BULE HORA UNIVERSITY

COLLEGE OF HEALTH SCIENCE AND MEDICINE

DEPARTMENT OF NURSING

FOR 3RD YEAR NURSING

ABNORMAL PREGNANCY

By AMANA J (BSCN MSc M AND RH)

Objectives

At end of the class student will be able to:

- ✓ Define hyperemesis gravidarum
- ✓ Define disorders of amniotic fluid volume
- ✓ explain Rh is immunization
- ✓ Define obstetric haemorrhage
- ✓ Discuss medical disorder during pregnancy

Hyper emesis gravidarum

Definition: It is excessive nausea and Vomiting that is severe enough to cause electrolyte, metabolic and nutritional imbalance.

- It is a rare case but can cause
  - Dehydration
  - Electrolyte imbalance
  - Keto - acidosis
  - Weight loss



Causes

- The cause is unknown but can be associated with condition of high HCG and estrogen level.
  - ✓Multiple pregnancy
  - ✓Hydatidform mole
  - ✓A history of unsuccessful pregnancy and
  - ✓First pregnancy

Note. A women who experience hyper emesis gravidarum will have a recurrence in subsequent pregnancy.

Pathophysiology: Metabolic changes.

- (Inadequate intake of food → Glycogen depletion → Fat reserve broke down → Low carbohydrate → Accumulation of ketone bodies → Acetone excrete through the kidney → Water and electrolyte imbalance).

Pathophysiology…

Loss of H2O and salts

↓

Fall in Na+, K+, Chloride

↓

Acidosis and ketosis

↓

Increase in blood urea and uric acid

Sign and symptoms of HEG

- Rapid pulse rate
- Low BP
- Dry and furred tongue
- Her breath smells like Acetone
- The patient becomes weak
- Sunken eyes
- Elevated HCT
- Ketonuria
- Wt. loss

Complication for the fetus/ Baby

- ✓ IUGR
- ✓ Pre-term labor
- ✓ Low birth weight
- ✓ Developmental delays
- ✓ Congenital heart disease
- ✓ Skeletal malformations
- ✓ Behavior/emotional problems
- ✓ Pregnancy loss and miscarriage (25%)

Management

Principles of Mgt

a. Control of vomiting
b. To correct fluids and electrolytes
c. To prevent or detect complication at earliest

Management…

- Reassure and keep the woman NPO for 24-48 hrs.
- Correct the electrolyte imbalance by intravenous fluid (RL or NS).
- Glucose to correct Ketoacidosis.
- Anti emetics like **promethazine** may be used if vomiting persists.

  ✓**Meclizine** 25 mg QID

  ✓**Diphenhydramine** 25 mg TID/QID

  ✓**Doxylamine** 10 mg QID

- Sedatives to produce rest
- Administer vitamin B_{12}, C, Folic acid & iron to correct the anemia.
- Observe the BP, Pulse rate & T^{o} at least 4hrly

HEG progress report

- Daily record of V/S (Temp, BP,PR) at least 2x daily
- Maintain intake output chart
- Urine test for acetone, protein
- Blood test

DISORDERS OF AMNIOTIC FLUID VOLUME

Methods of AF assessment

1.Subjective assessment Needs experience (Classify AFV into absent, low, normal, increased & excessive. without US measurement)

2. **Single deepest pool** –

Oligohydramnios — depth of 0 to 2 cm

Normal — depth of 2.1 to 8 cm

Polyhydramnios — depth > 8 cm

3.Amniotic fluid index – each quadrant are measured and totaled.

AFI

<5 cm oligohydraminous

5-8 cm boarderline

8-25 cm normal

≥25 cm constitutes polyhydramnios.

POLYHYDRAMNIOS

- ✓ Incidence; 0.4-1.5%
- ✓ It is the presence of excessive amount of liquor >2 L (AI >24)

VARIETIES:

ACUTE: AT 4^{TH} OR 5^{TH} M fluid accumulates rapidly in few days.

Symptoms are severe as rate is rapid and uterus is distended rapidly.

Pregnancy ends before 28w.

It is common with monozygotic twins.

It is an OBSTERICAL EMERGENCY.

CHRONIC :

More common and appears in the second half of pregnancy. the rate of collection is slow so uterus may reach a bigger size than acute type but symptoms are not so severe.

Etiology

Excessive production

FETAL CAUSES

- Anencephaly
- Spina bifida
- Monozygotic twins
- Rh -problem
- Macrosomia

MATERNAL CAUSES

- DM
- RENAL .D
- CARDIAC .D
- PRE-ECLAMPSIA

Decrease uptake

FETAL CAUSES

- Duodenal atresia
- Pyloric obstruction
- Intestinal obstruction

EFFECTS

PREGNANCY

- MATERNAL EXHAUSTION
- PRE-ECLAMPSIA
- ABN PRESENTATION
- PREMATURE LAB (PMR)

LABOR

- PRM(pre-mature rupture of membrane)
- PREMATURE LABOR
- CORD PROLAPSE
- CORD PRESENTATION
- UTERINE INERTIA (OVERDISTENSION)
- ATONIC PPH
- ACCIDENTAL Hg(sudden evacuation of uterus)
- OBSTETRICAL SHOCK

TREATMENT

- Mild to Moderate hydramnios: rarely requires treatment
- Hospitalization, bed rest
- Amniocentesis
- Non-steroidal anti-inflammatory analgesia
- Blood sugar control

Treatment …

DURING PREGNANCY:

- Diagnosis of etiological factors and deal with them
- Mild and moderate cases follow-up with special care
- Semi-sitting position to avoid respiratory compression.
- Severe cases need repeated amniocenteses to relieve the tension under aseptic technique
- Acute cases (TERMINATION OF PREGNANCY)

Treatment …

During labor:

Avoid sudden rupture of membranes

- to avoid sudden drop in intra-uterine Pressure leading to premature separation of the placenta causing accidental Hemorrhage or possible obstetrical shock

- To avoid cord prolapse

Once Membrane ruptures exclude cord prolapse

PPH should be expected and dealt with urgently.

OLIGOHYDRAMNIOS

- *DEFNITION*:

It is the presence of scanty amount of liquor amnii at or near term(<300ml) (AI<5)

Incidence; 8.2-37.8% =8.2 from antenatal mothers(50% postterm)

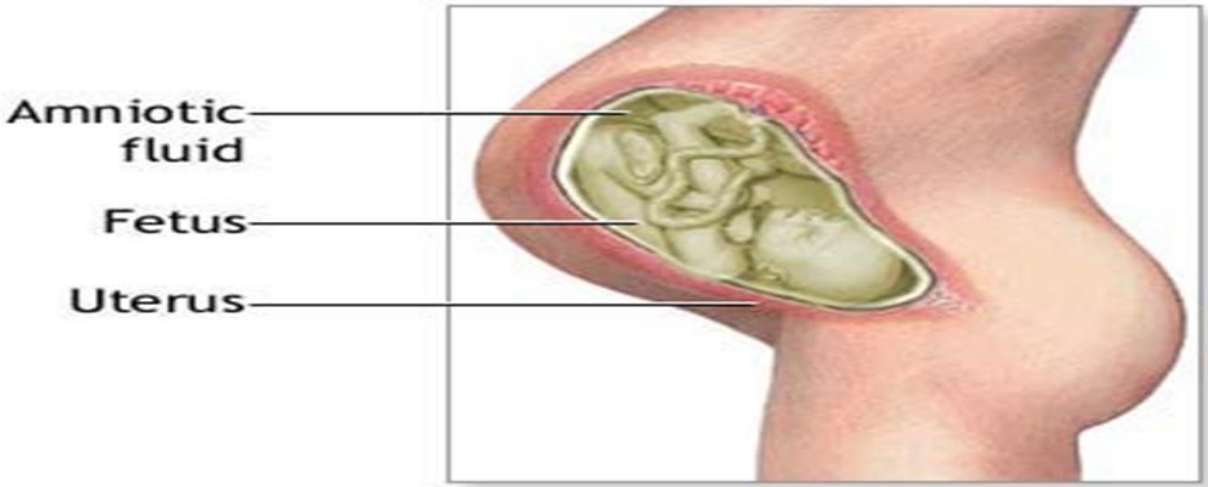
=37.8% laboring mothers(100% ROM)

ETIOLOGY:

(DEFICIENT PRODUCTION)

