University of Kerbala
College of Pharmacy
Dep. of Clinical Pharmacy

GYNECOLOGY AND OBSTETRIC

Hospital Training Booklet Assigned For Fifth Year Pharmacy Students

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2015-2016
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Hospital Training: Gynecology and Obstetric

OBSTETRICS

Terminology:
Gravidity*: Pregnancy.*
Primigravida*: a woman pregnant for the first time.*
Multigravida: *a woman who has had two or more pregnancies.*
Parity: *refers to delivery.*
Nullipara*: a woman who has not given birth to a child birth.*
Multipara*: a woman who has given birth to more than one child.*
GPA terminology:

- G gravida (number of pregnancies)
- P para (number of births of viable offspring)
- A or Ababortus (abortions)
- Obstetric history: G4, P3, A1 or Obstetric history: gravida 4, para 3, abortus 1.

EDD: Can be predicted by adding 280 days (9m and 7d) to the LMP.
N.B.: See:

- *Appendix1 for more abbreviations.*
- *Appendix2 for drugs used in Obstetrics and Gynaecology.*
- *Appendix3 for risk and safety of selected drugs.*

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).

Types

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

Management

I. *Therapeutic abortion:*

This kind of abortion is induced following a medical diagnosis. Normally it is prescribed to save the life of the mother. In many countries therapeutic abortion is legal and induced abortion is not.

- Give Misoprostol 400 mcg-800 mcg (2-4 tablets) every 6 hours per os and/or vaginal.
- Surgical Management: Manual Vacuum Aspiration (MVA), Electric aspiration, Dilatation and Curettage (D & C).

II. *Unsafe abortion:*

It is a significant cause of maternal mortality and morbidity in the world. Most unsafe abortions occur where abortion is illegal, or in developing countries where affordable well-trained medical practitioners are not readily available, or where modern contraceptives are unavailable.

III. *Threatened Abortion:*

Uterine bleeding before 22 weeks (often accompanied by abdominal cramping), the cervix closed, risk of abortion 50%.

- Bed rest and avoid Intercourse.
- Progesterone Oral 100mg tablet three times daily for 1 month.

Or

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

IV. *Spontaneous Abortion (Miscarriage):*

Gestational age before 22 weeks, if before 12 weeks then considered early Spontaneous Abortion.

- Manage underlying causes.

V. *Inevitable abortion:*

Bleeding and rupture of Gestational Sac before 22 weeks, the cervix is dilated with menstrual-type cramping, no products of conception expelled yet.

- 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.

VI. *Incomplete abortion:*

Incomplete evacuation of products of conception before 22 weeks.

- 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)

VII. *Complete Abortion:*

Complete evacuation of products of conception before 22 weeks.

- Reassure the patient

VIII. *Missed abortion:*

Retained non-viable conception products up to 4 weeks, Embryo >5 mm without fetal heart activity.

- Give Misoprostol 400 mcg-800 mcg (2-4 tablets) every 6 hours per os and/or vaginal
- Surgical Management: Manual Vacuum Aspiration (MVA), Electric aspiration, Dilatation and Curettage (D & C)

IX. *Blighted Ovum:*

Gestational Sac (>18 mm) and placenta present with failure of Embryo to develop (no Yolk Sac or Embryo).

X. *Septic abortion:*

Incomplete Abortion with secondary ascending infection results in Endometritis, parametritis or peritonitis.

- Managed like the Incomplete Abortion with the utility of proper antibiotics.

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: Amoxicillin 500 mg PO TID 5/7.

Metronidazole 500mg PO TID 7/7.

Alternative treatment –if allergic to B-lactams:

Erythromycine 500 mg PO TID 7/7.

1.2. Ectopic pregnancy

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

Types

--Ruptured and Non ruptured.

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

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:

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 Methotrexate.

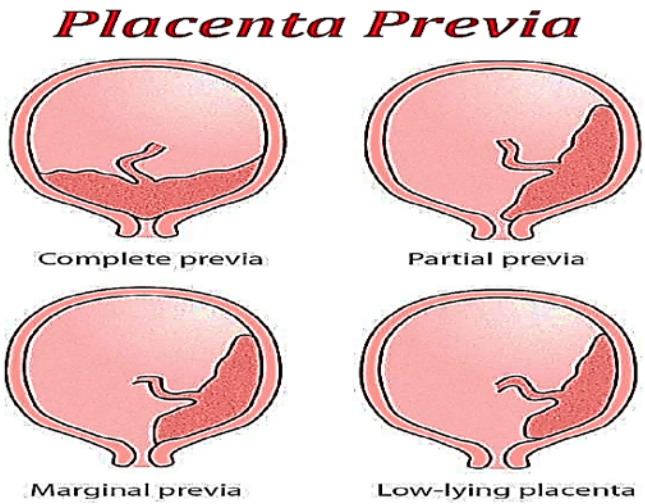
2. BLEEDING IN LATE PREGNANCY AND INTRA-PARTUM PERIOD

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.

