

MEDICATION REFERENCE LIST

METOPROLOL (LOPRESSOR)

1. **Classification:** Beta Blocker
2. **Physiological Effect:** Metoprolol is a b-adrenergic receptor-blocking agent with preferential effect on the b₁- receptors, chiefly located in cardiac muscle. This preferential effect is not absolute, however, and at higher doses, Metoprolol also inhibits b₂-adrenoreceptors, chiefly located in the bronchial and vascular musculature.
3. **Indications:**
 - 3.1. Tachycardia-Narrow Complex
 - 3.2. Acute Coronary Syndrome
 - 3.3. Hypertension
4. **Primary Contraindication:**
 - 4.1. Sensitivity to Metoprolol
 - 4.2. Heart Rate less than 60 bpm
 - 4.3. Systolic BP less than 100mm Hg
 - 4.4. Left Ventricular Failure (Severe CHF)
 - 4.5. Shock
 - 4.6. 2nd or 3rd degree block
5. **Relative Contraindication:**
 - 5.1. PR interval greater than 0.24
 - 5.2. Severe COPD
 - 5.3. Asthma
 - 5.4. Severe PVD
6. **Administration and Dosage:**
 - 6.1. 5 mg slow IVP every five minutes to total of 15 mg
 - 6.1.1. If hypotension, bradycardia or other contraindications manifest between doses, do not give additional doses.
7. **Side Effects:**
 - 7.1. Cardiac failure
 - 7.2. Severe sinus bradycardia: antidote - atropine
 - 7.3. Partial heart block: antidote - atropine; if unresponsive temporary pacing
 - 7.4. Bronchospasm: antidote - albuterol
 - 7.5. Profound beta-blockade: antidote when other measures have failed - glucagon
8. **Additional Information:**
 - 8.1. Onset of action is immediate; maximum response occurs in about 20 minutes with duration of 5-8 hours
 - 8.2. Careful monitoring of blood pressure, heart rate and ECG is required. If adverse cardiovascular effects are observed, IV therapy should be stopped immediately and the patient observed
 - 8.3. May precipitate or potentiate heart failure
 - 8.4. Abrupt discontinuation after prolonged chronic beta-blockade may lead to severe exacerbation of angina, occurrence of MI, or ventricular arrhythmias in angina patients
 - 8.5. Caution in patients with cardiac, renal, hepatic impairment or uncontrolled diabetes mellitus
 - 8.6. Contraindicated in patients with sinus bradycardia, overt heart failure, cardiogenic shock, 2nd or 3rd degree block, or right ventricular failure secondary to pulmonary hypertension
 - 8.7. The mechanism of the antihypertensive effect has not been established. Among the factors that may be involved are: a) competitive ability to antagonize catecholamine-induced tachycardia at the b-receptor sites in the heart, thus decreasing heart rate, cardiac contractility and cardiac output; b) inhibition of renin release by the kidneys; c) inhibition of the vasomotor centers.
 - 8.8. By blocking catecholamine-induced increases in heart rate, in velocity and extent of myocardial contraction, and in blood pressure, metoprolol reduces the oxygen requirements of the heart at any given level of effort. However, in patients with heart failure, b-adrenergic receptor blockade may increase oxygen requirements.
 - 8.9. Doses of 5 mg and 15 mg yielded a maximal reduction in exercise-induced heart rate of approximately 10% and 15%, respectively.