OLIGOHYDRAMNIOS

AFI <5



FETAL CAUSES

- RENAL AGENESIS (POTER'S Syndrome)
- Urinary tract obstruction as urethral valve or stricture or ureteric obstruction
- Defects in amniotic M with chronic leak
- Post-maturity

MATERNAL CAUSES

Placental insufficiency as with:

- Pre-eclampsia
- Essential hypertension
- Chronic nephritis

ETIOLOGY

- Postdate
- Fetal Anomalies: obstruction of fetal urinary tract/renal agenesis
- IUGR
- ROM
- Twin/Twin transfusion
- Exposure to ACE inhibitors, and
- Non-steroidal anti-inflammatory

Oligohydramnios

- *SYMPTOMS:*

" MY ABDOMEN IS SMALL''

"QUICKENING IS PAINFUL"

Decreased fetal movement

- *SIGNS*:

✓UTERUS<EXPECTED

✓FETAL PARTS EASILY FELT

✓FHS EASILY HEARD OR NOT HEARD(IUFD)

✓Diagnosis by ultrasound

✓Fetal heart rate tracing abnormality

EFFECTS

- *DURING PREGNANCY*

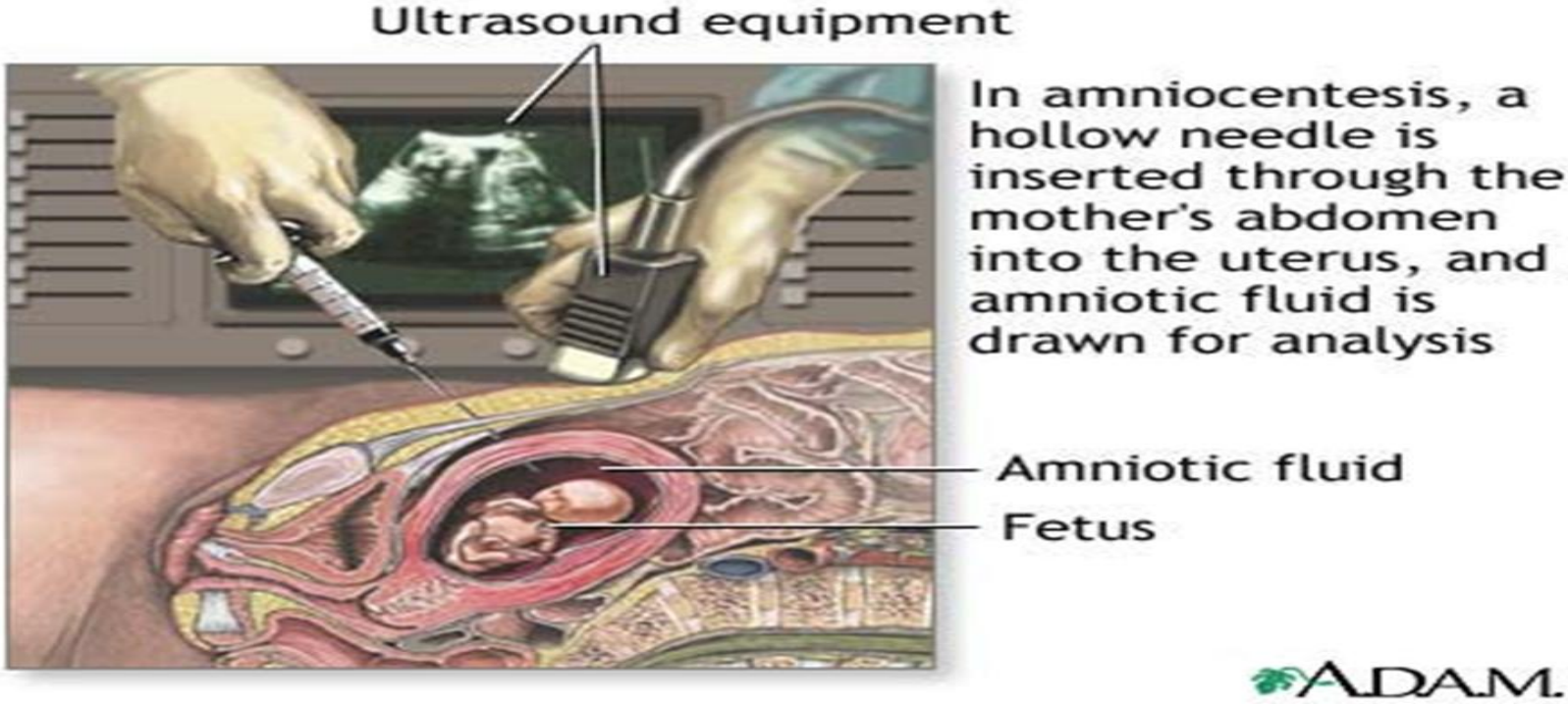
- IUGR
- IUFD
- ADHESIONS BETWEEN FETUS

DURING LABOR

- **PLACENTAL COMPRESSION LEADING TO FETAL HYPOXIA , DISTRESS OR DEATH**
- **DRY LABOR**

TREATMENT

- Delivery
- Amnioinfusion



RH ISOIMMUNIZATION

Introduction

- ✓ There are currently 30 different blood group systems and 328 red cell antigens recognized by the International Society of Blood Transfusion.
- ✓ Any individual who lacks a specific red cell antigen may produce an antibody when exposed to that antigen.

Cont…

- ✓ The antibodies may also be harmful to a mother's fetus during pregnancy.
- ✓ Maternal antibodies formed against fetal erythrocyte antigens may cross the placenta to cause fetal red cell lysis and anemia.

Cont…

- ✓ A fetus inherits at least one red cell antigen from the father that is lacking in the mother.
- ✓ The mother may become sensitized if enough fetal erythrocytes reach her circulation to elicit an immune response

Rh incompatibility

- ✓ When a mother and her unborn baby carry different Rh protein factors.
- ✓ Occurs when a mother is Rh-negative and her baby is Rh- positive.

Cont…

Alloimmunization is uncommon for the following reasons:

1. Low prevalence of incompatible red cell antigens
2. Insufficient transplacental passage of fetal antigens or maternal antibodies
3. Maternal fetal ABO incompatibility
4. Variable antigenicity
5. Variable maternal immune response to antigens.

Prevention of Rh D Alloimmunization

- ✓ Anti-D immune globulin has been used for more than four decades to prevent Rh D alloimmunization.
- ✓ Routine postpartum administration of anti-D immune globulin to at-risk pregnancies within 72 hours of delivery decreases the alloimmunization rate by 90 percent
- ✓ Whenever there is doubt whether to give anti–D immunoglobulin, it should be given.

Obstetric Haemorrhage

Obstetrics is a bloody business.

Obstetric Haemorrhage

- ✓ Vaginal bleeding is a common event at all stages of pregnancy.
- ✓ The source is virtually always maternal, rather than fetal.
- ✓ Bleeding may result from disruption of decidual blood vessels or from discrete cervical or vaginal lesions

Obstetric Haemorrhage

- ✓ It is the single most important cause of maternal death worldwide and is responsible for half of all postpartum deaths in developing countries.
- ✓ Half of maternal deaths are not reported, and at least a third are considered preventable

Antepartum Hemorrhage

Definition:

Vaginal bleeding which occurs after fetal viability to the delivery of the last fetus.

Incidence: 2 – 6 %.

Causes

Placental:

- Abruptio placenta.
- Placenta previa.

Non-placental:

- Vasa previa.
- Bloody show.
- Trauma.
- Uterine rupture.
- Cervicitis.
- Carcinoma.
- Idiopathic.

Abruption Placenta

Definition:

It is the separation of the placenta from its site of implantation before delivery of the fetus.

