- **Gestational hypertension:**
  - **Definition**: sustained elevation of blood pressure ≥ 140/90; after 20 weeks of gestation; without proteinuria. Notice that blood pressure will become normal after delivery.
  - **Management**: conservative outpatient management is appropriate (close observation → because we don't want the patient to develop pre-eclampsia).
- **Pre-eclampsia;**
  - **Mild pre-eclampsia:**
    - ✓ Definition: sustained elevation of blood pressure ≥ 140/90; after 20 weeks of gestation; with proteinuria on dipstick of 1-2+ or ≥ 300 mg on a 24-hour urine collection.
    - ✓ Risk factors: primipara, multiple gestation, molar pregnancy, diabetes mellitus, chronic hypertension and age extremes.
    - ✓ Management:
      - ❖ *Conservative inpatient*: before 36 weeks gestation. Notice that no antihypertensive agents or $MgSO_4$ are used.
      - ❖ *Delivery:* at ≥ 36 weeks of gestation. Infuse $MgSO_4$ to prevent eclamptic seizures.
    - ✓ Complications: progression from mild to severe pre-eclampsia.
  - **Severe pre-eclampsia:**
    - ✓ Definition: sustained elevation of blood pressure ≥ 160/110; after 20 weeks of gestation; with proteinuria on dipstick 3-4+ or ≥ 5g on a 24-hour urine collection.
    - ✓ Risk factors are similar to those of mild pre-eclampsia.
    - ✓ Symptoms: headache, epigastric pain and visual changes.
    - ✓ Investigations: might detect DIC or ↑ liver enzymes or pulmonary edema.
    - ✓ Management: immediate delivery (regardless of gestational age). Main goals are seizure prevention and blood pressure control. How?
      - ❖ Administer IV $MgSO_4$ to prevent convulsions.
      - ❖ Lower blood pressure diastolic values to 90-100 mmHg with IV hydralazine and/or labetalol.
      - ❖ Attempt vaginal delivery with IV oxytocin infusion if mother and fetus are stable.
    - ✓ Complications: progression from severe pre-eclampsia to eclampsia.
- **Eclampsia:**
  - **Definition**: presence of unexplained generalized seizures (tonic-clonic) in a hypertensive, proteinuric pregnant woman in the last half of pregnancy.
  - **Why do seizures occur**? due to severe diffuse cerebral vasospasm resultin in cerebral perfusion deficits and cerebral edema.
  - **Management**: immediate delivery (regardless of gestational age).
    - ✓ Administer IV $MgSO_4$ to prevent convulsions.
    - ✓ Lower blood pressure diastolic values to 90-100 mmHg with IV hydralazine and/or labetalol.
    - ✓ Attempt vaginal delivery with IV oxytocin infusion if mother and fetus are stable.
  - **Complications**: intracerebral hemorrhage can occur with even death resulting.

- **Chronic hypertension with or without superimposed pre-eclampsia:**
  - **Definition**: elevated blood pressure ≥ 140/90 with onset before the pregnancy or before 20 weeks of gestation.
  - **Risk factors**: mostly idiopathic but can be due to advanced maternal age, obesity, positive family history, renal disease, diabetes and SLE.
  - **Pathophysiology**: vasospasm causing decreased end-organ perfusion, resulting in injury and damage.
  - **Pregnancy prognosis with chronic hypertension:**
    - ✓ Good: blood pressure 140/90 – 179/109 with no evidence of end-organ damage.
    - ✓ Poor: blood pressure ≥ 180/110 with end-organ damage (cardiac, renal or retinal).
    - ✓ Worst: chronic hypertension with superimposed pre-eclampsia (how to diagnose):
      - ❖ Rising blood pressure values.
      - ❖ Worsening proteinuria.
      - ❖ Evidence of maternal jeopardy (headache, epigastric pain, visual changes, DIC, elevated liver enzymes or pulmonary edema).
  - **Management:**
    - ✓ Conservative outpatient management: for mild-moderate chronic hypertension:
      - ❖ They do not need any antihypertensive drugs. Notice that patients with severe chronic hypertension will require treatment with methyldopa (never use ACE inhibitors because they are contraindicated in pregnancy).
      - ❖ Serial ultrasounds and antenatal testing after 30 weeks of gestation due to increased risk of IUGR.
      - ❖ Serial blood pressure and urine protein assessment for early identification of superimposed pre-eclampsia.
      - ❖ Induce labour at 39 weeks of cervix is favorable.
    - ✓ Immediate delivery is indicated for chronic hypertension with superimposed pre-eclampsia at any gestational age:
      - ❖ Administer IV $MgSO_4$ to prevent convulsions.
      - ❖ Lower blood pressure diastolic values to 90-100 mmHg with IV hydralazine and/or labetalol.
      - ❖ Attempt vaginal delivery with IV oxytocin infusion if mother and fetus are stable.
- **HELLP syndrome:**
  - **It is characterized by:**
    - ✓ (H): Hemolysis.
    - ✓ (EL): Elevated Liver enzymes.
    - ✓ (LP): Low Platelets.
  - **Being multigravida is a risk factor.**
  - **Differential diagnosis**: thrombotic thrombocytopenic purpura and hemolytic uremic syndrome.
  - **Management**: immediate delivery at any gestational age. Use of maternal corticosteroids may enhance postpartum normalization of liver enzymes and platelet count.
  - **Complications**: placental abruption, DIC and fetal demise.