MINISTRY OF HEALTH
P. O. Box 84 Kigali
www.moh.gov.rw

GYNECOLOGY AND OBSTETRICS

CLINICAL PROTOCOLS & TREATMENT GUIDELINES

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Foreword

The guidelines presented in this document are designed to provide a useful resource for healthcare professionals involved in clinical case management. They were developed taking into consideration services provided at different levels within the health system and resources available. These guidelines are intended to standardize care at both tertiary and secondary levels of service delivery across different socio-economic stratifications of our society.

The clinical conditions included in this manual were selected based on facility reports of high volume and high risk conditions treated in each specialty area. The guidelines were developed through extensive consultative work sessions, which included health experts and clinicians from different specialties. The work group brought together current evidence-based knowledge in an effort to provide the highest quality of healthcare to the public. It is my strong hope that the use of these guidelines will greatly contribute to improved diagnosis, management and treatment of patients. And, it is my sincere expectation that service providers will adhere to these guidelines/protocols.

The Ministry of Health is grateful for the efforts of all those who contributed in various ways to the development, review and validation of the National Clinical Treatment Guidelines.

We would like to thank our colleagues from district, referral and university teaching hospitals, and specialized departments within the Ministry of Health, our partners and private health practitioners. We also thank the Rwanda Professional Societies in their relevant areas of specialty for their contribution and technical review, which enriched the content of this document. We are indebted to the World Health Organization (WHO) and the Belgium Technical Cooperation (BTC) for their support in developing this important document.

We would like to especially thank the United States Agency for International Development (USAID) for both financial and technical support through the Management Sciences for Health (MSH) Integrated Health System Strengthening Project-(IHSSP) and Systems for Improved Access to Pharmaceuticals and Services (SIAPS).

Finally, we wish to express thanks to all those who contribute to improving the quality of health care of the Rwanda population.

Dr Agnes Binagwaho
Minister of Health
Kigali-Rwanda

Contents

Abbreviations

3TC: Lamivudine

ANC: Antenatal Care

APGAR: Activity, Pulse, Grimace, Appearance and Respiration

ARM: Artificial Rupture of Membrane

ART: Anti-Retroviral Therapy

AUB: Abnormal Uterine Bleeding

BD: (Bis in Die) or twice daily

BMI: Body Mass Index

BP: Blood Pressure

BV: Bacterial Vaginosis

C/I: Contra Indicated

C/S: Caesarian Section

CA-125: Cancer Antigen - 125

CMV: Cytomegalovirus

CRP: C-Reactive Proteins

CT: Computer Tomography

CTG: Cardio Tocography

CVA: Cardio-Vascular Accident

CXR: Chest X-Ray

D&C: Dilatation and Curettage

DTR: Deep Tendon Reflexes

DVT: Deep Venous Thrombosis

ECG: Electrocardiogram

EDD: Expected Date of Delivery

ESR: Erythrocytic Sedimentation Rate

FBC: Full Blood Count

FHR: Fetal Heart Rate

FSH: Follicle Stimulating Hormone

GnRH: Gonadotropin Releasing Hormone

GIT: Gastro-Intestinal Tract

HB: Haemoglobin

HBIG: Hepatitis B Humunoglobulin

HBV: Hepatitis B Virus

HCG: Human Chorionic Gonadotropin

HCV: Hepatitis C Virus

HPV: Human Papiloma Virus

HSG: Hysterosalpingography

HSV: Herpes Simplix Virus

HSV: Herpes Simplex Virus

ICSI: Intracytoplasm Sperm Injection

ICU: Intensive Care Unit

INR: International Normalised Ratio

IUD: Intra-Uterin Divice

IUGR: Intra Uterine Growth Retardation

IVF: In Vitro Fertilization

IVU: Intravenous Urography

KOH: Potassium Hydroxyde

LH: Lutenizing Hormone

LFT: Liver Function Test

LHRH: Lutenizing Hormone Releasing Hormone

LMP: Last Menstrual Period

MCA: Middle Celebral Artery

MVA: Manual Vacuum Aspiration

NSAID: Non-Steroidal Anti-inflammatory Drugs

NVP: Nevirapine

OA: Occiput Anterior

OCP: Oral Contraceptive Pills

OGCT: Oral Glucose Challenge Test

OP: Occiput Posterior

PCOS: Polycystic Ovarian Syndrome

PCR: Polymerase Chain reaction

PE: Pulmonary Embolus

PID: Pelvic Inflammatory Diseases

PMS: Premensuel Syndrome

PMTCT: Prevention of Mother to Child Transmission

PO: Per Os

POF: Premature Ovarian Failure

PPF: Post Partum Fever

PPH: Post Partum Hemorrhage

PROM: Premature Repture of Membrane

PT: Prothrombin Time

PTT: Partial Thromboplastin Time

QID: (Quater in diem) Four times daily

RFT: Renal Function Test

RNA: Ribonucleic Acid

SGA: Small for Gestation Age

STI: Sexually Transmited Infection

TDF: Tenofovir

TDS: (Ter die sumendum) or Three times daily

TPHA: Treponemal hemagglutination

US: Ultara sound

VDRL:Venerial Disease Research Laboratory

VIA: Visual Inspection with Acetic Acid

VILI: Visual Inspection with Lugol's Iodine

UTI: Urinary Tract Infection

HEEL: Hemolysis Elevated Liver Enzymes

WHO: World Health Organization

US: Ultra Sound

OBSTETRICS

1. BLEEDING IN FIRST TERM OF PREGNANCY

1.1. Abortion

Definition: An abortion also called miscarriage is the loss of the pregnancy prior to viability (before 22 weeks of pregnancy or less than 500 g).

Types

Therapeutic abortion, Unsafe Abortion, Threatened Abortion, Incomplete abortion, Complete Abortion, Septic Abortion, Missed Abortion, Blighted ovum

Causes

- Chromosomal abnormalities
- Reproductive tract abnormalities (Myoma, uterine abnormality, cervical incompetence)
- Endocrinal abnormalities (thyroid diseases, lutheal phase defect)
- Infections (listeria, Chlamydia….)
- Environnemental (stress, smoking)
- Others (Unknown, Trauma, Intoxication)

Signs and symptoms

- General
  - History of amenorrhea
  - Vaginal bleeding
  - Abdominal cramps/pain
  - Endo-uterine bleeding on speculum

- Specific
    - Threatening abortion: the cervix is closed
    - Inevitable abortion: the cervix is open and the products of conception are still in utero
    - Incomplete abortion: the cervix is open and the products of conception are not com pletelyevacuated
    - Complete abortion: the cervix is open and the products of conception are not present
    - Missed abortion: the heart beat is absent
    - Blighted Ovum: gestational sac present but absence of the embryo

Complications

- Hypovolemic shock
- Infection
- Septic shock
- Anaemia

Investigations

- Pregnancy test positive
- Ultrasound
- Complete Blood Count, Blood Group
- For repeated Miscariage refer to a gynecologist for the following investigations: genetical, Immunological profile, Infection Screening, Hysteroscopy, Endocrine

Management

Threatened Abortion

- Bed rest and avoid Intercourse
- *Progesterone (Utrogestan) Oral* 100mg tablet three times daily for 1 month

Or

- *Progesterone* (Utrogestan) Vaginal 200mg twice daily for 1 month
- Review every week until Symptoms resolve or immediately if any complications

Inevitable abortion

- Assess the general status of the patient
- If unstable
    - ➔ Correct the hypovolemic shock then proceed with surgical management (Manual Vacuum Aspiration (MVA), Electric aspiration, Dilatation and Curettage (D & C))
- If stable: Discuss with the patient the following options:
    - ➔ Expectant management (As for threatened abortion)
    - ➔ Medical Management: Give *Misoprostol* 400 mcg-800 mcg (2-4 tablets) every 6 hours per os and/or vaginal
        - S/E: Diarrhea, Pain due to uterine contraction, Increase of temperature with shivering both are dose dependant and settle rapidly without treatment
    - ➔ Surgical treatment: Manual Vacuum Aspiration (MVA), Electric aspiration, Dilatation and Curettage (D & C)
- If blood group Rhesus: Give *Immunoglobuline: Anti-D* 300 µg IM single dose

Incomplete abortion

- Assess the general status of the patient:
- If unstable

- → Correct the hypovolemic shock then proceed with surgical management (Manual Vacuum Aspiration (MVA), Electric aspiration, Dilatation and Curettage (D & C))

- If stable: Discuss with the patient the following options:

  - → Medical Management: Give *Misoprostol* 400 mcg-800 mcg (2-4 tablets) every 6 hours per os and/or vaginal

  - → Surgical: Manual Vacuum Aspiration (MVA), Electric aspiration, Dilatation and Curettage (D & C)

- If blood group Rhesus–Give *Immunoglobuline: Anti-D* 300 µg IM single dose

Complete Abortion

- Assess the general status of the patient
- If unstable: correct the hypovolemic shock.
- If stable: Reassure the patient
- If blood group Rhesus –ve give *Immunoglobuline: Anti-D* 300 µg IM single dose

Missed abortion and Blighted Ovum

- Give *Misoprostol* 400 mcg-800 mcg (2-4 tablets) every 6 hours per os and/or vaginal

  - → Posology

    - Cervical ripening prior to uterine instrumentation: 400 mcg, vaginal or per os 3 hours before the procedure
    - Missed abortion (< 12 weeks gestation): 800mcg every 24 hours vaginal or sublingual for 2 days
    - Missed abortion (12-22 week gestation): 200mcg every 12 hours vaginal or sublingual for 2 days or 400mcg oral every four hours until expulsion

- Surgical Management: Manual Vacuum Aspiration (MVA), Electric aspiration, Dilatation and Curettage (D & C)

- If blood group Rhesus–Give *Immunoglobuline: Anti-D* 300 µg IM single dose

Septic abortion

- Assess the general status of the patient
- If unstable
    - → Correct the hypovolemic and/or septic shock then proceed with surgical management (Manual Vacuum Aspiration (MVA), Electric aspiration, Dilatation and Curettage (D & C))
- If stable: Surgical Management

Antibiotics Post abortion:

- Treatment of first choice
    - → *Ampicilline IV* 1 g every 6 hours, *Gentamycine* 160 mg Once daily and *Metronidazole IV* 500mg every 8 hours for 48 hrs.
    - → Then give after 48hrs: *Amoxycilline* 500 mg PO TDS 5/7
        - C/I: allergy to *betalactamine*
    - → *Metronidazole* 500mg PO TDS 7/7

- Alternative treatment –if allergic to B-lactamines
    - → *Erythromycine* 500 mg PO TDS 7/7

Recommendations

- Tell the patient to come back/report to the nearerhealth facility if bleeding, fever, foul smelling discharge and/or pelvic pain

- Screen and treat anemia
- Discuss Family planning
- For repeated Miscariage refer to a gynecologist

1.2. Ectopic pregnancy

Definition: It is a pregnancy, which develops outside the uterine cavity.

Types

- Ruptured
- Non ruptured

Predisposing factors include prior ectopic pregnancy, tubal surgery; Pelvic Inflammatory diseases, and endometriosis.

Signs and symptoms

- Non-ruptured
  - Vaginal bleeding
  - Unilateral pelvic pain in early amenorrhea.
  - Endo-uterine darkish bleeding on speculum
  - Unilateral tender mass and tender cervix on mobilization
- Ruptured
  - Abdominal pain of sudden onset in early amenorrhea.
  - Hypovolemic shock (Hypotension, acceleration of the pulse, cold and clammy skin)
  - Abdominal rebound sign
  - Douglas tenderness

Complications

- Hypovolemic shock
- Severe Anemia

Investigations

- Pregnancy test (Qualitative and/or Quantitative ß HCG)
- Complete Blood Count and blood group
- Ultrasound
- Culdocentesis if no Ultrasound
- Laparoscopy if possible

Management

- Stabilize the patient haemodynamically
- Surgical intervention (laparotomy/laparoscopy)
- Medical treatment with *Methotrexate* 50mg/ m^2 IM (1 mg/kg) single dose if the following conditions are met:
    - Not ruptured
    - ß HCG < 10,000
    - On Ultrasound: Mass < 3 cm
    - Absence of embryo cardiac activity
- Make a weekly follow up of ß HCG until ß HCG is negative
- IF ß HCG levels don't decrease after 1 week, repeat the dose. If still the same, consider surgical management
- Expected S/E of *Methotrexate*: nausea, vomiting, photo phobia, anemia, diarrhea, abdominal cramping, sores in the mouth, headache, dizziness, insomnia, and vaginal bleeding.
- C/I of *Methotrexate*: History of hepatitis, liver, kidneydisease or inflammatory bowel disease,HIV positive status, Abnormal blood profile and/or severe anemia, known containing folate deficiency and intolerance or allergy to Methotrexate

Recommendations

- Keep the patient in hospitalization for at least three day if on single dose of Methotrexate, because a rupture may occur
- Women should avoid getting pregnant by using birth control for at least three months after receiving Methotreate
- Discuss family palnning

1.3. Molar pregnancy

Definition: It is a trophoblastic disease characterised by abnormal proliferation of the trophoblastic cells with vesicular chorionic villi transformation

Cause

- Chromosomal abnormality

Types

- Complete mole
- Partial mole

Signs and symptoms

- Amenorrhea
- Vaginal bleeding
- Expulsion of molar vesicles
- Exacerbated hyperemesis gravidarum
- The uterus is soft and larger than the gestational age associated to para uterine luteinic cysts

Complications

- Choriocarcinoma
- Invasive mole
- Placenta site trophoblastic tumor
- Hypertensive disorders of pregnancy

Investigations

- ß HCG rapidly increased
- Ultrasound
- Full Blood Count
- Cross match and Rhesus

Management

- Resuscitation if necessary
- Aspiration under Ultrasound guidance
- Administer Oxytocin after aspiration
- Products of evacuation should be sent for Histology Examination
- Post molar surveillance:
    - Monitor levels of ß HCG every 48 hrs for the 1st week, then weekly till ß HCG is normal for 3 weeks, then test every month for 6 months.
- If ß HCG is persistently high
    - More likely persistent trophoblastic diseases (Choriocarcinoma, Invasive mole and Placenta site tumor…) which require chemotherapy
    - Test renal and liver function prior and during treatment
    - Staging of the disease prior to treatment

Recommendations

- Immediate contraception during 1 year of post molar monitoring.
- Review if any Vaginal bleeding problem.
- If blood group Rhesus negative(Rh-): Give Immuno globuline: Anti-D 300 µg IM single dose
- Consider prophylactic Chemotherapy in case of unreliable patient for follow-up

2. BLEEDING IN LATE PREGNANCY AND INTRA-PARTUM PERIOD

2.1. Placenta praevia

Definition: The placenta embeds itself in the lower pole of the uterus, partially or wholly covering the internal os in front of the presenting part.

Risk factors

- Prior placenta praevia
- Large placental area (Multiple pregnancies…)
- Advanced maternal age and High parity
- Deficient endometrium (uterine scar, curettage, endome tritis, fibroids…)
- Uterine malformations

Types

Low lying, marginal, partial and complete placenta praevia

Signs and symptoms

- Sudden onset of bright red fresh painless hemorrhage after 22 weeks of gestation
- Unusual irritability and tenderness
- Often malpresentation of the fetus
- Endo-uterine cavity hemorrhage on speculum examination

Complications

- Hemorrhagic shock
- Fetal distress
- Anemia

- Prematurity
- Fetal death and/or maternal death

Investigations

- Complete blood Count, blood group/Rhesus
- Ultrasound

Management

During pregnancy

- Asymptomatic
  - → Bed rest
  - → Follow up every 2 weeks
  - → If complete placenta praevia
    - Admit for fetal lung maturation ≥ 24 weeks of gestation
    - Program a Cesarean section at 37-38 weeks of gestation
  - → Iron supplements
- Symptomatic
  - → Obligatory admission, do FBC and Blood group crossmatch, blood coagulation tests
  - → Surveillance of fetal heart rate
  - → Ultrasound
  - → Term >34 weeks of gestation
    - If minimal hemorrhage and no uterine contractions: Expectant management
    - If Uterine contractions
      - Complete placenta praevia or malpresentation: perfom Cesarean section.
      - Partial or marginal placenta preavia: Carefully perform amniotom for vaginal delivery if the head is engaged.

→ Term <34 weeks of gestation

- Fetal lung maturation with steroids (*Dexamethasone* 6 mg IM every 12 hours for 48 hrs)
- If Uterine contractions
  - Tocolyse with *Nifedipine short acting* Tabs 20 mg start, then continue with *long acting nifedipine* 20 mg every 8 hrs.
  - If premature rupture of membrane: *Ampicilline* 2g start dose, then *Amoxycilline* tabs 500mg TDS 5/7

Recommendations

- In case of any hemorrhage, the patient should report to the health facility immediately.
- Avoid vaginal examination
- For any risk of premature delivery, the patient must be managed in a center with neonatalfacilities

2.2. Placental abruption

Definition: It is bleeding from the placental site due to premature separation of a normally situated placenta after 22 weeks of gestation.

Causes/Risk Factors

- Severe pre-eclampsia
- Trauma
- Anatomical causes
  - Short umbilical cord
  - Uterine anomalies
  - Uterine tumors

- Dietary cause
- Smoking (Cocaine, Tobacco)
- Sudden decompression of uterus: rupture of mem branes in cases of (Polyhydramios, multiple pregnancy)
- Unknown

Signs and symptoms

- Vaginal bleeding: May pass dark blood or clots. Sometimes bleeding can be concealed
- Abdominal pain is moderate to severe but may be absent in small bleeds
- The uterus is often very tender, painful and some times hard
- Fetal demise or fetal distress may be present
- Uterine lower segment bulging and tender on vaginal examination. The cervix is hard (if the cervix is opened the membranes are bulging)

Complications

- Hemorrhagic shock
- Coagulation disorders
- Fetal demise
- Renal failure
- Maternal death

Investigations

- Full blood count and cross-match
- Ultrasound: Fetal well being, check for retroplacental hematoma
- Renal Function Test and electrolytes
- Liver function tests
- Proteinuria if pre-eclampsia is suspected

- Fibrinogene tests
- Coagulation profile

Management

Maternal resuscitation

- Insert 2 IV lines with Cristalloids and Colloids
- Transfusion if necessary
- Give O2 6L/min
- Insert a urinary catheter
- If Disseminated Intravascular Coagulation:
  - → Give *fresh frozen Plasma* 1 Unit/hour, give *Concentrated cells* 2-4 units Follow up of the diuresis and administrate Furosemide 40mg start dose
- Follow up: blood pressure, pulse, bleeding, hourly dieresis, Complete blood count, clotting profile every 2 hours

Obstetrical management

- If the fetus is alive and viable: Emergency C-section
- If the fetus is dead: Normal vaginal delivery is preferable
  - → Artificial rupture of membrane, If no spontaneous labor: induce the labor with uterotonics (*Oxytocin* Infusion 5IU in *Dextrose* 5% 500 ml beginning with 14 drops/min)
  - → Active management of third stage of delivery and uterine revision
- Emergency C section should be considered
  - → For obstetric conditions
  - → Worsening of maternal condition
  - → Failure/Non Progressing vaginal Delivery
- Prophylactic antibiotics: *Ampicilline IVD* 2g may be used if necessarly

Recommendation

- Consult the doctor as soon as possible during the next pregnancy.