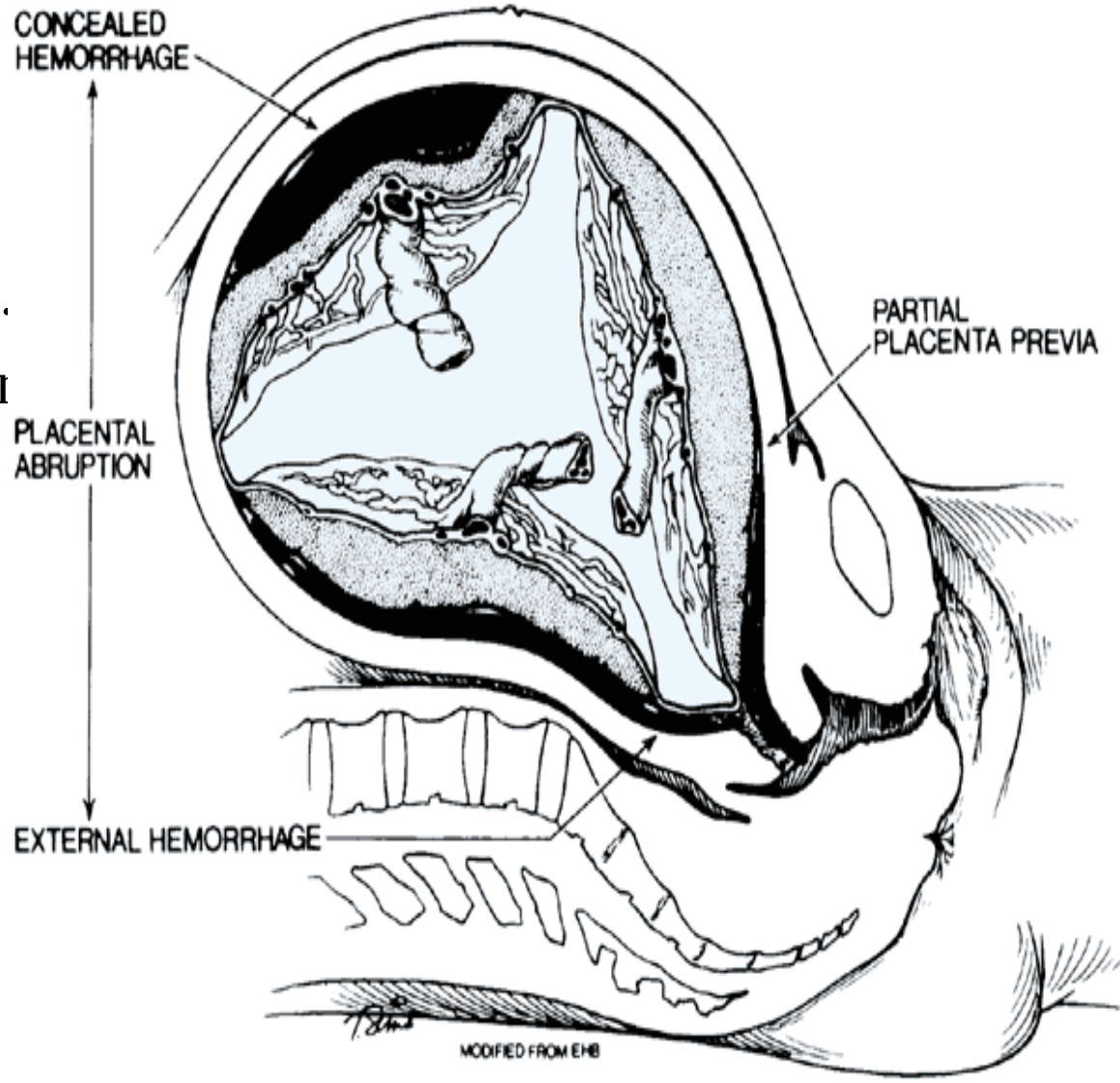
- **Incidence:** 1 in 200 deliveries.

Risk Factors

- ✓ Increased age & parity.
- ✓ Hypertensive disorders.
- ✓ Preterm ruptured membranes.
- ✓ Multiple gestation.
- ✓ Polyhydramnios.
- ✓ Smoking.
- ✓ Thrombophilia.
- ✓ Cocaine use.
- ✓ Prior abruption.
- ✓ Uterine fibroid.
- ✓ Trauma.

Types

- ✓ Total or partial.
- ✓ Concealed or revealed.
- ✓ Concealed very danger



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Presentation

- ✓ Vaginal bleeding.
- ✓ Uterine tenderness or back pain.
- ✓ Fetal distress.
- ✓ High frequency contractions.
- ✓ Uterine hypertonus.
- ✓ Idiopathic PTL.
- ✓ IUFD.

Diagnosis

- ✓ The diagnosis is primarily clinical, but may be supported by radiologic, laboratory, or pathologic findings.
- ✓ It is generally obvious in severe cases.
- ✓ In milder forms the diagnosis is often made by exclusion.

Initial Management

- ✓ Stabilization of the maternal cardiopulmonary status.
- ✓ Blood work:
  - CBC.
  - Coagulation profile.
  - Fibrinogen.
  - Blood type and Rh.

Initial Management

- ✓ Large-bore intravenous lines and continuous fetal monitoring
- ✓ Correction of the intravascular fluid deficit via crystalloid
- ✓ Tocolysis is generally contraindicated.
- ✓ Delivery is the optimal treatment. DIC & hemorrhage will resolve over 12 hours when the placenta is removed.

Mild Abruption mgt

- ✓ Expectant management with short term hospitalization.
- ✓ Corticosteroid.
- ✓ Tocolysis may be of value in mild cases.

Delivery

The mode and timing of delivery depend upon:

- ✓ GA.
- ✓ The condition of the fetus.
- ✓ The condition of the mother (eg,hypotension, coagulopathy, hemorrhage).
- ✓ The status of the cervix.

Delivery

- ✓ C/S is performed in the presence of a nonreassuring fetal heart rate pattern & when delay in delivery will endanger the mother or fetus.
- ✓ It should be done after rapid maternal hemodynamic and clotting factor stabilization.

Complications

Maternal:

1. Hypovolemia.
2. DIC.
3. Renal failure.
4. Death.

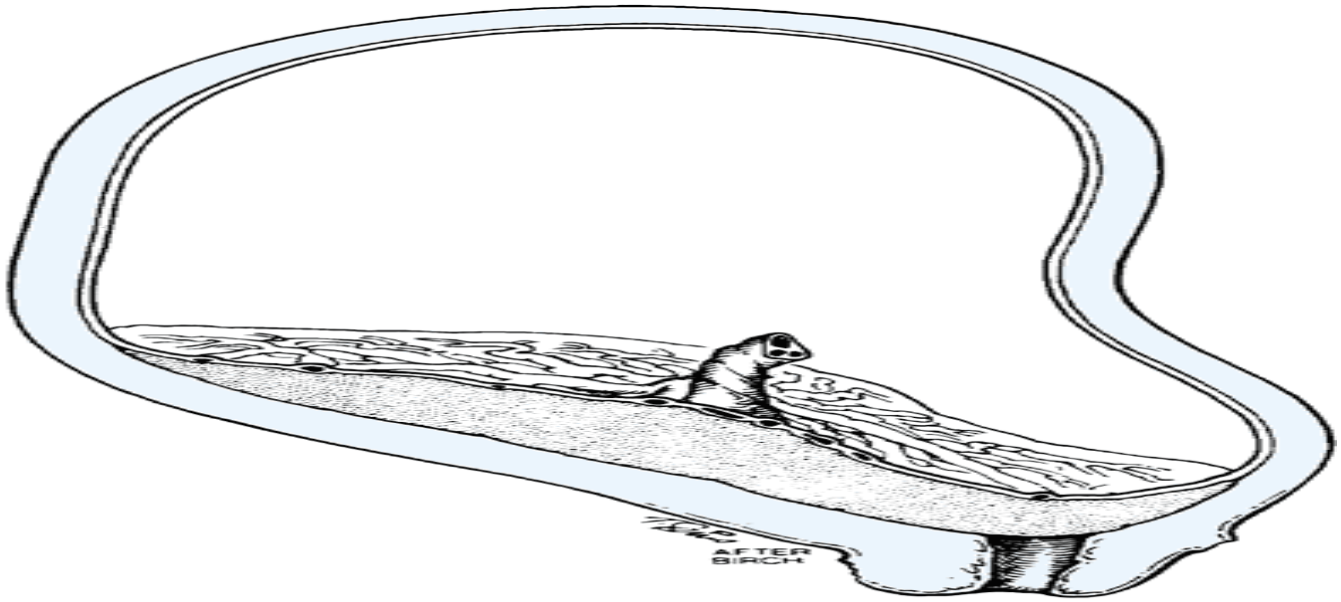
Fetal:

1. PTL.
2. PNM(peri-natal mortality)
3. IUGR.
4. IUFD.

Placenta Previa

Definition:

- ✓ The presence of placental tissue overlying or proximate to the internal cervical os after viability.
- ✓ **Incidence:** Complicates approximately 1 in 300 pregnancies.



