MIDWIFERY

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TOPICS

- DRUGS USED IN MIDWIFERY
- CARE OF MOTHER WITH HIV
- PRE-SCREENING EXAMINATION
- OPERATIVE PROCEDURES
DRUGS USED IN MIDWIFERY
PAIN RELIEVING DRUGS

- **Non pharmacological methods**
  1. **Psycho prophylaxis**
  - Psychoprophylaxis is a method for coping with labor pain by using patterned breathing techniques and relaxation.
  2. **Trans cutaneous nerve stimulation (TENS)**
  - Trans cutaneous electrical nerve stimulation therapy involves the use of low-voltage electric currents to treat pain. Electrodes or mediums for electricity to travel to the body, placed on the body at the site of pain deliver electricity that travels through the nerve fibers.
Narcotic analgesics

1. Morphine-2-3 mg IV, 5-10 mg IM
2. Pethidine-25-50mg IV, 50-75mg IM
3. Fentanyl-25-50mg IV, 50-100mg IM
4. Butorphanol-1-2mg IV, 1-2mg IM
5. Tramadol-50-100mg IV, 50-100mg IM
**Side effects**

Produce cardiac and respiratory depression in both the mother and the new born.

Sedation or an acute state of confusion

Nausea

Dizziness

Anxiety

Hypotension

- **Nurses Responsibility**
  - Administer to lactating women 4-6 hours before the next feeding
  - Use precautions when injecting subcutaneously to child
  - Check vital signs of the patient
  - Report side effects if any
ANESTHETIC DRUGS

- General
- epidural
- spinal
- combined spinal-epidural (CSE), local
Contd

- **Spinal anesthesia**
  - It refers to the introduction of local anesthetic solution (i.e. 5% Xylocaine, 5% Sensercaine, 5% Bupivacaine) into the subarachnoid space (inside the archnoid space)
  - Advantages
    1. Minimal risk of atonic PPH
    2. No neonatal depression
    3. Dangers of aspiration are less

- **Epidural anesthesia**
  - Combined spinal epidural anesthesia (CSE)-It has the advantage of rapid onset of analgesia after spinal and the flexibility to continue analgesia for a prolonged time with epidural. It gives adequate postoperative analgesia through the epidural catheter.

- **Local anesthesia**
  - A field block of the anterior abdominal wall is done towards the anterior edge of the 8th to 11th ribs bilaterally, with additional infiltration over the incision site employed. Each layer is slowly anesthetized and then incised.
Contd

- **Inhalational analgesia**
  - It involves administration of the analgesic gases or volatile agents in sub anesthetic concentrations via a mask held by the patient to relieve the pain associated with uterine contractions.

- **Regional analgesia**
  - Effective labor analgesia would mean blocking T11, T12 and S2, S3, S4.

- **Local analgesia**
  - It refers to infiltration or deposition of a dilute solution of a local anesthetic agent to achieve analgesic effect in a small area.
- UTERINE CONTRACTION DRUGS

- Oxytocics are drugs that increase the uterine contractions. These are:
  - 1. Posterior pituitary hormone (oxytocin).
  - 2. Ergot alkaloids (ergometrine, ergonovine, methyl ergonovine).
  - 3. Prostaglandins (PGE, PGF, 15-methyl-PGF, misoprostol (PGE, analogue)).
OXYTOCIN

• Oxytocin is inactive orally as it is a protein in nature and so is administered by IM or IV routes or as buccal tablets or as intranasal spray. Due to rapid metabolism of oxytocin in the liver and kidney by oxytocinase, the half-life of IV oxytocin is approximately 3 minutes and the duration of action is short.

• **Uses**
  - Induction of labor: May be needed in cases of PROM, IUGR, placental insufficiency, iso-immunization etc.
  - Oxytocin is used in active management of 3rd stage of labor.
  - Buccal oxytocin or intranasal spray may be used before suckling if the milk ejection reflex is inefficient.
  - To detect utero-placental insufficiency and assess the fetal wellbeing in high-risk pregnancies Atonic PPH can be corrected with larger doses up to 20 units as IV infusion.