2.3. Uterine Rupture

Definition: Uterine rupture refers to a tear or separation of the uterine wall

Causes/Risk factors

- Previous uterine scar
- Malpresentation and Malposition
- Misuse of uterotonics
- Placenta insertion anomalies
- Multiparity
- Retracted pelvis
- Obstructed labour
- Uterine manoeuvers
- Instrumental deliveries
- Trial of labor after cesarian section
- Unkown

Signs and Symptoms

- Pre-rupture bandle ring sign
- Sudden, severe abdominal pain (may decrease after rupture)
- Bleeding – intra-abdominal and / or vaginal
- Cessation of uterine contractions
- Tender abdomen
- Absent fetal heart activity

- Easily palpable fetal parts on the abdomen
- Rapid maternal pulse
- Hypovolaemic shock most of the time
- Abdominal distension / free fluid

Complications

- Fetal demise
- Bladder laceration
- Uterine multi-laceration leading to Hysterectomy
- Maternal death

Investigations

- Full blood Count and blood group crossmatch
- Clotting profile
- CTG monitoring
- Ultrasound in a stable patient (In cases of uterine dehis cence suspicion)

Management

Non-Phramaceutical

- Call for assistance – Senior obstetrician, pediatrician and anaesthetist for assistance
- Administer oxygen via face mask 6L/min
- Blood Group and cross match, Order 2-4 units of packed red cells and order complete blood picture
- Ensure the woman remains with her legs bent or in lithotomy to perfuse the brain
- Insert 2 large intravenous access using 14-16 gauge cannulas with appropriate intravenous fluid, e.g. sodium chloride 0.9 % or Hartmann's solution and gelatin based colloid or Haemacel.

- Assess for clinical signs of shock e.g. cool, clammy, pale, rapid pulse, decreased blood pressure
- Inform the patient and family

Surgical Management

- Emergency laparotomy: Conservative or hysterectomy and repair complications (Bladder or ureter tear…)

Recommendations

- If conservative, contraception for at least 2 years
- Elective cesarean section for the next pregnancy at 39 weeks of gestation or if uterine contractions start
- Antenatal care for the next pregnancy at a hospital with surgical facilities

3. POSTPARTUM HEMORRHAGE (PPH)

Definition

- Loss of more than 500 ml of blood from the genital tract in the first 24 hours after vaginal delivery and more than 1000 ml after cesarean section.

- Excessive vaginal bleeding resulting in signs of hyovolemia (Hypotension, Tachycardia, oliguria, light headedness)

- A 10% decline in post partum hemoglobin concentration from antepartum levels

Types

- Primary: Occurs within first 24 hrs

- Secondary: After 24hrs to the end of puerperium (42days after delivery)

Risk factors

- Overdistension of the uterus (Polyhydramnios, Multiple pregnancies, Macrosomia…)

- Grand multiparity

- Previous history of PPH

- Ante-partum hemorrhage

- Myomatous uterus

- Hypertensive disorders

- Drug use (Mgso4, Salbutamol…)

Causes

- Atonic uterus (70%)

- Genital tract trauma (20%)

- Retained placenta or placenta fragment (10%)

- Coagulopathy (1%)

Signs and Symptoms

- Continuous vaginal bleeding
- Signs of Hypovolemic shock (low BP, rapid pulse, cold and clammy skin)
- Signs of Anemia (Palor, tachycardia, sweeling)

Complications

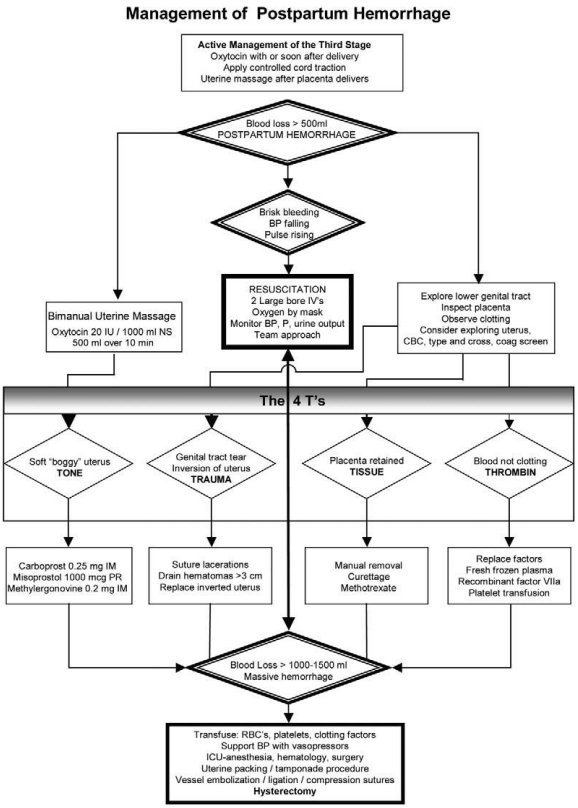
- Hypovolemic shock
- Sheehan syndrome
- Renal failure
- Anemia
- Death

Investigations

- FBC
- Blood group crossmatch
- Blotting profile

Management

- Principles
    - Resuscitation of the mother
    - Identification of the specific cause of PPH
    - Call for help (Obstetrician, Anesthesist, midwife…)
    - Management is done following the figure below



Recommendations

- Methotrexate is only used in abnormal adherence of the placenta (Increta, percreta)
- Hemostatic drugs like tranexamic Acid IV 500mg every 6 hrs (with a maximum single dose of 2.5g) and Etamsylate (dicynone) 500mg IV infusion every 8 hrs are usually beneficial in the management of PPH

4. COMPLICATIONS DURING PREGNANCY

4.1. Hyperemesis gravidarum

Definition: Severe nausea and vomiting in early pregnancy requiring hospital admission and rehydration

Causes/Pathogenesis

- Hormonal: High levels of β Human chorionic gonadotrophin (β hCG), progesterone and oestrogen like in multiple pregnancy and Hydatiforme mole.

- Mechanical: There is a fall in lower oesophageal pressure, decreased gastric peristalsis and gastric emptying in pregnancy

- Emotional: Various psychological, family conflicts, prior hyperemesis and social factors are associated with hyperemesis

- Infection (UTI)

- Endocrine disorders (Hyperthyroidism)

Signs and Symptoms

- Weight loss

- Nausea and Vomiting typically in Early Pregnancy

- Dehydration

- Altered general status (Fast pulse, restlessness)

Complications

- Metabolic disorder (Hyponatraemia, Hypokalaemia, metabolic hypochloraemic alkalosis, Ketonuria) that may lead to coma

- Malory-Weiss Syndrome.

- Neurological disorder (Wernicke's encephalopathy)

- Depression
- Cachexia
- Pregnancy termination
- Death

Investigations

- Full Blood count
- Blood for urea, electrolytes and serum creatinine
- Urinalysis, microurine and culture, Ketonuria
- Liver function tests
- Thyroid function tests
- Obstetric ultrasound

Management

Non-pharmaceutical management

- Nil per os for 24-48 hrs
- Monitor diuresis each 4hrs for 24-48 hrs
- Isolation
- Monitor electrolytes for 24hrs

Pharmaceutical management

- Intravenous rehydration: Alternate *Ringers lactate* with *Normal saline* according to daily needs and severity.
- *B-1 (Thiamine)* 100mg per day in intravenous rehydration solution.

And

- Antiemetics

First choice

→ *Metoclopromide*: IM 5-10 mg TDS till ceasing of vomitting.

- And always associate *Pyridoxine hydrochloride*: IV or PO 10-25 mg TDS

Alternative Treatment: Administer one of the following medicine

- *Chlopromazine*: 12.5-25 mg IM/IV/PO three times daily
- H-1 blockers (*Meclezine* 20mg Tabs once daily or twice daily if needed)
- *Ondansentron* (Emitino) 4mg IV/PO two times daily
- *Domperidone* (Motilium) PO 10mg three times daily or 60mg per rectal two times daily
- *Corticosteroids*: *Dexamethasone* 4mg PO/IV two times daily.

Recommendations

- Reassure the mother that the condition is physiological and will pass with the first trimester of pregnancy.
- Glucose may precipitate Wernicke's encephalopathy. Use of *glucose 5%* should be associated with *thiamine* 100 mg once daily either orally or intravenous
- Exclude other etiologies before treatment and manange risk factors

4.2. Aneamia in pregnancy

Definition: Hemoglobin levels that fall <11 g/dl in early pregnancy and < 10.5 g/dl in 2nd and 3rd trimester of pregnancy

- Mild anemia Hb: 8-11g/dl,
- Severe anemia: <7g/dl

Causes

- Low intake of iron and folic acid
- Repeated blood loss associated with pregnancy
- Repeated pregnancies
- Infections/ chronic infections
- Parasites (Malaria, hookworms…)
- Sickle cell anemia
- Malignancies

Signs and Symptoms

- Tiredness, weakness, palpitations and dyspnea
- Exercise intolerance
- Pale color of skin and mucous membranes
- Dizziness, faintness, headache
- Intermittent claudication (ache, cramp, numbness or sense of fatigue)

N.B: ***Some patients with anemia in pregnancy are asymptomatic***

Complications

- Miscarriage
- Intrauterine growth retardation
- Premature labor
- Infections

- Intrauterine fetal demise
- Maternal heart failure
- PPH
- Maternal death

Investigations

- Full blood count and blood cross-match
- Red cell morphology
- Red blood cell electrophoresis
- Blood smear for malaria
- Stool and Urine analysis
- Iron studies

Management

- Determine the cause of anemia and treat accordingly

Non-pharmaceutical management

- Iron rich diet (Fish, eggs, fruits and vegetables etc etc)
- Prevent and early treatment of malaria
- Investigate and treat associated infections

Pharmaceutical management

- HB <7g/dl
  - → Transfuse in case of signs of severe anemia
  - → *Ferrous sulfate* 300mg tabs PO, TDS for 4 weeks and control FBC until HB is 12g/dl
- HB >7 to 11 g/dl
  - → Start iron and vitamin supplements to include *Ferrous Sulphate* twice daily for 4 weeks, *folic acid* 1 mg/day PO and *Vitamin B12* tabs PO twice daily for 4 weeks

Recommendations

- Explain to the patient the causes and risk factors of anemia.
- Advice on nutrition and balanced diet
- Instruct patient to come back after 4 weeks for follow up.
- Family planning
- In case a patient declines blood transfusion, consult the Hospital ethics committee…

4.3. Cervical incompetence

Definition: Painless cervical dilation and shortening leading to mid-tremister loss often repetitive and caused by anatomical or dysfunctional cervical incompetence

Risk factors

- Functional or structural defect of the cervix
- Prior cervical trauma (e.g. Repeated cervical dilata tion and curettage and other cervical sur gical proce dures)
- Uterine anomalies (congenital cervical hypoplasia or aplasia)
- In utero diethylstilbestrol exposure

Signs and Symptoms

- Recurrent mid trimester losses without contractions with a live fetus
- Cervical length < 25 mm prior to 27 weeks on ultrasound
- Premature rupture of membranes

Complications

- Habitual loss of the fetus
- Premature Rupture of membranes
- Prematurity
- Infection
- Depression
- Secondary infertility

Investigations

- Transvaginal Ultrasonography (Cervical length, dilatation and funneling of the membranes)
- Urine analysis, Vaginal and cervical swab before cerclage

Management

Prophylactic cervical cerclage

- If no infection cerclage is done between 12 and 14 wks of gestation
  - → Give *Progesterone* supplementation 100mg PO/ vaginal three times daily until 20 weeks of amenorrhea for prevention of uterine contraction
- If Infection treat before doing cerclage
- Decerclage at 37 weeks or at anytime if infection or bleeding or contractions.
- Consider prophlylactic antibiotics *Ampicilline* 2g IV Single dose.

OR

- *Cefotaxime* 1 g single Dose.

Emergency cervical cerclage: gestation after 14-24 wks

- If no infection cerclage is done immediately by a gynecologist.

- If Infection treat before doing cerclage
- Give *Progesterone* supplementation 100mg PO or vaginal three times daily to prevent uterine contractions.
- Non-steroids anti-inflammatory drugs (*Diclofenac* 100mg suppository twice daily for 3-5 days, *Indomethacin* 100mg suppository twice daily for 3-5 days)
- Decerclage at 37 weeks or at anytime if rupture of membranes, bleeding or contractions.
- Consider prophlylactic antibiotics *Ampicilline* 2g IV single dose.

OR

- *Cefotaxime* IV 1g single dose

Recommendations

- Consult if contractions, cervical bleeding or sign of infections
- Notification form for patients with cervical cerclage
- Continue ANC as recommended.

4.4. Mal-presentations and mal-positions

Definitions

- *Lie:* refers to the relationship of the long axis of the fetus to that of the mother. It may be longitudinal, transverse or oblique
- *Presentation:* refers to the portion of the fetus that is foremost or presenting in the birth canal.
- *Malpresentations:* all presentations of the fetus other than the vertex.
- *Position*: reference point on the presenting part, and how it relates to the maternal pelvis. Normal position is Occiput anterior position (OA): when the foetal oc ciput is directed towards the mother's symphyisis or anteriorly
- *Mal position:* Occipital Posterior (OP). When the fetal occiput is directed towards the mother's sacrum or posteriorly.

Types

- Malpresentations:
  - Brow
  - Face
  - Breech
    - → Complete (flexed) breech presentation occurs when both legs are flexed at the hips and the knees
    - → Frank (extended) breech presentation occurs when both legs are flexed at the hips and extended at the knees
    - → Footling breech presentation occurs when a leg is extended at the hip and the knee

- Transverse
- Compound

- Malpositions:
  - Occiput Posterior Position (OP): when the fetal occiput is directed towards the mother's spine or posteriorly
  - Intermediate positions (Bregma)

Causes

- Defects of the power: Laxity of the abdominal muscles, exaggerated dextrorotation of the uterus
- Defects of passage: Contracted Pelvis, android pelvis, pelvic tumor, uterine anomaly and placenta previa.
- Defect of passenger: Preterm fetus, macrosomia, multiple pregnancy, poly hydramnios, anacephaly and hydrocephaly, Intauterine fetal death

Diagnosis and Management

Brow presentation: Partial extension of the fetal head before fixation on the pelvic brim

- On vaginal examination
  - → The anterior fontannel and the orbital notches are felt, the referral point is the nasal apex. The chin is not felt
- Management
  - → Deliver by C/S

Face presentation: Hyperextension of the fetal head

- On vaginal examination
  - → The face is palpable and the point of reference is the chin. You should feel the mouth and be careful not to confuse it with breech presentation.
  - → It is necessary to distinguish the chin-anterior position from chin- posterior position

- Management
  - → Chin-anterior position
    - If the cervix is fully dilated: vaginal delivery
    - If there is slow progress and no sign of obstruction, augment labor
    - If descent is unsatisfactory, perform a C/S
  - → Chin-posterior position
    - Deliver by C/S

Breech presentation: Occurs when the buttocks and/or the feet are the presenting part

- On the abdominal examination
  - → The head is felt in the upper abdomen and the breech in the pelvic brim
- On vaginal examination
  - → The buttocks and/or feet are felt, thick dark meconium is normal
- Complications
  - → Entrapment of the after coming head
  - → Nuchal arm
- Management
  - → Consider external cephalic version at 37 weeks if all requirements are met (Adequate amniotic fluid, Placenta in fundal position, No uterine anomalies, No previous uterine scar, availability of theatre)
  - → Ideally, every breech delivery should take place in a hospital with surgical capability.
  - → Determine most favorable mode of delivery

- Contraindications to vaginal delivery are :
    - → Unfavorable pelvis, primigravida, macrosomia, severe prematurity, IUGR, placental insufficiency, footling breech, hyperextension of fetal head, fetal anomalies, nuchal arm, PROM or non-progressive labor

Note: Vaginal breech delivery is safe and feasible by a skilled health provider

***Compound presentation*:** Occurs when an arm prolapses alongside with the presenting part

- On Vaginal Examnation
    - → Fingers/Arm is felt with the presenting part
- Management
    - → Replace the arm and if sucessful continue with viginal delivery
    - → If Contracted pelvis and/or cord prolapse: Do a C – section

Transverse Presentation: Longitudinal axis of the foetus does not coinside with that of the mother

- During pregnancy:
    - → Inspection: abdomen is broader from side to side
    - → Palpation: the fundus feels empty and the fundal level is lower than expected
    - → Ultrasound confirms the diagnosis
- During labor:
    - → On vaginal examination the scapular is felt as point of reference

- Ultrasound confirms the diagnosis

- Complications
  - Arm prolapse
  - Infection
  - Umbilical cord prolapse
  - Uterine rupture
  - Fetal and maternal death
- Management
  - Deliver by Cesarean section

Occiput Posterior position (OP) **:** the fetus lies with its occiput towards the mother's spine and its face towards the mother's symphysis and abdomen.

- On vaginal examination:
  - The anterior fontanelle is palpated
  - Identify the sagittal suture which is mostly asymmetric
  - Dilation is often asymmetric, you can feel the fetal ear and a persistent anterior cervical lip is common
- Management
  - Spontaneous delivery is possible: Make sure uterine contractions are adequate and no fetal distress
  - Manual Rotation
  - Vacuum extraction delivery
  - Cesarean delivery should always be the backup method of delivery for any Occiput posterior presentation that cannot be safely delivered vaginally.

