



Hypertension in pregnancy

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Learning objectives

- By the end of this presentation, we should be able to
 - Diagnose Hypertension in Pregnancy
 - Classify hypertensive disorders in pregnancy
 - Identify the risk factors
 - Elicit the Clinical features
 - Order relevant investigation
 - Manage and refer where necessary

Introduction

- Hypertension is defined as having a blood pressure greater than 140/90 mm Hg
- Gestational hypertension is BP $>140/90$ measured on 2 separate occasions, 4-6 hrs apart, without proteinuria & dx after 20 wks of gestation.

Epidemiology

- Leading cause of maternal deaths globally
 - Complicates about 2-10% of pregnancies.
 - with an estimated 50,000-60.000 preeclampsia related deaths worldwide
- Incidence is 7x higher in developing countries (2.8% of live births) than in developed countries (0.4%).

Hypertensive Disorders in Pregnancy

- Chronic Hypertension
- Chronic Hypertension Superimposed with Preeclampsia
- Gestational Hypertension
- Preeclampsia-Eclampsia

Hypertension in pregnancy

**Before 20 weeks
of pregnancy**

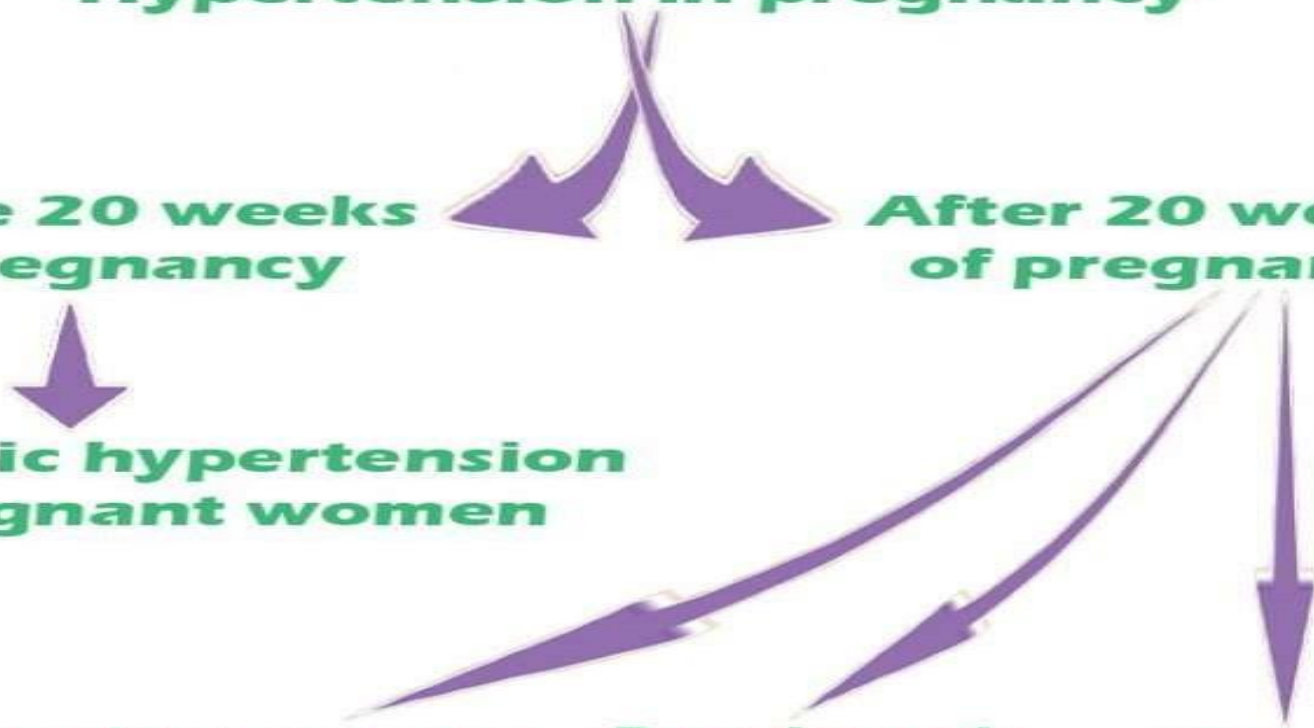
**After 20 weeks
of pregnancy**

**Chronic hypertension
in pregnant women**

Gestational hypertension
Blood pressure above
140/90 mm hg

Preeclampsia
Blood pressure
>140/90 mm hg,
protein in urine
and edema

Eclampsia
preeclampsia
with seizure



Hypertensive disorders cont.d

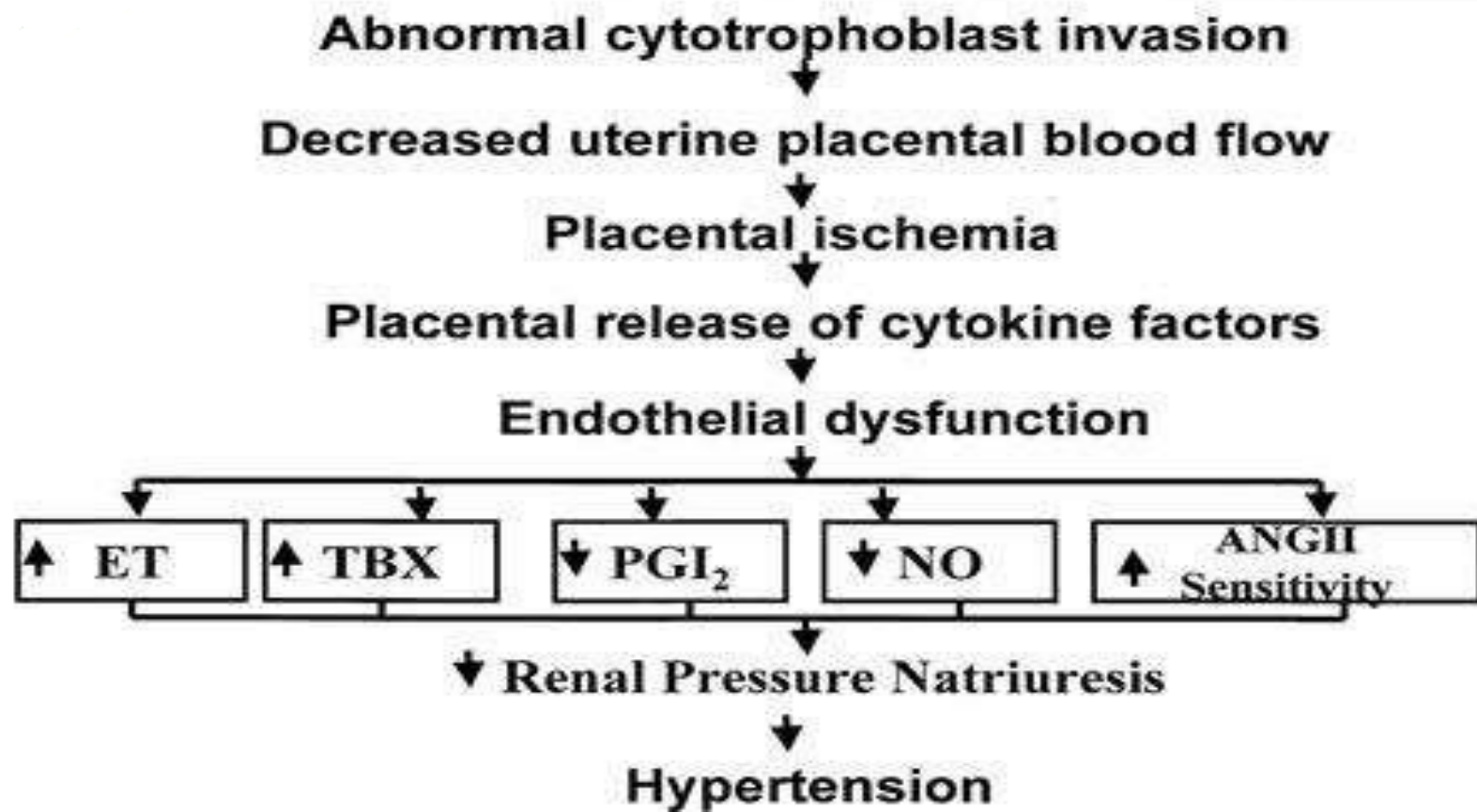
- Pre-eclampsia is gestational hypertension plus proteinuria
- Severe pre-eclampsia involves a BP greater than 160/110, with additional medical signs and symptoms.
- HELLP Syndrome is a type of preeclampsia:
 - Hemolytic anemia, elevated liver enzymes and low platelet count.

Hypertensive disorders cont.d

- Eclampsia: this is when
 - Tonic-clonic seizures appear in a pregnant woman
 - with high blood pressure and
 - Proteinuria.
- Pre-eclampsia and eclampsia are components of a common syndrome.

