**Introduction**

Pregnancy related complication means the complication that arise during pregnancy which causes increase risk of maternal and featal mortality and morbidities.

* Pregnancy Induced Hypertension
* Gestational Hypertension
* Pre-eclampsia
* Eclampsia

* Amniotic Fluid Disorder
* Polyhydramnios
* Oligohydramnios

* Hyperemesis Gravidarum
* Gestational Diabetes

**Pregnancy Induced Hypertension**

* Hypertension develop as direct result of the gravid state, the women without having a previous history or evidence of hypertension is known as pregnancy induced hypertension.
* It is a condition where vasospasm occurs during pregnancy in both small and large arteries in the body.
* Pregnancy Induced Hypertension is a form of high blood pressure in pregnancy.

**Classification of Pregnancy Induced Hypertension**

**Gestational Hypertension**

* Gestational hypertension refers to elevated blood pressure (Systolic blood pressure greater than or equal to **140 mm of Hg** and diastolic blood pressure greater than or equal to **90 mm of Hg** ) first detected **after 20 weeks** of gestation in the **absence of proteinuria** or other diagnostic features of pre- eclampsia.
* Blood pressure **returns** to **normal after birth**.
* It occurs in about 5 percent to 8 percent of all pregnancies.
* It is a condition in which vasospasm occurs during pregnancy in both small and large arteries. With high [blood pressure](https://nurseslabs.com/cardiovascular-system-anatomy-physiology/), there is an increase in the resistance of blood vessels. This may hinder blood flow in many different organ systems in the expectant mother including the [liver](https://nurseslabs.com/digestive-system/), kidneys, [brain](https://nurseslabs.com/nervous-system/), uterus, and [placenta](https://nurseslabs.com/fetal-development/).

**Pre-eclampsia**

Pre-eclampsia is a multi-system disorder of unknown etiology characterized by development of hypertension to the extent of 140/90 mm of Hg or more with edema or proteinuria or both induced by pregnancy after 20 weeks of gestation in previously normotensive and non - proteinuria patients.

**(International society for study of hypertension in pregnancy, 1998)**

**Mild pre-eclampsia:**

* A women is said to be mildly preeclamptic when her blood pressure rises to 140/90 mm of Hg, taken on two occasions at least six hours apart.
* In addition to hypertension, a women has proteinuria (1+ or 2+ on a reagent test strip on a random sample)
* A weight gain of more than 2lb/week in the second trimester or 1 lb/week in the trimester usually indicates abnormal tissue fluid retention.

**Severe Pre-eclampsia:**

* When blood pressure has risen to 160 mm of Hg systolic and 110 mm of Hg diastolic or above on at least two occasions 6 hours apart at bed rest.
* Marked proteinuria (3+ or 4+ on a random urine sample or more than 5g in a 24 hour sample) and extensive oedema are also present.
* Puffiness in a women’s face and hands, most readily palpated over bony surfaces.
* May manifest oliguria, elevated serum creatinine, cerebral or visual disturbances, thrombocytopenia and epigastric pain.

**Eclampsia**

* Most severe classification of PIH
* A women has passed into this stage when cerebral oedema is so acute that seizure or comma occurs.
* With eclampsia, the maternal mortality rate is high from cause such as cerebral haemorrhage, circulatory collapse or renal failure.
* The foetal prognosis is poor because of hypoxia and consequent foetal acidosis.
* The manifestations are the same accompanied by seizure.

**Risk factors of PIH**

* Kidney disease
* Diabetes mellitus
* Hypertension with previous pregnancy
* Mother age <20 years or 40 >years
* Multiple foetus

**Causes**

* Abnormal prostaglandin action
* Endothelial cell activation
* Immunological factors: presence of foreign protein
* Genetic predisposition
* Pre-existing diabetes
* Hydatidiform mole

**Clinical features**

Alarming symptoms:

* Headache over the occipital or frontal region
* Disturbed sleep, generalized oedema
* Diminished urinary output (less than 500 ml in 24 hours)
* Epigastric pain, blurring of vision
* Rapid weight gain i.e., 2.5 kg a month or >500g m a week.

Severe symptoms:

* Persistent systolic blood pressure > 160 mm of Hg
* Diastolic pressure >100 mm of Hg
* Oliguria <400/24hr
* Low platelet count <100,000/mm
* HELLP syndrome (H- haemolysis, E- elevated liver enzyme, LP- low platelet count)
* Pulmonary oedema
* Cerebral or visual disturbances

**Diagnostic evaluation**

* History Taking: Pregnancy related risk
* Physical Examination
* Laboratory Investigation:
* Routine Blood test
* Renal function test
* liver function test
* Urine test
* Radiological examination:
* Foetal Ultrasound (Ultrasonography, Doppler Ultrasonography)
* X ray if only indicated
* Ophthalmic examination
* Cardiotocography
* Head CT scanning: used to detect intracranial haemorrhage in selected patients with any of the following symptoms noted:
* sudden severe headache
* focal neurologic deficits
* seizure with a prolonged postictal state
* Atypical presentation of eclampsia

**Management**

* Hospitalization
* Rest
* Diet
* Monitoring:
  + - Maternal monitoring
    - Foetal monitoring

* **Hospitalization**-Hypertension with proteinuria should be admitted in hospital for rest, daily estimation of BP, urine for protein estimation, daily fetal kick count ,FSH etc. The management is usually directed towards the relieve of edema, proteinuria and hypertension.