4.5. Multiple gestation

Definition: More than one foetus in the uterus. Mostly twin pregnancy but others may be encountered, triplets or plus

Causes/Risk factors

- Use of fertility reproduction (in vitro fertilization, ovulation induction)
- Hereditary factors
- Previous multiple pregnancy

Signs and Symptoms

- Fundal height larger the gestational age
- Two audible fetal heart beats
- Multiple fetal parts or more than two fetal poles
- Exaggerated symptoms of Pregnancy

Complications

- Increased risk of Miscarriage
- Prematurity
- Pregnancy induced Hypertension
- Intrauterine fetal growth retardation
- Malpresentations
- Pregnancy induced diabetes
- Polyhydramnios
- Antepartum and post-partum hemorrhage
- Fetal transfusion syndrome (Twin-twin transfusion syndrome)
- Placenta praevia
- Premature rupture of membranes

Investigations

- Ultrasound to determine chorionicity
- Blood sugar
- FBC

Management

Antenatal:

- Routine antenatal care
- Hb check
- Monitor for associated obstetric complications to determine: presentation of first twin, detect anomalies, mode of delivery
- Bed rest
- Increase nutrition

Mode of delivery:

- Elective Cesarean section if
  - → Previous Uterine scar
  - → The first Twin is not cephalic
  - → More than two fetuses
- Vaginal Delivery if
  - → The first Twin is cephalic
- Otherwise do a Caesarean section if
  - → Retained second twin
- For Vaginal Delivery
  - → Perform abdominal and vaginal examination and assess: membranes; if intact perform amniotomy
  - → Look for evidence of fetal and maternal distress and manage accordingly

- ➔ If assessment favorable then oxytocin and delivery
- ➔ C/S if the evolution is poor.

- Third Stage
  - ➔ Look for and anticipate post partum hemorrhage.

Recommendations

- Patient Education
- Refer Mother to a hospital for delivery
- Family planning
- Early antenatal visit at subsequent pregnancies.

5. HYPERTENSIVE DISORDERS IN PREGNANCY

5.1. Pre-eclampsia

Definition: Blood pressure of ≥ 140/90 mm Hg after 20 weeks of gestation plus proteinuria of 300 mg per 24 hours or >2+ on urine dipstick

Causes

Unknown

Risk factors

- Nulliparity
- Maternal age < 20 years and > 40 years
- Multiple gestation
- Pre-eclampsia in previous pregnancy
- Chronic hypertension
- Chronic renal disease
- Diabetes mellitus
- Elevated BMI
- Antiphospholipid syndrome
- Family history

Signs and symptoms

- Blood pressure of ≥ 140/90 mm Hg
- Headaches, dizziness, ecophene, blurred vision, Epigastric pain
- Proteinuria (≥ 300mg per 24 hours)
- Generalised oedema

Complications

Maternal

- Eclampsia
- Abruption placenta
- HELLP syndrome
- Renal failure
- Disseminated Intra vascular Coagulation
- Pulmonary edema
- Stroke
- Death

Foetal

- Prematurity
- Intra uterine fetal growth retardation
- Fetal demise

Investigations

- Proteinuria (qualitative/quantitative 24 hour urine collection)
- Obstetrical Ultrasound and Doppler
- Urea, creatinine, electrolytes, Liver function Test and Uric acid
- Fetal heart monitoring
- FBC and Clotting profile
- Retinal funduscopy

Management

- Assessment of risk factors

Mild pre-eclampsia: 90 mm Hg ≤ diastolic < 110 mm Hg; Proteinuria 1+ or 2+

Non-pharmaceutical management

- Pregnancy < 37 weeks of gestation
  - → Hospitalisation and close monitoring
  - → Bed rest
  - → Monitoring BP, diuresis, proteinuria, fetal movement and fetal heart beats (every day)
  - → Advise the patient or the family on the eventual signs of complications
- Pregnancy >37 weeks of gestation
  - → Admission
  - → Consider delivery

Severe preeclampsia (Critical care) **:** BP ≥ 160/110 mm Hg (especially diastolic ≥110 mmHg) Proteinuria ≥+++or ≥ 1g/24h

- Severe Preeclampsia (is treated like eclampsia)
  - Hospitalisation and close monitoring
  - Order bed rest
  - Monitor BP, pulse, deep tendon reflexes, breathing every 4 hours
  - Maintain input and output balance sheet

Pharmaceutical management

- The ideal drug for this clinical scenario is one that reduces the BP in a controlled manner, avoiding precipitous reduction that may compromise placental perfusion.
- The goal is to lower the BP to a mildly hypertensive level (diastolic BP between 90-100mmHg).

First choice treatment

- Anti- convulsion Treatment
  - → *Magnesium sulphate*:
    - Dosage
      - Loading Dose: 4 to 6 g IV bolus (20ml) over 5 to 15 minutes
      - Maintenance dose: 1to 2 gr infusions of 200-300 ml of Ringer's lactate per hour, or 5 g undiluted 50% of magnesium sulphate injection (add 1 ml of lidocaine 2%) by deep intramuscular (IM) injection into each but tock every 4hrs for about 24 hrs after delivery or the last fit/seizure.
    - Contra-Indications: *Myasthenia*, Respiratory insuffisancy, cardiomyopathy, oligoanuria.

Note: Monitor respiratory rate (> 16 breaths/min), urine output, consciousness, deep tendon reflexes and Magnesium sulphate serum levels (where possible)

- S/E: hypermagnesium: colic, decreased respiratory rate, heart rate, oliguria, & depressed deep tendon reflexes (DTR)

- *Calcium gluconate*: Should be ready (1 g Slow IV bolus in 2 to 3 minutes as an antidote to *magnesium sulfate*)

- Anti- Hypertensive treatment
  - → *Hydralazine IV* Initial dose 5 mg IV in 10 mls sterile water over 4 minutes. If necessary repeat 30minutes after
    - S/E: nausea, headache, weakness, palpitation, flushing, aggravation of angina, anxiety, restlessness, hyperreflexia.
    - C/I: porphyria, aortic stenosis, lupus erythematosis renal failure

OR

- *Nifedipine:* 20 mg orally TDS until stabilized blood pressure
- *Nifedipine*: 10 mg short acting if diastolic blood pressure is ≥ 110mmhg
  - S/E: difficult breathing, hives, hypotension

OR

- *Labetalol* if hypertension is refractory to *hydralazine*.
  - Dosage: 20-50mg intravenously, infusion 200mg in 200ml Ringers lactate at 5 drops per minute.
  - S/E: severe fetal and neonatal bradycardia

- Obstetrical Management
  - If at term deliver immediately preferably vaginal delivery.
  - If preterm (24 to 34 weeks), give *Dexamethasone* 6mg every 12 hrs for 48 hours and deliver by induction (if not contraindicated) after 48 hrs.

Recommendations

- Imminent delivery with severe prematurity must be done in a center with neonatology facilities

- Contraception for at least one year

- Closely follow up next pregnancy

- Low dose *Acetyl salicylic Acid* (aspirine) 75 mg PO once daily and calcium supplementation 1g daily can be considered for the next pregnancy

5.2. Eclampsia

Definition: Onset of convulsion/generalized seizures in a woman with pre-eclampsia that can not be attributed to other causes

Causes/Risk factors

Refer to sever Pre-eclampsia

Signs and Symptoms

- Signs of severe pre-eclampsia (Refer above)
- Hypertension of Usually > 160/110mm Hg)
- Loss of consciousness
- Tonic-clonic seizures
- Coma

Complications

Maternal

- CVA
- Un-controlled Blood pressure
- HELLP syndrome
- Renal Failure
- Acute Pulmonary oedema
- Retinal Detachment (Blindness)
- Hematological abnormalities
- Injury of the patient (Tongue Biting, falling down)
- Death

Fetal

- Fetal distress
- Prematurity
- Intra-uterine Growth retardation
- Fetal demise

Investigations

- Full blood count and cross-match
- Ultrasound
- Urea and createnine + electrolytes
- Liver function tests
- 24h urine collection for Proteinuria
- Uric acid
- Clotting profile

Management (Critical care)

Maternal resuscitation

- Prevent aspiration and trauma during convulsions
- Insert 2 IV lines (One for *Magnesium sulphate* and the other for Anti-Hypertensives)
- Fluids should be restricted to avoid pulmonary oedema (80 mls per hour is recommended)
- Give O_2 6L/min by face mask
- Insert a urinary catheter
- Prevent and stop convulsions

  → Same treatment as severe pre-eclampsia.

Obstetrical management

- If pregnancy 34 weeks or more

  → Immediate delivery after stabilization should be considered

- If stable, no fetal distress, no labor, vaginal delivery should be considered
    - → *Misosprostol*, 50mcg PO or 25mcg vaginally to repeat 4 hrs after, up to a total of six doses maximum
- If failure of stabilization immediate Cesarean section
- If the pregnancy is 32-34 weeks and no labor
    - → Stabilize and administer *Dexamethazone IM* should be considered and vaginal delivery is preferred after 24-48 hrs,
        - 6 mg IM every 12 hrs for 48 hrs
        - S/E: increase intrauterine growth retardation
- If the pregnancy is less than 32 weeks
    - → Cesarean Section is preferred as the success of induction is reduced

Recommendations

- Obligatory postpartum follow up
- If pregnancy is <32 weeks, delivery should be done in a center with the necessary facilities
- Neonatal rescuscitation should be done in delivery room.
- Inform ICU on immediate transfer of Mother
- Inform neonatal ICU on immediate transfer of Neonate
- Contraception for at least one year
- Closely follow up next pregnancy
- Low dose *Acetyl salicylic Acid* (aspirine) and *Calcium* sup plementation can be considered for the next pregnancy
- Rescuscitation of the mother should be done in the delivery room

6. INFECTIONS DURING PREGNANCY

6.1. Toxoplasmosis in pregnancy

Definition: An infection caused by a single cell parasite called Toxoplasma gondii, found in the domestic cats. Infection is often asymptomatic. It is also acquired through eating raw/ undercooked vegetables and meat.

Causes/Risk factors

- Eating raw or undercooked meat or ingesting soil contaminated with Toxoplasma oocysts, which are excreted in the faeces of infected cats

Signs and Symptoms

- Assymptomatic but Flue-like symptoms
- Fever
- Malaise
- Lymphadenopathy
- Neurological involvement in immunocompromised

Complications

- Congenital abnormalities (chorioretinitis, Intra cranial calcification, hydrocephalus, hepato splenomegaly, Pneu monia, Thrombocytopenia, Lymphadenopathy, Myocarditis, ventriculo megaly, microcephaly, ascites)
- Prematurity
- Intauterine growth retardation
- Stillbirth

Investigations

- Toxoplasmosis serology (IgG, IgM in 1st trimester if possible)
- Ultrasound to detect abnormalities
- If the ultrasound is negative, consider pharmacological treatment, as below if maternal infection is fairly certain

Management

Infection of mother (IgM+and IgG -)

- If UltraSound shows no fetal abnormalities, administer *Spiramycin* (1g) 3 million units PO TDS per day for 20 days out of 30 till term
- If Ultrasound suggestive of fetal malformations, counsel woman / partner regarding termination or If termination is unacceptable to the parents, administer

→ *Sulfadiazine* 4g per day divided into 2-4 doses and *Pyrimethamine* 25mg per day (and *Foliic acid* 0.1mg/kg/day) administered continuously up to term

- Infection from 28 to 42 weeks

- If US shows no fetal abnormalities, administer spiramycin until term
- If Ultrasound suggestive of fetal malformations, administer

→ *Sulfadiazine* 4g per day divided into 2-4 doses and *Pyrimethamine* 25mg per day (and *Foliic acid* 0.1mg/kg/day) administered continuously up to term

Recommendations

- Advice the patient not to eat raw/uncooked food
- Attention to domestic cats
- Systematic transfer new born of mother with IgM+ toxoplasmosis to neonatology for further follow up
- Women intolerant of pyrimethamine may consider *trimethoprime-sulfamethoxazole*

6.2. HIV in pregnancy

Definition: Transmission of HIV virus from the infected mother to child may occur during pregnancy, labor, delivery, and breastfeeding

Risks of Transmission

- High Viral load
- Low CD 4 cell count
- Prolonged labour
- WHO advanced clinical stage

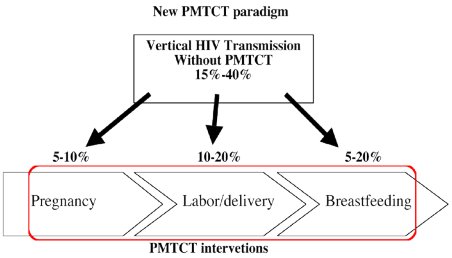
Complication

- Mother-to-child transmission

Investigations

- Serologic test for HIV after counseling.
- CD4 count, viral load,
- Baseline tests such as FBC, RFT, LFT tests.
- Test for syphilis (VDRL)
- Screen for opportunistic infections
- Ultrasonography

Management



PMTCT Protocol

- HIV + pregnant women eligibles to ART
  - All pregnant women HIV positive from 14 weeks of gestation without considering WHO clinical stage and without considering their CD4 count are eligible to ART for life.
  - This treatment must start as soon as possible after 14 weeks
  - The regimen :
    - *Tenofovir 300mg + Lamivudine 300mg + Nevirapine 200mg* (TDF + 3TC + NVP)
    - Women with renal failure will receive: *Abacavir 300mg+ Lamivudine 150 mg + Nevirapine 200mg:* (ABC+ 3TC + NVP)

- Pregnant women with CD4 > 350 who are starting treatment should be given regimen *EFV* (in order to avoid *NVP* side effects. N: B Those already on treatment with *NVP* should continue the same Regimen
  - The Regimen :
    - *Tenofovir 300mg + Lamivudine 300mg + Efavirenz 600mg :* (TDF + 3TC + EFV)

- HIV+ pregnant women previously exposed to single dose of NVP

  → The Regimen :

  - *Tenofovir 300mg + Lamivudine 300mg +Lopinavir/Ritonavir (Kaletra) 250mg* (TDF + 3TC + Lop/r)

- HIV + pregnant women with renal failure.

  → The Regimen :

  - *Abacavir 300mg+ Lamivudine 150 mg + Efavirenz 600mg:* (ABC+ 3TC + EFV)

- Women with renal failure and who had been previously exposed to Single dose NVP will receive:

  → The Regimen:

  - *Abacavir 300mg+ Lamivudine 150 mg +Lopinavir/Ritonavir (Kaletra) 250mg* (ABC+ 3TC + Kaletra)

Notes: Follow up of the renal function is very important.

- HIV pregnant women in serodiscordant couple.

  → HIV testing after every 3 months and during labor.

  - If still HIV negative, she will receive during labor: Single dose *TDF+3TC+EFV* then continues *TDF+3TC* during one week after delivery.
  - If HIV positive: Start treatment for life at 14 weeks of gestation. (Refer to above section (Care and treatment for HIV+ pregnant women)
  - Children from discordant couples would take daily *NVP* up to weaning time (one week after weaning).

- Treat the HIV + partner in serodiscordant couples regardless of the number of CD4 or the clinical stage.
  - With CD4 > 350 ART regimen to include *EFV* in order to avoid *NVP* side effects
- If the woman turns POSITIVE during breast-feeding period, she should start ARV triple therapy and the child should continue daily *Nevirapine* (NVP) for 6 weeks from initiation of ARV to the mother.

- Prophylaxis to HIV exposed infants
  - Breasfeeding and non-breastfeeding children: Daily *Nevirapine* (NVP) syrup for 6 weeks.

Summary

Scenarios	Regimens	Duration
HIV Positive mother became pregnant on treatment	TDF+3TC+NVP	Continue the same regimen
HIV Positive mother starting ART with CD4 > 350	TDF+3TC+EFV	From 14 week of pregnancy for life
Previously exposed to Sd NVP	TDF+3TC+Lop/ r(Kaletra)	For life
HIV negative in sero-discordant couple	-Testing every 3 months and at labor. If still HIV -: Single dose TDF+3TC+EFV then TDF+3TC for 1 week If turns HIV +: triple-therapy regardless of CD4 count results -Start Tritherapy for the HIV + discordant partner	For life

Recommendations

- Test and counsel all pregnant women and partner for HIV at the first antenatal visit
- Consider the following for all HIV positive women in labour conducting vaginal delivery
    - Avoid early rupture of membranes (Less than 4 hrs before delivery)

- Avoid internal electrode monitoring and scalp blood sampling
- Avoid assisted instrumental delivery
- Wash the fetus immediately after delivery with *Chlexidine 0.25%* in water

- For HIV positive mother where we suspect high viral load, in labor, before rupture of membranes and willing not to breastfeed, Ceserian section is considered for PMTCT.
- Adherence to counseling, treatment and nutritional counseling
- Continual education and follow up of patients, specially the discordant couple
- The recommended period of breastfeeding is 18 months

6.3. Hepatitis B during pregnancy

Definition: Hepatitis B is a viral disease of liver with an incubation period of 6weeks -6months.