Types of placenta praevia:

1. ***Low lying.***
2. ***Marginal.***
3. ***Partial.***
4. ***Complete.***



Signs and symptoms

--Sudden onset of bright red fresh *painless* hemorrhage after 22 weeks of gestation.

Investigations

--Ultrasound

Management

During pregnancy

• Asymptomatic:

Bed rest and follow up every 2 weeks

If complete placenta praevia:

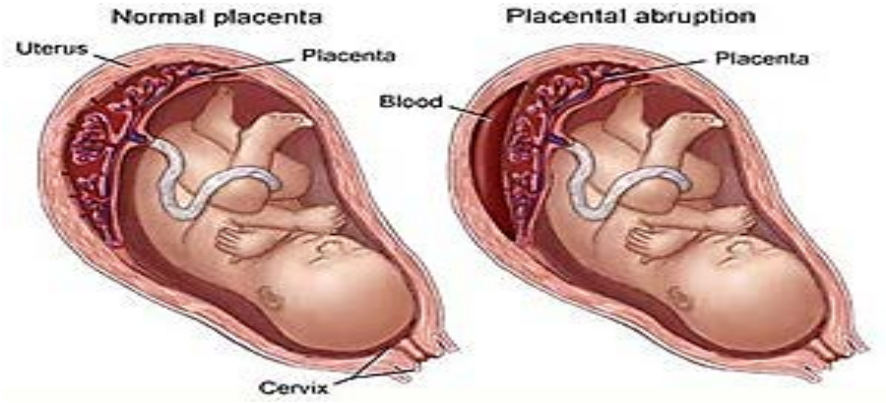
- Admit for fetal lung maturation ≥ 22 weeks of gestation.
- Program a Cesarean section at 37-38 weeks of gestation.
- Iron supplements

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.

Signs and symptoms

-- *Painful* vaginal bleeding: May pass dark blood or clots. Sometimes bleeding can be concealed.



Management

Obstetrical management

• If the fetus is alive and viable: Emergency C-section.
• If the fetus is dead: Normal vaginal delivery is preferable.
• Prophylactic antibiotics: Ampicilline IV 2g may be used if necessary.

2.3. Uterine Rupture

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

Signs and Symptoms

--Sudden, severe abdominal pain (may decrease after rupture).
--Bleeding – intra-abdominal and / or vaginal.
--Cessation of uterine contractions.
--Abdominal distension / Tenderness.

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.

Types

--Primary: Occurs within first 24 hrs.
--Secondary: After 24hrs to the end of puerperium (42days after delivery).

Causes

--Atonic uterus (70%).
--Genital tract trauma (20%).
--Retained placenta or placenta fragment (10%).

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 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.

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 TID till ceasing of vomitting.
And always associate Pyridoxine hydrochloride: IV or PO 10-25 mg TID.

Alternative Treatment: Administer one or more of the following medicines;
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 4mg IV/PO two times daily
Domperidone (Motilium) PO 10mg three times daily or 60mg per rectal BID.
Corticosteroids: Dexamethasone 4mg PO/IV BID.

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

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

Management

--Determine the cause of anemia and treat accordingly

Non-pharmaceutical management

• Iron rich diet (Fish, eggs, fruits and vegetables 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, TIDS 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 B_{12} tabs PO twice daily for 4 weeks.

4.3. Cervical incompetence

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

Complications

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

Management

Prophylactic cervical cerclage

• If no infection cerclage (the use of a ring or loop to encircle the opening of a malfunctioning cervix) 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 any time if infection or bleeding or contractions.
• Consider prophlylactic antibiotics Ampicilline 2g IV Single dose.
OR
• Cefotaxime 1 g single Dose.

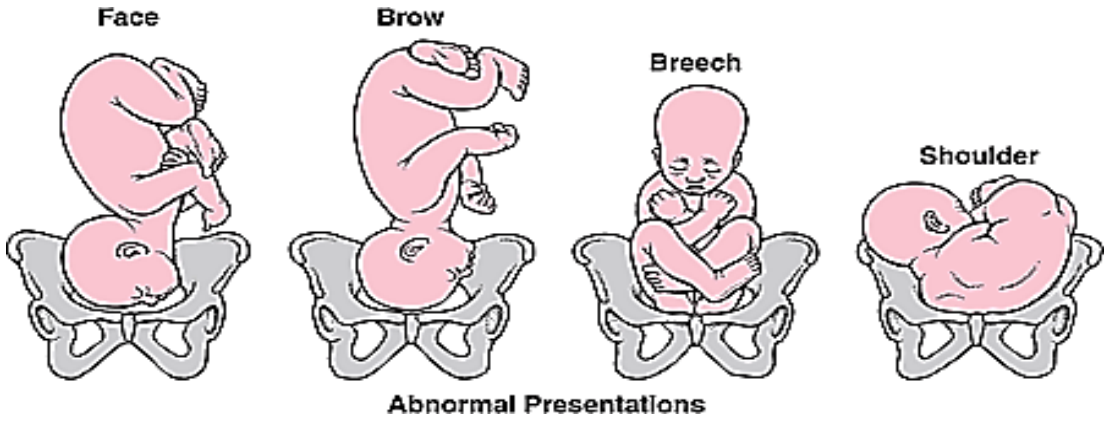
4.4. Mal-presentations and mal-positions

