endemic areas, initial dose should be 300 mg followed by another 300 mg dose 6 hr later. Followed by the usual dosage regimen.

Suppression of Malaria
PO or IM (Adults): 300 mg once weekly, starting 2 wk prior to entering endemic areas and for 8 wk after leaving.
PO (Children): 5 mg/kg once weekly, starting 2 wk prior to entering endemic areas and for 4 wk afterward (not to exceed 300 mg/day). If suppression therapy is not initiated prior to entering endemic area, initial dose should be 5 mg/kg followed by another 5 mg/kg dose 6 hr later, followed by the usual dosage regimen.

Treatment of Acute Attack of Malaria
PO (Adults): 600 mg initially, then 300 mg at 6–8 hr, 24 hr, and 48 hr after initial dose.

PO (Children): 10 mg/kg initially (not to exceed 600 mg), then 5 mg/kg at 6 hr, 24 hr, and 48 hr after initial dose (not to exceed 300 mg/day).

PO (Adults): 15 mg/kg once daily, reduce dosage following maximal response.

NURSING IMPLICATIONS
Assessment
- Evaluate baseline for future reference that includes current symptoms of disease prior to administration.
- Assess deep tendon reflexes periodically to determine muscle weakness. If weakness occurs, discontinue therapy.
- Discontinue therapy immediately if hearing impairment develops.
- Perform ophthalmologic exam initially and periodically during therapy; discontinue therapy immediately if visual disturbances develop.
- Observe for development of rash. Discontinue chloroquine at the first sign of skin reactions. Serious adverse reactions such as Stevens-Johnson syndrome or toxic epidermal necrolysis preclude further use.
- Malaria: assess patient for improvement in signs and symptoms of condition daily throughout therapy.
- Rheumatoid Arthritis/Systemic Lupus Erythematosus: assess degree of joint pain and limitation of motion monthly.

Potential Nursing Diagnoses
- Risk for infection (Indications)
- Chronic pain (Indications)
- Deficient knowledge, related to medication regimen (Patient/Family Teaching)

Implementation
- For malaria suppression/prophylaxis, chloroquine therapy should be started 2 wk prior to potential exposures and continued for 4 wk after leaving the area.
- PO: administer with meals to minimize GI distress.

Patient/Family Teaching
- Instruct patient to take medication exactly as directed and continue full course of therapy, even if feeling better. Should doses be taken as soon as convenient, except with regimens requiring doses more than once a day, for which missed doses should be taken within the next 1 hr. Do not exceed doses.
- Review methods of minimizing exposure to mosquitoes with patients receiving chloroquine prophylactically (use insect repellent, wear long-sleeved shirt and long trousers, use screen or netting).
- Advise patient to avoid use of alcohol while taking chloroquine.
- Caution patient to keep chloroquine out of the reach of children; fatalities have occurred with ingestion of 3 or 4 tablets.
- Explain need for periodic ophthalmologic exams while taking chloroquine (use of sunscreen and dark glasses; protective clothing; use of insect repellent or screens; patients receiving high-dose therapy; patients receiving high-dose therapy for carcinoid syndrome).

Rheumatoid Arthritis/Systemic Lupus Erythematosus: instruct patient to contact health care professional if no improvement is noticed within a few days. Treatment may require up to 6 months for full benefit.

Lab Test Considerations: Monitor CBC periodically throughout therapy. May cause decreased WBC and platelet counts.

Potential nursing implications:
- Monitor liver function tests periodically during therapy.
chloroquine

Evaluation/Desired Outcomes

- Prevention of or improvement in signs and symptoms of malaria.
- Regression of extraintestinal amebic disease.
- Decrease in the symptoms and progression of rheumatoid arthritis and systemic lupus erythematosus.

Why was this drug prescribed for your patient?