Transmission is by

- Blood
- Sexual intercource
- Vertical transmission

Causes/Risk factors

- Non-immune women with a history of:
  - Health care providers
  - Household / intimate contact with hepatitis B carrier
  - Sexual workers

- Multiple sexual partners
- Intravenous drug users
- Tattoos / body piercing
- Blood transfusion recepients

Signs and Symptoms

- Most of the time asymptomatic but symptomatic in 0.5% cases include:
  - Jaundice, tiredness, dark urine
  - Liver cirrhosis and liver failure

Complications

- Mother to child transmission during 1st trimester (10%), 3rd trimester (80-90%) and highest during delivery
- Low birth weight
- Miscarriage, prematurity and stillbirth in acute infection
- Hepatocarcinoma in approximately 15-20%

Investigations

- HBs Ag
- HBeAg (the e antigen identifies a high infective status)
- HBV viral load (HBV DNA) provides an accurate reflection of infectivity (high risk carriers have high viral loads)
- Anti-HBe (anti-HBe or HBeAb positive status indicates the woman is at lower risk of spreading HBV infection than HBeAg positive women)
- Liver function test (repeat at 28 weeks)
- HBs Ag of partners

Management

Intrapartum management

- Caesarean section doesn't reduce the incidence of vertical transmission in positive women (HBsAg/HBeAg)
- Avoid procedures that may inoculate the baby, for example:
  - → Fetal scalp electrodes
  - → Fetal scalp blood sampling
  - → Vigorous aspiration of the baby
  - → Instrumental modes of birth

At birth

- Protective eyewear, gown / apron and gloves should be worn by the attending providers
- Care of the newborn baby
  - → Standard precautions should be utilised when handling the baby
  - → Delay Konakion® (vitamin K1) injection and administer after the baby has been bathed to remove all maternal blood
  - → The baby should remain in the delivery room until transfer to the ward unless transfer to the Neonatology is indicated
  - → Give the baby Breast milk normally
- Newborn Immunoglobulin and vaccination
  - → The Hepatitis B immunoglobulin (HBIG) and Hepatitis B vaccine (HB vaccine) should preferably be given within 12 hours after birth to the baby of women who are:
    - HBsAg positive
    - HBeAg positive

Note: Efficiency of the immunoglobulin and vaccine

given within/less than 12hrs is greater than 90%

→ Dosage:

- Give *HBIG 100* units in an intramuscular injection (thigh) within 12 hours of birth (must be within 48 hours as efficacy decreases markedly if delayed beyond this time)

Recommendations

- Blood for Hepatitis B status checking should be taken from the woman's partner and vaccination offered if the partner is non-immune

- All babies born to HBsAg positive women should be followed up according to the National Immunization Program. The baby's blood should be tested for HBsAg, anti-HBc and anti-HBs

- HBsAg positive women should be followed up every 12 months to assess their liver function

- Breast feeding is not contra-indicated after treatment

6.4. Hepatitis c virus during pregnancy

Definition: Hepatitis C is a blood borne viral liver infection that can result in liver disease, such as cirrhosis, liver failure and hepatocellular carcinoma

The incubation period is six to ten weeks; however, seroconversion may occur up to three months

Causes/Risk factors

- Hepatitis C virus
- Intravenous drug user (past or present)
- Known abnormal liver enzymes
- Administration of blood products
- History of organ transplant or haemodialysis
- Partner who is Hepatitis C positive

Signs and Symptoms

- The initial acute hepatitis may not be diagnosed as symptoms are mild or absent
- Lethargy
- Nausea
- Right upper quadrant pain
- Malaise
- Headache
- Jaundice

Complications

- Cirrhosis
- Hepatocellurar carcinoma

Investigations

- Clinical assessment for liver disease should include:

  - Full blood Count (routinely repeat at 28 weeks)
  - Liver function tests (including ALT, albumin and bilirubin) (repeat at 28 weeks gestation)
  - Ac-anti HcVirus, Hepatitis C RNA PCR

Management

Antenatal screening

- Routine screening for hepatitis C antibodies
- If positive, repeat at 28 weeks

Management of women who are Hepatitis C antibody positive

- Counselling
  - → Advise testing for Hepatitis B, human immunodeficiency virus (HIV) and syphilis if not already tested
  - → Inform the woman early in the consultation of her HbsAg result.
  - → If viral load for hepatis C is low and no co-infection with HIV, rate of transmission is less than 5%
  - → Co-infection of hepatitis C and HIV increase the vertical tramsmission of hepatitis C
- Intrapartum management
  - → There is no evidence that caesarean section will reduce the risk of perinatal transmission
  - → Avoid procedures which may inoculate the baby, for example:
    - Fetal scalp electrodes
    - Fetal scalp blood sampling
    - Vigorous aspiration of the baby
    - Instrumental modes of birth

- At birth
  - → Protective eyewear, gown / apron and gloves should be worn by the attending provider
- Care of the newborn baby
  - → Standard precautions should be utilised when handling the baby
  - → Delay *Konakion* injection and administer after the baby has been bathed to remove all maternal blood
  - → The baby should remain in the delivery room until transfer to the ward unless transfer to the nursery is indicated
  - → Breastfeeding should be encouraged unless nipples are cracked and bleeding (express and discard milk until healed)

Recommendations

- Refer to the pediatrician for follow- up
- Refer the infected women to infectious diseases clinic for counselling and advice on management of Hepatitis C
- If non-immune, encourage immunization against Hepatitis A and B

6.5. Genital herpes simplex virus (HSV) infection during pregnancy

Definition: Genital herpes is caused by the herpes simplex virus either type 1 or 2 (HSV-1 or HSV-2). During primary infection of HSV the Mother can infect the fetus during delivery.

- Risk of vertical transmission is 40% for primary maternal infection and 5% for secondary infection.

- HSV positive mothers with genital herpes during labor, it's recommended to proceed with ceserian-section as the rate of transmission reduces to < 1%.

Signs and Symptoms

- Lesions during pregnancy
- Itching, soreness, Erythema, Small group of pain vesicles, ulcers, Inguinal lymph nodes
- Tender lesion on Labia, clitoris, Perinium, Vagina and Cervix.
- Generalised malaise, fever and difficult in micturation and walking.
- Most genital HSV infections are asymptomatic

Complications

- Mother-to-child transmission
- Viral pneumonia for the mother
- Weigth loss for the fetus
- Fever with multiorgan involvement (high mortality of 70-89%)
- In survival, Poor feeding, mental retardation and develpment delay

Investigations

- Serology for HSV
- HSV genital culture

Management

- Antenatal management
  - HSV in pregnancy: Consider suppressive *Acyclovir* 400 mg orally three times a day for 5 days

Note: there is a high risk of recurrence: Treat as primary lesion for each recurrent episode

  - Prophylactic *Acyclovir* can be given from 36 weeks of amenorrhea. *Acyclovir* 400 mg orally three times a day for 5 days

Recommendations

- Advise the pregnant mother that caesarean birth is preferable in cases of primary genital infections
- Advise the woman with active genital herpes that, if spontaneous rupture of the membranes occurs, caesarean section should be performed as soon as possible, particularly within 6 hours
- Postpartum care of the neonate: Refer the child to paediatrics
- Condoms should be used in all sexual intercourse before treatment

6.6. Syphillis in pregnancy

Definition: It is a sexual transmitted infection caused by spirochaetes called Treponema pallidum, which can cause significant intrauterine infection. It can infect the fetus at any point in the gestation.

Signs and Symptoms

- Most mothers are asymptomatic
- Primary stage
  - Incubation 10-90 days (usually 3 weeks)
  - Chancre on the genital area
  - Painless, ulcerated lesions with a raised boarder and an indurated base
  - Regional lymphadenopathy
  - Spontaneous healing occurs in 1-2 months
- Secondary Stage
  - 7 to 10 weeks after exposure
  - Fever, headache, generalized lymphadenopathy
  - Skin manifestations (Hands, chest, around the neck, labia, clitoris, lips)
- Tertiary stage

  10-20 yrs after primary infection.

  Gummata lesions, cardiovascular disease (Aortic aneurysm and aortic insufficiency), neurological involvement, general paresis, Tabes dorsalis, optic atrophy meningovescular symphilis, notched and narrow edged permanent incisors (Hutchinson's teeth)

Complications

- Miscarriage
- Prematurity
- Intrauterine fetal demise
- Congenital syphilis (At Birth: Cuteno-Mucous lesions, Bone and visceral lesions. Late signs: Tertiary lesions)
- Tertiary Syphilis

Investigations

- Microscopy: By dark field examination
- Serology
  - Specific treponemal tests such as TPHA or FTA-Ab
  - Nonspecific treponemal tests
    - → The Venereal Disease Research Laboratory (VDRL) test
    - → The Rapid Plasma Reagin (RPR) test

Management

First choice

Pregnant women with syphilis must be treated with penicillin, since no other medication effectively crosses the placenta to treat the fetus, even if allergic to penicillin must be desensitized and treated.

- *Benzathine penicillin*, 2.4 million IU IM (1.2 million in each buttock) weekly for three consecutive weeks. Treat the partner similarly

Alternative

- *Erythromycin*, 500 mg P.O. QID for 14 days, but may not prevent congenital syphilis

Recommandations

- Early serology during antenatal care
- Advice patients treated in second half of pregnancy about Jarisch-Herxheimer reaction, which can precipitate premature labor and fetal distress.
- Risk of transplacental transmission is very high during the 1st and 2nd stage of Syphilis (75-100%). 3rd (tertiary) stage only 10%
- Repeat syphilis screening in 3rd trimester of pregnancy

6.7. Urinary tract infections (UTI) in pregnancy

Definition: Often-bacterial infection of the ureters, bladder and urethra. UTI occurs much more frequently in women than in men especially during pregnancy. Most often UTI is asymptomatic in pregnancy.

Types

- Asymptomatic bacteruria affecting 4-7% of pregnant women
- Acute cystitis
- Acute pyelonephritis

Causes/Risk factors

- Most commonly Gram-negative bacteria (E.coli 60%, Klebsiella species, Proteus species…)
- Less commonly Gram-positive cocci (Staphylococcus species…)
- Gravidity (hormonal and urine stasis in urinary tract organ)
- Catheterization, Colposcopy, Intravenous urogram, Cystoscopy, sexual intercourse, vaginal infection and frequent non aseptic vaginal exams

Signs and Symptoms

- Often asymptomatic bacteriuria
- Symptomatic: Fever, Increased urgency (pollakiuria), Dysuria, lower abdominal pain, back pain, positive ureteral point (especially right lower ureteral point), Pyuria

Complications

- Acute and chronic pyelonephritis
- Recurrence
- Pre-term labor
- Prematurity

Investigations

- FBC
- Urine analysis
- Urine culture
- Blood Culture
- Renal functions test

Management

Pharmaceutical management

- The treatment would be rational if the choice of antibiotics is based on culture and sensitivity results.

First choice

- *Nitrofurantoin* 100 mg P.O. QID for 5-7 days

Alternative

- *Amoxycilline tab* 500mg TDS for 5-7 days

Recommendations

- Patient education
- Increase water intake
- Frequent urine and stool analysis
- Patients on nitrofurantoin should be monitored for the renal function

6.8. Pyelonephritis during pregnancy

Definition: Pyelonephritis during pregnancy most often, is a complication of non-treated asymptomatic bacteriuria

Causes

See UTI

Signs and Symptoms

Headache, fever, chills, nausea and/or vomiting, flank pain and dysuria

Complications

- Miscarriage
- Preterm labour
- Sepsis
- Renal calculi
- Ureteric obstruction
- Perinephric abcess
- Chronic renal failure

Investigations

- Urine analysis showing bacteruria and pyuria
- Gram stain and urine culture of midstream urine or urine obtained by through catheterization.
- Leucocytosis with neutrophilia
- Blood culture

Management

- Admit for parenteral medication

First choice

- Associate *Ampicillin*, 1gr IV TDS and *Gentamycine*, 80 mg IV BD until 48 hours after the fever subsided and then *Amoxycilin* 500 mgPO TDS for 10-14 days (With precaution for Gentamycine in relation with renal function)

Alternative

- *Cefotaxime*, 1 gr IV TDS until 48 hours after the fever subsided and then continue with *Amoxycilin* 500 mgPO TDS for 10-14 days

Recommendations

- Repeat urine analysis because reccurency is high
- Any pregnant woman who has had two UTI attacks should under go renal Ultrasound.
- Increase water intake

6.9. Chorioamnionitis

Definition: It is a bacterial infection of amniotic fluid and fetal membranes. It typically complicates premature rupture of membranes and results from bacterial ascending into the uterus from the vagina.

Causes/Risk factors

- Genital tract infections:
  - Syphilis, gonorrhea, chlamydia
  - Group B streptococcal infection through PPROM
  - E.Colli, Staphylococcus areus
  - Bacterial vaginosis
  - Ureaplasma urealyticum, Mycoplasma hominis and trichomonas vaginalis
- Urinary tract Infection
- Premature rupture of membranes
- Prolonged labor with rupture of membranes
- Multiple vaginal exams

Signs and Symptoms

- Fever more than 38oC
- Tachycardia (maternal and fetal)
- Foul-smelling discharge
- Uterine tenderness

Complications

- Fetal distress
- Stillbirth
- Endometritis
- Neonatal Infection
- Septicemia, septic shock

Investigations

- Ultrasound
- FBC/CRP
- Vaginal swab
- Urinalysis
- Cervical cultures
- Group B Streptococcal Screening
- Fluid leakage culture

Management

First choice

- *Ampicillin* 2 gr IV 6hrly until delivery followed by 1g *TDS* for 5 days OR *Penicillin G*5 MUI 6hrly PLUS *Gentamycin* 160 mg OD for 5 days

OR

- *Amoxicilline+ Clavulanic Acid* 625mg IV TDS for 5 days

Alternative

- *Cefotaxime* 1g IV 8 hourly for 5 days
- *Erythromycine oral* 500mg TDS for 5 days
- Anaerobic coverage can by *Metronidazole* 500mg IV TDS for 5 days
- Antipyretics and hydrotherapy: *paracetamol* 500mg PO TDS and IV Fluids

Obstetrical treatment

- Vaginal delivery is preferred
- Antenatal corticosteroids are contraindicated in women with chorioamnionitis
- Conservative and tocolysis therapy are contraindicated

Recommendations

- Digital vaginal exam (ONLY if in labor)
- Reduce considerably the vaginal examinations perfomed

7. DIABETES IN PREGNANCY

Definition: Glucose intolerance caused by absolute or relative Insulin deficiency.

Types

Pre-existing diabetes including type1, type 2 and gestational diabetes. 2-3 % of pregnancies are complicated by diabetes.

Causes/Risk factors

- Previous pregnancy with diabetes and/or macrosomia
- Obesity (BMI ≥30)
- A family history of gestational diabetes (ie your mother, grandmother or sister had it)
- A Polycystic Ovarian Syndrome (PCOS)
- Habitual abortion or fetal demise
- Age >40 years

Signs and Symptoms

- Excessive hunger or thirst.
- Excessive urination or recurrent thirst.
- Recurrent vaginal infections (Especially Candida Infections)
- Tiredness

Complications

- Maternal

  - Pre-eclampsia
  - Miscarriage
  - Preterm labour
  - Polyhydramnios
  - Diabetic Keto Acidosis
  - Hypoglycemia
  - Infection
  - Increased proteinuria and Oedema
  - Deteriorating retinopathy, neuropathy
  - Increased risk of Cesearean section

- Fetal

  - Macrosomia with traumatic delivery, shoulder dystocia
  - Congenital malformations
  - Hypoglycemia at birth
  - Hypothermia
  - Hypocalcemia
  - Jaundice
  - Respiratory distress syndrome
  - Stillbirths
  - Increased perinatal mortality and morbidity
  - Intra-uterine growth restriction (Diabetes Type 1)
  - Polycythemia

Investigations

- Glucose tolerance test, taken from week 24 through week 28 of pregnancy with 50g Oral Glucose Challenge Test (OGCT)
- Ultrasound
- Glycemia, FBC
- Fasting blood sugar
- Vaginal swab and urine analysis

Management

Preconceptional

- Control glucose level three months before conception
- Administer *Folic acid* 5 mg daily pre-conceptional (2months) and during the first 13 weeks of pregnancy to prevent neural tube defects

During pregnancy

- Monitoring glucose levels and, if necessary, daily *Insulin* injections
  - → 0.5-1 IU/kg/daily ,70% of long-acting Insulin, 30% of regular/Actrapid
  - → Four doses regimen does achieve better glucose control
- Eating a carefully planned diet and doing required exercise
- Maintaining a healthy pregnancy weight
- Admit if uncontrolled diabetes
- Induce labor or plan elective cesarean delivery between 38-39 weeks of gestation
- Never go beyond the gestation
- If macrosomia: deliver by C/Section
- In case of hypoglycemia, give oral *glucose* if conscious patient otherwise give *glucose 10%* infusion and *Glucagon IM*.

During labor

- Sliding scale is used to control the glucose level throughout labor

Post Partum period

- Pre-existing diabetes mellitus, control glucose levels to the pre-pregnancy state
- In gestational diabetes Mellitus, *Insulin* and diabetic diet should be stopped and encourage regular exercises
- Followup of the patient with gestational diabetes, Do Glucose tolerance test with 50g oral glucose challenge test (OGCT) 6 weeks post partum and repeat 6 months later.

Follow up of the newborn

- Blood sugar within 1 hour of life, and every 4 hours after breastfeeding
- Follow up in Neonatology Unit

Recommendations

- In case of pre-term labor don't use β mimetics drugs (Salbutamol, Ritodrine) and in case of administrating corticosteroids insulin dose should be increased
- Transfer newborn to neonatology for follow up
- Mother is monitored for blood sugar levels.
- If the mother was taking any medication for diabe tes and if blood sugar is normal, she is advised to stop these after the baby is born.
- The mother is given a blood sugar test at six-week check-up
- Oral antidiabetic drugs shouldn't be given during pregnancy except Metformin.

8. RHESUS ISOIMMUNIZATION

Definition: Rhesus isoimmunization is the condition where incompatibility exists between the fetal and maternal rhesus group such that an immune response occurs.

Causes/Risk Factors

- Delivery
- Abruption placenta
- Miscarriage
- Incomplete Hydatiforme mole
- Invasive procedures
- Ectopic pregnancy
- Other causes of bleeding during pregnancy

Complications

- Repetitive miscarriage
- Fetal anemia
- Hydrops fetalis (Hydrops fetalis is defined as an abnormal collection of fluid in two or more fetal body compartments, including ascites, pleural effusions, pericar dial effusions, and skin oedema)
- Intra uterine fetal death

Investigations

- Antibody titers
    - Serial measurements of circulating antibody titers should be performed every 2-4 weeks.
- MCA (Middle Cerebral Artery) pulsatility index by Doppler ultrasound is diagnostic for fetal anemia

- Invasive testing

• If antibody titers continue to rise in the presence of an Rh (D)-positive fetus, invasive testing may be required.

→ Amniocentesis

→ Fetal blood sampling for fetal hemoglobin

Management

Rhesus (anti-D) prophylaxis

• 250IU Anti-rhesus Immunoglobulin: Give one dose at 28 weeks' gestation and again after delivery if the baby is Rh (D)-positive within 72 hrs.