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.--Mal position: Occipital Posterior (OP). When the fetal occiput is directed towards the mother's sacrum or posteriorly.

Types

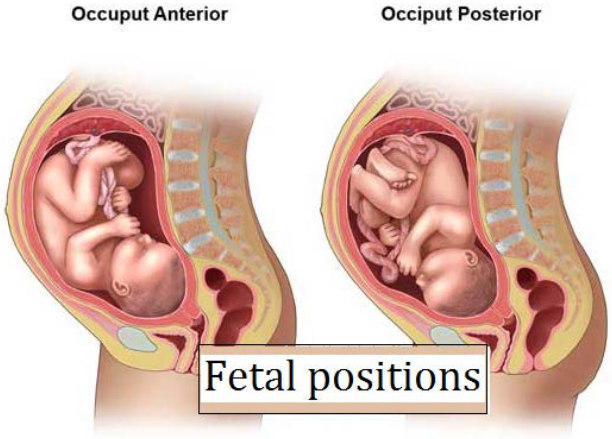
--Malpresentations:
• Brow
• Face
• Breech
• Shoulder



--Malpositions:

• Occiput Posterior Position (OP): when the fetal occiput is directed towards the mother's spine or posteriorly whereas the occiput anterior is the normal position.

• Intermediate positions (Bregma): a situation of in-between.



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

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)

• 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)

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 $MgSO_4$:
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 5g undiluted 50% of magnesium sulphate injection (add 1 ml of lidocaine 2%) by deep intramuscular (IM) injection into each buttock every 4hrs for about 24 hrs after delivery or the last fit/seizure.
Contra-Indications: Myasthenia, Respiratory insufficiency, cardiomyopathy, oliguria anuria.

Note:

- *Monitor respiratory rate (> 16 breaths/min), urine output, consciousness, deep tendon reflexes and Magnesium sulphate serum levels (where possible)*
- *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 OR
Nifedipine: 20 mg orally TID until stabilized blood pressure
Nifedipine: 10 mg short acting if diastolic blood pressure is ≥ 110mmHg OR
Labetalol if hypertension is refractory to hydralazine.
Dosage: 20-50mg intravenously, infusion 200mg in 200ml Ringers lactate at 5 drops per minute.

5.2. Eclampsia

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

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)

• 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 labour, 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 labour

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

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

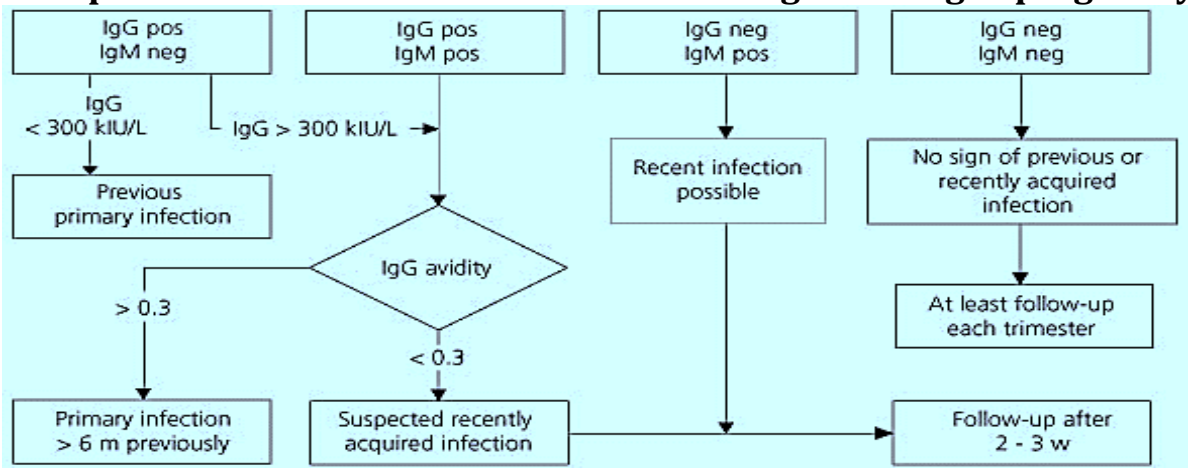
Investigations

--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

Toxoplasmosis: Procedure of screening during pregnancy:



Management

Infection of mother (IgM+and IgG -)

• If UltraSound shows no fetal abnormalities, administer Spiramycin (1g) 3 million units PO TID per day for 20 days out of 30 till term

• If Ultrasound suggestive of fetal malformations, administer Sulfadiazine 4g per day divided into 2-4 doses and Pyrimethamine 25mg per day (and Folinic acid 0.1mg/kg/day) administered continuously up to term

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.

