IHYPERTENSIVE DISORDERS N PREGNANCY

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Learning objectives

after this cession will be able to know

1 .Epidemiology

2. Definitions & Classifications

3- Pathophysilogy , Diagnosis

4- Investigations in cases of hypertensive

5- complication

6. Prevention

7- management

Epidmiology

Hypertensive disorders of pregnancy are leading causes of maternal mortality.

Worldwide: 50,000 women die each year.

- They complicate 7-10% of all pregnancies.
- Pregnancy Induced Hypertension - 70%
- Chronic Hypertension – 30%
- Up to 13% of PE patients well have chronic or essential hypertension

16% of pregnancy-related deaths

Eclampsia 1 in 2000 deliveries

Hypertension; definitions & classifications (cont.)

- Gestational hypertension:
  - Hypertension for first time after 20 w, without Proteinuria. BP returns to normal before 12 weeks postpartum.
- Chronic hypertension with pregnancy:
  - Hypertension antedates pregnancy and detected before 20 w, & lasts more than 12 weeks postpartum.

cont-

- *Preeclampsia:*
  - The development of hypertension and Proteinuria after 20 w
  - May occur earlier in vesicular mole or twins.

- *Eclampsia (in Greek= Flash of light):*
  - The occurrence of tonic-clonic convulsions (without any neurological disease) in a woman with pre-eclampsia.

Cont-

- ***Proteinuria:***
  - **≥ 300mg/ L in a 24 hours urine.**
- **Heavy Proteinuria :**
  - **= ≥ 2gm/24 hours**

Pathophysiology

Vasospasm and hypo perfusion are the underlying mechanisms involved with this disorder. Several other changes are associated with gestational hypertension. Endothelial injury occurs, leading to subsequent platelet adherence, fibrin deposition, and fragment of an erythrocyte).

Pre-eclampsia

Incidence:

- Is the most common medical disorder complicating pregnancy 5-15%
- Is the most common hypertensive disorder in pregnancy.
- More common in primigravidas and elderly multipara.
- More in black races.
- teen-ager

Risk factors

- Chronic hypertension.
- Chronic nephritis.
- Past history .
- Family history.
- Obesity.
- Multiple pregnancy.

Cont-

- Polyhydramnios.
- Vesicular mole.
- Diabetes mellitus.
- Nulliparity.
- Teenage Pregnancy.
- Smoking.
- Stress

Types of Preeclampsia

- a. **Mild**: blood pressure (BP) 140/90 mm Hg on two readings taken 6 hours apart; systolic BP increase of 30 mm Hg or diastolic BP increase of 15 mm Hg; proteinuria +1 (30 mg/dL) or more
- - Edema may be present

b. **Severe:**

Objective: BP 160/110 mm Hg or higher on two readings taken 6 hours apart after bed rest; proteinuria +3 to +4; hyperreflexia; oliguria; hemoconcentration

Symptoms of sever pre-eclampsia

The most symptom is epigasteric pain which may reflect subcapsular liver haemorrhage.

- **Headache.**
- **Blurring of vision.**
- **Nausea and vomiting.**
- **Oliguria or anuria**

Cont-

- thrombocytopenia (low platelet less than
- 100,000 platelets/mm3

- HELLP syndrome
- [Haemolysis- elevated liver enzymes & low platelets]

Causes

etiology of HELLP syndrome is unknown. But The hemolysis that occurs is hemolytic anemia. It is happen when RBCs become fragmented as they pass through small, damaged blood vessels. preeclampsia.

Complications

Maternal complications

- Abruption placenta
- DIC/HELLP syndrome
- Acute Renal Failure
- Eclampsia
- Liver failure & Hemmorhage
- Stroke
- Death
- Long term cardiovascular morbidity

Neonatal complications

- Preterm delivery
- IUGR
- Hypoxic neurological injury
- Perinatal death
- Low birth weight with long term morbidity

PREVENTION OF PRE-ECLAMPSIA

- **Regular antenatal check up for early detection of rapid gain in weight or a rising blood** pressure
- **Calcium supplementation (2 gm per day) reduces the risk of gestational hypertension**
- Aspirin in low doses is known to inhibit cyclo-oxygenase in platelets thereby preventing the formation of thromboxane
- **Balanced diet rich in protein, vit B and folate**
- **control of sugar level in diabetic mother**

Diagnosis Of Eclampsia:

- Eclamptic fit stages (4 stages):
  - Premonitory stage (1/2 minute):
    - Eye rolled up.
    - Twitches of the face and hands.
  - Tonic stage (1/2 minute):
    - Generalized tonic spasm.
    - Cyanosis.
    - Tongue may be bitten between the clenched teeth.

- Clonic stage (1-2 minutes):
  - Convulsions .
  - Tongue may be bitten.
  - face is congested and cyanosed.
  - conjunctival congestion.
  - blood stained froth from the mouth,
  - temperature may rise.
  - involuntary passage of urine or stool.
  - Gradually convulsions stop.
  - coma stage : for minute or hours

Antepartum & postpartum eclampsia

- **Ante partum (65%)** with the best prognosis.
- **Intrapartum (20%).**
- **Postpartum (15%)** with the worst prognosis as it indicates extensive pathology and multisystem damage..

