Hypertensive Disorders of Pregnancy

# OGSB Standard clinical management protocol

# 1. Definitions & Classification

* Gestational Hypertension (PIH): New hypertension ≥140/90 mmHg after 20 weeks in previously normotensive woman; no proteinuria or organ dysfunction.
* Preeclampsia (PE): New-onset hypertension (≥140/90 mmHg) + proteinuria after 20 weeks. Severe if ≥160/110 mmHg or with organ involvement (CNS, liver, kidney, platelets, lungs).
* Eclampsia: Preeclampsia + convulsions/coma.
* Chronic Hypertension: Pre-existing, diagnosed <20 weeks, or persisting >12 weeks postpartum.
* Chronic HTN with Superimposed PE: Worsening HTN/proteinuria with features of PE.

# 2. Diagnostic Criteria

* Proteinuria: ≥300 mg/24h OR PCR ≥0.3 OR ≥1+ dipstick (if quantitative unavailable).
* Mild PE: BP 140–159/90–109 mmHg + proteinuria, no severe features.
* Severe PE: BP ≥160/110 mmHg, proteinuria ± organ dysfunction (thrombocytopenia, ↑LFT, renal impairment, pulmonary edema, CNS symptoms).
* Eclampsia: Hypertension + proteinuria + seizures.
* Chronic HTN: High BP before 20 weeks or beyond 12 weeks postpartum.

# 3. Management

* Gestational HTN / Mild PE: Admit; monitor BP, urine protein, fetal kick counts, CBC, creatinine, electrolytes, LFT, bilirubin. Fundoscopy. USG growth every 3 weeks. No antihypertensives if BP <150/100 mmHg. Oral labetalol if 150–159/100–109 mmHg. Discharge if stable; follow-up twice weekly.
* Severe Preeclampsia: Admit to CEmONC. Stabilize. Start antihypertensives (oral labetalol first line). MgSO₄ prophylaxis if DBP ≥110 mmHg or symptoms. If full regimen not possible → give loading dose + transfer. Plan delivery once mother is stabilized.
* Eclampsia: Emergency → ABC. Left lateral, oxygen, IV access, catheter. MgSO₄ preferred. Antihypertensives if BP >160/110 mmHg. Strict fluid balance (max 2 L/24h, 80 ml/hr). Monitor vitals. Deliver after stabilization.
* Chronic HTN: Do not reduce BP <120/80 mmHg. Antihypertensives if ≥150/100 mmHg. Safe drugs (methyldopa, labetalol, nifedipine). Deliver at 37 weeks if stable.

# 4. Antihypertensive Therapy

* Oral options:

- Methyldopa: 250 mg TDS (max 2 g/day).

- Labetalol: 100 mg BD–TDS (max 2400 mg/day).

- Nifedipine: 10 mg BD–TDS (max 120 mg/day).

* Emergency (BP ≥160/110 mmHg):

- Labetalol IV (10 → 20 → 40 → 80 mg).

- Hydralazine 5 mg IV slowly or 12.5 mg IM q2h.

- Nifedipine 5 mg oral (repeat after 10 min if no response).

# 5. Magnesium Sulfate Therapy

* Preferred regimen (IV/IM):

- Loading: 4 g IV over 5–10 min + 10 g IM (5 g each buttock).

- Maintenance: 5 g IM q4h (alternate buttocks).

* Monitor: respiration >16/min, reflexes present, urine output ≥30 ml/hr.
* Toxicity: stop MgSO₄, give 10 ml of 10% calcium gluconate IV.

# 6. Plan for Delivery

* ≥37 weeks: Deliver irrespective of severity.
* >34 weeks: Deliver within 12 hours.
* <34 weeks: Expectant management if stable – admit, steroids, MgSO₄, antihypertensives.
* Contraindications: Eclampsia, pulmonary edema, DIC, renal failure, abruption, uncontrollable BP, non-reassuring fetus.
* Mode: Favorable cervix → induce (ARM + oxytocin). Unfavorable → ripen (prostaglandin/Foley) or C-section.

Hypertension in Pregnancy: Diagnosis and Management (nice guideline)

# 1. Classification of Hypertensive Disorders in Pregnancy

* Chronic Hypertension: Pre-existing or detected <20 weeks.
* Gestational Hypertension: Hypertension after 20 weeks without proteinuria.
* Preeclampsia: Hypertension after 20 weeks with proteinuria or maternal organ dysfunction and/or fetal growth restriction.
* Eclampsia: Preeclampsia with seizures.
* Chronic Hypertension with Superimposed Preeclampsia.

# 2. Risk Factors

* Previous preeclampsia, chronic hypertension, diabetes, renal disease.
* Multiple pregnancy, obesity, advanced maternal age, family history.

