**Quinapril** (kwin-a-pril)  
(Quinapril)

**Classification**  
Therapeutic: antihypertensives  
Pharmacologic: ACE inhibitors

**Pregnancy Category D**

**Indications**  
 alone or with other agents in the management of hypertension. Management of heart failure.

**Action**  
Angiotensin-converting enzyme (ACE) inhibitors block the conversion of angiotensin I to the vasoconstrictor angiotensin II. ACE inhibitors also prevent the degradation of bradykinin and other vasodilatory prostaglandins. ACE inhibitors also lower plasma renin levels and aldosterone levels. Net result is systemic vasodilation.

**Therapeutic Effects:** Lowering of BP in hypertensive patients. Decreased afterload and symptoms in patients with heart failure.

**Pharmacokinetics**  
**Absorption:** 60% absorbed following oral administration (high-fat meal may decrease absorption).

**Distribution:** Crosses the placenta; enters breast milk.

**Protein Binding:** 97%.

**Metabolism and Excretion:** Converted by the liver, GI mucosa, and tissue to quinaprilat, the active metabolite: 96% eliminated by the kidneys.

**Half-life:** Quinapril— 0.8 hr  
Quinaprilat— 3 hr (in renal impairment).

**TIME/ACTION PROFILE (effect on BP— single dose†)**  
<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PO</td>
<td>within 1 hr</td>
<td>2–4 hr</td>
<td>up to 24 hr</td>
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</table>

†Full effects may not be noted for several weeks.

**Contraindications/Precautions**  
Contraindicated in:  
Hypersensitivity; History of angioedema with previous use of ACE inhibitors; Concurrent use with aliskiren in patients with diabetes or moderate-to-severe renal impairment (CCr < 60 mL/min); OB: Can cause injury or death of fetus—if pregnancy occurs, discontinue immediately; Lactation: Discontinue or use formula.

**Use Cautiously in:**  
Patients with renal impairment, hypovolemia, hyponatremia, and concurrent diuretic therapy— initial dose reduction recommended; Black patients (monotherapy for hypertension less effective, may require additional therapy; higher risk for angioedema); Hepatitis/Balsam (Hypersensitivity may be exaggerated); Women of childbearing potential; Pedi: Children < 12 yr (safety not established); Geri: Initial dose recommended.

**Exercise Extreme Caution in:**  
Family history of angioedema.

**Adverse Reactions/Side Effects**  
CNS: dizziness, fatigue, headache.  
Resp: cough.  
CV: hypotension, chest pain.  
GI: abdominal pain, diarrhea, nausea, vomiting.  
GU: impaired renal function.  
Derm: rash.  
F and E: hyperkalemia.  
MS: back pain, myalgia.  
Misc: ANGIODEMA.

**Interactions**  
**Drug-Drug:** Excessive hypotension may occur with concurrent use of diuretics. Additive hypotension with other antihypertensive agents. Risk of hyperkalemia with concurrent use of potassium supplements, potassium-sparing diuretics, or potassium-containing salt substitutes. Risk of hyperkalemia, renal dysfunction, hypotension, and edema with concurrent use of angiotensin II receptor antagonists or aliskiren; avoid concurrent use with aldosterone antagonists or potassium-sparing diuretics or CCr < 60 mL/min. NSAIDs and selective COX-2 inhibitors may blunt the antihypertensive effect and increase the risk of renal dysfunction, T levels and may increase the risk of lithium toxicity. May absorb tetracycline, doxycycline, and fluoroquinolone antibiotics (due to magnesium in tablets).  
Risk of angioedema with monoclonal or monoclonal.

**Route/Dosage**  
**Hypertension**  
**PO (Adults):** 10–20 mg once daily initially; may be titrated every 2 wk up to 80 mg/ day in single or two divided daily doses (initiate therapy at 5 mg/day in patients receiving diuretics).

**Renal Impairment**  
**PO (Adults):** CCr 60 mL/min—Initiate therapy at 10 mg/day; CCr 30–60 mL/min—Initiate therapy at 5 mg/day; CCr 10–30 mL/min—Initiate therapy at 2.5 mg/day

**DOSAGE FORMS**  
- Tablets: 5, 10, 20 mg

- Oral Solution: 10 mg/5 mL

- Dry Syrup: 10 mg/5 mL

**Overdosage**  
**Symptoms:** Severe hypotension.  
**Treatment:** Discontinue medication; support vital functions.

**Comments:**  
- Gastrointestinal symptoms may occur with overdose.

**Laboratory Tests:**  
- Serum potassium should be checked before initiation of therapy.  
- Sodium levels should be checked periodically.