Investigations

- ***A. Laboratory:***
  - ***Urine***: 24 hour urine, Proteinuria.
  - ***Kidney functions***: serum creatinine, urea, creatinine clearance and uric acid.
  - ***Liver functions***: bilirubin, Enzymes .
  - ***Blood***: CBC, Hemolysis and Platelet count (Thrombocytopenia).
  - ***Coagulation Profile***: Bleeding and clotting time

Investigations

B. Instrumental

- ***Fundus Examination .***

C. Imaging techniques :

- ***CT* scan for the brain.**
- ***Ultrasonograghy .***

Antenatal care

- ***Rest:*** should be in left-lateral position
- ***Diet:*** **The diet should contain adequate amount of daily protein (about 100 gm) fiber and vitamins**, usual salt intake **.**
- routine weighting during antenatal visit
- blood pressure and urine analysis , check Bp every4/h

24/h urine for protein

- Fetal assessment

Cont-

- ***Diuretics:*** **reasons for its use are— Cardiac failure ,** Pulmonary edema
- ***Antihypertensives: e.g*** Drug
  - Methyl-dopa- • Nifedipine , • Hydralazin
  - Labetalol

Intrapartum Management

- Should be individualized depending on:
- Severity of the condition and GA
- Presence or absence of significant proteinuria
- Past obstetric performance
- In cases of mild non proteinuric hypertension

before term await till 40 weeks with close fetal & maternal monitoring as outpatient

In cases of pre-eclampsia from 38 weeks & more terminate pregnancy by induction or caesarean section depending on previous obstetric history & adequacy of pelvis.

In cases of mild uncomplicated pre-eclampsia before term admit the mother & adopt expectant management with close fetal & maternal follow up.

In cases of sever hypertension (not responding to treatment even after combined drugs) with or without proteinuria ---→ terminate pregnancy due to risk of maternal CVA.

- Bp is measured half-hour(rapid heamodynamic change) stabilize by medication
- magnesium sulfate to prevent seizer
- anti-hypertension drugs
- fluid balance
- pain relief

SOME INDICATIONS OF TERMINATAION OF PREGNANCY

- All case of Eclampsia (after stablization)
- Sever hypertension not responsive to treatment
- HELLP syndrome
- Symptoms of impending eclampsia (mention them ??)
- Sever proteinuria (5g/L or more)
- Renal compromise or oliguria
- Fetal compromise

Timing of birth

- mild hypertension, no fetal compromise

monitor , induce at term

- moderate or sever pre-eclampsia:

after37weeks; delivery

before 34 week **;Steroid therapy is considered ,**

treat hypertension , delivery if mother/ fetus deteriorates

Nursing during seizure

- remain with patient during seizure
- don't try to stop movement
- safe area around patient

Immediate after seizure :

- left side position
- The air passage is to be cleared off the mucus with a mucus sucker after convulsion
- O2 if needed
- I.V Line
- give antihypertension
- give MgSo4

Magnesium sulfate management

Loading dose; 4–6 gm IV over 15–20 min

1–2 gm/hr IV infusion Maintenance dose;

- evaluate urine output - evaluate reflexes and respiratory rate

  - stopped immediate if urine output less than 30ml / h

  - check BP every 15 /min

Postpartum care

The maternal condition should continue to be monitored at least four hourly for the next 48 hours (the period during which convulsions occur)

Phynobarbiton tab60mg in repeated doses can produced effective sedation

Hypotensive drugs may be prescribed if the diastolic pressure is raised beyond 100mmhg.

The woman is kept in the hospital ,until the blood pressure reaches a save level and protein urea is disappears

MATERNAL COMPLICATIONS OF ECLAMPSIA

- **Injuries**: Tongue bite, injuries due to fall from bed
- Pulmonary edema- – Embolism , Adult respiratory distress
- Cardiac , Renal failure
- Hepatic—necrosis, Subcapsular hematoma

- • Cerebral: Edema , hemorrhage

- • Neurological deficits

Cont-

- Thrombocytopenia
- – Disseminated intravascular Coagulopathy
- Sepsis , Psychosis
- Shock-death

Fetal complication

- intrauterine growth restriction
- prematurity
- small gestation age
- still birth
- intrauterine fetal death

classification of hypertension in Pregnancy (*National High Blood Pressure Education Program)*

Disorder	Definition		
Hypertension	BP ≥ 140/90 mm Hg measured 2 times with at least a 6-hour interval		
Proteinuria	Urinary excretion of ≥ 0.3 gm protein/24 hours specimen or 0.1 gm/L		
Gestational hypertension	BP ≥ 140/90 mm Hg for the first time in pregnancy after 20 weeks, without proteinuria		

Disorder	Definition		
Pre-eclampsia	Gestational hypertension with proteinuria		
Eclampsia	Women with pre-eclampsia complicated with convulsions and/ or coma		
Chronic hypertension	Known hypertension before pregnancy or hypertension diagnosed first time before 20 weeks of pregnancy		
Superimposed pre-eclampsia or eclampsia	Occurrence of new onset of proteinuria in women with chronic hypertension		