• **Adverse effects**
  - Hypertonic contractions
  - Water intoxication
  - Hypotension and reflex tachycardia
Preparation of oxytocin drip

- The standard solution for infusion of Pitocin is prepared by adding the contents of one 1-mL vial containing 10 units of oxytocin to 1000 mL of 0.9% aqueous sodium chloride or Ringer's lactate. The combined solution containing 10 milliunits (mU) of oxytocin/mL is rotated in the infusion bottle for thorough mixing.
- Establish the infusion with a separate bottle of physiologic electrolyte solution not containing Pitocin.
- Attach (piggyback) the Pitocin-containing bottle with the infusion pump to the infusion line as close to the infusion site as possible.
Oxytocin - mU/minute administered at different rates of administration according to drop rate

<table>
<thead>
<tr>
<th>Drop rate/min</th>
<th>Equivalent mU/min</th>
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<tbody>
<tr>
<td>15</td>
<td>7.5</td>
</tr>
<tr>
<td>30</td>
<td>15</td>
</tr>
<tr>
<td>45</td>
<td>22.5</td>
</tr>
<tr>
<td>60</td>
<td>30</td>
</tr>
</tbody>
</table>

(based on 5U of oxytocin in 500 ml saline)
CALCULATING Pitocin rates:

- 10U added to 1000ml = 10U/1000ml
- 10U × 1000mU = 10000mU/1000ml = 10mu/ml

Remember: you must convert mU/min to ml/hr to set the rate on the IV pump

- 1ml/10mU × 60min/hr × 1mU/min = 6ml/hr
  So, 1mU/min = 6cc/hr

If you are to give the patient 5mU/min, at what rate will you set the pump?

- 5mU/min × 1min/mU × 6cc/hr = 30cc/hr
2. Ergot alkaloids

- Methergine (methylergonovine maleate) acts directly on the smooth muscle of the uterus and increases the tone, rate, and amplitude of rhythmic contractions.

- Thus, it induces a rapid and sustained titanic uterotonic effect which shortens the third stage of labor and reduces blood loss. The onset of action after I.V.
Contra indications

- ethylergometrine is contraindicated in patients with
  - hypertension and preeclampsia.
- It is also contraindicated in HIV positive patients taking protease inhibitors, delavirdine and efavirenz.
Side effects

- **Cholinergic** effects such as nausea, vomiting, and diarrhea
- Dizziness
- Pulmonary hypertension
- Coronary artery vasoconstriction
- Severe systemic hypertension (especially in patients with preeclampsia)
- Convulsions
Dinoprostone is a naturally occurring prostaglandin E2 (PGE2). It has important effects in labour. It also stimulates osteoblasts to release factors which stimulate bone resorption by osteoclasts. As a prescription drug it is used as a vaginal suppository, to prepare the cervix for labour and to induce labour.
Common side effects

- vomiting,
- fever, diarrhea,
- excessive uterine contraction.
- In babies there may be decreased breathing and low blood pressure.
- Care should be taken in people with asthma or glaucoma and it is not recommended in those who have had a prior C-section.
DRUG FOR CONTROLLING BLEEDING

- **ANTI COAGULANTS**
  - Either conventional un-fractionated heparin or low molecular weight fractionated heparin (LMWH) is used in obstetric practice. Heparin does not cross the placenta unlike warfarin and it is safe and not excreted in breast milk.
  - **Indications**
    1. Thrombo prophylaxis in cases at high risk
    2. APLA syndrome in recurrent pregnancy loss.
    3. Prosthetic cardiac valves
    4. Treatment of deep vein thrombosis, pulmonary embolism and other thrombosis.
  - **Side effects**
    1. Hemorrhage (protamine sulfate is the antidote)
    2. Heparin-induced thrombocytopenia (HIT)
    3. Osteoporosis on long term use
    4. Fat necrosis and hematoma
    5. Elevated transaminases
Vasodilators
- It acts on the smooth muscles of arterial vasculature leading to vasodilatation. It increases cardiac output by vasodilation. Peak action occurs by 3-4 hours.
- Side effects: Nausea, vomiting, maternal hypotension, flushing, lupus like syndrome, tachycardia, palpitation.

Neonatal-Thrombocytopenia

Calcium channel blockers
- These drugs act by decreasing the peripheral resistance without compromising the cardiac output. These agents cause relaxation of vascular smooth muscles by preventing influx of calcium ions.
- Nifedipine can be used in cases of fulminating pre eclampsia to obtain a blood pressure levels,
- Sublingual administration should be avoided as it may lead to sudden decrease in utero placental circulation and fetal compromise and a sudden fall in maternal blood pressure, which might compromise the maternal cerebral circulation.
- Side effects- Hypotension, flushes, head ache, GI upset, tachycardia
ANTIEPILEPTICS IN PREGNANCY

• The dose of antiepileptic drugs may have to be increased with advancing period of gestation. The common anti-epileptic drugs used in pregnancy are
  • Phenytoin,
  • Primidone,
  • Phenobarbitone,
  • Carbamazepine and Sodium valproate.
• **ACTION:**

  - **Phenytoin** is an anti-epileptic **drug**, also called an anticonvulsant. **Phenytoin** works by slowing down impulses in the brain that cause seizures. **Phenytoin** is used to control seizures.