* **Rest**- The pts should be in bed preferably in left lateral position as much as possible to lessen the effects of venacaval compression. Rest is to be continued till all the pre-eclamptic manifestation subsides.

* **Diet**- Diet should contain adequate amount of protein, normal salt diet. Maintain adequate and approximate calorie intake up to 2500 kcal/ day. Adequate fluid should be taken.

* **4. Monitoring**
* Maternal monitoring- BP, State of oedema , fluid intake and output, urine examination, blood for HB, platelet count , uric acid ,creatinine , LFT etc.
* Foetal Monitoring- FSH, Foetal movement count, Non stress test, ultrasonography

**Medical management**

* Anti-convulsive drugs: Magnesium Sulphate
* Anti-hypertensive drugs: Hydralazine

**Amniotic Fluid Disorder**

* Polyhydramnios
* Oligohydramnios

**Polyhydramnios**

* Anatomically, polyhydramnios is defined as a state where liquor amnii exceeds, 2000ml
* **Clinical definition**: the excessive accumulation of liquor amnii causing discomfort to the patient when amniotic fluid index (AFI) is more than 24 cm and the deepest vertical pocket (DVT) is more than 8cm.

**Causes of polyhydramnios**

* Foetal anomalies: Anencephaly, Open spinal bifida, oesophageal or duodenal atresia etc.
* Chorioangioma of the placenta
* Multiple pregnancy
* Maternal disease: Diabetes mellitus, cardiac and renal disease, chromosomal abnormalities etc
* Idiopathic: 50-60%

**Sign and symptoms of polyhydramnios**

* Patient may be in a dyspnoeic state in lying down position
* Evidence of pre-eclampsia may be seen
* Per abdomen:
* Fundal height is large for date, abdominal wall is tense, shiny with large striae.
* Abdominal girth is more than normal
* Abdomen is markedly enlarged, Fluid thrill in all direction over the uterus.
* Foetal part cannot be well defined, difficult to recognized the presentation and position, FSH is not easily heard
* Internal examination: cervix pulled up, tense bulged membrane can be felt

**Investigation done in polyhydramnios**

* Ultrasonography:
* Amniotic Fluid Index (AFI>24cm, Deepest vertical pocket >8cm)
* To detect the multiple foetuses, lie, presentation and congenital malformation
  + Blood test (ABO and RH grouping)
  + Amniotic Fluid (Estimation of alpha-fetoprotein)

**Supportive treatment**

* Bed rest
* Analgesic and sedatives: Indomethacin
* Amniocentesis

**Oligohydramnios**

* Oligohydramnios is characterized by: -
* Diminished amniotic fluid volume (AFV): lesser than 500ml at 32-36 weeks of gestation
* Single deepest pocket: less than 2cm
* Amniotic Fluid Index (AFI): less than 5cm

**Causes of oligohydramnios**

* Amnio-nodosum
* Foetal condition: chromosomal or structural anomalies
* Renal agenesis
* Post maturity

**Clinical features**

* The uterus appears smaller than expected for the period of gestation.
* Reduced foetal movement compared to previous or normal pregnancy.
* The uterus is “full of foetus” because of scanty liquor.
* Less foetal movement
* Evidence of intrauterine growth retardation

**Management**

* Presence of foetal congenital malformation needs delivery irrespective of the period of gestation.
* Maternal bed rest and oral hydration promote the production of amniotic fluid by increasing the maternal intravascular space
* Amnioinfusion
* Continue foetal heart rate monitoring

**Hyperemesis gravidarum**

It is an extreme, excessive and persistent vomiting in early pregnancy that may lead to dehydration, starvation, excessive weight loss and malnutrition.

**causes**

* The exact cause is unknown, other possible causes are: -
* Hormonal factor: rising level of oestrogen, Human Chorionic Gonadotrophin hormone (HCG), progesterone
* Most prevalent in hydatidiform mole and multiple pregnancy.
* Previous history of hyperemesis, family history
* Psychological factors

**Sign and symptoms**

**Early:**

* Pernicious vomiting occurs throughout the day.
* Normal day to day activities are reduced.
* There is no evidence of dehydration or starvation.

**Late:**

* Evidence of dehydration and starvation are present.
* Progressive loss of weight
* Urine quantity is diminished even to the stage of oliguria
* Epigastric pain and constipation
* Features of dehydration and ketoacidosis
* Nutritional deficiency

**Investigation**

* Biochemical test
* Urinalysis
* Ultrasound

**Management**

* Hospitalization
* Fluids: withheld oral feeding for 24 hours, administer IV drip
* Drugs: antiemetic (ondansetron, promethazine and metoclopramide)
* Nutritional support: vitamin, carbohydrate and protein containing foods
* Psychotherapy
* Termination of pregnancy

**Question:**

**True/False**

1. Pre-eclampsia causes acute seizure. \_\_\_
2. Human Chorionic Gonadotrophin Hormone (HCG) is one of the factor causing Hyperemesis Gravidarum. \_\_\_\_

**Fill in the blanks**

1. Amniotic fluid disorder are classified as ……… and ………
2. Abortion is pregnancy termination……… weeks of gestation.

**Home assignment:**

Enlist the complication of pregnancy induced hypertension. Explain about amniotic fluid disorder.

**Refernces**

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**THE END**