

Name(s)

- **Generic:** metoprolol (me toe PROE lole), metoprolol **succinate**, metoprolol **tartrate**
- **Brand:** Toprol XL (ER, succinate), Lopressor (tartrate), Kapsargo Sprinkle (tartrate)

Therapeutic Category

- Anti-Anginal Agent; Anti-Hypertensive | Beta-Blocker, Beta-1 Selective

Indication(s)

1. **Angina:** Treating long-term angina pectoris (chest pain/discomfort from coronary heart disease)
 2. **Heart Failure (HF) w/ Reduced Ejection Fraction (ER oral formulation):** This drug reduces patient mortality/hospitalization by treating stable symptomatic heart failure (NYHA class II/III) from ischemic, hypertensive, cardiomyopathic origins.
 3. **Hypertension:** Not first-line therapy but used in managing patients with hypertension
 4. **Myocardial Infarction (MI):** Reduction of cardiovascular mortality in patients by treating hemodynamically stable acute MI.
- (OFF-LABEL)(Not Covered): Atrial fibrillation/flutter Afib prevention after cardiac surgery; Hypertrophic cardiomyopathy; Marfan syndrome w/ aortic aneurysm; Migraine prophylaxis; Supraventricular tachycardia; Thyrotoxicosis; Ventricular arrhythmias

Dosage Form / Strength / Dosing

- **Dosage Form(s)/Strength(s):** Tablet ER (succinate); Tablet (tartrate); Capsule ER 24 Hr Sprinkle; Solution IV (tartrate)
 - Tablet Extended Release (ER; succinate): 25 mg, 50 mg, 100 mg, 200 mg
 - Tablet (tartrate): 25 mg, 37.5 mg, 50 mg, 75 mg, 100 mg
 - Capsule Extended Release (ER; tartrate): 25 mg, 50 mg, 100 mg, 200 mg
 - Solution (IV): 5 mg/ 5 mL
- Dosing for **Angina** in Adults
 - metoprolol tartrate (IR): **50 mg po bid.** May inc dose weekly to 50 to 200 mg BID. **Max of 400 mg/day.**
 - metoprolol succinate (ER): **100 mg po qd.** May inc dose weekly. **Max of 400 mg/day.**
- Dosing for **HF w/ Reduced Ejection Fraction** in Adults
 - metoprol succinate (ER): **12.5 to 25 mg po qd.** Gradually double dose every 2 weeks to max tolerated dose. **Max dose of 200 mg/day**
- Dosing for **Hypertension** in Adults
 - metoprolol tartrate (IR): **50 mg po bid.** Titrate weekly based on pt response. Usual range 100 to 200 mg/day in 2 divided doses. **Max dose 400 mg/day.**
 - metoprolol succinate (ER): **25 to 100 mg po qd.** Titrate weekly based on pt response. Usual range 50 to 200 mg/day. **Max dose 400 mg/day.**
- Dosing for **Myocardial Infarction (MI)** in Adults
 - (intravenous) metoprolol tartrate (IR): **5 mg iv q 5 minutes for up to 3 doses prn** based on HR and BP. **Max total dose 15 mg.** Transition to oral (po) therapy 15-30 minutes after the last iv dose.
 - metoprolol tartrate (IR): **25 to 50 mg q 6-12 h** in acute setting. Some experts suggest **12.5 mg q 6-12 h** if concern for adverse effects. BID dosing based on HR and BP based on pt response/tolerate. **Max 200 mg/day.**
 - metoprolol succinate (ER): **25 to 50 mg po qd.** Titrate based on HR and BP as tolerated up to 200 mg qd.
- Dosing for (OFF-LABEL) indications please refer to guidelines and literature.



Mechanism of Action & Pharmacology

- A competitive selective beta-1 inhibitor. Action occurs through **competitively and selectively blocking** the **beta-1**-adrenergic receptor w/ minimal (to no) effect on the beta-2 receptor with oral doses less than 100 mg. No sympathomimetic activity exhibited.
- **Absorption:** Rapid/complete | **Distribution:** Crosses blood brain barrier (CSF conc. 78% of plasma conc.) | **Metabolism:** Hepatic (CYP2D6); 50% first-pass | **Excretion:** Urine (95%; 30-40% if poor CYP2D6 metabolizers) | **Onset of Action:** Oral w/in 1 hour w/ peak in 1-2 hours; IV w/in 20 minutes (infused over 10 minutes) | **Duration of Action:** Oral IR doses reduce max HR by 50% after single dose in 3.3 to 6.4 hours with ER in about 24 hours | **Protein Binding:** 10-12% albumin bound

Side Effects

- >10%: **Hypotension**, bradycardia, memory loss, **headache**, vision issues, n/v, numbness, sore throat
- 1-10%: Constipation, diarrhea, dyspnea, pruritus, skin rash, depression, **dizziness, fatigue, vertigo**

BLACK BOX WARNING: Ischemic Heart Disease – Abrupt cessation of therapy may exacerbate angina pectoris. Should d/c gradually over 1-2 weeks if stopping therapy.

Drug Interactions

- Alpha1-blockers may **enhance orthostatic hypotension**
- Amiodarone **enhances bradycardic effect** of beta-blockers with the concern of cardiac arrest
- Amphetamines **diminish effects** of **anti-hypertensive agents**.
- CYP2D6 inhibitors **increase** serum concentration of **metoprolol**
- May **enhance** hypoglycemic effects of **insulin**
- NSAIDs **diminish** effects on beta-blocker

Monitoring Parameters

- ECG, heart rate, **BP in cardiac patients**
- For confirmed hypertension and known CVD or 10-year ASCVD risk $\geq 10\%$: **Target BP <130/80 mmHg**
- For confirmed hypertension w/o markers of increased ASCVD risk: **Target BP <130/80 mmHg (reasonable)**

Patient Counseling Information

- **Pregnancy:** Crosses placenta. Exposure increases adverse events in neonate
- Used to treat high BP, chest pain/pressure, heart failure
- **Caution of orthostatic hypotension**

Reference(s)

- <https://www.drugs.com/ppa/metoprolol.html>
- <https://www.drugs.com/sfx/metoprolol-side-effects.html>

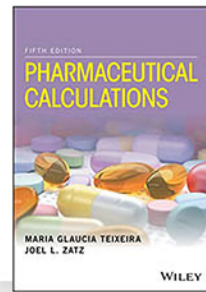


PREPARE FOR SUCCESS!

Comprehensive (NAPLEX)



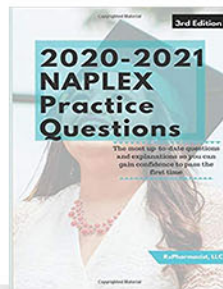
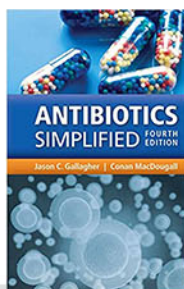
Calculations (NAPLEX)



Pharmacy Law (MPJE)



Supplemental



DRUG CARDS DAILY

Monday at 7 am EST
(6 am CST, 4 am PST)

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HEY STUDENT!

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This helps focus your learning and the repetition helps to retain info and indirectly prepare you for the NAPLEX

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