Initial Visit-First Trimester

CHTN Classification

Mild CHTN-Low Risk	Severe CHTN-High Risk
SBP 140-159 and/or DBP 90-109 mmHg	SBP ≥160mm Hg and/or DBP≥ 110 mm Hg
No previous perinatal loss	Secondary HTN
No evidence of end organ damage	End Organ Damage
	Previous Perinatal loss

Baseline Labs

- Serum creatinine. Initial creatinine of ≥1.1 mg/dL: repeat each trimester.
- Random urine protein/creatinine ratio. Ratio of ≥0.3 needs 24 hr urine.
- CHTN (>4 yrs), poorly controlled BP or evidence of end organ damage: EKG and if needed Echo.
- CHTN resistant to 2 or more medications, hypokalemia, creatinine >1.1 mg/dL, or a strong family history of kidney disease: assess for secondary causes of hypertension.

Fetal Surveillance

- Ultrasound at 18-22 weeks assess fetal growth and fluid.
- Repeat US for fluid and growth at 28-32 wks and every 4-6 weeks until delivery.
- NST, BPP, CST or modified BPP weekly beginning at 32-34 weeks.* Women with more severe disease or end organ damage may need twice weekly testing.

Recommendations

- SBP persistently ≥160 mm Hg or DBP ≥ 105 mm Hg: treated to achieve a target < 160/105 mm Hg.
- Monotherapy, without comorbidities, consider discontinuation of therapy if BP <150/100 mm Hg and gestational age < 20 weeks.
- DM class D, F, H, R, or T, known renal disease, cardiomyopathy, history of CAD, prior stroke, sickle cell disease, or connective tissue disorders , maintain BP <140/90.
- Multiple anti-hypertensive agents, BP goal < 160/105 mm Hg. Therapy should titrate down if the BP is <110/60 or the MAP <60.
- Mild-moderate HTN (<160/105) antihypertensive therapy withheld until BP becomes severe (approximately 10-20% of women).
- Medications should not be initiated or increased for newly elevated or worsening BP after 32 weeks of gestation due to the risks of masking superimposed preeclampsia.
- Smoking cessation should be encouraged.
- Low-dose (81 mg everyday) aspirin should be recommended in women with CHTN for preeclampsia prevention.
- Weekly antenatal testing beginning at 32 weeks of gestation.
- Serial ultrasounds every 4 to 6 weeks beginning at 28 weeks to assess for fetal growth restriction.
- Weekly visits beginning at 32 weeks of gestation.
- Angiotensin-converting enzyme (ACE) inhibitors and angiotensin receptor blockers are teratogenic and are contraindicated during all trimesters of pregnancy.

Delivery Plan

- Uncomplicated mild HTN with normal antenatal testing: plan delivery at term.
- Well-controlled patients (on or off meds) with mild or severe hypertension at baseline with normal fetal growth and antenatal testing: deliver at 39 weeks and no later than 40 weeks.
- HTN with prior adverse pregnancy outcome (stillbirth) are candidates for earlier delivery at 37-38 weeks.
- Severe HTN refractory to treatment but without pre-eclampsia: deliver at 37 wks if antenatal testing and fetal growth are normal.
- CHTN with superimposed pre-eclampsia, management depends on the gestational age at diagnosis
  - ❖ Diagnosed >34 weeks, consult with MFM to formulate an evaluation and management strategy. If any severe symptoms or significant laboratory abnormalities are present, delivery at an appropriate level facility is likely indicated.
  - ❖ Diagnosed at 34-36 weeks, delivery based on the severity of the BP elevations, the presence of laboratory abnormalities and the results of fetal testing. If BP elevations are mild, labs are normal and testing is reassuring, delivery may be able to be delayed until 36-37 weeks.
  - ❖ Diagnosed > 36 weeks, delivery is indicated at the time of diagnosis.

Pharmacologic Agents

Oral Antihypertensive Drugs	Dosage	Maternal Adverse Effects
Primary Agents		
Labetalol (mixed alpha and beta blocker)	200-2,400mg/day in 2-3 divided doses	Headache
Nifedipine (calcium channel blocker)	30-120mg/day slow-release preparation	Headache
Methyldopa (centrally acting sympatholytic)	0.5-3.0 grams/day in 2-3 divided doses	Maternal sedation, elevated LFTs, depression
Adjunctive agents		
Hydralazine (direct vasoldilator)	50-300 mg/day in 2-4 divided doses	Should not be used as a sole agent due to reflex tachycardia; use with a beta-blocker
Hydrochlorothiazide (diuretic and venodilation)	12.5-50 mg/day but minimal benefit above 25 mg	Can cause volume depletion and electrolyte disorders; rarely initiated in pregnancy, but if patient taking prior to pregnancy may continue

Acute Severe HTN

Severe hypertension can be encountered anytime during pregnancy, but most often occurs when patients present with superimposed pre-eclampsia. Prompt attention to control of marked elevations in the BP are required to prevent symptoms of hypertensive urgency and stroke, but care must be taken to not lower the blood pressure too rapidly and cause neither loss of cerebral perfusion in watershed areas or interfere with uteroplacental perfusion. The goal of acute treatment should be to lower the blood pressure to 140-150/90-100 mm Hg.

Pharmacologic Agents for Treatment of Severe Acute HTN

	Dosage	Maternal Adverse Effects
Hydralazine	5 mg IV or IM, then 5-10 mg every 20-40 minutes IV	Maternal hypotension, fetal bradycardia; maternal tachycardia often dose-limiting side effect
Labetalol	20 mg IV, then 20-80 mg every 5-15 minutes, up to a max of 300 mg	Maternal tachycardia and arrhythmia
Nifedipine	10-30 mg PO (NOT sublingual), repeat in 45 minutes if needed	Only used in absence of parenteral options