

# Hypertensive Emergencies

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# Hypertensive Crises

	<b>Hypertensive Urgency</b>	<b>Hypertensive Emergency</b>
Definition	BP > 180/120 mmHg	BP > 180/120 mmHg AND target organ damage
Treatment	Gradually reduce BP with oral/IV medications	Admit to ICU and administer IV medications

# Treatment Principles

- Admit to ICU if target organ damage
- Without compelling indication:
  - Reduce SBP by 25% or less in the first hour
  - If stable, to 160/100 mmHg in the next 2 – 6 hours
- Exceptions:
  - Aortic dissection
  - Acute ischemic stroke
  - Pregnancy

- Choice of medication depends on:
  - Affected target organ
  - PK and PD of drug
  - BPV, hemodynamic, adverse effects
  - Clinician experience

# Aortic Dissection

## Esmolol

- Preferred for initial therapy
- Quick onset, short duration

## Labetalol

- Alpha and beta antagonist
- Not easily titrated

## Nicardipine

- For further blood pressure reduction

## Pearls

- Initiate beta blocker prior to direct vasodilator

## Nitroglycerin

- For persistent ischemia or hypertension after sublingual formulation

## Labetalol / Metoprolol

- Lowers oxygen demand, may reduce arrhythmias

## Pearls

- Avoid sodium nitroprusside
- Avoid beta blockers if signs of shock

## Nitroglycerin

- Rapidly reduces preload and symptoms

## Pearls

- Tachyphylaxis (24-48 hours)
- Avoid in volume depletion and concomitant use of PDE-5 inhibitors

## Nicardipine

- IV infusion with strong coronary and cerebral vasodilatory properties
- More predictable/controlled response than labetalol

## Labetalol

- Given IV push
- More desirable in patients with CAD, tachycardia

## Pearls

- Avoid sodium nitroprusside
- Do not confuse nicardipine with *nifedipine*



## Labetalol

- Fewer maternal adverse effects than hydralazine

## Hydralazine

- Can result in prolonged hypotension from long half-life
- Unpredictable response

## Nicardipine

- Shorter time to goal attainment and better control of blood pressure

## Pearls

- Choice drug based on adverse effects, contraindications, and clinician experience

# Indications

## Aortic Dissection

- Esmolol
- Labetalol
- Nicardipine

## Myocardial Infarction

- Nitroglycerin
- Metoprolol
- Labetalol

## Pulmonary Edema

- Nitroglycerin

## Acute Ischemic Stroke

- Nicardipine
- Labetalol

## Pregnancy

- Hydralazine
- Labetalol
- Nicardipine

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