# 3. Diagnosis

* Hypertension: BP ≥140/90 mmHg on 2 occasions, 4 hours apart.
* Proteinuria: ≥300 mg/24h, PCR ≥30 mg/mmol, or ≥1+ dipstick.
* Severe Features: BP ≥160/110 mmHg, neurological symptoms, liver involvement, renal dysfunction, pulmonary edema, thrombocytopenia, or fetal compromise.

# 4. Maternal & Fetal Complications

* Maternal: Eclampsia, stroke, renal failure, HELLP syndrome, DIC, death.
* Fetal: Growth restriction, prematurity, stillbirth, hypoxia.

# 5. Management

* Gestational HTN: Monitor, antihypertensives if persistent ≥150/100 mmHg, fetal surveillance.
* Preeclampsia (without severe features): Admit, monitor BP, urine, bloods; fetal growth and Doppler studies; antihypertensives if ≥150/100 mmHg.
* Severe Preeclampsia: Hospitalize, stabilize, antihypertensives, magnesium sulfate for seizure prophylaxis, plan delivery.
* Eclampsia: Emergency—airway, oxygen, MgSO₄, antihypertensives, stabilize, then deliver.
* Chronic HTN: Continue safe antihypertensives (labetalol, methyldopa, nifedipine). Monitor for superimposed PE.

# 6. Antihypertensive Drugs

* First-line: Labetalol, methyldopa, nifedipine.
* Avoid: ACE inhibitors, ARBs, atenolol (risk to fetus).

# 7. Magnesium Sulfate

* First-line for eclampsia prevention/treatment.
* Monitor reflexes, respiration, urine output.
* Antidote: Calcium gluconate.

# 8. Delivery

* Definitive treatment for preeclampsia/eclampsia.
* Timing depends on severity and gestational age.
* ≥37 weeks: Deliver.
* <34 weeks: Expectant management if stable, with corticosteroids for fetal lung maturity.

# 9. Postpartum

* Continue monitoring BP (risk of postpartum eclampsia).
* Antihypertensives may be required for days–weeks.
* Long-term: Increased risk of chronic hypertension, cardiovascular disease.

ACOG Practice Bulletin 222 – Hypertension in Pregnancy: Summary

Definition of Hypertensive Disorders

Chronic Hypertension: BP ≥ 140/90 mm Hg before pregnancy or before 20 weeks gestation.

Gestational Hypertension: New-onset BP ≥ 140/90 mm Hg after 20 weeks without proteinuria; returns to normal <12 weeks postpartum.

Preeclampsia: BP ≥ 140/90 mm Hg after 20 weeks with proteinuria or end-organ dysfunction; severe features: BP ≥ 160/110 mm Hg, thrombocytopenia, renal/hepatic dysfunction, pulmonary edema, or cerebral/visual symptoms.

Chronic Hypertension with Superimposed Preeclampsia: Chronic hypertension complicated by new-onset proteinuria or end-organ dysfunction after 20 weeks.

Eclampsia: Seizures in a woman with preeclampsia.

**Risk Factors**

Maternal: Age <20 or >35, obesity, nulliparity, prior preeclampsia, multifetal gestation.

Medical history: Chronic hypertension, diabetes, renal disease, autoimmune disease.

Pregnancy-related: Assisted reproductive technology, new partner pregnancies.

**Screening and Diagnosis**

BP measurement: Accurate technique, sitting, proper cuff size.

Proteinuria: Urine protein/creatinine ratio ≥ 0.3 mg/dL, 24-hour urine protein ≥ 300 mg.

Labs for severe features: CBC, creatinine, liver enzymes, uric acid, coagulation profile.

**Maternal and Fetal Complications**

Maternal: Stroke, HELLP syndrome, renal failure, pulmonary edema, placental abruption.

Fetal: IUGR, preterm birth, fetal demise, placental insufficiency.

**Management**

Non-Severe Hypertension (140–159 / 90–109 mm Hg): Medications if chronic or persistent gestational hypertension; labetalol, nifedipine ER, methyldopa; target BP 120–160 / 80–105 mm Hg.

Severe Hypertension (≥160/110 mm Hg): Immediate treatment with IV labetalol, IV hydralazine, or oral nifedipine; hospitalization required.

Preeclampsia with Severe Features: Magnesium sulfate for seizure prophylaxis; delivery is definitive treatment (≥37 weeks: deliver; <37 weeks: weigh risk vs. expectant management).

**Prevention**

Low-dose aspirin (81 mg/day) starting 12–28 weeks in high-risk women.

Calcium supplementation in populations with low calcium intake.

**Postpartum Care**

Monitor BP for 72 hours after delivery and 7–10 days postpartum.

Persistent hypertension may require ongoing therapy.

Contraception counseling: Avoid estrogen-containing contraceptives until BP controlled.