

433 Teams

OBSTETRICS & GYNECOLOGY

Preeclampsia - Eclampsia



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- **Hypertensive disorders is pregnancy:**

- Chronic hypertension:

- Onset of high blood pressure before 20 weeks gestation.

- Preeclampsia:

- Onset of high blood pressure after 20 weeks gestation **with** proteinuria or end organ dysfunction

- Chronic hypertension with superimposed preeclampsia:

- Chronic hypertension with the new onset of proteinuria after 20 weeks of gestation

- Gestational hypertension:

- Onset of hypertension after 20 weeks of gestation **without** the presence of proteinuria or any other systemic findings.

- **Pathophysiology:**
 - In normal pregnancies:
 - fetal cytotrophoblast invade maternal uterine spiral artery → replace the endothelium → change the vessels from high resistance small diameter → high capacitance low resistance vessels → this will lead to more blood flow to the fetus.
 - In preeclampsia:
 - The pathophysiology will be disturbed and won't occur correctly → low blood flow to the fetus → hypoxemia.
- **Diagnosis:**
 - Elevated blood pressure:
 - BP >140\90, diagnosed after 20 weeks of gestation
 - Proteinuria:
 - > 300 mg\24hr urine, +1 dipstick
 - Systemic findings:
 - Pulmonary edema
 - Cerebral symptoms
 - Visual Symptoms

- **Risk factors:**

- History of preeclampsia in previous pregnancies.
- Preeclampsia in a first degree relative
- Multiple gestations
- Primiparity
- Age >40
- Maternal past medical history:
 - Hypertension
 - Renal disease
 - Hypercoagulability
 - DM
 - Obesity
 - SLE

- **Management:**

- Delivery is the only definitive cure for preeclampsia.
- Close surveillance until 37 weeks:
 - Monitor BP
 - Serum evaluation
 - Urine evaluation
- Antihypertensive should only be started if BP >160\110 “Labetalol or Hydralazine”
- Delivery should be initiated by **37 weeks** of gestation.
- If it was with severe features delivery may be initiated by **34 weeks** of gestation.
- Give magnesium sulfate for **seizure prophylaxis**

- **Complications:**

- Maternal:

- Eclampsia: seizures before, during or after delivery.
 - Give IV magnesium sulfate.
 - HELLP Syndrome: it can progress to DIC
 - Hemolysis
 - Elevated liver enzymes
 - Low platelets
 - Placental abruption
 - Stroke
 - Liver damage
 - Kidney injury

- Fetal:

- Growth restriction
 - Prematurity
 - Perinatal death

- **CASE:** An 18 year old G1P0 currently at 38 0/7 weeks presents for her routine prenatal visit. She has had an uncomplicated pregnancy up to this point, with the exception of a late onset of prenatal care and obesity (BMI of 35 kg/m²). She reports that during the past week, she has noted some swelling of her hands and feet. She also has been feeling a bit more fatigued and has had a headache on and off. She reports good fetal movement. She has had some contractions on and off, but nothing persistent. Her blood pressure is 147/92 and her urine dip has 1+ protein/no ketones/no glucose. The fundal height measures 36 cm, the fetus is cephalic with a heart rate of 144 bpm. On physical exam you note that the patient has 3+ pretibial edema, and trace edema of her hands and face. She has 2+ deep tendon reflexes and 2 beats of clonus. You review her blood pressures up to this point and note that at the time of her first prenatal visit at 18 weeks, her blood pressure was 130/76 and she had no protein in her urine. However, since that visit, her blood pressures seem to have been climbing higher with each visit. Her last visit was one week ago, and she had a blood pressure of 138/88 with trace protein in the urine and she has gained 5 pounds

1. What is considered a hypertensive blood pressure during pregnancy?

- In pregnancy, hypertension is defined as either a systolic blood pressure ≥ 140 or diastolic blood pressure ≥ 90 or both.

2. What types of hypertensive syndromes can occur during pregnancy?

- *Chronic hypertension:*
 - Requires that the patient have documented hypertension preceding 20 weeks gestation, or where hypertension is first noted during pregnancy and persists for longer than 12 weeks postpartum
- *Preeclampsia-eclampsia:*
 - Development of new onset hypertension and proteinuria after 20 weeks of pregnancy. Is stratified into mild and severe forms. There are atypical forms of preeclampsia as well.
- *Preeclampsia superimposed on chronic hypertension:*
 - Superimposed preeclampsia should be reserved for those women with chronic hypertension who develop new-onset proteinuria (≥ 300 mg in a 24-hour collection) after the 20th week of pregnancy. In pregnant women with preexisting hypertension and proteinuria, the diagnosis of superimposed preeclampsia should be considered if the patient experiences sudden significant increases in blood pressure or proteinuria or any of the other signs and symptoms consistent with severe preeclampsia.
- *Gestational Hypertension:*
 - Hypertension without proteinuria which first appears after 20 weeks gestation or within 48 to 72 hours after delivery and resolves by 12 weeks postpartum.

3. How does the physiology of preeclampsia lead to the clinical symptoms and findings?

- Hypoxia, hypoperfusion and ischemia lead to the clinical placental pathophysiology (with fetal compromise: IUGR, oligohydramnios, placental abruption)
- Systemic endothelial dysfunction leads to central & peripheral edema, proteinuria, and hypertension (from disruption of vascular regulation). Endothelial dysfunction in target organs leads to headache, epigastric pain, and renal dysfunction. Microvascular endothelial destruction leads to release of procoagulants and DIC.

4. What are the laboratory findings that support a diagnosis of preeclampsia-eclampsia syndrome?

- Proteinuria (> 300 mg on a 24 hour urine collection)
- Elevated hematocrit
- Hemolysis
- Thrombocytopenia (< 100,000 cells/mm³)
- Elevated liver enzymes (ALT/AST twice normal)
- Elevated serum uric acid concentration

5. What types of maternal and fetal complications are associated with preclampsia-eclampsia syndrome?

– Maternal:

- CNS: eclamptic seizure, stroke
- Cardiopulmonary: pulmonary edema
- Hepatic: Sub capsular hematoma or hepatic rupture
- Renal: renal failure or acute tubular necrosis
- Hematologic: hemorrhage, DIC

– Fetal:

- Preterm delivery
- Placental abruption
- Fetal growth restriction
- Hypoxic ischemic encephalopathy
- Fetal death

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