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*

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 bacteriuria: (the presence of bacteria in the urine).
--Acute cystitis
--Acute pyelonephritis

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 TID for 5-7 days

6.8. Pyelonephritis during pregnancy

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

Management

--Admit for parenteral medication

First choice

• Associate Ampicillin, 1gr IV TID and Gentamicin, 80 mg IV BD until 48 hours after the fever subsided and then Amoxicillin 500 mg PO TID for 10-14 days (With precaution for Gentamicin in relation with renal function)

Alternative

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

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.

Complications

--*Fetal*

• Macrosomia with traumatic delivery, shoulder dystocia
• Congenital malformations
• Hypoglycemia at birth

Management ***During pregnancy***

• Monitoring glucose levels and, if necessary, daily Insulin injections
0.5-1 IU/kg, 70% of long-acting Insulin, 30% of regular.
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 labour or plan elective caesarean delivery between 38-39 weeks of gestation
• Never go beyond the gestation
• If macrosomia: deliver by C/S

8. RHESUS ISOIMMUNISATION

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

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

9. RESTRICTED FETAL 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 and Asymetrical.

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.
--Treatment of the etiology

10. PRETERM LABOUR AND PRETERM PREMATURE RUPTURE OF MEMBRANES

Definition

--Preterm labour 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 labour prior to 37 weeks.

Management

Preterm labour 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

• β_2 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.
• Dexamethasone 6mg IM 4 doses 12 hourly for lung maturity. Delivery should be delayed for 24 to 48 hours

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

• Perform speculum examination to confirm diagnosis and take samples for labouratory examination
• Do not tocolyse
• Antibiotherapy:
Erythromycin 500mg every 8hrs for 10 days.

Alternative

Ampicillin 2g in flash, then Amoxicillin 500mgs TID for 10 days.
• Corticosteroids: Dexamethasone 6mg IM 4 doses 12 hourly for 48hrs.

11. LABOUR DYSTOCIA

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

Management

Non pharmaceutical management

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

Management

--Treat as an obstetric emergency.
--The mode of delivery will depend on whether a fetal heart pulses is present or absent and the stage of labour

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*

• Malpresentations
• Cord prolapse
• Macrosomia, Congenital anomalies, multiple pregnancy

--*Maternal-Fetal*

• Placental abruption
• Placenta praevia (Complete)

--*Maternal*

• More than 1 previous Cesarean delivery
• *Elective ceserean section*

Management

Pre-Operative Management

• 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)

Post-operative Management

• 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.

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

Management

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

18. INDUCTION and augmentation OF LABOUR

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

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

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*

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.

Management

--Treatment depends on the cause and may include:
• Counselling on sexual technique and fertility awareness
--Ovulation induction: Clomiphene Citrate 50 mg OD for 5days starting from 2-5 of menstrual cycle
--Assisted reproduction: In Vitro Fertilization (IVF).

2. POLYCYSTIC OVARIAN SYNDROME

Definition: any woman has PCOS should have at least two of the followings:

- Hyperandrogenism. (increased blood testosterone level, acne, hirsutism, and androgenic alopecia)
- Ovulatory dysfunction.
- Morphological (polycystic ovary)

Management

A. Anovulation management: Clomifene, tamoxifene, FSH, Metformin.
B. Skin disorders management:
    i. Acne: benzyle peroxide, clindamycin lotion, erythromycin gel, and oral antibiotects can be considered.
    ii. Hirsutism: OCPs, cyproterone, spironolactone, finasteride, flutamide, and cimetidine.

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

Management

--Etiologic treatment

--Hormonal treatment (Oral Contraceptive Pills)

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

Management

--Etiologic treatment

• Hormonal treatment

3.2. Dysmenorrhea

Definition: Dysmenorrhea is characterized by: Pain occurring during menstruation

3.2.1. Primary dysmenorrhea

--In adolescence 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

Management

First choice:

• NSAIDs started 24-48 hours before the onset of pain.

Aspirine 300-600mg PO TID start 1or 2 days before the menstruation

Mefenamic acid PO 500 mg TID or Ibuprofen PO 400 mg TID / day for 3 days.

Alternative

• Combined oral estrogen-progestogen contraceptive continued 9-12 months leading to anovulatory cycles if symptoms improve

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)

Management

--The underlying condition (surgery, endometriosis IUD)

--NSAIDs: Aspirine 300-600mg PO TID start 1or 2 days before the menstruation

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

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.

