metoprolol succinate
Toprol-XL

metoprolol tartrate
Apo-Metoprolol♦, Betaloc♦, Betaloc Durules♦, Lopresor, Lopresor SR♦, Lopressor, Novo-Metoprol♦, Nu-Metop♦, PMS-Metoprolol-L♦

**Pharmacologic class:** Beta-adrenergic blocker (selective)

**Therapeutic class:** Antihypertensive, antianginal

**Pregnancy risk category C**

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**Action**
Blocks stimulation of beta₁ (myocardial)-adrenergic receptors, usually without affecting beta₂ (pulmonary, vascular, uterine)-adrenergic receptor sites

**Availability**
- Injection (tartrate): 1 mg/ml
- Tablets: 50 mg, 100 mg
- Tablets (extended-release, succinate): 25 mg, 50 mg, 100 mg, 200 mg
- Tablets (extended-release, tartrate): 100 mg

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**Indications and dosages**

**Hypertension**
**Adults:** 50 to 100 mg P.O. daily as a single dose or in two divided doses (conventional tablets) or once daily (extended-release tablets); may be increased q 7 days as needed, up to 450 mg/day (tartrate) or 400 mg (succinate extended-release)

**Angina pectoris**
**Adults:** 100 mg P.O. daily as a single dose or in two divided doses (conventional tablets) or once daily (extended-release tablets); may be increased q 7 days as needed, up to 400 mg

**Acute myocardial infarction (MI)**
**Adults:** As early treatment, 2.5 to 5 mg by rapid I.V. injection at approximately 2- to 5-minute intervals, to a total dosage of 15 mg over 10 to 15 minutes. If patient tolerates I.V. dose, give 50 mg P.O. 15 minutes after last I.V. dose, and continue P.O. doses q 6 hours for 48 hours. Maintenance dosage is 100 mg P.O. b.i.d. If patient doesn’t tolerate I.V. dose, give 25 to 50 mg P.O. (depending on degree of intolerance), starting 15 minutes after last I.V. dose or when clinical condition allows; discontinue drug if patient shows severe intolerance. As late treatment, 100 mg P.O. b.i.d. when clinical condition allows, continued for at least 3 months.

**Symptomatic heart failure**
**Adults:** 25 mg P.O. daily (extended-release tablets) in patients with New York Heart Association Class II heart failure. Dosage may be doubled q 2 weeks, up to 200 mg/day or until highest tolerated dosage is reached. For patients with more severe heart failure, start with 12.5 mg P.O. daily.

**Off-label uses**
- Ventricular arrhythmias, tachycardia
- Tremors
- Anxiety

**Contraindications**
- Hypersensitivity to drug or other beta-adrenergic blockers
- Uncompensated heart failure (when used to treat hypertension or angina)
- Pulmonary edema or cardiogenic shock
- Bradycardia or heart block

**Administration**
- Be aware that food enhances metoprolol tartrate absorption; give drug with or immediately after meals.
- Know that succinate extended-release tablets are scored and can be divided; however, tablet or half-tablet should be swallowed whole and not crushed or chewed.

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加拿大

美国

临床警戒
For I.V. administration, give drug undiluted by direct injection.

<table>
<thead>
<tr>
<th>Route</th>
<th>Onset</th>
<th>Peak</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>P.O.</td>
<td>15 min</td>
<td>1 hr</td>
<td>6-12 hr</td>
</tr>
<tr>
<td>P.O.</td>
<td>15 min</td>
<td>6-12 hr</td>
<td>24 hr</td>
</tr>
<tr>
<td>I.V.</td>
<td>Immediate</td>
<td>20 min</td>
<td>5-8 hr</td>
</tr>
</tbody>
</table>

Adverse reactions
CNS: fatigue, weakness, anxiety, depression, dizziness, drowsiness, insomnia, memory loss, mental status changes, nervousness, nightmares
CV: orthostatic hypotension, peripheral vasoconstriction, bradycardia, heart failure, pulmonary edema
EENT: blurred vision, stuffy nose
GI: nausea, vomiting, constipation, diarrhea, flatulence, gastric pain, heartburn, dry mouth
GU: urinary frequency, impotence, decreased libido
Hepatic: increased hepatic enzyme levels, hepatitis
Metabolic: hyperglycemia, hypoglycemia
Respiratory: wheezing, bronchospasm
Musculoskeletal: back pain, joint pain
Skin: rash
Other: drug-induced lupus syndrome

Interactions
Drug-drug. Amphetamines, ephedrine, epinephrine, norepinephrine, phenylephrine, pseudoephedrine: unopposed alpha-adrenergic stimulation (excessive hypertension, bradycardia)
Antihypertensives, nitrates: additive hypotension
Digoxin: additive bradycardia
Dobutamine, dopamine: reduced cardiovascular benefits from these drugs
General anesthetics, phenytoin (I.V.), verapamil: additive myocardial depression
Insulin, oral hypoglycemics: altered efficacy of these drugs

Monoamine oxidase (MAO) inhibitors: hypertension

Drug-diagnostic tests. Blood urea nitrogen, lipoproteins, potassium, triglycerides, uric acid: increased levels
Alanine aminotransferase, alkaline phosphatase, aspartate aminotransferase, glucose, lactate dehydrogenase: increased levels

Drug-food. Any food: enhanced drug absorption

Drug-behaviors. Acute alcohol ingestion: additive hypotension
Cocaine use: unopposed alpha-adrenergic stimulation (excessive hypertension, bradycardia)

Precautions
Use cautiously in:
- renal or hepatic impairment, pulmonary disease, diabetes mellitus, thyrotoxicosis
- MAO inhibitor use within 14 days
- pregnant or breastfeeding patients
- children (safety not established).

Patient monitoring
- Measure blood pressure closely when starting therapy and titrating dosage. Once patient has stabilized, measure blood pressure every 3 to 6 months.
- Monitor blood pressure and pulse before I.V. administration; if patient is hypotensive or has bradycardia, notify prescriber before giving dose.
- Watch for orthostatic hypotension in at-risk patients, particularly elderly patients.
- Assess glucose levels in diabetic patients; be aware that drug may mask signs and symptoms of hypoglycemia.
- Monitor for signs and symptoms of hyperthyroidism; know that drug may mask these. Reduce dosage gradually in hyperthyroid patients.

Schedule 2

When discontinuing drug, reduce dosage gradually over 1 to 2 weeks.
Patient teaching

- Teach patient to take drug with or immediately after meals.
- Tell patient that extended-release tablets are scored and can be divided, but that he should swallow tablets or half-tablets whole and not crush or chew them.
- Advise patients with heart failure to report signs or symptoms of worsening condition, including weight gain and increasing shortness of breath.
- Advise patient to avoid driving and other hazardous activities until drug effects are known.
- Instruct patient to notify health care providers (including dentists) that he is taking drug before having surgery.
- As appropriate, review all other significant and life-threatening adverse reactions and interactions, especially those related to the drugs, tests, foods, and behaviors mentioned above.