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Risk Factors

- ✓ Increasing parity: incidence 0.2 percent in nulliparas versus up to 5 percent in grand multiparas.
- ✓ Maternal age: incidence 0.03 percent in nulliparous women aged 20 to 29 versus 0.25 percent in nulliparous women 40 years of age.
- ✓ Number of prior cesarean deliveries incidence 10 percent after four or more.
- ✓ Number of curettages for spontaneous or induced abortions.

Independent Risk Factors

- ✓ Maternal smoking
- ✓ Residence at higher altitudes
- ✓ Male fetus
- ✓ Multiple gestation: 3.9 and 2.8 previas per 1000 live twin and singleton births, respectively
- ✓ Gestational age: the prevalence of placenta previa is much higher early in pregnancy than at term

Classification

- ✓ **Complete placenta previa:**

  The placenta completely covers the internal os.

- ✓ **Partial placenta previa:**

The placental edge does not completely cover the internal cervical os but partially covers it.

- ✓ **Marginal placenta previa:**

  The placenta is proximate to the internal os.

- ✓ **Low-lying placenta:**

In which placental edge lies within 2 to 3 cm of the internal os. (reference)

Clinical Manifestations

- ✓ Painless vaginal bleeding occurs in 70 to 80 percent of patients.
- ✓ 10 to 20 percent present with uterine contractions associated with bleeding.
- ✓ Fewer than 10 percent are incidentally detected by ultrasound.

Associated Conditions

- ✓ Malpresentation.
- ✓ PPROM.
- ✓ Congenital anomalies.
- ✓ IUGR.

Diagnosis

- ✓ The diagnosis is based upon results of ultrasound examination.
- ✓ Clinical findings are used to support the sonographic diagnosis.
- ✓ Placenta previa should be suspected in any woman beyond 28 weeks of gestation who presents with painless vaginal bleeding.

Antepartum Management

- ✓ Avoidance of coitus and digital cervical examination.
- ✓ Counseling to seek immediate medical attention if there is any vaginal bleeding.
- ✓ Women are also encouraged to avoid exercise, decrease their activity, and notify the physician of uterine contractions.
- ✓ Serial ultrasound evaluations every two to four weeks to assess placental location and fetal growth.

Acute Care of Symptomatic Placenta Previa

- ✓ Large bore IV access & administration of crystalloid.
- ✓ Type and cross-match for blood transfussion.
- ✓ Transfuse to maintain a Hct of 30% if the patient is actively bleeding.
- ✓ Maternal pulse and blood pressure every 15 minutes to 1 hour depending upon the degree of blood loss.

Acute Care of Symptomatic Placenta Previa

- ✓ The fetal heart rate is continuously monitored.
- ✓ Quantitative monitoring of vaginal blood loss.
- ✓ The source of the vaginal blood (maternal versus fetal) is intermittently assessedby Apt test or Kleihauer-Betke analysis.
- ✓ Urine output is evaluated hourly with a Foley catheter & should be at least 30 mL/hour.
- ✓ Hb & Hct.
- ✓ Serum electrolytes and indices of renal function.

Delivery

- ✓ Tocolysis is not administered to actively bleeding patients.
- ✓ Delivery is indicated if:
  (1) there is a nonreassuring fetal heart rate.
  (2) life threatening refractory maternal hemorrhage.

Mode of Delivery

Cesarean delivery is the delivery route of choice.

- ✓ Vaginal delivery may be considered in the presence of:
- ✓ a fetal demise
- ✓ previable fetus
- ✓ some cases of marginal previa, as long as the mother remains hemodynamic ally stable.

Conservative Management of Stable Preterm Patients

- ✓ The patient is hospitalized at bedrest with bathroom privileges.
- ✓ Stool softeners and a high-fiber diet help to minimize constipation and avoid excess straining.
- ✓ Periodic assessment of the maternal hematocrit.
- ✓ Ferrous gluconate supplements (300 mg orally three or four times per day) are given with vitamin C to improve intestinal iron absorption.
- ✓ Cross match to provide two to four units of packed red blood cells.
- ✓ Prophylactic transfusions to maintain the maternal hematocrit above 30 percent in stable asymptomatic patients in anticipation of future blood loss.
- ✓

Conservative Management of Stable Preterm Patients

- ✓ A single course of corticosteroid between 28 and 34 w.
- ✓ Rh(D)-negative women should receive Rh(D)-immune globulin if they bled.
- ✓ Readministration is not necessary if delivery or rebleeding occurs within three weeks, unless a large fetomaternal hemorrhage is detect
- Fetal growth, amniotic fluid volume, and placental location are evaluated every two to four weeks.
- Tocolysis may be safely utilized if contractions are present

Conservative Management of Stable Preterm Patients

- Amniocentesis can be done at 36 weeks to assess pulmonary maturity.
- Scheduled abdominal delivery is suggested at 37w or upon confirmation of pulmonary maturity.

Delivery

Abdominal delivery.

- ✓ Two to four units of PRBC should be available for the delivery.
- ✓ Appropriate surgical instruments for performance of a cesarean hysterectomy should also be available since there is a 5 to 10 percent risk of placenta accreta.

Outpatient Managaement

- ✓Women who have never bleed.
- ✓Women with placenta previa if bleeding has stopped for more than one week.
- ✓There are no other pregnancy complications, such as fetal growth restriction.
- ✓Live within 15 minutes of the hospital

Medical disorders during pregnancy

Outline

- ✓ Hypertension
- ✓ Anemia
- ✓ Diabetic mellitus
- ✓ Cardiac problems
- ✓Tuberculosis

Objectives

At the end of this class students will be able to:

- ✓ Define hypertension(HTN),anemia, diabetic mellitus, heart disease, malaria, and tuberculosis.
- ✓ Classify hypertension
- ✓ Diagnose each types of hypertension and
- ✓ Discuss the management of HTN
- ✓ Differentiate types of anemia
- ✓ Discuss effect of anemia on pregnancy
- ✓ Know prevention and management ways of anemia.

Objectives…

- ✓ Differentiate types of DM
- ✓ Discuss effect of DM on pregnancy
- ✓ Know management ways of DM
- ✓ Know classes of cardiac disease during pregnancy.
- ✓ Describe the management mechanisms for cardiac disease.
- ✓ list clinical manifestation
- ✓ Identify diagnosis of malaria
- ✓ Discuss effect of malaria on pregnancy.
- ✓ Identify management & Prevention
- ✓ Know effect of TB on pregnancy
- ✓ Discuss management of TB

What is hypertension?

Hypertension: is defined as a **BP ≥140** mm Hg systolic or **90** mm Hg diastolic.

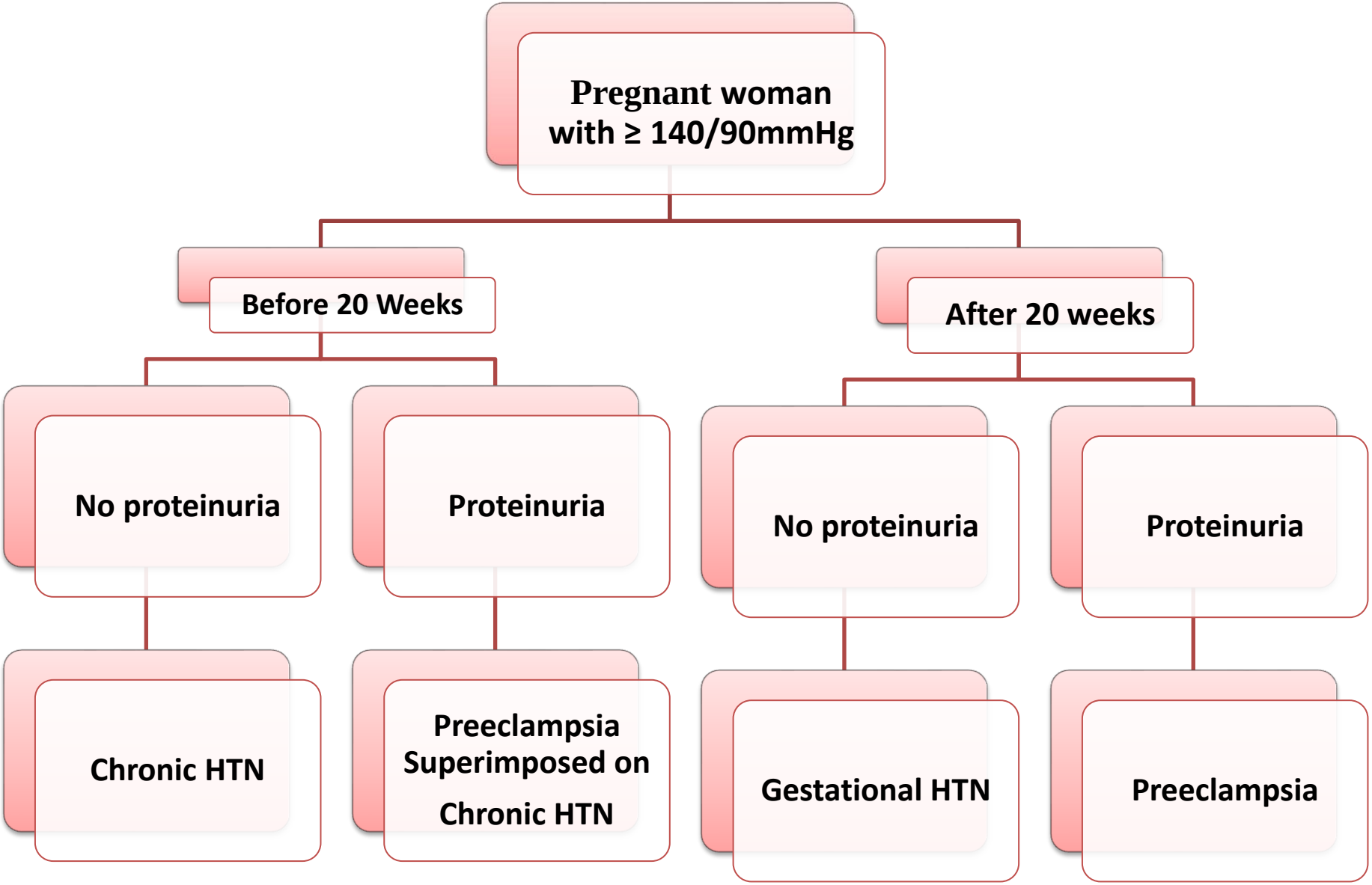
- The hypertension should be present on at least two occasions, for **4-6** hours apart.
- A single BP record **≥160/110** mmHg is considered sufficient to diagnose hypertension.