→ Any bleeding or invasive procedure after 12 wks, the mother should receive prophylactic dose of 250 UI and to repeat the dose after 6 weeks if you have the indication.

Monitoring the pregnancy

• Blood group (ABO and Rh status) and antibody status testing at booking and again at 28-30 weeks' gestation

Foetal surveillance and blood transfusion

• Ultrasound examination to detect/rule out hydrops fetalis (ascites, pleural effusions, pericardial effusions, or skin edema).

• In case of anemia, blood transfusion done from 22 weeks and repeated in case of fetal anemia unless fetal hydrops is already present.

Timing of delivery

• In case of complications, delivery can be done at ≥34 weeks of gestation

Recommendation

- Routine screening of all pregnant women for blood group and rhesus at the first ANC

9. RESTRICTED FOETAL GROWTH

Definition: Fetal growth restriction, also called intrauterine growth restriction (IUGR) or small for gestational age (SGA), is a fetal weight that is below the 10th percentile for gestational age as determined by ultrasound.

Types

- Symetrical
- Asymetrical

Causes/Risk factors

- Maternal factors
    - Preeclampsia
    - Diabetes in pregnancy
    - Anaemia
    - Chronic hypertension with atherosclerosis
    - Poor nutrition
    - Tobacco use, alcoholism, amphetamines, cocaine / crack
    - Social disadvantage
    - Cardiac disorders
    - Coagulopathies (Thrombophilias)
    - Respiratory disease (severe asthma…)
    - Renal disease
    - Anti-phospholipid syndrome
    - Medicines (anticancer agents, narcotics)
    - Idiopathic

- Fetal factors
    - Fetal infection
    - Multiple pregnancy
    - Malformations
    - Chromosomal defects
- Placental factors
    - Decreased uteroplacental blood flow
    - Placenta praevia
    - Thrombosis, infarction (fibrin deposition)
    - Placentitis, vasculitis
    - Placental cysts, chorioangioma
- Uterine factors
    - Fibromyoma (large submucosal fibroids)
    - Morphologic abnormalities - especially uterine septum

Signs and Symptoms

- Small fundal height for gestational age
- Symptoms of the cause (Diabetes, Pre-eclampsia)
- Ultrasound findings <10th percentile estimated fetal weight and abdominal circumfrance

Complications

- Chronic fetal distress
- Polycythemia
- Meconium aspiration
- Hypoglycemia
- Hypoxic ischaemic encephalopathy / Neurologic disabilities
- Type 2 diabetes and hypertension (In adult life)

- Intrauterine fetal death
- Increased cesarean section rate
- Increased neonatal morbidity and mortality

Investigations

- Ultrasound (Abdominal circumference, oligohy dramnios…)
- Umbilical artery Doppler
- Hemoglobine test
- Maternal serology for infection
- Biophysical profile (Fetal movement, tone, amniotic fluid and breathing movement)
- CTG
- Amniocentesis and fetal chromosomal examination

Management

- Education for behavior change (tobacco use, alcoholism, substance abuse)
- Nutrition (balanced diet)
- Timing of delivery: Varies according to aetiology, severity and duration of pregnancy.
    - If end diastolic flow is present, we delay delivery after 37 weeks
    - If end diastolic flow is absent, baby > 34 weeks we consider delivery. Baby < 34 weeks,, patient should be admitted and monitored by CTG receiving corticosteroids and consider delivery after 48 hrs by cesarean section
    - Delivery should be at a center with high neonatology care
    - If vaginal delivery, continous CTG is a mandatory
- Treatment of the etiology

Recommendations

- Any woman with a history of IUGR should be well investigated for the cause before the next pregnancy and in placenta causes, low dose asprin as a prophylaxis will be beneficial.
- Preconceptional counseling is recommended

10. PRETERM LABOR AND PRETERM PREMATURE RUPTURE OF MEMBRANES

Definition

- Preterm labor is occurance of uterine contractions between 24 to 37 weeks of gestation.
- Preterm Premature Rupture of Membranes is rupture of the fetal membranes 1 hr or more prior to the onset of labor prior to 37 weeks.

Causes/Risk factors

- History of previous preterm birth
- Adolescent age and advanced maternal age
- Maternal infections (Pyelonephritis, Genital tract infection, other systemic infections)
- Increased uterine size (Twins, Poly hydramnios)
- Maternal Trauma
- Uterine abnormalities (Myomas, Uterine malformations)
- Other pregnancy complications (Abruption Placentae, cervical incompetence)
- Social economic and stress factors

Signs and Symptoms

- Pelvic and back pain
- Uterine contractions
- Sterile speculum examination to confirm leaking of amniotic fluid
- Increased Vaginal discharge
- Muco-bloody discharge

Complications

- Infection (chorioamnionitis, Neonatal sepsis, maternal septicemia)
- Prematurity
- Neonatal respiratory distress syndrome
- Neonatal mortality and morbidity

Investigations

- Full blood count
- Vaginal Swab for lab analysis
- Urine analysis
- Materanl and fetal Screening for infections
- Obstetric Ultrasound

Management

Preterm labor with intact membranes (< 34 weeks gestation)

- Admit and assess (Term and Cervical changes)
- Cervix dilatation <4 cm: Tocolyse
- *Nifedipine* 20 mg initial dose followed by 10-20 mg three- Four time's daily.

Alternative

- B2 agonists infusion
  - → *Salbutamol* IV 2.5mg in 500 mls of *Ringers lactate* and run 20-30 drops per minute and monitor contractions and maternal heart rate

    OR
  - → *Terbutaline sulfate IV 0.1 mg in Glucose 5%*. The recommended initial rate of infusion is 5 micrograms/minute increased by 2.5 micrograms/minute at intervals of 20 minutes until contractions stop. Usually, a rate of up to 10 micrograms/minute is sufficient.

- Do ECG for mother before installing intravenous treatment with B2 agonists
- Monitor maternal heart rate (it should not go up 120/min)
- *Dexamethasone* 6mg IM 4 doses 12 hourly for lung maturity. Delivery should be delayed for 24 to 48 hours
- Cervix dilatation ≥ 4 cm: Tocolyse with *B2 agonists* or *Nifedipine* for 24hrs and administer *Dexamethasone* 12mg IM 2 doses 12 hourly. This will assist transfer to a center with good neonatology facilities.

Preterm labor with rupture of Membranes (< 34 weeks of gestation)

- Perform speculum examination to confirm diagnosis and take samples for laboratory examination
- Do not tocolyse
- Antibiotherapy:

  → *Erythromycine* 500mg every 8hrs for 10 days.

Alternative

  → *Ampicilline* 2g in flash, then *Amoxycilline* 500mgs TDS for 10 days.

- Corticosteroids: *Dexamethasone* 6mg IM 4 doses 12 hourly for 48hrs.

Preterm labor with rupture of Membranes and signs of infection (fever, Tender abdomen, Foul smelling vaginal discharge and fetal distress) < 34 weeks of gestation

- Labor induction with *Oxytocin, 5 IU in glucose 5%* 500 ml or *Cytotec* based on Bishop Score.
- Antibiotherapy: *Ampicilline IV* 1g TDS plus *Metronidazole IV* 500mg TDS until delivery and then continu with *Amoxycilline* tabs 500mg TDS and *Metronidazole* tabs 500mg TDS for 5 days.

Preterm labor with rupture of Membranes (> 34 weeks of gestation)

- Labor induction with *Oxytocin*, 5 IU in glucose 5% 500 ml or *Cytotec* based on Bishop Score

- Antibiotherapy: *Ampicilline* 2g single dose. Or *Erytrhromycine* 500 mg TDS for 5 days in case of allergy to Penecillines

Recommendations

- Neonates should be transferred to neonatology unit.
- Do not tocolyse in cases of rupture of membranes
- Tocolysis only indicated for the administration of corticosteroids or in Utero transfer.
- In case of multiple pregnancy the dose of corticoster oids is not increased and it remains the same as in singleton pregnancy
- Next pregnancy is at high risk for preterm labor and should be monitored closely
- Do ECG for mother before installing intravenous treatment with B2 agonists

11. LABOR DYSTOCIA

Definition: Dystocia of labor is defined as difficult labor or abnormally slow progress of labor.

Risk factors/ Causes

- Uterine power (inadequate contractions, contraction ring of the uterus, myomas, uterine scar)
- Passage (abnormal pelvic anatomy)
- Passenger (macrosomia, malposition, fetal anomalies)
- Mother condition (fatigue…)

Signs and Symptoms

- Lumbar and abnormal back pain due to ineffective contractions
- Dehydration
- Anxiety
- Failure of cervix to dilate despite good uterine contractions
- Oedema of the cervix and vulva
- Failure of the fetal head to descend
- Bandl's ring
- Foetal distress
- Arrested labor
- Mother exhaustion

Complications

- Foetal distress
- Rupture of the uterus
- Birth canal injuries (Cervical tears, vaginal and perineal lacerations, Fistula)

- Foetal hypoxia / Asphyxia
- Foetal death
- PPH
- Post partum endometritis
- Maternal death

Investigations

- Fetal monitoring with a partogram
- Ultrasonography

Management

Non pharmaceutical management

- Evaluation of pelvis, passenger, uterine power, pain and psych
- Fetal monitoring

Active management

Pattern	Primiparous	Multiparous	Management
Prolonged latent phase	>20h	>14h	Stripping, Amniotomy, prostaglandins or oxytocin (According to the Bishop score)
Active phase, arrest of dilation	≤1.2 cm/h	≤1.5cm/h	Stripping, Amniotomy or oxytocin, if no success do C/S
No cervical dilation	≥2h	≥2h	Stripping, Amniotomy or oxytocin, if no success do C/S
Arrest of descent in second stage	No descent in ≥1h	≥1h	Stripping, Amniotomy or oxytocin, if no success do C/S

- Correction of malposition: The occiput posterior position is significant contributor to dysto cia; can be corrected by spontaneous rotation, manual rotation or by vacuum / forceps
- Failure should prompt a ceserean section

12. CORD PRESENTATION AND PROLAPSE

Definitions

Cord Prolapse: Where the umbilical cord lies in front of or beside the presenting part in the presence of ruptured membranes.

Cord Presentation: Where the umbilical cord lies in front of the presenting part and the membranes are intact.

Causes /Risk factors

- Breech and other malpresentations e.g. shoulder presentation
- Preterm labour + / - low birth weight < 2500 g
- Multiple gestation (usually the second born twin)
- High head at onset of labour + / - artificial rupture of the membranes
- Grand multiparity
- Abnormal placentation
- Long cord
- Polyhydramnios
- Obstetric manipulations such as external cephalic version

Signs and Symptoms

- Feeling of a soft usually pulsatile structure on vaginal examination
- Cord with presenting part in the vagina or in the introitus.

Complications

- Fetal distress
- Infection
- Fetal death

Management

- Treat as an obstetric emergency and arrange for immediate medical assistance (obstetrician, anaesthetist, neonatologist)
- The mode of delivery will depend on whether a fetal heart is present or absent and the stage of labour
- Aim to maintain the fetal circulation by preventing / minimising cord compression until birth occurs

Cord pulsating

Determine stage of labour by vaginal examination

- First stage of labour
  - → Arrange immediate delivery by caesarean section
  - → Administer *Oxygen*
  - → Ensure continuous fetal monitoring until in theatre and commencing caesarean section or until after vaginal birth
  - → The priority is to relieve pressure on the cord while preparations are made for emergency caesarean section.
  - → Positioning the woman in the deep knee-chest

position (also known as Trendelenburg) so that the pelvis and buttocks are elevated. Elevate the foot of the bed where possible.

- ➔ Using sterile gloves, the midwife / medical officer should insert their fin gers into the vagina, identify and carefully elevate the presenting part to reduce the amount of cord compression and keep fingers inside until delivery.
- ➔ If the cord is protruding outside the vagina, the attending clinician may attempt to push back the cord gently within the vagina
- ➔ Avoid excessive handling of the cord
- ➔ Acute intravenous tocolysis using β2 agonists (*Salbutamol or Terbutaline*) to relieve pressure on the cord may be an effective adjunct treatment

- Second stage of labour
  - ➔ If the woman is in the second stage of labour and vaginal birth is imminent and with the presenting part engaged, prepare for vacuum extraction
  - ➔ If vaginal delivery is not feasible, do immediately a caesarean section

Cord not pulsating

- Confirm fetal death with ultrasonograph and/or CTG
- Allow labor to proceed as for vaginal birth of fresh stillbirth

13. CESAREAN SECTION

Definition: It is a surgical procedure in which incisions are made through a woman's abdomen and uterus to deliver the fetus

Indications

- Fetal
  - Non reassuring fetal heart pattern
  - Malpresentations
  - Cord prolapse
  - Macrosomia, Congenital anomalies, Multiple pregnancy
- Maternal-Fetal
  - Obstructed labor
  - Placental abruption
  - Placenta praevia (Complete)
  - Perimortem
  - Maternal-fetal disproportion
- Maternal
  - More than 1 previous Cesarean delivery
  - Contracted/limited pelvic cavity
  - Obstructive tumors
  - Active genital herpes virus
  - Elective ceserean section
  - Abdominal cerclage
  - Reconstructive vaginal surgery, eg., fistula repair
  - Medical conditions, eg. Cardiac (relative), pulmo nary, thrombocytopenia…

Complications

- Urinary tract injury
- Gastrointestinal injury
- Lacerations
- Hemorrhage and shock
- Anesthesic Complications
- Post operative peritonitis
- Endometritis
- Deep Venous Thrombosis and Pulmonary emboli
- Uterine dehiscence in the next pregnacy
- Abdominal adhesions
- Intrauterine synechia
- Risk of uterine rupture for the next pregnancy

Management

Pre Operative Management

- Anesthesia consultation
- Monitoring vital signs
- Nil per Os when elective ceserean section
- Intravenous: *Ringer lactate or Normal Saline* 500 ml
- Antibiotics: *Ampicilline* 2g IV bolus single dose (*Cefotaxime* 1g IV if allergic to *penicillins*)
- Urinary bladder catheterisation
- Lab:
  - → Complete blood count
  - → blood type and screen
  - → Clotting profile

- Patient education and consent
- Signing of the consent form

Post operative Management

- Monitoring of vital signs and fundal status every 4-8 hours for 24 hours
- Uterus massages and report extra lochia.
- Monitor fluids intake and output every four hours for 24 hours.
- Encourage early activity
- Give fluids and soft diet after 6 hours
- Antibiotics if indicated give pain relief medication.
- If infant cord blood indicates Rh incompatibility, administer *anti Rh Immunoglobulin.*

Recommendations

- Discuss contraception and infant feeding
- Patient to start activity at an early stage post surgery
- Regional anesthesia is preferred than general anesthesia
- Antibiotics are not routinely recommended after cesarean section

14. INSTRUMENTAL VAGINAL DELIVERY

Definition: Operative vaginal delivery is extraction of baby with use of instruments (Vacuum).

Indications

- Fetal
  - Fetal distress
- Maternal
  - Delay in the second stage of labor
  - Maternal exhaustion

Complications

- Failure of instrumental delivery
- Fetal Complications
  - Shoulder dystocia
  - Sub aponeurotic/ subgaleal hemorrhage
  - Facial nerve pulsy
  - Skull fracture and/or intracranial hemorrhage
  - Cervical spine injury
- Maternal complications
  - Pain at delivery and post partum
  - Traumatic injury including anal sphincter and bladder damage
  - Postpartum hemorrhage
- Guidelines for instrumental delivery
  - Obstetrics prerequisite for instrument vaginal delivery
    - ➔ Empty the urinary bladder of the patient
    - ➔ Full dilatation of cervix

- ➔ Engagement of fetal head
- ➔ Favorable presentation (vertex, deflexed vertex or face presentations). Vacuum extraction is contraindicated for face presentations.

