timolol (tim-oh-lole)

Classification: Therapeutic: antihypertensives, vascular headache suppressants
Pharmacologic: beta blockers

Pregnancy Category C

Indications
Hypertension (alone or with other agents). Prevention of MI. Prevention of migraine headaches.

Unlabeled Use:
Ventricular arrhythmias. Essential tremor. Anxiety.

Action
Blocks stimulation of beta1(mycocardial)- and beta2(pulmonary, vascular, and uterine)-adrenergic receptor sites. Therapeutic Effects: Decreased heart rate and BP. Prevention of MI. Decreased frequency of migraine headache.

Pharmacokinetics
Absorption: Well absorbed after oral administration.
Distribution: Enters breast milk.
Metabolism and Excretion: Extensively metabolized by the liver.
Half-life: 3–4 hr.

TIME/ACTION PROFILE (cardiovascular effects)

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PO</td>
<td>unknown</td>
<td>1–2 hr*</td>
<td>12–24 hr</td>
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*After single dose, full effect is not seen until several weeks of therapy.

Contraindications/Precautions
Contraindicated in: Uncompensated HF; Pulmonary edema; Cardiogenic shock; Bradycardia or heart block.
Use Cautionally in: Renal impairment; Hepatic impairment; Geri: May have q sensitivity to beta blockers; initial dosage reduction recommended; Pulmonary disease (including asthma); Diabetes mellitus (may mask signs of hypoglycemia); Severe psychiatric disease (may mask depression). Patients with a history of severe allergic reactions (intensity of reactions may be increased). QI, Lactation: PO/SI: Safety not established; may cause fetal/neonatal bradycardia, hypotension, hypoglycemia, or respiratory depression.

Adverse Reactions/Side Effects

Interactions
Drug-Drug: General anesthesia, IV phenytoin, and verapamil may q myocardial depression. q Bradycardia may occur with disopyramide, some antihypertensives, antiarrhythmics, or narcotics. Concurrent use with anticholinergics, antihistamines, ergot alkaloids, meperidine, or propoxyphene may result in unopposed alpha-adrenergic stimulation (peripheral vasoconstriction, bradycardia). Concurrent thyroid administration may q effectiveness. May alter the effectiveness of insulin or oral antidiabetics (dosage adjustments may be necessary). May q effectiveness of bronchodilators and theophylline. May q beneficial cardiovascular effects of dopamine or dobutamine. Use cautiously within 14 days of MAO inhibitor therapy (may result in hypertension). Cimetidine may q its effectiveness. Concurrent MAOIs may q anti-hypertensive action.

Route/Dosage
PO (Adults): Antihypertensive—10 mg twice daily initially, may be q 10 mg in the morning and 10 mg in the evening.

NURSING IMPLICATIONS
Assessment
• Monitor BP and pulse frequently during dose adjustment period and periodically during therapy. Assess for orthostatic hypotension when assuming patient from supine position.

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• Monitor BP and pulse frequently during dose adjustment period and periodically during therapy. Assess for orthostatic hypotension when assuming patient from supine position.
Monitor intake and output ratios and daily weight. Assess patient routinely for evidence of fluid overload (peripheral edema, dyspnea, rales/ crackles, fatigue, weight gain, jugular venous distention).

Hypertension: Monitor frequency of prescription refills to determine adherence.

Vascular Headache Prophylaxis: Assess frequency, severity, characteristics, and location of vascular headaches periodically during therapy.

Lab Test Considerations: May cause increased BUN, serum lipoprotein, potassium, triglyceride, and uric acid levels.

May cause increased ANA titers.

May cause increased in blood glucose levels.

Fecundity and Sterility: Monitor patients receiving beta-blockers for signs of menstrual irregularities, amenorrhea, or gynecomastia (masculinization of female breasts).

Toxicity and Overdose: Monitor patients receiving beta-blockers for signs of overdose (bradycardia, severe dizziness or fainting, severe drowsiness, dyspnea, bluish fingernails or palms, seizures). Notify health care provider immediately if these signs occur.

Glucose has been used to treat bradycardia and hypotension.

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

Implementation
PO: Take apical pulse before administering. If pulse < 50 bpm or if arrhythmia occurs, withhold medication and notify health care professional.

May be administered with food or on an empty stomach.

Tablets may be crushed and mixed with food.

Patient/Family Teaching

Teach patient and family to check pulse daily and BP biweekly. Advise patient to hold dose and contact health care professional if pulse is < 50 bpm or BP changes significantly.

May cause dizziness. Caution patients to avoid driving or other activities that require alertness until response to the drug is known.

Advise patients to change positions slowly to minimize orthostatic hypotension, especially during initiation of therapy or when dose is increased.

Caution patient that this medication may cause sensitivity to cold.

Instruct patient to consult health care professional before taking other Rx, OTC, or herbal products, especially cold preparations, concurrently with this medication.

Patients with diabetes should closely monitor blood glucose, especially if weakness, malaise, instability, or fatigue occurs. Medication may mask symptoms and increased BP as signs of hypoglycemia. Both symptoms and worsening may occur.

Advise patient to notify health care professional if slow pulse, difficulty breathing, wheezing, cold hands and feet, dizziness, confusion, depression, rash, fever, sore throat, unusual bleeding, or bruising occurs.

Instruct patient to inform health care professional of medication regimen before treatment or surgery.

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.

Vascular Headache Prophylaxis: Caution patient that sharing this medication may be dangerous.

Evaluation/Desired Outcomes
Decrease in BP
Prevention of MI
Prevention of vascular headaches.

Why was this drug prescribed for your patient?