NB: -Measure the BP in the sitting position with cuff at the level of the heart.

– Allow the mother to sit 5 – 10 minutes before measuring

Classification of hypertensive disorder during pregnancy

1. Chronic hypertension
2. Preeclampsia superimposed on chronic HTN
3. Pre eclampsia- eclampsia and
4. Gestational hypertension


Pregnant woman with ≥ 140/90mmHg
Before 20 Weeks
After 20 weeks
No proteinuria
Proteinuria
No proteinuria
Proteinuria
Chronic HTN
Preeclampsia Superimposed on Chronic HTN
Gestational HTN
Preeclampsia

1. Chronic hypertension

- Is hypertension that present before the pregnancy or that is diagnosed before the **20th** wk of gestation and ***persists >12 week post partum.***
- ***It is of two types:-***

A. Mild chronic HTN: BP <160/100 mmHg

B. Severe Chronic HTN: BP ≥ 160/110mmHg

Management of Severe Chronic Hypertension

- Women with sustained BP ≥160/110 mm Hg are candidates for *antihypertensive* medication.
- Frequent prenatal visits may be needed to check the effectiveness of the medication.
- Fetal growth, blood pressure, and proteinuria are assessed at each visit
- Delivery is accomplished after 38 weeks or when fetal lung maturity is demonstrated.
- If preterm delivery is must, **corticosteroids** should be considered in attempt to accelerate fetal maturity.

- ***Antihypertensive Therapy***
  - *Methyldopa 500 mg po BID*
  - *Labetalol 100 mg po BID*
  - *Hydralazine 5 mg IV loading dose*

NB: Hydralazine is the frist line antihypertensive drug.

2. Pre eclampsia superimposed on chronic HTN:

- An acute increase in the level of hypertension and new onset of protienuria, in a woman with chronic HTN

3. Gestational HTN:

- Elevated BP without protienuria developed after 20 weeks of gestation in regresses postpartum with 12 week unless it is considered as **Chronic hypertension**

4. Preeclampsia- eclampsia

- Is elevated BP and proteinuria that occurs after 20 weeks of gestation.
- Eclampsia is the severe form of preeclampsia, the new onset of seizure or coma in a woman with pre eclampsia.
- **Predisposing factors**

1. Primigravidae more than multigravidae.
2. Pre-existing hypertension.
3. Previous pre-eclampsia.
4. Family history of pre-eclampsia.
5. Hyperplacentosis i.e. excessive chorionic tissue as in hydatidiform mole and multiple pregnancy.

