atenolol (a-ten-oh-lole)

Tenormin

**Classification**

Therapeutic: antianginals, antihypertensives

Pharmacologic: beta blockers

**Pregnancy Category D**

**Indications**


**Action**


**Pharmacokinetics**

- **Absorption:** 50–60% absorbed after oral administration.
- **Distribution:** Minimal penetration of CNS. Crosses the placenta and enters breast milk.
- **Metabolism and Excretion:** 40–50% excreted unchanged by the kidneys; remainder excreted in feces as unabsorbed drug.
- **Half-life:** 6–9 hr.

**TIME/ACTION PROFILE (cardiovascular effects)**

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<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
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<tbody>
<tr>
<td>PO</td>
<td>1 hr</td>
<td>2–4 hr</td>
<td>24 hr</td>
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**Contraindications/Precautions**

- **Contraindicated in:** Uncompensated HF; Pulmonary edema; Cardiogenic shock; Bradycardia or heart block.
- **Use Cautiously in:** Renal impairment (dosage should not exceed 50 mg/day; CCr 15–35 mL/min—dosage should not exceed 50 mg every other day); Hepatic impairment; Geriatric patients (initial dosage should not exceed 50 mg/day, then 50 mg once daily in patients with a history of severe allergic reactions); OB: Crosses the placenta and may cause fetal/neonatal bradycardia, hypotension, hypoglycemia, or respiratory depression.

**Adverse Reactions/Side Effects**

- **CNS:** Fatigue, weakness, anxiety, depression, dizziness, drowsiness, insomnia, memory loss, mental status changes, nervousness, nightmares.
- **EENT:** Blurred vision, stuffy nose.
- **Resp:** Bronchospasm, wheezing.
- **CV:** Bradycardia, HF, pulmonary edema, hypotension, peripheral vasodilation.
- **GI:** Constipation, diarrhea, liver enzymes, nausea, vomiting.
- **GU:** Erectile dysfunction, libido, urinary frequency.
- **Derm:** Rashes.
- **Endo:** Hyperglycemia, hypoglycemia.
- **MS:** Arthralgia, back pain, joint pain.
- **Misc:** Drug-induced lupus syndrome.

**Interactions**

**Drug-Drug:** General anesthesia, IV phenytoin, and verapamil may cause additive myocardial depression. Additive bradycardia may occur with digoxin. Additive hypotension may occur with other antihypertensives, acute ingestion of alcohol, or nitrates. Concurrent use with amphetamines, cocaine, ephedrine, epinephrine, noradrenaline, phentolamine, or pseudoephedrine may result in exaggerated alpha-adrenergic stimulation (elevated BP, tachycardia, headache). Concurrent thyroid administration may reduce effectiveness. May alter the effectiveness of insulin or oral hypoglycemic agents (dose adjustments may be necessary). May lose the beneficial cardiovascular effects of dopamine or dobutamine. Use cautiously within 14 days of MAO inhibitor therapy (may result in hypertension).

**Route/Dosage**

- **PO (Adults):**
  - Antianginal—50 mg once daily; may be increased to 100 mg/day (up to 200 mg/day). Dosage should not exceed 500 mg once daily. 
  - Antihypertensive—25–50 mg once daily; may be increased to 50–100 mg once daily. 
  - MI—50 mg, then 50 mg 12 hr later; then 100 mg/day as a single dose or in 2 divided doses for 6–9 days or until hospital discharge.

**Renal Impairment**

- **PO (Adults):** CCr <15 mL/min—dosage should not exceed 50 mg/day. 
  - CCr <5 mL/min—dosage should not exceed 50 mg every other day.

**Notes:** Dosage requirements should be reduced in patients with severe hepatic impairment. Therapy should be discontinued in patients with heart block or severe bradycardia.
NURSING IMPLICATIONS

Assessment
- Monitor BP, ECG, and pulse frequently during dosage adjustment period and periodically throughout therapy.
- Monitor intake and output ratios and daily weights. Assess routinely for HF (dyspnea, rales/crackles, weight gain, peripheral edema, jugular venous distention).
- Monitor frequency of prescription refills to determine adherence.
- Angina: Assess frequency and characteristics of angina periodically throughout therapy.
- Lab Test Considerations: May cause qBUN, serum lipoprotein, potassium, triglyceride, and uric acid levels.
- May cause qANA titers.
- May cause qin blood glucose levels.
- Toxicity and Overdose: Monitor patients receiving beta blockers for signs of overdose (bradycardia, severe dizziness or fainting, severe hypotension, diarrhea, headache, confusion, depression, rash, fever, sore throat, pain, unusual bleeding, or bruising) occurs.

Potential Nursing Diagnoses
Decreased cardiac output (Side Effects)
Noncompliance (Patient/Family Teaching)

Implementation
- PO: Take apical pulse before administering drug. If 50 bpm or if arrhythmia occurs, withhold medication and notify physician or other health care professional.
- Patient/Family Teaching
  - Instruct patient to make sure enough medication is available for weekends, holidays, and vacations. A written prescription may be kept in wallet in case of emergency.
  - Advise patient to take atenolol as directed at the same time each day, even if feeling well; do not skip or double up on missed doses. Take missed doses as soon as possible up to 8 hr before next dose. Abrupt withdrawal may cause life-threatening arrhythmias, hypertension, or myocardial ischemia.
  - Advise patient to check pulse and BP at home and to report significant changes.
  - Instruct patient to avoid driving or other activities that require alertness until response to the drug is known.
  - Advise patient to change positions slowly to minimize orthostatic hypotension.
  - Advise patient to notify health care professional of all Rx or OTC medications, vitamins, herbs, or herbal products being taken, to avoid alcohol, and to consult health care professional before taking any new medications, especially cold preparations.
  - Advise patient that angina should closely monitor blood glucose, especially if weakness, malaise, restlessness, or fatigue occurs. Medication does not block sweating as a sign of hypoglycemia.
  - Advise patient to notify health care professional if slow pulse, difficulty breathing, wheezing, cold hands and feet, dizziness, headache, confusion, depression, rash, fever, sore throat, unusual bleeding, or bruising occurs.
  - Advise patient to inform health care professional of medication regimen before treatment or surgery.
  - Advise female patient to notify health care professional if pregnancy is planned or suspected, or if breast feeding.
  - Advise patient to carry identification describing disease process and medication regimen at all times.
  - Hypertension: Reinforce the need to continue additional therapies for hypertension (weight loss, sodium restriction, stress reduction, regular exercise, moderation of alcohol consumption, and smoking cessation). Medication controls but does not cure hypertension.

Evaluation/Desired Outcomes
- Decrease in BP.
- Reduction in frequency of angina.
- Increase in activity tolerance.
- Prevention of MI.

Why was this drug prescribed for your patient?