  - It may also be used for certain **heart arrhythmias** or **neuropathic pain**.

  - It can be taken **intravenously** or by mouth.

  - The intravenous form generally begins working within 30 minutes and is effective for 24 hours. Blood levels can be measured to determine the proper dose.
Common side effects

- nausea, stomach pain, loss of appetite, poor coordination,
- increased hair growth, and enlargement of the gums.
- Potentially serious side effects include
  - sleepiness, self harm, liver problems, bone marrow suppression, low blood pressure, and toxic epidermal necrolysis.

- There is evidence of Side effects that use of phenytoin during pregnancy results in abnormalities in the baby. It appears to be safe to use when breastfeeding. Alcohol may interfere with the medication's effects.[1]
- Neural tube defects, facial clefts and congenital heart disease. This includes hyper telorism, low set ears, broad nasal bridge, hypoplastic nails and digits.
- These drugs interfere with folate metabolism. These drugs also suppress neonatal synthesis of vitamin K dependent clotting factors and thus may cause hemorrhagic disease of the newborn.
ANTIBIOTICS

- The **antibiotics** help during **labor** only — because the bacteria can grow back quickly; doctors cannot give **antibiotics** before **labor** begins. Penicillin is the most common **antibiotic** that doctors prescribe, but they can also give other **antibiotics** to women who are severely allergic to penicillin.

- **some of the antibiotics that may be prescribed safely during pregnancy include:**
  - Amoxicillin.
  - Ampicillin.
  - Clindamycin.
  - Erythromycin.
  - Penicillin.
  - Ceftriaxone.
  - Cefixime.
CARE OF MOTHER WITH HIV
Acquired immunodeficiency syndrome (AIDS) is defined in terms of either a CD4$^+$ T cell count below 200 cells per μL or the occurrence of specific diseases in association with an HIV infection.
HIV is transmitted by three main routes:
- sexual contact
- exposure to infected body fluids or tissues
- from mother to child during pregnancy, delivery, or breastfeeding (known as vertical transmission)
Mode of transmission

- Sexual intercourse – women are affected more than the men because in female, larger mucosal surface is exposed and semen contains high viral load. Transmission of virus from male to female is high; Homosexual and bisexual -- Heterosexual
- Intravenous drug abusers
- Transfusion of contaminated blood or blood products
- Use of contaminated needles, needle stick injuries
- Breast feeding – infants who have been infected through one of infected blood of mother
- Perinatal transmission – the vertical transmission to the neonates of the infected mothers is about 14-25 percent. The baby may be affected in utero through transplacental transfer, during delivery by contaminated secretions and blood of the birth canal and through breast milk in neonatal period
Diagnostic test for HIV

- **ELISA** (enzyme linked immunosorbent assay) - is extremely sensitive (99.5 percent) but less specific. It is easy, cheap and less time consuming (2-5 hours). As such, it can be employed as a screening procedure extended to ‘at risk’ persons.

- **Western blot or immunoblot** – It is highly specific but complicated and time consuming (1-2 days). It is expensive too.
SIGNS & SYMPTOMS

- SIGNS AND SYMPTOMS
- There are three main stages of HIV infection
  - acute infection,
  - clinical latency
  - AIDS
Main symptoms of Acute HIV infection:

- **Systemic:**
  - Fever
  - Weight loss

- **Central:**
  - Malaise
  - Headache
  - Neuropathy

- **Pharyngitis:**
  - Mouth:
    - Sores
    - Thrush

- **Esophagus:**
  - Sores

- **Muscles:**
  - Myalgia

- **Liver and spleen:**
  - Enlargement

- **Lymph nodes:**
  - Lymphadenopathy

- **Skin:**
  - Rash

- **Gastrointestinal:**
  - Nausea
  - Vomiting
ACUTE INFECTION

- Influenza-like illness
- fever
- large tender lymph nodes
- throat inflammation
- Macula papular rash
- Headache
- Sores of the mouth and genitals
- Nausea,
- Vomiting
- Diarrhoea
Clinical Latency

- Fever
- weight loss
- gastrointestinal problems and muscle pains
- persistent generalized lymphadenopathy
AIDS SYNDROME