Pregnancy-Induced Hypertension

Possible mechanism of action



Risk factors

- Maternal causes

- Obesity
- Primiparity
- Mothers under 20 or over 40 years old
- Past history of DM, HTN
- Adolescent pregnancy.
- Chronic hypertension
- New paternity.
- Thrombophilia
- Having a donated kidneys

- Pregnancy

- Previous Preeclampsia
- Multiple gestation (twins or triplets, etc.)
- Placental abnormalities:
 - Hyperplacentosis: Excessive exposure to chorionic villi.
 - Placental ischemia. Family history

Family history

- Family history of preeclampsia.
- African American race

Signs and Symptoms

- High blood pressure is the major sign.
- Other signs specific to relevant organ damage
 - Edema
 - Sudden weight gain
 - Blurred vision or sensitivity to light
 - Nausea and vomiting
 - Persistent headaches
 - Epigastric pains

Investigations

- Full blood count with platelet count
- Serum creatinine
- Liver function test
- 24 hr urine protein or protein or
- Protein creatinine ratio
- Obstetric scan
- Umbilical Artery Doppler

Diagnostic criteria: Gestational High BP +

- Proteinuria: >300 mg/24 hr urine; protein/creatinine ≥ 0.3 ; or Dipstick reading of 1+ **OR**
- Serum creatinine: >1.1 mg/dL
- Platelet count: $< 100,000$ /uL
- LFT: Elevated concentrations of transaminases

Management

- No specific treatment,
- Close monitoring to rapidly identify
 - Pre-eclampsia and
 - its life-threatening complications
 - HELLP Syndrome and
 - eclampsia).

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Management cont.d

- Close monitoring
 - Serial assessment of maternal symptoms and fetal movement(daily by the woman)
 - Serial measurement of BP(2x weekly)
 - Assessment of platelets counts and liver enzymes(weekly)

Management cont.d

- Drug treatment- options are limited,
 - Methyldopa,
 - Nifedipine
 - Hydralazine, and
 - Labetalol are most commonly used
 - Corticosteroids for lung maturity
- Delivery of Placenta
 - Timing of delivery: preeclampsia (no complication)= 37wks 0/7
 - plan for labor and delivery includes selection of a hospital with provisions for advanced life support of newborn babies.

Management cont.d:

Mode of delivery

- Vaginal or C/S
- This is determined by
 - Gestational age
 - Fetal presentation
 - Cervical status
 - Maternal conditions
 - Fetal conditions

Agents for urgent BP control in Pregnancy

Drug	Dose	Comments
Labetalol	10-20 mg IV, then 20-80 mg every 20-30 mins to a max of 300mg	First line agent, fewer adverse effects, contraindicated in Asthma, CCF
Hydralazine	5 mg Iv or IM, then 5-10mg every 20-40mins	Higher or frequent doses associated with maternal hypotension, fetal distress
Nifedipine	10-20 mg orally, rpt in 30mins if needed, then 10-20 mg every 2-6 hrs	May observe reflex tachycardia or headache

Common Oral Antihypertensive Agents in Pregnancy

Drug	Dose	Comments
Labetalol	200-2400 mg/d orally in 2-3 divided doses	Avoid in patients with Asthma and CCF
Nifedipine	30-120 mg/d orally of a slow release preparation	Avoid sublingual form
Methyldopa	0.5-3g/d orally in 2-3 divided doses	May not be effective in control of severe hypertension

MAGNESIUM SULFATE

- Effective anticonvulsant
- No CNS depression •

Indications:

- Severe Preeclampsia
- Eclampsia
- Mild Preeclampsia in labor - ?
- Not given to treat hypertension

Dosage Schedule

CONTINUOUS IV INFUSION •

- Loading Dose – 4-6 gms
MgSO₄ in 100 ml of IV fluid
over 15 – 20 mins •
- Maintenance Infusion – 2 g/hr in
100 ml IV fluid

Complications

Mother

- Severe hypertension
- Eclampsia
- HELLP Syndrome
- Abruptio placenta
- DIC
- Liver infarction
- Pulmonary edema
- Increased mortality

Fetus

- Prematurity
- Fetal Growth restriction
- Fetal death

Prevention of Preeclampsia?

- Antiplatelet?
- Antioxidants?
- Salt Restriction?
- Calcium supplementation?
- Magnesium supplementation?
- Bed rest?
- Moderate Exercise?
 - However, no concrete evidence yet to validate any of this in
 - preventing Preeclampsia

Finally...

- Thank you for your attention!
- Questions...
- Contributions...