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.

Protective factors

--Breastfeeding for 12 months
--Multiparity
--Regular physical exercise

Management

Depend on the stage of the diseases:
Simple mastectomy or wide local lumbectomy (Young age)
• Hormonal therapy: Tamoxifen 20mg orally daily for 5 years: may cause retinal damage

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.

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
--Vaginal atrophy and dryness
--Loss of libido, painful intercourse

Appendix1: Abbreviations commonly used in Obstetrics and Gynaecology:

1. AUB: Abnormal Uterine Bleeding
2. BV: Bacterial Vaginosis
3. C/I: Contra Indicated
4. C/S: Caesarian Section
5. CMV: Cytomegalovirus
6. CT: Computer Tomography
7. D&C: Dilatation and Curettage
8. EDD: Expected Date of Delivery
9. FHR: Fetal Heart Rate
10. FL: Fetal Life.
11. FM: Fetal Movement.
12. FMP: First Missed Period.
13. FSH: Follicle Stimulating Hormone
14. GnRH: Gonadotropin Releasing Hormone
15. HCG: Human Chorionic Gonadotropin
16. IUD: Intra-Uterin Divice
17. IUGR: Intra Uterine Growth Retardation
18. IVF: In Vitro Fertilization
19. LH: Lutenizing Hormone
20. LHRH: Lutenizing Hormone Releasing Hormone
21. LMP: Last Menstrual Period
22. NTD: Neural Tube Defects.
23. NVD: Normal vaginal delivary.
24. OCP: Oral Contraceptive Pills
25. PCOS: Polycystic Ovarian Syndrome
26. PMS: Premensuel Syndrome
27. POF: Premature Ovarian Failure
28. PPF: Post-Partum Fever
29. PPH: Post-Partum Hemorrhage
30. PROM: Premature Repture of Membrane
31. PT: Pregnancy Test.
32. PUC: Premature Uterine Contractions.
33. RDS: Respiratory Distress Syndrome.
34. SGA: Small for Gestation Age
35. STI: Sexually Transmited Infection
36. US: Ultara Sound
37. VDRL:Venerial Disease Research Laboratory

Appendix2: Drugs used in Obstetrics and Gynaecology

[1] Drugs acting on uterus
[a] Stimulants
- Oxytocin
- Prostaglandins & analogs
- Ergot alkaloids
[b] Relaxants
- ß2- adrenoceptor stimulants
- Others
[2] Drugs inducing Ovulation

Clinical uses of Oxytocin

[1] Induction & maintenance of labour.
Oxytocin 1 unit = ~ 2 µg
Generally infused as 10 units / L [in 5% dextrose]
Start with 10 drops / min
Increase by 10 drops every 20-min [if no response]
Max. 60 drops / min.
[2] Control of postpartum haemorrhage
Oxytocin 2.5 - 5 units i.m.
Usually in combination with 0.25 - 0.5 mg Ergometrine
[3] Promotion of milk ejection
[4] Management of missed (incomplete) abortion.
Oxytocin 20 units / litre [sometimes higher concentrations]
Dose 15 - 30 drops / min.
[5] Control of postpartum hypertonicity [Rare use]

Clinical uses of Prostaglandins.

[1] Induction & maintenance of labour
PGE2 Generally infused as 5 mg / litre [in 5% dextrose]
Start with 2-6 drops /min [0.67-2. 1 µg]
Increase by 2-6 drops every 2 hr [if no response]
Total max. 600 µg [normally 100 - 400 µg]
PGF2α dose is 5 times higher than PGE2
Multipara requires low doses while primigravida & women with stillbirth require higher doses.
[2] Missed (incomplete) abortion
[3] Hydatiform mole
[4] Cervical ripening
[5] Therapeutic abortion [not recommended in Ireland].
Available preparations:
PGF2 α [Dinoprost: Prostin-F2 α]
PGE2 [Dinoprostone: Prostin-E2]
These are more potent stimulants of uterine muscle than oxytocin. Their onset of action slower than oxytocin. But their onset of action is slower than oxytocin but they have a longer DOA.
Carboprost is about 500 times more potent & therefore has a bigger risk of uterine overstimulation.
Its main use is in missed abortion. Rarely also used for the control of PPH unresponsive to oxytocin or ergot alkaloids.