Recommendations

- An obstetrician who has experience to do it should do instrumental delivery.
- Vaccum extraction is contraindicated before 34 weeks of gestation
- Epidural analgesia increases the risk of instrumental delivery
- Instrumental delivery with high suspicion of failure should be done in theatre ready for C-section.
- Episiotomy is not routenly indicated with instrumental delivery
- Inform the paediatrician for fetus assessment after delivery

15. PERINEAL LACERATIONS

Definition: They are tears of the perineal tissue between the vagina and rectum

Grades

- 1st degree injury to perineal skin
- 2nd injury to perenium involving perennial muscles but not the anal sphincter
- 3rd degree involvement is of the anal sphincter
- 4th degree involvement of the anal sphincter and anal mucosa

Causes/Risk factors

- Routine episiotomy
- Assisted delivery
- Prolonged secong stage of labor
- In-experience of service provider
- Nulliparity
- Macrosomia
- Patient age <21 years
- Occiput posterior position

Complications

- Maternal
    - PPH
    - Anesthesia risk
    - Injury to bladder, uterus, bone, pelvic nerve damage,
    - Anal incontinence
    - Infections
    - Dyspareunia

Management

- Surgical repair of the tear
- Repair of the external anal sphincter end to end and internal inner sphincter should be repaired by interupted sutures
- Repair of the 3rd and 4th perineal tear should be done in theatre under general or regional anesthesia
- Its recommended to repair perineal tears with vicryl 2-0 which causes less irritation and discomfort
- Check the anal canal if it's not closed during the repair
- Antibiotics and laxatives are recommended to be used after anal sphincter repair
- Women with history of anal sphincter injury in previous pregnancy who are symptomatic should be advised about elective ceserean section

16. EPISIOTOMY

Definition: It is an incision in the perineal body at the time of delivery

Indications

- To prevent a tear (episiotomy is easier to repair)
- To relieve obstruction of the unyielding perineum
- Controversy over whether it is preferable to make a cut, or let the perineum tear as needed; current evidence suggests letting perineum tear and then repair as needed

Types

- Mid-line episiotomy
- Mideal lateral episiotomy

Complications

- Bleeding
- Infection with suture disunion
- Hematoma
- Extension into anal musculature or rectal mucosa causing fecal incontinence
- Fistula formation
- Dyspareunia

Management

- Repair as in perineal tear (2nd Degree)
- Post episiotomy hygiene education

Recommendation

- Routine episiotomy should be avoided

17. POST TERM PREGNANCY

Definition: Pregnancy lasting beyond 42 or more than 294 days from the first day of the last menstrual period (LMP)

Causes/Risk Factors

- Error in dating
- Primiparity
- Prior post term pregnancy
- Fetus of male sex
- Regularly heavy exercise
- Investigations
- Ultrasound
- Diminished amniotic fluid
- Placenta calcified
- Umbilical artery Doppler

Complications

- Dysmaturity syndrome
- Fetal macrosomia
- Fetal distress /Meconium stained liquor
- Stillbirth
- Complications of induction of labor

Management

- Induction of labor if no contra indication
- Cesarean section if failure of induction or fetal distress

Recommendations

- Refer the post-term neonate in neonatology Unit

- Estimate the EDD (expected date of delivery) in the 1st Antenatal Care (ANC)

18. INDUCTION OF LABOUR

Definition: Stimulation of uterine contractions prior to the onset of spontaneous labor for vaginal delivery after the age of viability

Indications

- Maternal medical conditions (diabetes, hypertensive disorders, renal diseases…)
- Fetal growth restriction
- Isoimmunization
- Chorioamnionitis if no contra indication
- Post-term pregnancy
- Premature rupture of membranes
- Intrauterine fetal death
- Fetal malformations

Contra indications

- Malpresentation and malposition and macrosomia
- Prior uterine scar
- Active genital herpes infection and Condylomma
- Fetal compromise
- Complete placenta praevia
- Multiple gestation
- Any contraindication to vaginal delivery
- Complications
- Hyperkinesia
- Fetal distress
- Uterine rupture
- Failure of induction

- Water intoxication and increased incidence of neonatal jaundice with excessive use of oxytocin

Methods

- Sweeping the membranes
- Artificial rupture of membranes (ARM)
- *Prostaglandin E2 (PGE2), Misoprostol.*
- Intravenous *Oxytocin* infusion
- Mechanical dilatation of the cervix (Using Foley catheter)

Management

Misoprostol (Cytotec®) 50mcg PO or intravaginal every 3-6 hours up to 6 times

- Continously Monitor fetal heart rate by CTG after administration or
  - → If no CTG
    - Monitor FHR every 15 minutes
    - Monitor contractions every 30 minutes
    - Follow the Partogram as recommended for the active phase
  - → Vaginal examination before the next dose

Oxytocin (Favorable Bishop's Score >6)

- *Oxytocin 5 IU in Ringers lactate* or *Normal Saline* 500 ml
- Start with 8 drops/min then add 4 drops every 30 minutes, maximum 40 drops/min

N:B: With a syringe pump dilute 5 IU oxytocin in 500mls of Ringers or Normal Saline. Start with 12mls/Hr (equivalent to 4 drops/Minute) and increase by 4 drops/ minute until adequate uterine contractions without exceeding 60 mls/Hr

Artificial rupture of membranes (ARM) + Oxytocin

- *Oxytocin 5 IU in Ringers lactate* or *Normal Saline* 500 ml
- Start with 8 drops/min then add 4 drops every 30 minutes, maximum 40 drops/min

N:B: With a syringe pump dilute 5 IU oxytocin in 500mls of Ringers or Normal Saline. Start with 12mls/ Hr (equivalent to 4 drops/Minute) and increase by 4 drops/minute until adequate uterine contractions without exceeding 60 mls/Hr

Recommendations

- Assess woman and review indication before commencing induction of labour
- Document cervical score
- Ensure there is a documented plan for ongoing management
- If not in labour within 12 hours of the first dose of Misoprostol review the assessment of the patient
- Counter-verify the gestational age before induction for post-term pregnancy

19. NEONATAL RESUSCITATION

Definition: Neonatal Resuscitation is providing life support to the newborn when the need arises

Risk factors of compromised newborn

- Maternal risk factors
  - Maternal Age >40 years or < 16 years
  - Diabetes
  - Pregnancy induced hypertension or preeclampsia
  - Severe anemia
  - Renal disease
  - Infections
  - Use of narcotics
  - Lack of antenatal care
- Pregnancy and labor risk factors
  - Fetal distress
  - Antepartum Hemorrhage
  - Post term pregnancy
  - Prolonged Premature rupture of membranes
  - Malposition and malpresentation
  - Thick meconium
  - General anesthesia
  - Emergency cesarean section
  - Instrumental delivery

- Fetal risk factors
    - Multiple gestation
    - Prematurity
    - Post term
    - Intrauterine fetal growth restriction
    - Meconium-stained liquor
    - Macrosomia
    - Congenital malformation
    - Oligohydramnios and Polyhydramnios, Hydrops fetalis, Intrauterine infections and isoim munisation
    - Non reassuring fetal heart rate

Signs and symptoms of a neonate requiring Neonatal resuscitation

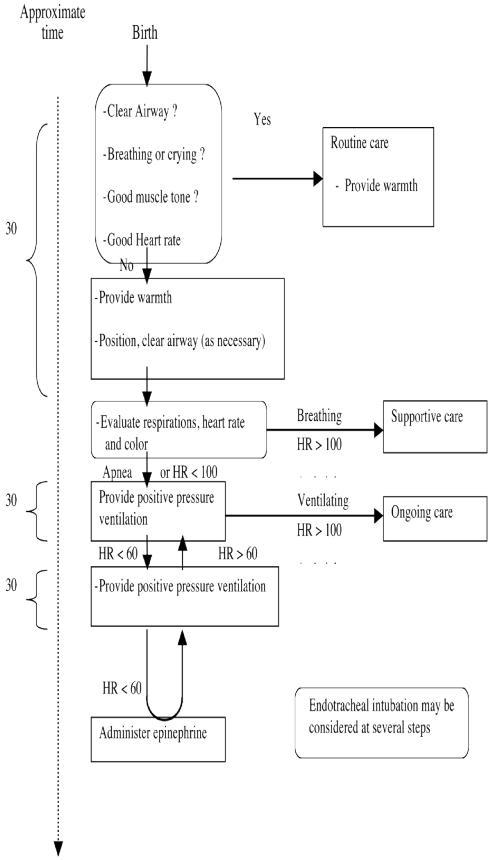
- Mucous, blood or meconium in airway
- No breathing seen or felt
- No pulse felt at umbilical cord or no heart beat heard with sthetoscope
- APGAR <7 at the 1st minute of life (Breathing, color, Heart rate, Tone and reflexes)

Complications

- Cerebral palsy
- Neonatal death

Management

Algorithm for newnatal resuscitation



Pharmaceutical management (where necessary)

- *Adrenaline* 0.01-0.03mg/kg IV, IM, ET
- *Naloxone* 0.1 mg/kg IV, IM, SC, ET use it if narcotic use suspected or if narcotic analgesia was used during labor (Avoid it if mothers long term opiates users)
- *Normal Saline* 10cc/kg IV over 5-10 minutes
- *Dextrose 10%* 2ml/kg
- To treat the underlying cause after stabilization, and refer the infant to Neonatology Unit

20. POST PARTUM COMPLICATIONS

20.1. Post partum fever

Definition

Post partum fever (PPF) or puerperal fever is defined as an oral temperature of ≥38°C in the first 10 days post partum or ≥ 38.7°C during the first 24 hrs post partum.

Causes

- Benign fever
- Urogenital infection
  - Endometritis
  - UTI
- Breast engorgement
- Mastitis/Breast abscess
- Pneumonia
- Wound infection (C/S, cervical, vaginal and perineal lacerartions, episiotomy, uterine rupture)Thrombo phlebitis
- Deep Venous Thrombophlebitis
- Pulmonary Embolism (PE)
- Septic pelvic vein thrombosis
- Pelvic abscess
- Pelvi-peritonitis
- Malaria
- Other causes of fever

Risk factors

- Labor for ≥ 6 hours after ruptured membrane
- Multiple pelvic examinations
- Chorioamnionitis
- Increased duration of active phase of labor
- Retained placenta or membranes
- Urethral catheterisation
- Previous UTI
- Operative vaginal delivery
- Nipple fissure
- Long operative duration
- Anemia
- Imminosuppressive therapy
- Immunodeficiency disorder
- Corticoid therapy
- Malnutrition

Signs and symptoms

- Pelvic pain
- Foul-smeeling lochia
- Fever
- Sweating, Tachypnoea, Tachycardia,
- Chills
- Headache
- Malaise

Complications

- Puerperal sepsis
- Peritonitis

Investigations

- FBC, CRP
- Urinary analysis with culture and sensitivity
- Wound swab for culture and sensitivity
- Blood cultures
- Cervical and uterine sample and sensitivity
- Ultrasound

Management

Non-pharmaceutical management

- Fluid management
- Oxygen therapy if necessary

Pharmaceutical management

- Antipyretics
  - → *Paracetamol* PO 1g TDS or QID not more than 6g/day.
- Antibiotics

First choice treatment

- → *Ampicillin* 2g IV q6h for 3 days plus *Gentamycin* 160 mg OD for 5 days Plus *Metronidazole* 500mg PO/IVq8h for 5 days

Alternative

- → If allergic to *ampicillin*; *Erythromycine* 500mg PO q8h plus *gentamycin* plus *metronidazole* for 5 days
- → *Cefotaxim* 1-2 g IV q 8h for 3 days, plus *metronidazole*

Recommendations

- Avoid early rupture of membranes
- Avoid multiple vaginal examinations
- Antibiotherapy will be given according to culture and sensitivity
- IV therapy is preferred in cases of high fever

20.2. Deep vein thrombosis and pulmonary embolus (DVT&PE)

Definition: DVT is the formation of blood clots within the deep veins, most commonly in the lower extremities or pelvis. PE is thrombosis or showers of emboli in the pulmonary vessels

Pregnancy associated causes

- Vessel damage during pregnancy
- Mechanical impedance of venous return
- Changes in local clotting factors

Risk factors

- Advanced maternal age
- Increased parity
- Multiple gestation
- Surgery (C/S, episiotomy, lacerations)
- Prolonged immobility, as with bed rest
- Dehydration
- Prior DVT or PE
- Lupus anticoagulant
- Pre-eclampsia

Signs and symptoms

- Pain or tenderness, fever
- With PE tachycardia, dyspnea and chest pain. Death with massive PE
- Asymmetric limb swelling, > 2 cm larger than opposite side
- Warmth or erythema of skin over area of thrombosis
- Homans sign (calf pain with dorsiflexion of the foot)

Complications

- Septic pelvic thrombophlebitis
- Death

Investigations

- Fool blood count, coagulation test (PTT, PT/ INR) Liver function, renal function
- Ultrasound
- CT scan
- Chest x-ry
- Angiography

Management

Non-pharmaceutical management

- Assess and admit.
- Bed rest
- Graduated elastic compression stocking should be applied.
- Inferior vena cava filter can be used to avoid pulmonary embolism

Pharmaceutical management

First Choice

- *Enoxaparin*: 1mg/kg SC every 12 hours. For each day of treatment, assess Quick time and *prothrombin* test. Treatment is of 10 days for the acute phase. Then *Warfarin* 5mg-7.5mg loading dose and then the maintainence dose will depend on weight and INR results for 6 weeks monitoring INR

Plus

- *Acetylsalicylic acid* (*aspirin*): 75-100 mg daily to be continued up to 6 weeks post–partum

- Caution: ASA (*Acetyl salicylic acid*) is secreted in breast milk but not a contraindication!!

Alternative choice

- *Enoxaparin* can be substituted with *Heparin*.

- *Heparine IV* loading doses 80 Units/kg and then 18 Units/kg/Hr until the end of acute phase (5-10 days). Continue with *Heparine* SC 17500 units every 12 hours. Monitor regularly PTT

Recommendations

- Avoid hormonal contraception. Risk increases with oes trogen containing contraceptions

- Avoid protracted bed rest, where appropriate

- For the next pregnancy need for anti-coagulation therapy throught pregnancy

20.3. Puerperal psychosis

Definition: Puerperal psychosis is a depressive disorder accuring within 6 months after delivery

Causes/Risks factors

- Previous depression
- Family history of depression
- History premenstrual syndrom
- Current history of abuse
- Unwanted pregnancy
- Alcohol or substance abuse
- Vulnerability to hormonal change
- Environmental stressors

Signs and symptoms

- Five signs of the following, most of the day, every day, for two weeks
- Depressed or irritable mood
- Inability to enjoy (anhedonia)
- Changes in sleep: (cannot sleep when the baby is sleep)
- Changes in appetite
- Guilt
- Thought of death

Complications

- Suicide
- Infanticide

Investigations

- Thyroid test to rule out hypothyroidism
- CT scan to rule out cerebral tumor

Management

- Medication and psychotherapy

Recommendations

- If any signs/symptoms of depression alert health facility
- Encourage breastfeeding

GYNECOLOGY

1. INFERTILITY

Definition: Infertility is defined as failure to conceive after one year of regular, unprotected sexual intercourse. It is divided into two categories:

- Primary: The woman has never conceived in spite of having regular unprotected sexual intercourse for at least 12 months
- Secondary: The woman has previously conceived but is subsequently unable to conceive for 12 months despite regular unprotected sexual intercourse.

Causes/Risk Factors

- Anovulatory infertility
- Tubal factor (STIs, bilateral occlusion, PID)
- Endometriosis
- Uterine factors (Congenital disorders, Synechia, Myomas, Chromosomal abnormality)
- Male factor (STIs, Obstructive disorder, endocrine disorders.)
- Cervical mucus abnormalities
- Other causes: psychological, smoking, work environment,
- Endocrine disorders (Hyperprolactinemia, Hypothyroidism…)
- Unexpalined infertility

Investigations

- Ovulation
  - Serum progesterone in the mid luteal phase
  - Serum FSH and LH day 3 from the cycle
  - Basal body temperature
- Tubal patency
  - Hysterosalpingography
  - Dye test and Laparoscopy
- Uterus
  - Ultrasonography
  - Hysterosalpingography
  - Hysteroscopy
- Male partner
  - Semenalysis
  - Testicular biopsy
  - Sperm function test
- Endocrine System
  - Hormones test: Thyroid, prolactine tests
- Endometrial biopsy
- Vaginal swab, Urinalysis
- Post coital test (Hühner test)

Management

- Treatment depends on the cause and may include:
  - Counselling on sexual technique and fertility awareness
  - Large antibiotherapy spectreum

- Ovulation induction: *Clomiphene Citrate* 50 mg OD for 5days starting from 2-5 of menstrual cycle
- Tubal surgery
- Male partner treatment including Vas surgery
- Assisted reproduction :In Vitro Fertilization (IVF), Intracytoplasmic sperm injection (ICSI)
- Adoption

Recommendations

- Hyperstimulation syndrome is one of the side effects of induction of ovulation and should be treated by a Gynecologist.
- Any patient receiving induction of ovulation should have tubal patency test before
- *Folic acid* supplementation is recommended for any patient seeking pregnancy
- Patients taking clomifene need careful supervision best done by a specialist.
- *Clomifen* should not be used for more than 6 mounths
- Infertility concerns the couple, they should consult together for better management
- Smoking cession
- Be aware of ethical and legal implications during treatment

2. PELVIC MASSES

Definition: An abnormal structure or growth in the pelvic cavity arising from:

- Pelvic organs such as the ovaries, fallopian tubes, uterus, cervix, lymph nodes, bladder, bowel, peritoneum and appendix
- Metastatic from extrapelvic structures such as stomach or breast

The differential diagnosis for pelvic masses includes: Normal or ectopic pregnancy, distended urinary bladder, uterine fibroids, pelvic abcess, tubo-ovarian mass and ovarian cysts.

Risk Factors

- Infertility
- Family history of brest, ovarian or colon cancer
- Pelvic surgery: Hematoma, abcess
- Diverticulitis/Appendicitis
- Pelvic Inflammatory Diseases
- Endometriosis
- Congenital anomalies like pelvic kidney
- Smoking

Signs and Symptoms

- History of pelvic pain, fever, purulent cervical and vaginal discharge
- Heaviness
- Pelvic mass
- Pelvic pain and fever may be associated

- Abnormal uterine bleeding
- Dyspareunia, dysmenorhea, infertility, Amenorhea
- Related signs from the etiology: hemorrhage
- Bowel symptoms: Constipation, intestinal obstruction
- Decrease appetite, nausea and vomiting, weight loss can be associated
- Urinary symptoms: urgency, frequency and urine retention.
- Cachexia with malignant masses

Complications

- Torsion
- Compression
- Rupture
- Infertility
- Degeneration of Myomas
- Malignancy transformation

Investigations

- Pregnancy test
- FBC, ESR, Blood sugar
- Urinalyisis
- Renal function
- CA 125
- Pelvic Ultrasound
- Intravenous Urography (IVU)
- HSG
- Culdocentesis
- Laparoscopy

- Plain Abdominal Xray
- CT Scan and MRI

Management

- Laparotomy or Laparoscopy for etiologic treatment
- Adjuvant treatment depending on the cause
    - Hormones (Oral Contraceptive Pills)
    - NSAIDs
    - Radiotherapy and chemotherapy for malignant disease

Recommendations

- Combination Oral Contraceptive Pills decrease the risk of ovarian cancer
- Any pelvic mass should be well investigated before decision of surgery

3. MENSTRUAL DISTURBANCES

Most women suffer some form of menstrual disturbances in their lifetime

3.1. Ammenhorea

There are two types: primary and secondary

3.1.1. Primary amenorrhoea

Definition: Absence of menses at 14 years of age without secondary sexual development or age 16 with secondary sexual development

Causes /Risk factors

- Hypothalamic –pituitary insuficience
- Ovarian causes
- Out flow tract/Anatomical (e.g.vaginal agenesis/septum, imperforated hymen or Mulleriam ageneis)
- Chromosomal (e.g. complete endrogene insensitivity, gonadal dysgenesis"Turner syndrome")

Signs and symptoms

- Absence of menses at age 14 without secondary sexual development
- Presence of secondary sexual character development and absence of menses at age 16
- Absence or presence of pelvic pain

Investigations

- Progesterone challenge test
- Hormonal profile (Serum FSH)
- Pregnancy test

- Ultrasound
- Thyroid test
- Karyotyping
- X ray of the skull (Sella Turcica: Pituitary) Pituitary tumor or necrosis
- CT scan

Management

- Etiologic treatment
  - Hormonal treatment (Oral Contraceptive Pills)
  - Surgical treatment
    - → Hymenotomy if imperforate hymen
    - → Resection of vaginal septum
    - → Tumor resection

Recommendations

- Any patient with primary amenorrhea and high levels of serum FSH should have karyotyping
- In cases of androgen insenstivity syndrome (XYfemale), we should remove the testes cause of the risk of malignancy

3.1.2. Secondary amenorrhoea

Definition: Cessation or stopping of menstruation for a period equivalent to a length of 3 consecutive cycles or 6 months

Causes

- Pregnancy and lactation
- Menopause
- Hyopthalamo-pututitary (Inflamamtory, neoplastic, Traumatic)
- Stress
- Anxiety
- Excessive loss of weight
- Drugs (danazol, LHRH analogue like decapeptyl)
- Contraceptives
- Chronic diseases
- Multiple genetic disorders
- Premature ovarian failure (POF)
- Polycystic ovarian syndrome (PCOS)
- Traumatic curettage, Post partum infection (Asherman syndrome)

Signs and symptoms

- At least 3 consecutive cycles of absence of menses
- History of curretage, post partum infection
- Galactorrhea
- Premature monapause
- Obesity
- Headache

- Visual defects
- Polyuria, Polydipsia

Investigations

- Hormonal profile
- Pregnancy test
- Ultrasound
- Thyroid test
- X ray of the skull (turcique selle: Pituitary) Pituitary tumor or necrosis
- CT scan

Management

- Etiologic treatment
  - Hormonal treatment
- Surgical treatment
  - Tumor resection
  - Lysis of intrauterine synechiae
- Weight loss
- Normalize the Body Mass Index (BMI)

Recommendations

- Patients with premature ovarian failure should receive hormal replacement therapy
- Patients with premature ovarian failure should receive contraception if they are not desiring pregnancy
- IVF and assisted reproduction is an option if the patient is desiring pregnancy

3.2. Dysmenorrhea

Definition: Dysmenorrhea is characterized by: Pain occurring during menstruation

3.2.1. Primary dysmenorrhea

- In adolscence with absence of pelvic lesions after 6 months of menarche
- 6 months after menarche with the onset of ovular cycles.
- It is suprapubic, tends to be worst on the first day of menstruation, and improves thereafter.
- Associated with increased frequency and amplitude of myometrial contractions mediated by prostaglandins
- Associated with GIT symptoms like vomiting and diarrhea

Causes

- Excess secretion of prostaglandins
- Immaturity of the Hypothalmo- Pituitary -ovarian axis leading to anovulatory cycle
- Outflow tract obstruction

Investigations

- Ultrasound to exclude pelvic lesions
- Hormonal profile

Management

First choice :

- 80% respond to therapy with
- NSAIDs started 24-48 hours before the onset of pain.