Pathophysiology of Pre eclampsia

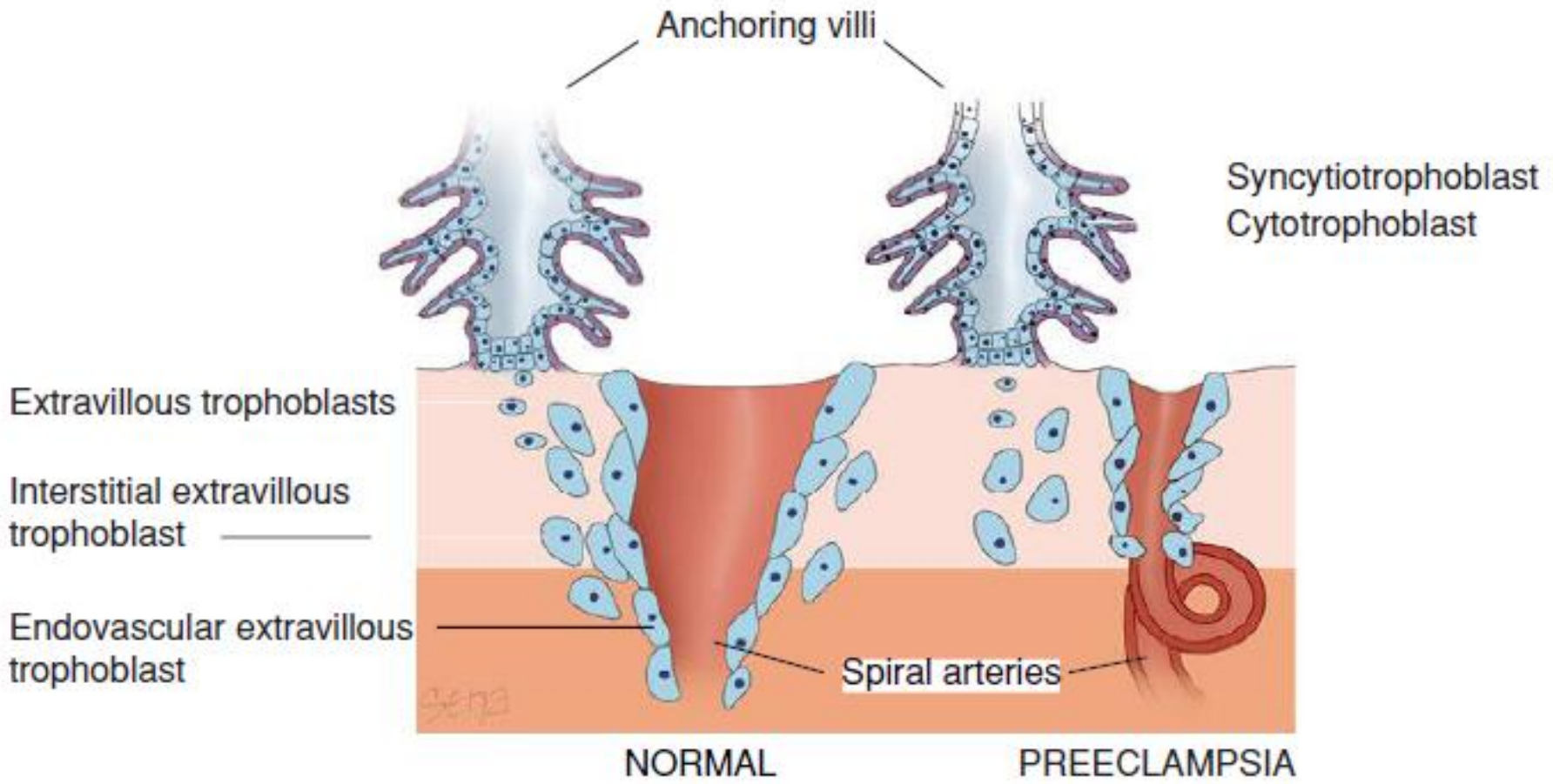
- Etiology – Unknown

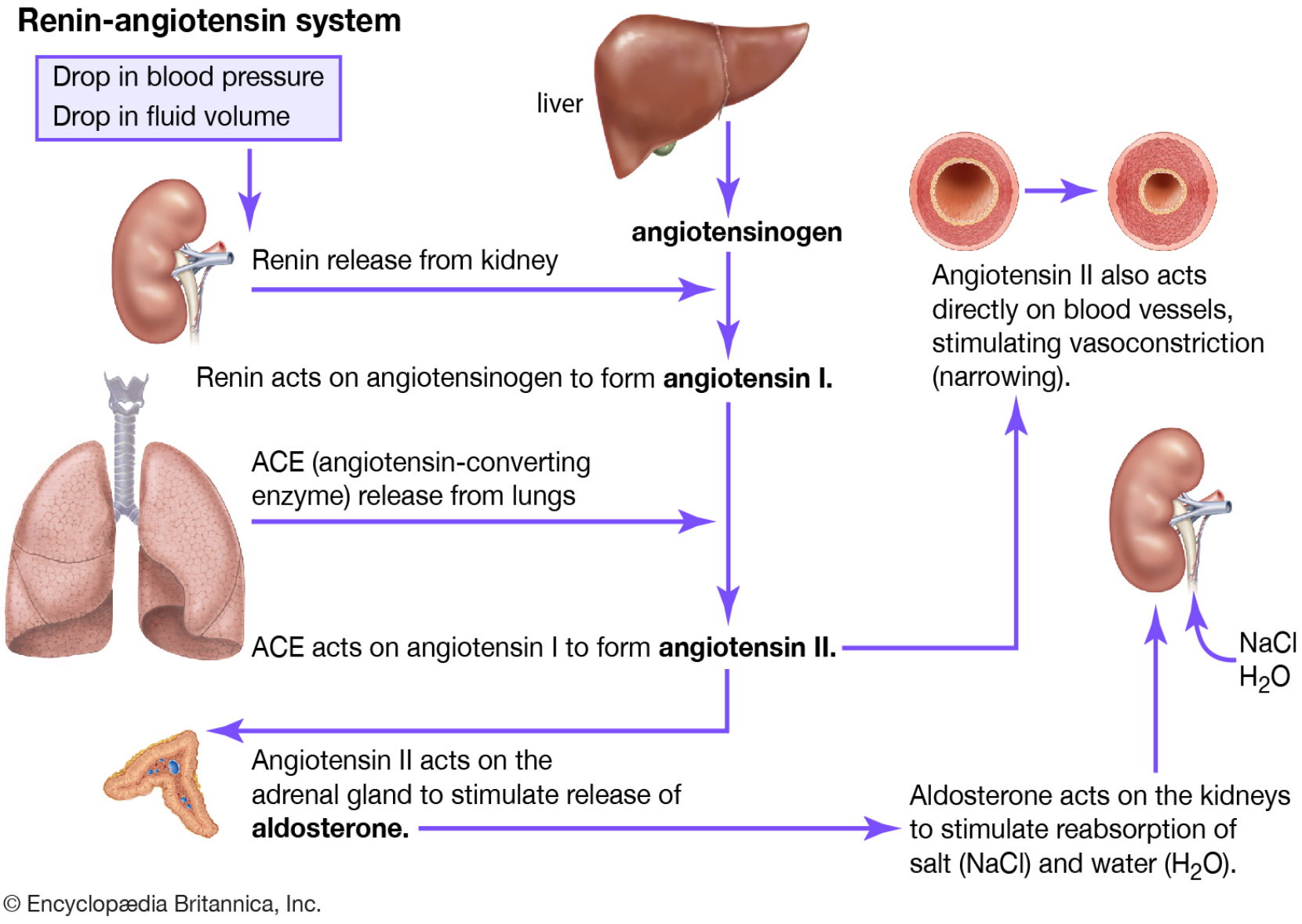
  - «Disease of theory, » some of theories say

- Abnormal trophoblastic invasion.
- Systemic endothelial dysfunction
- Activation of renin angiotensin aldosterone system.

Abnormal Trophoblast invasion

- Is fail of remodeling of spiral arteries. The throphoblasts only infiltrate the decidua portion but fail to penetrate mayometrial segment.





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Pathological Manifestations

- These can affect all the maternal organs to varying degrees:
  - Vasospasm ----------Hypertension
  - Increased permeability ----------Proteinuria
  - Reduced placental perfusion ----------IUGR
  - Reduced cerebral perfusion ----------Eclampsia
  - intracapsular hemorrhage ---------- epigastric pain
- Fetal complications:- include prematurity, oligohydramnios, intrauterine growth restriction, placental abruption, and intrauterine demise

Classification of Pre eclampsia:

1. Mild Pre eclampsia

- BP≥140/90 but less than 160/110mmHg
- Protienuria ++ on dipsticks or 3gm/24hrs in absence of UTI
- Generalized edema

2. Severe Pre eclampsia:

- Criteria to diagnose for severe pre eclampsia:
  - BP ≥160 systolic, 110 diastolic
  - Protienuria > 5gm/24 hrs or +++ urine dripstick
  - Oligouria: less than 400 ml/24 hrs
  - CNS: Visual changes, headache, mental status change.
  - Pulmonary edema
  - Epigastric (RUQ) pain

N.B The two essential feature of pre eclampsia are Hypertension & Protienuria.

Effects of pre eclampsia:

A. On the mother:

- Eclampsia
- Placental abruption
- Damage to heart, kidneys, lungs and brain
- Damage to the capillary in the fundus of the eye leading to blindness

B. On the fetus:

- LBW
- Intrauterine hypoxia
- IUFD
- Pre term baby requiring resuscitation.

General management principles of preeclampsia

- Reduce vasospasm
- Prevent eclampsia
- Prevent renal and liver impairments
- Deliver a health baby

Management

- ✓ Rest
- ✓ Sedation
- ✓ Taking BP every 4 hrs, urine for protein daily
- ✓ Abdominal palpation daily to rule out placental abruption.
- ✓ Fetal kick chart
- ✓ Anti hypertensive e.g. Methyldopa
- ✓ Anti convelsant: e.g. Mgso4
- ✓ Investigation for lung maturity and placental dysfunction:

Indications of delivery in pre-eclampsia

A. Maternal

- GA $\geq$ 38 weeks
- Platelet count <100,000 cells/mm^3
- Progressive deterioration in liver and renal functions
- Suspected abruption placenta.
- Persisting severe head aches, visual disturbance, nausea, epigastric pain or vomiting.

B. Fetal:

- Severe fetal growth restriction/ retardation
- None reassuring fetal heart rate patterns /NRFHRP/
- Oligohydramnious

NB: The “cure” for pre eclampsia is delivery.

S/S of impending or imminent eclampsia:

- Sharp rise in BP
- Diminished urinary output
- Increase in proteinuria
- Severe persisting frontal headache
- Confusion: Cerebral edema
- Visual disturbance(Flushing light,- Retinal edema)
- Epigastric pain: Liver damage
- Nausea and vomiting

Eclampsia

Definition: Eclampsia is defined as the occurrence of one or more convulsions or coma in association with syndrome of pre-eclampsia.

Note: Eclampsia can be prevented by properly managing pre-eclampsia.

DDx: (other causes of convulsion):

- Epilepsy
- Cerebral malaria
- Brain damage

Prevention: Careful and frequent observations in the antenatal period by detecting and treating pre-eclampsia.

Management

1. Anti convulsing therapy

A. Magnesium Sulphate

- $MgSO_4$ was the most effective drug in reducing death and further fits (first line drug).

Dose of $MgSO_4$

I. Loading Dose:

- Give 4gm of MgSO4 IV over 5 minutes
- Follow promptly with 10 g of 50% MgSO4 solution: Give 5 g in each buttock as deep IM injection with 1 ml of 2% lidocaine in the same syringe. Ensure aseptic technique whine giving the IM injection.
- Warn the woman that feeling of warmth will e felt MgSO4 is given.

- If convulsion reoccur after 15 minutes, give 2 gm of 50% of MgSO4 solution IV over 5 minutes.

II. Maintenance Dose:

- Give 5g of MgSO4 solution with 1 ml of 2% lignocaine in the same syringe by deep IM injection in to alternate buttocks every 4 hrs.
- Continue treatment for 24 hrs after delivery or the last convulsion whichever comes first.