Ergometrine

Clinical uses

1. *Post-partum / Post abortion Haemorrhage*
2. *Haemorrhage due to caesarean section*
3. *Delayed uterine involution*

Uterine Relaxants
Clinical uses
[1] Uncomplicated Premature Labour [gestation >20 wk <34 wk. Not useful if membranes have ruptured or Cervix > 4 cm or foetal HR is abnormal
[2] Control of powerful uterine contractions [Threatening Foetal Asphyxia] Drugs used
- ß2 Adrenoceptor Simulants
- Terbutaline [Bricanyl] 10 µg/min i.v. with gradual increase to 25 µ g/ min max.
- Ritodrine [Yutopar]

Atosiban it is a blocker of oxytocin receptors but can also block Vasopressin receptors. A bolus dose of 6.75 mg followed by 100-300 µg / min for 2-3 hr.
MgSO4
A useful drug particularly when ß2- adrenoceptor stimulants are unsuitable to use. It acts by blocking the neuromuscular transmission & inhibit CNS activity. Mode for inhibition of uterine activity, however not known.
A loading i.v. dose of 4-6 is given slowly over 15-30 min followed by infusion of 1-4 g / hr until contractions stop. And then continued for further 12 hr.
Indomethacin
Reduces uterine activity by inhibiting PG synthesis.
It has been tried in a dose of 100 mg followed by 25 mg 6 hrly. Success has been variable but indomethacin has not been found to delay labour for not more than 48 hr.
SE: Premature closure of ductus arteriosus leading to pulmonary hypertension in the newborn.
Ca ++ Channel Blockers
May be an alternative to ß2- adrenoceptor stimulants.
Main drawback is the lack of injectable preparations and the drugs have to be given orally
Drugs Inducing Ovulation
1. Anti-oestrogen: Clomiphene
It is a partial agonist of oestrogen, which is given in a dose of 50 mg orally once daily for 5-7 days starting on day 5 of the menstrual cycle. In the absence of ovulatory response the treatment should be discontinued after 3 cycles. Sometimes its oral treatment is also followed by an injection of LH.
SE Ovarian over-stimulation menstrual irregularities excessive bleeding, vaginal discharge, pruritis vulvae, headache, multiple births, rarely luteal phase defect (LPD) leading to reduced progesterone formation
2. Gonadotrophins: hMG [Menotrophin / Menogon]
Purified hMG [Follitropin]
Human menopausal gonadotrophin [hMG] is obtained from the urine of postmenopausal women. It has the activity of both FSH [75-150 IU} and LH [75-150 IU] / ml. Purified **Menotrophin [Urofillitropin]** contains only FSH [75-150 IU}/ml
Recombinant FSH [rFSH] is prepared by expression cDNA encoding the (a & b) units **Human Chorionic gonadotrophin HCG** [Choragon / Profasi] 1000- 10,000 units per ml is available which is mainly used to treat ovulation failure. Treatment is started with FSH on the 1st day of menstrual cycle and continued for 12-14 days when HCG injection is given.
3. GnRH Analogs: Triptorelin, Nafarlin, Goserline, Leuproreline.
They are mainly used in conjunction with gonadotrophins, which are first given.
4. Ergolines: Bromocriptine, Pergolide, Carbergoline.
Used for the treatment of hyperprolactinemia related ovulatory failure. They have been shown to reduce the size of prolactin secreting tumours. Given orally- rapidly but incompletely absorbed. All act by stimulating dopamine D2 receptors.
Dose: Bromocriptine 2.5 mg which may be increased to 5 mg / day.
Pergolide is given in smaller doses 0.025 mg once daily and increased gradually to 0.25 mg once daily. The dose for Carbergoline is 250 µg twice daily but is mainly used for the prevention of lactation.

Appendix3: Risk and safety of medicinal drugs

Risk Factors:

Category A: Controlled studies in women fail to demonstrate a risk to the fetus in the first trimester (and there is no evidence of a risk in later trimesters), and the possibility of fetal harm appears remote.

Category B: Either animal-reproduction studies have not demonstrated a fetal risk but there are no controlled studies in pregnant women or animal-reproduction studies have shown an adverse effect (other than a decrease in fertility) that was not confirmed in controlled studies in women in the first trimester (and there is no evidence of a risk in later trimesters).

Category C: Either studies in animals have revealed adverse effects on the fetus (teratogenic or embryocidal or other) and there are no controlled studies in women or studies in women and animals are not available. Drugs should be given only if the potential benefit justifies the potential risk to the fetus.

Category D: There is positive evidence of human fetal risk, but the benefits from use in pregnant women may be acceptable despite the risk (e.g., if the drug is needed in a life-threatening situation or for a serious disease for which safer drugs cannot be used or are ineffective).

Category X: Studies in animals or human beings have demonstrated fetal abnormalities or there is evidence of fetal risk based on human experience or both, and the risk of the use of the drug in pregnant women clearly outweighs any possible benefit. The drug is contraindicated in women who are or may become pregnant.

Risk classification (table key):

1: Drug of well-tolerated during pregnancy and lactation; nevertheless, always re-evaluate first choice requirement for drug treatment.

2: Drug of Use only if better-tested treatment options fail; there is often insufficient experience during second choice pregnancy and lactation

S: Single dose Single and/or low dosages probably tolerable

T: Potentially Use only if compellingly indicated. Special prenatal diagnostics are required in case of pregnancy teratogenic or toxic exposure.