  → *Aspirine* 300-600mgPO TDS start 1or 2 days before the menstruation

  → *Mefenamic acid PO* 500 mg TDS or *Ibuprofen PO* 400 mg TDS / day for 3 days.

Alternative

- Combined oral *estrogen-progestogen* contraceptive continued 9-12 months leading to anovulatory cycles if symptoms improve
- Surgical treatment: Interruption of pelvic pathway

3.2.2. Secondary dysmenorrhea

- Later in reproductive life
- Presence of pelvic lesion, such as uterine fibroids or endometrial polyps
- Pelvic lesions
- Dyspareunia (pain with intercourse)
- Pelvic/lower abdominal pain occurring before, during, after menstruation
- Pelvic/lower abdominal pain occurring on days 1 and 2 of the menstrual cycle.
- An endometrial polyp or submucous fibroids usually occurring at the beginning of menstruation cause Pelvic/ lower abdominal pain.

Investigations

- FBC ESR or C-reactive protein
- Vaginal swab,
- Urinalysis
- Ultrasound
- Laparoscopy
- Hysteroscopy.

Management

- The underlying condition (surgery, endometriosis IUD)
- NSAIDs: *Aspirine* 300-600mg PO TDS start 1or 2 days before the menstruation

Recommendations

- Health care providers should explain the physiologic of dysmennorrhea
- Regular exercise

3.3. Premenstrual syndrome

Definition: Premenstrual syndrome (PMS) or premenstrual tension (PMT) is a very common disorder affecting up to 95% of women. It occurs mostly the last week before menstruation (premenstrual phase) resolving or markedly improving at menstruation

Risk factors

- Hormone changes over a normal menstrual cycle (excesses or deficiencies of estrogen or progesterone)
- Side effects caused by the progestogen component of cyclical Hormonal Replacement Therapy
- Excessive Serotonin and β-endorphins secretion
- Exaggerated end-organ response to the normal cyclical changes in ovarian hormones.

Signs and Symptoms

- Most women will experience at least one of menstrually related symptoms
- Physical, Emotional and Behavioral changes
- Anxiety
- Irritability
- Bloating/fluid retention
- Social, family, or occupational disruption
- Backache
- Violence
- Headache
- Aggression
- Breast tenderness/swelling
- Fatigue and Clumsiness
- Depression and Loss of concentration
- Food craving
- Anorexia
- Mood swings

Investigations

- FBC
- Thyroid function tests
- FSH, LH to exclude climacteric symptoms.
- Ultrasound

Management

- As there is no accepted etiology for PMS
- Placebo response rarey
- Treatement the most severe symptoms first.

Non-hormonal therapy

- Yoga
- Hypnosis
- Music therapy
- Homeopathy
- Acupuncture
- Self-help groups, etc.

Hormonal therapy

- Progesterone supplements (suppositories, pessaries, injections, oral micronized)
    - → *Duphaston* 10mg tabs P.O Dose: 20mg Once daily 11th to 25th day of the menstrual cycle
    - → *Utrogetan* 100mg tabs P.O Dose: 200mg Once daily 16th to 25th day of the menstrual cycle
    - → *Lutenyl* 5mg tabs P.O Dose: 5mg once daily 16th to 25th day of the menstrual cycle
- Combined oral contraceptive pills (*COCP*)
- *Bromocriptine* may be useful for cyclical breast symptoms
- *Danazol* Low doses of *Danazol* (100 mg daily) have been shown to be beneficial in treating breast symptoms without causing cycle suppression or severe side effects
- *Estradiol* 17β-Estradiol implants (50-100 mg pellet 6-monthly) or transdermal estradiol patch therapy (100-200 µg patch, used continuously) act by causing cycle suppression.
- Mirena intrauterine system (IUS) as the progestogen component of treatment, systemic absorption is minimized and the acceptability of the treatment increased.
- *GnRH* analogs in severe cases can bring prompt and welcome relief from symptoms, but are expensive for long-term treatment.

Recommendations

- Mannagement of severe postmenstrual syndrome should take place in a multi-disciplinary team
- Treatment has shown a strong placebo effect
- Psychosocial and familial support can be beneficial to the patient
- Manage symptomatic premenstrual pain
- High intake of dietary supplement (Calcium, Vitamin B6 and Vitamine C) for an alternative therapy

4. ABNORMAL UTERINE BLEEDING (AUB)

Definition

AUB is an abnormal uterine bleeding with no obvious organic cause. It can appear with ovulatory or anovulatory cycle. A normal menstrual period lasts 2-7 days and a normal cycle lasts between 21 and 35 days.

Types

- Ovulatory bleeding: short bleeding associated with the ovulation
- Menorrhagia: heavy or prolonged menstrual bleeding
- Metrorrhagia: Uterine bleeding other than menorrhagia

Causes/Risk factors

- Adenomyosis
- Uterine fibroids, polyps
- Coagulation bleeding disorders (Von willebrand disease, Hemophilia, coagulopathies)
- Pregnancy
- Medications
- Others (Hormonal, Endocrine, Anatomical defects)

Signs and Symptoms

- Bleedding form the uterine cavity on speculum examination
- Tachycardia, anemia, Asthenia, dizziness
- Painless but sometimes pelvic pain occurs
- Abdominal pelvic mass

Complications

- Dysparunia
- Infertility
- Anemia
- Hypovolemic shock

Investigations

- FBC
- Coagulation profile (PT and PTT)
- Ultrasound
- Pregnancy test
- Endometrial sample to exclude neoplasia
- Pap smear
- Urinalysis

Management

Medical Management

- Non Hormonal Therapy
  - → NSAIDs (*Mefenamic acid* PO 500 mg TDS or *Ibuprofen* PO 400 mg TDS/day for 3 days)
  - → *Dycinone* PO 500mg three times daily for 5 days

- Hormonal Therapy
  - Combined oral contraceptive pills (COCP)
  - Progesterone supplements (suppositories, pessaries, injections, oral micronized)
    - → *Duphaston* 10mg tabs P.O Dose: 20mg Once daily 11th to 25th day of the menstrual cycle
    - → *Utrogetan* 100mg tabs P.O Dose: 200mg Once daily 16th to 25th day of the menstrual cycle

→ *Lutenyl* 5mg tabs P.O Dose: 5mg once daily 16th to 25th day of the menstrual cycle

→ Long acting high dose progestogens (*Depo-Provera* or *Norethisterone*)

- Mirena intrauterine system (IUS) as the progestogen component of treatment, systemic absorption is minimized and the acceptability of the treatment increased.

- *GnRH* analogs in severe cases can bring prompt and welcome relief from symptoms, but are expensive for long-term treatment.

- Surgical treatment

  - Endometrial ablation
  - Uterine artery embolization
  - Hysteroscopic resection
  - Polypectomy
  - Myomectomy
  - Hysterectomy

Recommendations

- Patient education about normal menstrual bleeding
- Routine screening of Chlamidia and HPV should be perfomed for all young sexual active women
- Early management of abnormal uterine bleeding
- Early detection of gyneacological malignancy (Pap Smear, endometrial biopsy)

5. CANCERS AND TUMORS

5.1. Cervical Cancer

Definition: Cancer of cervix caused mainly by human papilloma virus (HPV). Most common female cancer in developing countries and can be prevented by screening and vaccination against HPV.

Cause/Risk factors

- Infection with human papilloma virus
- Early age of first sexual intercourse
- Multiple sexual partners (unprotected)
- Multiparity
- Smoking
- Age ≥35 to <45

Signs and Symptoms

- Very often asymptomatic in early stages
- Abnormal vaginal bleeding
- Post coital bleeding
- Exclude cervix cancer in any post menopausal bleeding
- Foul smelling vaginal discharge
- Symptoms of metasis
- Hydronephrosis and renal failure
- By speculum examination, lesions infiltrating the cervix

Complications

- Anemia
- Cachexia
- Pain
- Hematuria and dysuria
- Ureteral obstruction and renal failure
- Oedema of legs
- Bowel invasion: Diarrhea, Tenesmus,rectal bleeding
- Sepsis
- Metastasis

Investigations

- For invasive cancer, consider stages of cancer
- Speculum examination: Cervical lesion that easily bleeds on contact
- PAP smear
- VIA
- VILI
- HPV/DNA testing
- Colposcopy
- Biopsy
- FBC
- ESR
- Reneral function
- Intavenous pyelography
- X-rays: CXR, skeletal X-rays, CT-scan
- MRI lymphatic metastasis

Staging

- Stage 0: Carcinoma in situ
- Stage Ia1: Stromal invasion <3 mm (microinvasive)
- Stage Ia2: stromal invasion 3-5 mm
- Stage Ib1: Stromal invasion >5 mm, or gross cervical lesion <4cm
- Stage Ib2: gross cervical lesion > 4 cm
- Stage IIa: extending to upper 2/3 vagina
- Stage IIIa: Extending to lower 1/3 vagina
- Stage IIIb: Extending into parametrium to pelvic sidewall or hydronephrosis
- Stage IVa: extending to bladder/ bowel mucosa
- Stage IVb: distant metastasis

Management

Principle of treatment

- Provide general supportive care, e.g., correction of anemia
- Undertake examination under anesthesia for staging, biopsy
- Provide supportive treatment, surgery, and or radio therapy according to staging

General measures

- It is important to clinically assess the extent of disease prior to the onset of treatment.
- Surgery can be utilized in early stage- disease Ia1-IIa.
- Radiotherapy+/- chemotherapy can be utilized in all stages I-IV.

Surgery

- Stage Ia1: Cold knife cone or LEEP cone in young patients, in old women hysterectomy.
- Stage Ib1, Ib2, IIa: radical hysterectomy with bilateral pelvic lymphadenectomy (Para aortic nodes optional)
- Stage III and IV: Inoperable (radiotherapy)

Recommendations

- HPV vaccine is more important for the prevention of cancer cervix
- Cervical cancer screening (HPV, pap smear, VIA, VILI, Coloposcopy, biopsy)
- Treatment of precancerous lesion (cryotherapy, LEEP, Cervical conisation)
- Trearment of invasive cancer (radiotherapy, surgery, chemotherapy)
- Psychologic and financial support in advanced stage of cervical cancer

5.2. Breast Cancer

Definition

This is a malignant growth that begins in the tissue of the breast in which abnormal cells grow in an uncontrolled way. This is the most common and the second killer in women after cervical cancer in the world, but can also appear in men.

Causes/Risk factors

- Early onset menarche
- Late menopause
- Delayed first pregnancy (after 30 years of age)
- Nullparity

- Family history (maternal or paternal) BRCA1 and BRCA2 genes
- History of breast biopsy
- Excessive alcohol consumption
- Use of Hormonal therapy for more than 4 years
- Smoking
- Obesity

Protective factors

- Breastfeeding for 12 months
- Multiparity
- Regular physical exercise

Signs and Symptoms

- Asymptomatic
- Lump in the breast
- Unilateral nipple discharge
- Change in breast size
- Nipple or skin retraction
- Local lymphadenopathy
- Skin changes-orange like appearance (peau d'orange)
- Nipple or skin ulceration
- Breast pain
- Symptoms of metastasis

Investigations

- Self examination or examination by a practitioner
- Full Blood Count
- Bilateral Mammography and /or ultrasound

- Renal and Hepatic profile
- Chest X- Ray
- Biopsy (Preferably Fine niddle aspiration)

Staging

- Tis: if in situ including Paget disease
- T for invasive: notes size and relation to skin and chest wall
    - → T1 (≤2cm)
    - → T2 (>2cm and ≤ 5cm)
    - → T3 (> 5cm)
    - → T4 (with extension to chest or skin)
- Regional lymph nodes (N):
    - → No denotes no regional nodal metastasis
    - → Subtyped if sentinel node RT-PCR+/- , or staining by immunohistochemistry +/-
        - N1 denotes movable ipsilateral axillary nodal metastases
        - N2 denotes fixed axillary lymph nodes, or enlarged internal mammary nodes,
- Distant metastasis (M)
- Presence or absence (M1)

Stage grouping

- Stage 0: Tis, NO, MO
- Stage I: T1, NO, MO
- Stage IIa:
    - → T0, N1, MO
    - → T1, N1, M0

→ T2, N0, M0

- Stage IIb:
  - T2, N1, M0
  - T3, N0, MO
- Stage IIIa:
  - → T0, N2, M0
  - → T1, 1,N2, MO
  - → T2, N2, MO
  - → T3, N1, M0
  - → T3, N2, M0
- Stage IIIb:
  - → T4, N0, MO
  - → T4, N1, MO
  - → T4, N2, MO
- Stage IIIc:
  - → Any T, N3
  - → Stage IV:
  - → Any T, any N, M1

Management

Depend on the stage of the diseases

- Stage 0 (Cancer in situ):
  - Young women: conservative surgery only (lumpec
  - Advanced age: Mastectomy only
- Early stage: stage I and II
  - Surgery: Modified radical mastectomy and lymphad-enectomy (advanced age)

→ Simple mastectomy or wide local lumbectomy (Young age)

- Hormonal therapy: *Tamoxifen* 20mg orally daily for 5 years: may cause retinal damage
- Chemotherapy
  - → *Cyclophosphamide* 30mg/kg IV single dose
  - → *Fluoruracil* 300-1000mg /m2 IV, this may be given every 4 weeks depending on the response of the patient
  - → *Paclitaxel* 6mg /ml in combination with *Cisplatin* 1mg /ml

- Late cancer: stage III and IV: wide spread distance (metastasis)

- Hormonal therapy: *Tamoxifen* 20mg orally daily for 5 years: may cause retinal damage
- Chemotherapy:
  - → *Cyclophosphamide* 30mg/kg IV single dose
  - → *Fluoruracil* 300-1000mg /m2 IV, this may be given every 4 weeks depending on the response of the patient
  - → *Paclitaxel* 6mg /ml in combination with *Cisplatin* 1mg /ml

Recommendation

- Auto palpation once per month to exclude any breast mass

- Regular clinical checkup and mammography at least every 2 years

5.3. Endometrium cancer

Definition: Endometrium cancer is a growth of abnormal cells in the lining of the uterus, it usually occurs in postmenopausal women (age peak: 40 to 55 years). The lifetime risk of developing the cancer is 1.1%, while the lifetime of dying is 0.4%, reflecting the good prognosis with early diagnosis

Risk factors

- Post menopause
- Atypical hyperplasia of endometrium
- Excessive endogenous oestrogens (nullipartiy, obesity, early puberty, late menopause)
- Treatment with unopposed oestrogen
- Treatment with tamoxifen
- Family history of endometrium cancer
- Obesity
- Hypertension
- Diabetes

Stages

- Stage I**:** Disease confined to the body of uterus
- Stage Ia**:** Carcinoma confined to the endometrium
- Stage Ib: Myometrial invasion less than 50%
- **Stage Ic:** Myometrial invasion more than 50%
- Stage II: Cervix involved
- Stage IIa: Endocervical gland involvement only
- Stage IIb: Cervical stromal invesion but does not extend beyond the uterus
- **Stage III:** Spread to serosa of uterus, peritoneal cavity, or lymph nodes

- Stage IIIa: Carcinoma involving seros of the uterus or adnexae, positive ascites, or positive peritoneal washings
- Stage IIIb: Vaginal involvement either direct or metastatic
- Stage IIIc: Para-aortic or pelvic node involvement
- Stage IV: Local or distant metastases
- **Stage IV a:** Carcinoma involving the mucosa of the bladder or rectum
- Stage IVb: Distant metastases or involvement of other abdominal or unguinal lymph nodes

Signs and Symptoms

- Peri or post-menopausal vaginal bleeding
- Postmenopausal vaginal discharge (pyometra)
- Symptoms of metastasis

Complications

- Metastasis to myometrium
- Hemetogenic and lymphathic metastasis

Investigations

- Transvaginal Ultrasound
- Hysteroscopy
- Endometrial biopsy
- CT-scan
- Investigations for metastasis

Management

Surgery

- Total abdominal hysterectomy and bilateral salpingo-oophorectomy (TAH-BSO): stage I
- Radical hysterectomy: stage II
- Radical surgery with maximal debulk followed by radiotherapy: stage III

- Radical radiotherapy + or not hormonal and or Chemotherapy: stage IV

Radiotherapy

- Most patient with early disease receive a combination of surgery and radiotherapy after histopathology findings

- Patients treated with surgery alone are limited to those where the carcinoma is endometrioid type confined to less than 50% of the mymetrial thickness

Hormonal therapy

- Progestogens are the most commom used form of hormonal therapy in endometrial cancer

Chemotherapy

The use of chemetharapy is uncommon but should be considered in fit patient with systemic disease

Medicines used are:

- *Epirubicin* and *Doxorubicin* (anthracycline) and *Cyplatin*

OR

- *Carboplatin* (platinum medicines) daily use limited by patient advanced age and poor performance status. *Cisplatinum* 50mg/m2 IV, *Adriamycin* 45mg /m2 IV D1 followed by *Paclitaxel* 160mg/m2 repeat every 21 days

OR

Carboplatin and *Paclitaxel* as for ovarian cancer

Recommendations

- Patient education e.g familial endometrial cancer

- Address if postmenaupausal bleeding

- Early reproductive period parity

- Avoid obesity
- Address if hypertensive and/or diabetic
- Consult before taking unopposed oestrogens and tamoxifen

5.4. Ovarian cancer

Definition: Ovarian cancer is the leading cause of death of among all gyneacologic cancer worldwide. More than 90% of ovarian cancers are epithelial origin from the surface (coelomic) epithelium. It is the most common gynecological cancer.

