

Hypertensive Urgency/Emergency

**Target Organ Damage?**

- Hypertensive Encephalopathy
- Intracranial Hemorrhage
- Acute Ischemic Stroke\*
- Aortic Dissection
- Acute Left Ventricular Failure
- Acute Coronary Syndrome
- Acute Kidney Injury
- Pre-Eclampsia
- Drugs (Cocaine, Amphetamines, phencyclidine, monoamine oxidase inhibitors)

**Yes**

**No**

**Goal:** MAP reduced by 10-20% first hour then reduced a further 5-15% next hour

**Goal:** BP lowered to <160/100 . MAP should not be lower over 25-30% in short period of time.

Exception:  
Acute Aortic Dissection: SBP rapidly lowered to 100-120 in first 20 min.

Resume/change antihypertensive agent or dose. Treatment in hours/days with addition of slow acting and long lasting antihypertensive preferred.

Acute Ischemic Stroke. BP not lowered unless >185/110 (possibility reperfusion) or >220/120 (no reperfusion)

- Nicardipine
- Clevidipine
- Nitroprusside
- Nitroglycerin
- Hydralazine
- Esmolol
- Labetalol
- Enalaprilat

Diagnosis of HTN

End organ damage or CVA Risk Factors

Yes

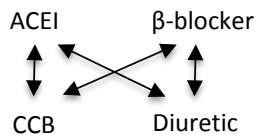
No

DBP ≥90 or SBP ≥140

DBP ≥100 or SBP ≥160

**Monotherapy:**  
Thiazide/thiazide-like  
ACE-I (non-black patients),  
ARB  
CCB (long acting)  
β-blocker (younger than 60 years),

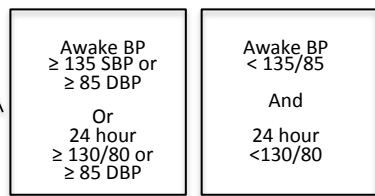
**Combined:**  
ACE-I + CCB  
ARB + CCB  
ACE-I or ARB + Diuretic



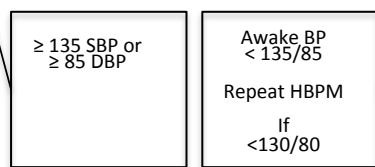
- 1) thiazide-like**  
Start Chlorthalidone 12.5 mg PO daily , titrate by 12.5 mg - 25 mg, 1-2 weeks, max 50 mg/day
- 2) long-acting ACEI and dihydropyridine CCB**  
Benazepril start 5 to 10 mg once daily; titrate as up to 40 mg daily in 1 or 2 divided doses  
Amlodipine start 2.5 to 5 mg once daily; titrate every 1 to 2 weeks; max: 10 mg/day

ABPM or Home BPM if available

**ABPM**



**Home BPM**



Continuous Follow Up

	Thiazide	ACEI	ARB	BB	CCB
Isolated Systolic	Y		Y		Y
Isolated Diasolic	Y	Y	Y	Y	Y
Angina		Y		Y (no ISA)	Y
Post MI		Y		Y (no ISA)	
LVH	Y	Y	Y		Y
HF	Y	Y	Y	N (uncontrolled)	N (non DHP-CCB)
Afib				Y	Y
Post Stroke*	C	Y	Y		Y
Diabetes		Y	Y		Y
CKD		Y	Y		
Asthma/COPD				N	Y
Gout	N		Y (losartan)		

	Intracerebral hemorrhage	Ischemic Stroke	MI	CHF	Pulmonary Edema	Aortic Dissection	Renal Failure	Preeclampsia/Eclampsia	Sympathetic Crisis/Catecholamine	Initiation	Titrating	Maximum	Discontinuing	Onset of Action	Duration	Notes
<b>Nicardipine</b>	Y	Y					Y	Y		5 mg/hr	increasing by 2.5 mg/hr every 5 min	maximum of 30 mg/h	Once target BP achieved, downward adjustment by 3 mg/hr should be attempted as tolerated	5–15 min	4–6 hr	Steady-state concentrations achieved after 24–48 hr continuous infusion
<b>Clevidipine</b>			Y				Y			1–2 mg/hr	dose can be doubled every 90 seconds until BP approaches the target, then increased by less than double every 5–10 minutes	32 mg/hr or any dose given longer than 72 hours				
<b>Nitroprusside</b>			Y	Y	Y					0.3–0.5 µg/kg/min	increases in increments of 0.5 µg/kg/min	exceeding 2 µg/kg/min				nitroprusside infusions of ≥4–10 µg/kg/min or longer than 30 minutes, thiosulfate can be coadministered at a 10:1 sodium nitroprusside to thiosulfate ratio to avoid cyanide toxicity
<b>Nitroglycerin</b>			Y	Y	Y					5 µg/min	increased in increments of 5 µg/min every 3–5 minutes  If BP response is inadequate at 20 µg/min, the dose may be increased by 10 µg/min every 3–5 minutes	200 µg/min		2–5 min	5–10 min half-life of 1–3 min	
<b>Hydralazine</b>								Y		10 mg bolus via slow infusion	Bolus every 4–6 hours as needed	maximum initial bolus dose, 40 mg		10–30 min	2–4 hr	
<b>Esmolol</b>			Y			Y			N	0.5–1.0 mg/kg loading dose over 1 minute Then 50 µg/kg/min infusion	For additional dosing, the bolus dose is repeated and the infusion increased in 50 µg/kg/min increments as needed	300 µg/kg/min		1 min	10–20 min half-life of 9 min	
<b>Labetalol</b>	Y	Y	Y					Y	N	loading dose 20 mg	Incremental doses of 20–80 mg at 10-minute intervals continue until the target BP is reached or 1–2 mg/min, adjusted until the target BP is achieved			2–5 min	2–4 min	
<b>Enalaprilat</b>										1.25 mg is administered every 6 hours intravenously over a 5-minute period				15–30 min	12–24 hr	
<b>Phentolamine</b>									Y	IV bolus dose of 5–15 mg				1–2 min		