C: Contraindicated No rational indication for use during pregnancy/lactation and/or teratogen or prenatal toxic or toxic during lactation; special prenatal diagnostics are required in case of pregnancy exposure.

Table key: 1= Drug of first choice, **2=** Drug of second choice, **S=** Single dose probably tolerable, **T=** Teratogenic or toxic exposure (Potentially), **C=** Contraindicated.					
No	**Drug**	**Trimester of risk**			**Comments**
		1st	**2nd**	**3rd**	
1	ACE-I and ARBs	T	C	C	ACE inhibitors are contraindicated throughout pregnancy due to the potential development of oligohydramnios. Fetal growth should be assessed with detailed ultrasound scans.
2	Acyclovir	1	1	1	Topical and oral use of acyclovir is probably safe.
3	Aminoglycosides	T	T	T	Aminoglycosides are not recommended for parenteral use during pregnancy. They should only be administered in case of life-threatening infections. When higher doses have been used, renal function should be monitored in the neonate and an auditory test should be performed.
4	TCAs	1	1	T	The older TCAs, such as amitriptyline, clomipramine, desipramine, imipramine, and nortriptyline, belong to the group of drugs of choice in the treatment of depression during pregnancy. Observation of the neonate for withdrawal symptoms or adaptation problems for at least 2 days is recommended when TCAs have been used up to delivery.
5	Anticholinergics	1/S	1/S	1/S	Anticholinergics, including atropine, can be used throughout pregnancy when strongly indicated. Functional effects, i.e. on the fetal heart rate, must be considered with systemic use.
6	Antihistamines	1	1	1	First- and second-generation antihistamines are safe (*see notes for diphenhydramine*).
7	Azole antifungals	2	2	2	In particular during the first trimester, systemic antimycotic therapy with fluconazole, ketoconazole, miconazole or itraconazole should be used only if compellingly indicated. For treatment of serious disseminated mycoses, amphotericin B is the preferred drug in early pregnancy.
8	β-blockers	1/2	1/2	T	β-receptor blockers such as labetalol, propranolol, and metoprolol, which have been in long-term use, are among the first-line drugs of choice for treating hypertension in pregnancy. Treatment with β-blockers until birth can cause decreased heart rate, hypoglycemia, and respiratory problems, in premature neonates.
9	Bromhexine	1	1	1	Bromhexine is a first choice mucolytic during pregnancy.
10	Bromocriptine	2	T	T	Bromocriptine is the DOC for hyperprolactinemia, After conception, the medication should, as a rule, be discontinued.
11	Carbamazepine	T	2	T	The drug concentration should be monitored regularly, and the daily dose kept as low as can be justified therapeutically. Risk of neural tube defects and risk of coagulation disturbances. To decrease the risk of coagulation disturbances, the newborn should receive 1 mg of vitamin K (preferably intramuscularly) at birth and 1 mg orally every 3 days in the first 2 weeks of life
12	Carbimazol	2	2	2	Hyperthyroidism has to be treated in pregnancy. Propylthiouracil is the thyrostatic DOC in pregnancy, especially in the first trimester. Thiamazole (methimazole) and carbimazole are to be considered second-choice drugs.
13	Cephalosporins	1	1	1	Cephalosporins can be used safely during pregnancy if needed. The older cephalosporins are preferred.
14	Cotrimoxazole	2	2	2	Cotrimoxazole may be used for UTI when penicillins and cephalosporins are ineffective. When used in the first trimester, folic-acid supplementation (0.5 mg daily) is recommended for theoretical reasons.
15	Diazepam	1	1/S	T	Treatment is permitted during the first trimester. After long-term treatment, especially during the third trimester, withdrawal effects in the newborn must be expected

Table key: 1= Drug of first choice, **2=** Drug of second choice, **S=** Single dose probably tolerable, **T=** Teratogenic or toxic exposure (Potentially), **C=** Contraindicated.