- ✓ Closely Monitor the woman for the signs of the toxicity of MgSO4:
- ✓ **Before repeating the administration ensure that:**

  RR is at least16 breath/minute

  Patellar reflex are present(DTR)

  Urinary output is at least 30ml/hr.

Keep antidote ready

- ✓ Resuscitate and give Calcium guconate 1gm (10ml 0f 10% solution) IV slowly until calcium gluconante begins to antagonize the effects of MgSO4 and respiration begins.

- ✓ What is the mechanism of action of MgSo4???

B. Diazepam:

Use Diazepam only if MgSO4 is not available.

1. Loading dose:

- Diazepam 10mg IV slowly over 2 minutes.
- If convulsions reoccur repeat the loading dose.

2. **Maintain ace dose:**

- Diazepam 40mg in 500 ml IV fluids (NS or RL)
- Do not give more than 100 mg/24hrs(risk of respiratory depression) .

Anemia

Definition: Anemia is a reduction in RBC mass and a corresponding decrease in the oxygen carrying capacity of the blood (physiologic/functional)

- A reduction in Hgb/Hct below normal(lab).

normal range of parameters

RBC= 4.5-5 million/mm^3

Hgb= 11-15.5 gm/dl at 1^{st} & 3^{rd} Tm, >10.5 at 2^{nd} Tm.

WBC= 4-10,000 cells/mm^3

WHO grading of anemia

- Mild :Hgb 10.1-10.9gm/dl
- Moderate:7.1-10 gm/dl
- Severe: 4.1- 7gm/dl
- Very sever: ≤ 4 gm/dl

❖ The modest fall in hemoglobin levels during pregnancy is caused by a relatively greater expansion of plasma volume compared with the increase in red cell volume.

Sign and symptom of anemia

- Weakness
- Fatigue/ easily irritability
- Labored breathing /palpitation
- Pica (abnormal craving)
- Increase PR/BP
- Pallor (skin /conjunctiva)
- Spooning of nails/blue sclera

Two major types of anemia in pregnancy.

1. Iron deficiency anemia (most common).
2. Megaloblastic anemia.

Iron deficiency anemia (IDA)

Causes:

- Increased demand (normal 10 mg/day)
- Defect in absorption (achlorhydia)
- Inadequate intake and
- increased loss (AUB)

Treatment of IDA in pregnancy

1. Dietary counseling
2. Iron therapy
    - ✓ Ferrous gluconete 325 mg (40 mg)
    - ✓ Ferrous sulfate 325 mg (60 mg)
    - ✓ Ferrous fumerete 325 mg (105 mg)
3. Blood transfusion if

    - Sever anemia
    - anemia leading to CHF
    - not respond to po

Megaloblastic anemia

Is deficiency of **folic acid/ vit B12**

Normal need 500mg/day but in pregnancy 1 gm/day

causes:

- Defect in absorption
- Inadequate take
- Drugs (anti epileptic)

Treatment:

- Diet rich in folic acid (liver, kidney, meat)
- Folic acid 1-5 gm/day

Effects of anemia on pregnancy

Anemia is associated with adverse pregnancy outcome.

- ***Fetal:*** spontaneous abortion, preterm delivery, low birth weight, IUGR, stillbirth & malformations.
- ***Maternal:*** congestive heart failure and pulmonary edema especially in labor and postpartum period, postpartum hemorrhage, puerperal sepsis, delayed wound healing, increased risk of other infections.
- ***Neonatal***: anemia of infancy

Prevention of anemia

- Improve diet and dietary habit, socioeconomic status
- Prevent and treat hookworm (deworming) and malaria
- Child spacing by family planning
- Universal supplementation of iron and folic acid to all pregnant women throughout pregnancy
- Iron fortification of staple diet.

DIABETES MELLITUS IN PREGNANCY

Definition

- Is a chronic metabolic disorder characterized by *either absolute or relative insulin deficiency* resulting in increased glucose concentrations.

Classification

- Is now classified based on the pathogenic processes involved.
  - ❖ Absolute insulin deficiency (type 1).
  - ❖Defective insulin secretion or insulin resistance (type 2).
- Generally categorized into:
  - Type 1
  - Type 2 and
  - Gestational diabetes mellitus (GDM)

Type 1 -DM

- Is the type of DM characterized by :
  - ➢Absolute insulin deficiency.
  - ➢Abrupt onset at a young age and
  - ➢Life-long requirements for insulin replacement
  - ➢Genetic predisposition
- Approximately 10% of individuals affected by it.
- Complicates approximately 0.2% of all pregnancies.

Type 2 -DM

- A type of DM characterized by:
  - ❖ Defects insulin secretion or insulin resistance or
  - ❖Defects in both insulin action and secretion.
- The most common form (90%).
- Typically seen *over the age of 40* and obese persons.
- It complicates 0.3% of all pregnancies.

Gestational diabetic mellitus (GDM)

Definition

- Is any degree of glucose (carbohydrate) intolerance of variable severity, with onset or first recognition during the index pregnancy.
- Is a type of diabetes that occurs only during pregnancy and accounts about 95% .
- It is usually short-lived and blood sugar levels typically return to normal soon after delivery.

Risk factors

- Any woman can develop it but some women are at greater risk.
- Risk factors for it includes:
  1. *Being older than age 35*
  2. *Family or personal health history*
  3. *Being overweight (Obesity)*
  4. *Race (Nonwhite ethnicity)*

Causes of GDM

The exact cause is unknown but:

- During pregnancy, the placenta produces high levels of a variety of hormones such as:
  - ❖Human placental lactogen (hPL)
  - ❖Cortisol
  - ❖Prolactin etc.
- Almost all of them impair the action of insulin, thereby raising blood sugar.
- So pregnancy is diabetogenic state in nature.

Mechanisms (how?)

Human placental lactogen (HPL)

- ✓ Reduce the insulin affinity to insulin receptors

Cortisol

- ✓ Stimulate endogenous glucose production and glycogen storage and decrease glucose utilization.

- ❑ *Generally insulin sensitivity decreases as gestation advances in all pregnant women, mainly due to anti-insulin signals produced by the placenta.*

The traids of DM

1. Polyuria
2. Polydipsia
3. Polyphagia

- *Glycosuria* occurs and causes *an osmotic diuresis* with dehydration and electrolyte losses.

Diagnosis of DM

Diagnostic criteria for pre pregnancy DM

1. Symptoms of DM
2. Random plasma glucose level ≥ 200 mg/dl
3. Fasting plasma glucose level ≥ 126 gm/dl
4. 2 hrs. past on oral glucose tolerance test ≥ 200 mg/dl.

Diagnostic criteria's for gestational DM

1. Fasting plasma glucose level ≥ 95 gm/dl
2. 1 hr. post oral glucose tolerance test ≥ 180 mg/dl.
3. 2 hrs. post oral glucose tolerance test ≥ 155 mg/dl. Plus

✓ Maternal age > 35

✓ Previous macrocosmic baby

✓ Glycosuria

✓ **Oral glucose tolerance test(OGTT)**

✓ Give 75 gram of glucose in 250 ml of water.

Treatment

Exercise, diet modification and initiate insulin only if FBS > 95 mg/dl.

N.B Insulin dose at

1st trimester = 0.7 x patients weight(Kg)

2nd trimester = 0.8 x patients weight

3rd trimester =0.9 x patients weight

* The dose should not exceed 50 IU/day

Timing & Route of Delivery

- An optimal time for delivery of most diabetic pregnancies is between 38 & 40 WKS.
- Induction of labor at 38 WKs of gestation is recommended in patients with poor glucose control and macrocosmic baby.
- All insulin requiring diabetes should be induced at GA of 40 WKs if spontaneous labor has not occurred.

The goal of treatment

- To reduce the risks of GDM for mother and child.
- To prevent serious fetal complications and increased maternal quality of life
- To reduce the risk of infants admission to neonatal wards
- To reduce the risk of inductions of labor, with no proven cesarean section and perinatal mortality.

Complications of DM

- Pregnancy induced hypertension
- Infection
- Obstructed labor
- Abortion
- Poly-hydramineous
- Congenital anomaly
- Preterm labor

Neonatal mortality due to hypoglycemia, birth trauma and respiratory distress syndrome.

Cardiac disease in pregnancy

Definition:

Heart disease refers to one of several conditions that affect the heart.

Maternal mortality from heart disease

- Cardiac diseases is also the leading cause of indirect maternal death.