Classification

- Epithelial Ovarian Cancer
- Germ Cell Ovarian Cancer
- Sex cord Stromal tumour
- Metastatic ovarian cancer from stomac (Krukenberg cancer)

Risk Factors

- Postmenaupaussal women but the cancer is considered in Women above 40 years old
- Family history of 2 or more affected first degree relatives (mother and sister)
- The family risk associated with predisposition to breast and ovarian cancer is inherited in an autosomal dominant by a gene (BRCA1) located on Chromosome 17
- Abnormal ovarian development as in Turner's syndrome
- Nulliparity
- Ovulatory stimulant drugs

Stages

- Stage I**:** Disease confined to the ovaries (25% of presentations)

- Stage Ia: Involving only one ovary

- Stage Ib: Involving both ovaries

- Stage Ic: Positive cytology or ascites or breaching the capsule of either ovary

- Stage II: Confined to pelvis (5-10% presentations)

- Stage III: Confined to peritoneal cavity (45% presentations)

- Stage IIIa: Micronodular disease outside the pelvis

- Stage IIIb: Macroscopic tumor deposits <2 cm

- Stage IIIc: Tumor >2 cm or retroperitoneal node involvement

- Stage IV: Distant metastases (20% of presentations)

Signs and Symptoms

- Most are asymptomatic

- Lower abdominal pain

- Pelvic mass

- Menstrual disturbances (e.g.menorrhagia)

- Gastro intestinal signs

- Pressure symptoms (Dyspareunia, urinary frequency, constipation)

- Ascites and any other signs related to metastasis

Note: 70 -80 % are diagnosed at an advanced stage

Complications

- Spread of the cancer to other organs (metastases)

- Severe loss of weight

- Ascites

- Intestinal occlusion

- Death

Investigations

- Abdominal ultrasound
- Intravenous urogram
- Ascitic tap for cytology
- Laparotomy/laparoscopy for biopsy and histology
- CT-scan and/or MRI
- CA-125
- Chest x-ray, FBC, liver function, renal function

Management

Surgery is the principal treatment

- Laparatomy with large debulking if possible
- Washings from peritoneal cavity or any ascitis for cytology
- Where possible, a total abdominal hyterectomy, bilateral salpingo-oophorectomy and infracolic omentectomy. The retroperitoneal lymph nodes are biopsied in women with clinically less than stage IIIc.

Chemotherapy is given to all patients after surgery, the overall response rate is 70-80%

- *Carboplatin AUC 5-7 IV* and *Paclitaxel* 175mg /m2 iv 21 day cycles for 3 -6 cycles or,
- *Cisplatin* 75mg/m2 iv and *Paclitaxel* 135 mg/m2 iv infusion over 24hrs (neurotoxic) or,
- *Carboplatin* and *Cyclophosphamide* 750mg /m2 IV

Recommendations

- Manage pelvic pain and/or abdomno-pelvic mass especially associated with vaginal bleeding
- Perform annual pelvic examination and pelvic ultrasound in reproductive and advanced age

- Encourage oral contraceptive for high risk women of cancer of the ovary

- Consider prophylactic bilateral laparoscopic oophorectomy in women that don't desire fertility with a risk of cancer of the ovary.

- CA 125 is good test for follow up of patients with cancer of ovary but its not good for screening

6. MENOPAUSE

Definition: The menopause is the cessation of menstruation for at least 12 months in a female and physiologically occurs at the age of 45 to 55 years.

Causes

- Age
- Primary ovarian failure
- Radiation and drugs
- Surgery
- Sheehan syndrome

Signs and Symptoms

- "Hot flushes "(i.e.; a sudden, unanticipated, and often unpleasant wave of body heat that can range from mild to intense)
- Night sweats
- Palpitations
- Headaches
- Insomnia, tiredness
- Cessation of menses
- Vaginal atrophy and dryness
- Loss of libido, painful intercourse
- Bladder irritability, incontinence, UTIs
- Skin changes: dryness, thinning, loss of head hair, increase or loss of body hair
- Mood swings, emotional change
- Lack of concentration, failing memory
- Osteoporosis

Investigations

- Hormonal profile (Serum FSH >15IU/litre)
- Bone densitometry

Complications

- Pathological fractures
- Cardiovascular diseases

Management

- Explain the process to the patient and reassure her
- Suggest lifestyle adjustments
- Symptomatic treatment
- Use hormone replacement therapy
    - *Tibolone 2.5* mg tabs one tab/dayfor 30 days to be installed after 12 months of last menstruation
    - *Estrogen* (oral, patch or gel) plus progesterone if the woman still has her uterus
- Indication of hormonal replacement therapy:
    - Treatment of menopausal symptoms like hot flashes
    - Prevention of osteoporosis
- Side effects of hormonal treatment increase the risk of breast cancer and DVT

7. PELVIC INFLAMMATORY DISEASES (PID)

Definition: PID is infection, usually sexually transmitted disease often including any combination of inflammatory disorders involving uterus, fallopian tubes, ligaments of the uterus, and sometimes ovary

Causes

Pathogens (Neisseria gonorrhea, Chlamydia trachomatis, anaerobies, mycoplasma hominis, Gardnerella vaginalis . . .)

Risk factors

- Age < 20 represent 75 %
- Earlier age at first sexual intercourse
- Multiple sexual partners
- History of STIs
- Induced abortion
- IUD
- HSG
- Post partum and post abortum endometritis

Signs and Symptoms

- Asymptomatic
- Fever
- Lower abdominal tenderness,
- Cervical-uterine-adnexal excitation tenderness
- Abnormal vaginal discharge
- Abnormal genital bleeding
- Dyspareunia

Complications

- Infertility
- Ectopic pregnancy
- Perihepatitis (Fitz-Hugh-Curtis syndrome)
- Pelvic abscess
- Tubo-ovarian abscess
- Pelviperitonitis
- Death

Investigations

- Laboratory: leucocytosis with neutrophilia and raised Erythrocyte Sedimentation Rate
- Culture and sensitivity of blood, pus, or vaginal discharge
- Vaginal/Swab: evidence of cervicitis
- Ultrasonography: Evidence of inflammatory collection or abscess
- Laparascopy: visualization of hyperemic tubes, purulent discharge
- Endometrial biopsy

Management

- **Chronic PID**
  - First line treatment
    - → *Ceftriaxone*, 1 g IM single plus *Doxycycline*, 100 mg P.O. BID for 10-14 days
      plus
    - → *Metronidazole*, 500mg P.O. TDS for 10-14 days
- **Acute PID**
  - Admit the patient
  - First line treatment

- *Ampicillin*, 500 – 1000 mg I.V. *QID* followed by 500 mg *QID* plus *Gentamicin*, 160 mg IM. Injection plus *Metronidazole*, 500 mg IV TID followed by 500 mg P.O.TID For 10-14 days

- Alternative treatment
  - *Cefixime* 800 mg PO single dose plus *Doxycycline* PO 100 mg BD plus *metronidazole* 500 mg PO TDS for 10-14 days
  - *Cefixime* 800 mg PO single dose plus *Azithromycine* single plus *metronidazole* 500 mg PO TDS for 10-14 days
  - *Ceftriaxone*, 1 g/day, IV Plus *Gentamicin*, 160 mg, OD IM plus *Metronidazole*, 500mg
- Surgical treatment
  - Laparatomy/Laparoscopy and drainage of abscess, salpingo-oopherectomy,
  - Colpotomy
  - Hysterectomy with or without salpingo-oophorectomy

8. VAGINAL DISCHARGE SYNDROMES

8.1. Bacterial vaginosis (BV)

Definition: Bacterial vaginosis (BV) is a clinical syndrome characterized by the presence of malodorous vaginal discharge, with or without vaginal pruritus.

Cause

- Bacterial infections (polymicrobial)

Signs and symptoms

- Asymptomatic
- Unpleasant fishy smelling vaginal discharges
- External genital irritation
- Dysuria.
- Dyspareunia

Complications

- Premature rapture of membrane
- Chorioamnionitis
- Preterm delivery
- Postpartum endometritis
- Post cesarean wound infection
- Risk factor for HIV, HSV, Syphilis, Chlamydia Gonococcal acquisition and transmission

Investigations

- Amine ("fishy") odor before or after addition of 10% KOH solution.

- Vaginal pH (pH ≥ 4.5) (unreliable if blood is present)

- Homogeneous, smooth, non-inflammatory discharge

- Presence of clue cells (epithelial cells coated with bacteria) on microscopic examination.

- Gram stain of vaginal secretions

- Screen for STDs

Management

First line treatment

- *Metronidazole*, 500 mg P.O. BID for 7 days Or 2g P.O. single dose

Alternative treatment

- *Metronidazole* 0.75% gel 5gm intravaginally QID for 5 days or

- *Clindamycin* 2% cream 5 gm intra-vaginally once daily for 7 days, OR *Clindamycine* 300 mg P.O. BID for 7 days

OR

- *Tinidazol*e 2 gr PO single dose

In Pregnancy

- *Metronidazole*, 250 mg P.O. TID for 7 days; after first trimester

OR

- *Clindamycin*, 300 mg P.O. BID for 7 days.

Recomandations

- Avoid alcohol during treatment with oral metronidazole and for 24 hours thereafter, due to possible disulfiram-type reaction.

- Avoid use of Clindamycin cream in association with latex condoms.

Sex Partners

Routine treatment of male partners(s) with metronidazole does not prevent recurrence of Bacterial vaginosis. For recurrent BV without evidence of other STD, recommend use of condoms, and avoid douching.

8.2. Mucopurulent cervicitis

Definition: Mucopurulent cervicitis (MPC) is inflammation of the cervix

Causes

- Infection with Neisseria gonorrhoeae or Chlamidia tra chomatis
- Candida species
- Genital herpes or other organisms associated with bacterial vaginosis

Signs and symptoms

- Vaginal discharge
- Dyspareunia
- Post-coital or intermenstrual bleeding
- Itching and irritation of external genitals
- Lower back pain

Investigations

- Vaginal swab
- Colposcopy
- Sample for pap smear
- Lab test for Gonnorrhea and Chlamydia

Complications

- Parinatal transmission of STDs
- Assending spread of infection
- Salpingitis or endometritis
- For pregnant woman it may cause:
- Chorioamnionitis
- Premature rupture of membrane
- Postpartum infection

Management

- The management depends on the cause

First line treatment

- *Ceftriaxone* 1g IM in a single dose, Plus *Azithromycine*1 gm PO in a single dose for empirical treatment of Gonorrhea and Chlamydia.
- If client is allergic to *Ceftriaxone*, administer *Azithromycine* 2 gm PO in a single dose to treat gonorrhea and Chlamydia empiricarry
- If intorelance to *azithromycin* and not pregnant, administer *Doxycycline* 100 mg P.O. BID x 7 days for Chlamydia prophylaxis.
- If intorelancy to *Azithromycine* and pregnant, *Erythromycin* 500mg PO QID x 14 days for Chlamydia prophylaxis.

8.3. Trichomonal vaginitis

Definition: Trichomonal vaginitis is an inflammation of vagina and vulva.

Cause

- Trichomonas vaginalis.

Signs and symptoms

- Dysuria
- Foul-smelling, frothy vaginal discharge that is most noticeable several days after a menstrual period.
- Vaginal itching and pain
- Redness of vaginal lips and vagina

Complications

- Premature birth
- Low birth weight

Investigations

- Microscopic examination of a saline wet mouted preparation
- Litimus test for the pH of vaginal secretion and whiff test

Management

First line treatment

- *Metronidazole*, 500 mg P.O. BID for 7 days
- *Metronidazole* gel, 0.75%, one full applicator (5 g) intravaginally, once a day for 5 days
- *Clindamycin* cream, 2%, one full applicator (5 g) intravaginally at bedtime for 7 days

Alternative treatment

- *Clindamycin* 300 mg orally twice a day for 7 days or
- *Tinidazole* 2 gr single dose (when recurrentTrichomonal vaginitis)
- *Metronidazole* 2 gr Po in single dose

In Pregnancy

- *Metronidazole*, 2gm P.O single dose regimen.

Recommendations

- Advise sexual abstention until symptoms improve and partner(s) treated

- Avoid alcohol during treatment with oral metronidazole and for 24 hours thereafter, due to possible disulfiram-type reaction.

- Repeated treatment failure: metronidazole 500 mg P.O. BID for 10-14 days.

- Metronidazole gel is not effective for the treatment of T-vaginalis.

- Consider metronidazole resistance if patient is persistently infested after multiple treatment courses.

- Tinidazole appears to be effective against metronidazole resistant T. Vaginalis: dose is 2 gm once P.O.

8.4. Vulvo-vaginal candidiasis

Definition: Vulvo-vaginal candidiasis is a fungal inflammation of the vagina and vulva.

Causes

- Fungus (candida albicans and non-albicans)

Signs and symptoms

- Pruritis vulvae,
- Whitish curd-like vaginal discharge
- Vulval irritation
- Dyspareunia
- Dysuria.

Invetigations

- Potassium hydroxide test,
- Lab swabs for culture
- Random Blood sugar

Management

First line treatment

- Vaginal
  - → *Nystatin*, pessaris 100,000 IU per vaginum, x 4/ day for 14 days. Or
- Oral
  - → *Ketokonazole* 200 mg BID for 5 days

Alternative treatment

- *Clotrimazole* pessaries 100mg in vagina for 6 days or 200mg/day for 3 days. Or
- *Miconazole* pessaries 200 mg/day at bedtime for three days OR 100mg/day for 7 days or 2% cream 5 gm intravaginal for 7 days.

- Chronic Vulvo Vaginal Candidiasis

First line treatment

- *Ketaconazole*, 400 mg /day OR 200 mg BID for 5-10 days. Then 100 mg/day for 6 mounths as prophylaxis.

Alternative

- *Fluconazole*, 150 mg P.O. single dose, then 100 mg *Ketoconazole* /day for 6 mounths prophylaxis.

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104. Stage III: Reaching the pelvic wall or the lower third of the Vigina

105. Stage IV: Lesion involves the bladder or rectal mucosa and distant metastasis

LIST OF PARTICIPANTS

No	MILY NAME	FIRST NAME	TITLE
1	DR RULISA	STEPHEN	GYNECOLOGIST
2	DR NGOGA	EUGENE	GYNECOLOGIST
3	DR BUTARE	RICHARD	QI/TECHNICAL ADVISOR
4	DR KANIMBA	VINCENT	GYNECOLOGIST
5	TUYISENGE	EVELYN	
	DR AHABWE	MOSES	TECHNICAL ADVISOR
6	ATWINE	JOY	QI / SENIOR TECHNICAL ADVISOR
7	DR GAKINDI	LEONARD	GYNECOLOGIST
8	DR BUTOYI		GYNECOLOGIST
9	HITAYEZU	FELIX	PHARMACIST
10	DR BAGAMBE	PATRIC	GYNECOLOGIST
11	DR NZANRE	YACOUBA	GYNECOLOGIST
12	DR MUGANDE	JOHN	GYNECOLOGIST
13	DR OKASHA	MOHAMED	GYNECOLOGIST
14	DR IBA	MAYELE	GYNECOLOGIST
15	DR MUNYAMPUNDU	HORATIUS	QI/ADVISOR
16	DR NTAHONKIRIYE	GASPARD	GYNECOLOGIST
17	DR MBUKANI	RADJABU	GYNECOLOGIST
18	DR SENGORORE	ATHANASE	GYNECOLOGIST
19	KAKANA	LAETTTIA	ORGANIZATION CAPACITY SPECIALIST

20	DR GAKWAVU ANDRE	ANDRE	GYNECOLOGIST
21	DR MANZI	EMMANUEL	MEDICAL Practitioner
22	DR UMUHIRE	OLIVIER	MEDICAL Practitioner
23	DR NZEYIMANA	BONAVENTURE	PUBLIC HEALTH FACILITIES EXPERT
24	FURAHA	VIVIANE	PHARMACIST
25	MUTAGANZWA	EMMANUEL	LABORATORY TECHNOLOGIST
26	NDAYAMBAJE	THEOGEAN	PHARMACIST
27	BUSUMBIGABO	ALBERT	PHARMACIST
28	MUHAWENIMANA	IMMACULATE	MIDWIFE
29	NZAMURAMBAHO	PHILIPPE	NURSE
30	BUREGEYA	J.DAMASCENE	Laboratory BIOTECHNOLOGIST