No	Drug	Trimester of risk			Comments
		1st	2nd	3rd	
16	Digoxin/digitoxin	1	1	1	Digitalis glycosides can be used during pregnancy.
17	Diphenhydramine	1	1	T	Diphenhydramine has oxyctocic effects, especially when given intravenously or in an overdose, and may cause uterine contractions; therefore, it should not be given during the third trimester.
18	Diuretics	2	2	2	Hydrochlorothiazide is the diuretic of choice. Furosemide can also be given when treatment of heart or renal failure requires a diuretic. When therapy is long term, the development of oligohydramnios should be ruled out. If treatment is continued throughout the pregnancy, hypoglycaemia in the newborn should be determined. Other benzthiazide derivatives, amiloride, and aldosterone antagonists should be avoided during pregnancy. If potentially needed spironolactone can be used.
19	Progestins (gestagens)	S	C	C	During pregnancy, there is no valid indication for the therapy with progestins. Use of progestins to prevent miscarriage is not indicated. A detailed ultrasound examination could verify a normal morphologic development of the fetus.
20	Glibenclamide	2	2	T	Hypoglycemia of the newborn may be noted if treatment has been continued until delivery.
21	Macrolides	2	2	2	Erythromycin is still the DOC among the macrolides during pregnancy. Erythromycin estolate and should not be given in the second and third trimesters. Azithromycin, clarithromycin, and roxithromycin are second choice macrolides. Spiramycin is the DOC for the treatment of toxoplasmosis during the first trimester.
22	Mebendazole	2	1	1	Mebendazole may be used during pregnancy, but during the first trimester should only be used when strictly indicated and when treatment cannot be delayed.
23	Metformin	2	2	2	Metformin does not lead to hypoglycemia of the pregnant woman or newborn.
24	Metoclopramide	2	2	2	Metoclopramide seems safe and efficacious.
25	Metronidazole and Tinidazole	2/S	2/S	2/S	If strongly indicated, metronidazole can be used in pregnancy. Parenteral administration is only indicated for life-threatening anaerobic infections. Metronidazole is preferred over Tinidazole.
26	Nifedipine and Verapamil	2	1	1	Nifedipine or verapamil are the preferred first-line drugs of choice in this group for the treatment of hypertension or cardiac arrhythmias in the second and third trimesters. In the first trimester, CCBs are considered to be second-line therapy.
27	Nitrofurantoin	2	2	2	Nitrofurantoin can be given during pregnancy to treat UTI.
28	NSAIDs	1	T/S	T/S	NSAIDs like ibuprofen and diclofenac can be considered in the first two trimesters. From week 28 onward, (repeated) use of these agents is relatively contraindicated. If treatment is unavoidable, fetal circulation should be monitored regularly (once or twice a week) with (Doppler) sonography, and medication should be stopped as soon as signs of ductal constriction appear. Oligohydramnios should be ruled out. Tocolysis should be reckoned with.
29	Nystatin	1	1	1	Nystatin can be used throughout pregnancy without restriction.
30	Omeprazole/ ranitidine	1	1	1	Omeprazole is a DOC in pregnancy. For other treatment indications, proton-pump inhibitors are second-choice drugs during pregnancy when antacids, sucralfate, and ranitidine are not effective.

Table key: 1= Drug of first choice, **2=** Drug of second choice, **S=** Single dose probably tolerable, **T=** Teratogenic or toxic exposure (Potentially), **C=** Contraindicated.					
No	**Drug**	**Trimester of risk**			**Comments**
		1st	**2nd**	**3rd**	
31	Penicillins	1	1	1	Penicillins can be safely used during pregnancy in the usual doses; they are the antibiotics of choice in pregnancy.
32	Phenobarbital	T	2	T	Phenobarbital treatment during the first trimester may increase the malformation rate to up to twice the background rate. When treatment continues until delivery, the newborn should be observed for clinical signs of drug withdrawal. To decrease the risk of coagulation disturbances in the fetus and newborn, the newborn should receive 1 mg of vitamin K (preferably intramuscularly) at birth and 1 mg orally every 3 days in thefirst 2 weeks of life.
33	Phenytoin	T	T	T	risk for the "fetal hydantoin syndrome" (cleft lip and palate)
34	Quinolones	2	2	2	Quinolones should only be used in case of complicated infections resistant to the antibiotics of choice in pregnancy. Ciprofloxacin and norfloxacin can then be chosen, because of their relatively large documented experience. Animal experiments have shown that quinolones can cause damage to the cartilage of immature animals and the fetus, resulting in arthropathy.
35	Rifampicin	1	1	1	Rifampicin is a DOC for the treatment of tuberculosis during pregnancy. When used near term, prophylactic vitamin K should be administered to the mother and neonate to prevent hemorrhagic complications.
36	Tetracyclines	2	C	C	Tetracyclines are contraindicated beyond the fifteenth week of gestation. In the first trimester, they are considered to be second-line therapy. Doxycycline should be preferred in such cases.
37	Theophylline	1	1	1	Near term, high doses should be avoided to avoid toxic concentrations in the newborn.
38	Thyroxine	1	1	1	As soon as pregnancy is confirmed, women with hypothyroidism should increase their levothyroxine dose by approx. 30%.
39	Vitamin A (10 000 U/d or less)	1	1	1	A pregnant woman should not take more than 6000 IU of vitamin A per day. Basically, there is no reason to take a vitamin A supplement. Exceptions are, of course, illnesses where there is a proven deficiency. A dosage of more than 25 000 IU per day may be teratogenic. Potentially pregnant women should not eat liver (Vitamin A storage). β-carotene is safe during pregnancy.
40	Warfarin	T	T	C	Coumarin derivatives are not recommended for use during pregnancy.