Sign and symptoms

- ♥ *Tiredness*
- ♥ *Dyspnea*
- ♥ *Orthopnea*
- ♥ *Syncope*
- ♥ *Light-headedness*
- ♥ *Hyperventilation*
- ♥ *Distended neck veins*

Diagnosis

- ***Electrocardiogram***
- ***Echocardiogram***
- ***Chest X-ray***

Cardiac disease in pregnancy…

- A woman with a known cardiac illness can become pregnant or a healthy pregnant woman can develop cardiac illness while pregnant.
- In a woman with a preexisting cardiac illness, the increased homodynamic burden of pregnancy, labor and delivery can aggravate the symptoms of the illness and/or precipitate complications
- Cardiac output increased by as much as 50% during pregnancy.

- The risk of congestive heart failure is the highest in mid pregnancy, labor and the immediate postpartum period.
- Ventricular dilatation ↑ lead to increase to pulse rate and stroke volume
- Systemic and pulmonary vascular resistance will also concomitantly decreased.

Classification

- The degree of functional disability due to cardiac disease is graded according to the New York Heart Association classification as follows:

Class I: No symptoms limiting ordinary physical activity.

Class II : Slight limitation with mild to moderate activity with no symptoms at rest

Class III: Marked limitation with less than ordinary activity; dyspnea or pain on minimal activity.

Class IV: Symptoms at rest or with minimal activity and symptoms of congestive heart failure.

- women in class I and most in class II go through pregnancy without morbidity.
- As much as possible patients in classes III and IV should avoid pregnancy
- Therapeutic abortion is an option in early pregnancy.
- If the pregnancy is continued, prolonged hospitalization or bed rest will often be necessary.

Cardiac problem in Pregnancy

Symptoms

- Progressive dyspnea or orthopnea
- Nocturnal cough
- Hemoptysis
- Syncope
- Chest pain

Clinical Findings

- Cyanosis
- Clubbing of fingers
- Persistent neck vein distension
- Murmur
- Cardiomegaly
- Criteria for pulmonary hypertension

Management

- Once diagnosed, these patients should be referred to tertiary health facility.

I. Antepartum

- Bed rest
- Moderate dietary restriction
- Provision of diuretics (chlorothiazides are accepted) with potassium supplementation
- Frequent ANC for maternal and fetal monitoring

II. Intra partum

- Unless contraindicated vaginal route of delivery is preferred
- Conduct labor and delivery in lateral decubitus position
- Provide adequate pain relief
- Restrict intravenous fluids
- Provide oxygen with breathing mask along with continuous pulse oxymetery.

- Shorten the second stage by instrumental delivery
- Do not use ergometrine in the third stage.

III post partum

- Strict follow up

IFECTIOUS DISEASE DURING PX

Malaria

Tuberculosis

What is malaria?

- Malaria is an acute and chronic illness caused by four species of protozoan parasites of the genus Plasmodium.
- Namely P.falciparum, P.Vivax, P.ovale ,and P.malariae.

Modes of Transmission

- Female anopheles mosquito bite
- Blood transfusion & organ transplantation
- Contaminated needles

The malaria parasite life cycle

Sporozoits in mosquitoes → human blood →hypnozoits in liver(6-16days) → merozoits in blood → enter RBC → trophozoits →→schizont → RBC ruptures →merozoits & gametocytes released →gametocytes taken by mosquitoes → zygote → ookinate in gut cells →→ sporozoites in salivary gland → → →

Clinical manifestation

Incubation period varies with species

P .falciparum, 12–14 days;

P .vivax and P .ovale is also about two weeks

P . malariae is about 18 days; however, low grade asymptomatic infections can persist for years.

- ✓ Most of the severe and complicated malaria is usually due to P .falciparum
- ✓ P.ovale, P.malariae ,and P.vivax infection on the other hand rarely result in severe disease instead they cause chronic infection.

Uncomplicated malaria

- Initial symptoms of malaria are nonspecific and may include, tachycardia, tachypnea, chills, malaise, fatigue, headache, cough, anorexia, nausea, vomiting, abdominal pain, diarrhea, arthralgia, and myalgia.
- Mild anemia and a palpable spleen
- Mild jaundice (uncomplicated P .falciparum)
- Lab result show parasitemia (usually <5000 parasites/μl.

Complicated malaria: or severe malaria may have hyperparasitemia [≥100,000 parasites/μL of blood.

- Altered consciousness with or without seizures
- Respiratory distress or acute respiratory distress syndrome (ARDS)
- Circulatory collapse
- Metabolic acidosis

Renal failure

Hepatic failure

- Severe anemia or massive intravascular hemolysis
- Hypoglycemia

Recrudescence and relapse

- Both refers to return of disease after its apparent cessation

  Recrudescence occurs within days or weeks.

  Relapse occurs within weeks or months

  In recrudescence, parasites remain in the bloodstream undetected due to ineffective treatment or host immunological response (or both).

  Relapse, are due to release of new hypnozoites from liver.

Diagnosis of malaria

Blood film examination

- ✓ Thick and thin blood films (or "smears") are the gold standard for the diagnosis of malaria.
- ✓ **Thick blood film** - used for determining parasite density.
- ✓ **Thin blood film** – is used to identify the particular infecting species of Plasmodium.

Treatment of malaria

For uncomplicated non-falciparum malaria

- Chloroquine 10 mg/kg PO on day 1,followed by 5 mg/kg at 6-,24-, and 48 hours after first dose with primaquine 0.25 mg/kg taken with food for 14 days.

For uncomplicated falciparum malaria

- Coartum four tabs BID for 3 days (in 2nd and 3rd TM)
- Quinine orally 600mg 8hrly for 7days(in 1st TM)

For complicated malaria

- Artesunate IV 2.4mg/kg at 0,12,24hrs daily or 2mg/kg po daily for 7days.

N.B

- ✓ Primaquine, TTC/doxcycline and halofantrine are contraindcated during pregnancy.

Effect of malaria on pregnancy

Splenomegaly :-

- ►active parasite clearance
- ►congestion

Hypoglycemia results from:-

- ➢Increased glucose consumption
- ➢Inhibition of hepatic gluconeogenesis
- ➢Decreased oral intake
- ➢Quinine → ↑insulin release

Anemia:-

- Destruction of parasitized RBC & reduced survival of non-infected →accelerated splenic clearance
- RBC lysis→ cytokines like TNF-αB → suppress hematopoiesis.

Effect of malaria on outcome of pregnancy

A. Effect of pyrexia →may activate uterus

→ abortion (1st trimester)

→ premature labor

B. Effect of placental parasitization:-

→lower mean birth wt.

→↑LBW rate

→placental insufficiency → IUGR & ↑perinatal loss.

C. Effect of trans-placental infection:-

→rarely cause IUFD .

→umbilical cord parasitemia

Prevention

- ✓ WHO recommends protection for all people at risk of malaria with effective malaria vector control.
- ✓ Two forms of vector control

  insecticide-treated mosquito nets and

  indoor residual spraying

Use prophylaxis

- ✓ The drug should be taken 1-2 weeks before travel and continued for4 weeks after return.

Tuberculosis (T.B)

DEFINATION

Tuberculosis (T.B) is an infectious disease caused by different strain of mycobacterium species.

Mycobacterium TB (humans)

Mycobacterium bovis (cow)

Mycobacterium avium (bird)

RISK FACTORS

- Positive family history or past history
- Low socioeconomic status
- Area with high prevalence of tuberculosis
- HIV infection

Effect of T.B on Pregnancy

- Abortion or premature labor rarely occur in acute febrile cases.
- The infant is usually not affected as it is extremely rare for tubercle bacilli to cross the placenta.

Effect of Pregnancy on T.B

- No effect on the course of the disease

Diagnosis

1. Suggesting symptoms.
2. X-ray chest after shielding the uterus from irradiation.
3. Bacteriological examination for the sputum

Management

1. Antenatal care:

- Chemotherapy: isoniazid 300 mg orally and ethambutol 15mg/ kg orally for 9 months.
- Induction of abortion: active disease itself is not an indication for termination of pregnancy, but if there is gross respiratory impairment.

2. Labor:

- Isolate the patient with active disease,
- Give oxygen,
- Shorten the second stage,
- Avoid excessive blood loss.

3. Neonate:

- Breast feeding is contraindicated only for the infants of patients with active disease who should be isolated.
- Neonate should be given isoniazid and vaccinated with isoniazid-resistant BCG.

N.B

- Never Rx pregnant mother with streptomycin (STM) because it causes fetal ototoxicity


Thank you