**Notes:**  
- Drug may be continued during pregnancy when indicated or when potential benefits outweigh potential risks.
Heart Failure

PO (Adults): 5 mg twice initially, may be titrated at weekly intervals up to 20 mg twice daily.

Renal Impairment

PO (Adults): CCr 30–60 mL/min — Initiate therapy at 5 mg/day; if tolerated, increase to 10 mg twice daily on following day. CCr 15–30 mL/min — Initiate therapy at 2.5 mg/day; if tolerated, increase to 5 mg twice daily on following day.

NURSING IMPLICATIONS

Assessment

- Hypertension: Monitor BP and pulse frequently during initial dose adjustment and periodically during therapy. Notify health care professional of significant changes.

- Measure frequency of prescription refills to determine compliance.

- Assess patient for signs of angioedema (dyspnea, facial swelling).

- Heart Failure: Monitor weight and assess patient routinely for resolution of fluid overload (peripheral edema, rales, ronchi). Assess weight gain (peripheral edema).

- Lab Test Considerations: Monitor renal function. May cause a rise in BUN and serum creatinine.

- May cause hyperkalemia.

- May cause a rise in AST, ALT, alkaline phosphatase, and serum bilirubin.

Potential Nursing Diagnoses

- Decreased cardiac output (Indications) (Side Effects)
- Noncompliance (Patient/Family Teaching)
- Deficient knowledge, related to medication regimen (Patient/Family Teaching)

Implementation

- Do not confuse Accupril with Aciphex.

- Correct volume depletion, if possible, before initiation of therapy. Precipitous drop in BP during first 1–3 hr following first dose may require volume expansion with normal saline. Discontinuing diuretic therapy or cautiously increasing salt intake 2–3 days prior to initiation may decrease risk. Monitor closely for at least 1 hr after BP has stabilized. Resume diuretics if BP is not controlled.

Patient/Family Teaching

- Instruct patient to take medication at the same time each day, even if feeling well. Take missed doses as soon as remembered but not if almost time for next dose. Do not double doses. Warn patient not to discontinue ACE inhibitor therapy unless directed by health care professional.

- Instruct patient to avoid substances containing potassium or foods high in potassium or sodium unless directed by health care professional.

- Instruct patient to change positions slowly to minimize orthostatic hypotension. Use of alcohol, standing for long periods, exercising, and hot weather may increase orthostatic hypotension.

- Instruct patient to notify health care professional of all Rx or OTC medications, vitamins, or herbal products being taken and consult health care professional before taking any new medications especially cough, cold, or allergy medications.

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

- Advise patient to inform health care professional of any change in health status prior to treatment or surgery.

- Instruct patient to notify health care professional if rash; mouth sores; sore throat; fever; swelling of hands or feet; irregular heart beat; chest pain; dry cough; hoarseness; swelling of face, eyes, lips, or tongue; or if difficulty swallowing or breathing occurs. Persistent dry cough may not subside until medication is discontinued. Consult health care professional if cough becomes bothersome. Also notify health care professional if new or worsening chest pain occurs. May cause dizziness. Caution patient to avoid driving and other activities requiring alertness until response to medication is known.

- Instruct patient to use contraception and notify health care professional if pregnancy is planned or suspected.

- Emphasize the importance of follow-up examinations to evaluate effectiveness of medication.

- Hypertension: Encourage patient to comply with additional interventions for hypertension (weight reduction, low sodium diet, discontinuation of smoking, moderation of alcohol consumption, regular exercise, and stress management). Medication controls but does not cure hypertension.

- Instruct patient and family on correct techniques for monitoring BP. Advise them to check BP at least weekly and to report significant changes in health care professional.

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CONTINUED

quinapril

Evaluation/Desired Outcomes

- Decrease in BP without appearance of excessive side effects.
- Decrease in signs and symptoms of heart failure.

Why was this drug prescribed for your patient?