

# Labcad Injection

## Labetalol Injection (5 mg/mL)

**Generic Name:** Labetalol Hydrochloride  
**Brand Name:** Trandate, Normodyne (varies by region)  
**Drug Class:** Beta-blocker (non-selective beta-adrenergic receptor blocker with alpha-1 adrenergic receptor blocking activity)

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## Description

Labetalol injection is a sterile, clear solution used for intravenous administration. It combines both beta-blocking and alpha-blocking properties, making it effective for rapidly lowering blood pressure in hypertensive emergencies.

## Composition:

- Each 1 mL contains:
    - Labetalol Hydrochloride: 5 mg
    - Additional components may include sodium metabisulfite (as an antioxidant), hydrochloric acid (to adjust pH), and water for injection.
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## Indications

1. **Hypertensive Emergencies:** Immediate reduction of blood pressure in severe hypertension.
  2. **Severe Hypertension in Pregnancy:** Management of preeclampsia/eclampsia-related hypertensive crises.
  3. **Perioperative Hypertension:** Control of blood pressure during surgical procedures.
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## Dosage and Administration

### Initial Dosage:

- Administer 20 mg intravenously over 2 minutes.

### Subsequent Doses:

- If necessary, administer incremental doses of 40–80 mg at 10-minute intervals until the desired blood pressure is achieved.
- **Maximum Single Dose:** 300 mg.

### Continuous Infusion:

- Begin with an infusion rate of 0.5–2 mg/min. Adjust the rate based on patient response.
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## Mechanism of Action

Labetalol reduces blood pressure by:

- **Beta-blockade:** Decreasing heart rate and myocardial contractility.
- **Alpha-blockade:** Reducing peripheral vascular resistance through vasodilation.

This dual action ensures effective blood pressure control with minimal reflex tachycardia.

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## Pharmacokinetics

- **Onset of Action:** 5 minutes (IV)
  - **Peak Effect:** 10–15 minutes
  - **Duration of Action:** 2–4 hours
  - **Metabolism:** Hepatic
  - **Excretion:** Renal and fecal
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## Contraindications

- Asthma or bronchospastic disease
  - Severe bradycardia
  - Second- or third-degree heart block
  - Cardiogenic shock
  - Severe heart failure
  - Hypersensitivity to labetalol or its components
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## Warnings and Precautions

- **Hypotension: Monitor for severe hypotension during or after administration.**
  - **Bradycardia: May require adjustment of dose or discontinuation.**
  - **Heart Failure: Use cautiously in patients with compensated heart failure.**
  - **Pregnancy: Often used safely in pregnancy-related hypertension, but administer under specialist guidance.**
  - **Sulphite Sensitivity: The solution contains sodium metabisulfite, which can cause allergic reactions in sensitive individuals.**
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## Adverse Effects

### Common side effects include:

- **Dizziness**
- **Nausea**
- **Fatigue**
- **Orthostatic hypotension**
- **Bradycardia**

### Severe but rare side effects:

- **Bronchospasm**
  - **Hepatotoxicity**
  - **Heart block**
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## Storage and Handling

- **Store at 20–25°C (68–77°F), protected from light.**
  - **Do not freeze.**
  - **Inspect visually for particulate matter and discoloration before administration.**
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## Monitoring

- **Blood pressure and heart rate during and after infusion.**
- **ECG in patients with arrhythmias or heart block risk.**

- **Signs of adverse reactions, particularly hypotension and bradycardia.**
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## Compatibility

**Labetalol is compatible with 5% Dextrose in Water (D5W), 0.9% Sodium Chloride (Normal Saline), and Lactated Ringer's Solution.**

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**Note: Always administer labetalol under the supervision of a healthcare professional experienced in managing acute hypertension and equipped for emergency resuscitation.**

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