Main symptoms of AIDS

Central
- Encephalitis
- Meningitis

Eyes
- Retinitis

Lungs
- Pneumocystis pneumonia
- Tuberculosis (multiple organs)
- Tumors

Skin
- Tumors

Gastrointestinal
- Esophagitis
- Chronic diarrhea
- Tumors
AIDS Symptoms

- Pneumocystis pneumonia (40%)
- Cachexia in the form of HIV wasting syndrome (20%)
- Esophageal candidiasis
- Recurring respiratory tract infections
- Opportunistic infections

People with AIDS have an increased risk of developing various viral-induced cancers including:

- Kaposi's sarcoma
- Burkitt's lymphoma
- Primary central nervous system lymphoma
- Cervical cancer
CLINICAL STAGING BY WHO

- **STAGE 1 : ASYMPTOMATIC**
  - PERS. GEN LYMPHADENOPATHY

- **STAGE 2 : UNEXPLAINED MODERATE WEIGHT LOSS**
  - RECURRENT RTI
  - HERPES ZOSTER
  - ANGULAR CHEILITIS
  - RECURRENT ORAL ULCERATION
  - SEBORRHOEIC DERMATITIS
  - FUNGAL NAIL INFECTIONS
STAGE 3:
- UNEXPLAINED SEVERE WEIGHT LOSS MORE THAN 10%
- UNEXPLAINED CHRONIC DIARRHOEA MORE THAN ONE MONTH
- UNEXPLAINED PERSISTENT FEVER MORE THAN ONE MONTH
- PERSISTENT ORAL CANDIDIASIS
- Oral hairy leukoplakia
- Pulmonary TB
- SEVERE BACTERIAL INFECTIONS
- ACUTE NECROTIZING ULCERATIVE ORAL INFECTIONS
- UNEXPLAINED THROMBOCYTOPENIA, ANEMEA, NEUTROPENEA
CDC CLASSIFICATION SYSTEM FOR HIV INFECTION.

- **Stage 1:** CD4 count ≥ 500 cells/µl and no AIDS defining conditions
- **Stage 2:** CD4 count 200 to 500 cells/µl and no AIDS defining conditions
- **Stage 3:** CD4 count ≤ 200 cells/µl or AIDS defining conditions
- **Unknown:** if insufficient information is available to make any of the above
COMMONLY USED ARV DRUGS

- Nucleoside reverse transcriptase inhibitors
- Nucleotide reverse transcriptase inhibitors
- Protease inhibitors
- **Nucleoside reverse transcriptase inhibitors**
  - Zidovudine 600 mg
  - Lamivudine 150 mg
  - Stavudine 40 mg
  - Didanosine 400 mg
  - Abacavir 300 mg
- **Nucleotide reverse transcriptase inhibitors**
  - Tenofovir 300 mg

- **Protease inhibitors**
  - Indinavir 800 mg
  - Ritonavir 600 mg

- **Entry inhibitors**
  - Enfuvirtide 90 mg
Mother-to-child transmission (MTCT) is when an HIV positive woman passes the virus to her baby. This can occur during pregnancy, labour and delivery, or breastfeeding. Without treatment, around 15-30% of babies born to HIV positive women will become infected with HIV during pregnancy and delivery. A further 5-20% will become infected through breastfeeding.
MOTHER-TO-CHILD TRANSMISSION

Is the main cause of HIV infection in children

It can occur during:

- Pregnancy
- Labour and delivery
- Breastfeeding
PRIMAR Y PREVENTION

- Through ICTCs
- Primary prevention of HIV in childbearing women
- Provide HIV information to ALL pregnant women
- Antenatal visits are opportunity for PPTCT
- Intensive group and pre test counselling
- Informed consent
- Post test counselling (for pos and neg)
General Preventive measures

- ‘Safe sex’ practice by health education
- Use of blunt tipped needles to avoid needle stick injury during surgery
- HIV negative blood transfusion (screening of donor)
- HIV negative frozen semen to use for artificial donor insemination
- To maintain protocols for correct handling of all body fluids
- Post exposure prophylaxis with zidovudine and Lamivudine is advisable
- Termination of pregnancy in HIV positive women
- Avoid breast feeding.
The decision to perform preoperative testing should be based on the history and physical examination findings, perioperative risk assessment, and clinical judgment. Patients with signs and symptoms of cardiovascular disease should undergo preoperative electrocardiography.

- HISTORY COLLECTION
- ROUTINE PHYSICAL ASSESSMENT
- COMPLETE BLOOD PICTURE TEST
- URINE TEST
- BASIC VIRAL MARKER TEST
- X’RAY
- ULTRASOUND
### Pre-operative assessment checklist

<table>
<thead>
<tr>
<th>History</th>
<th>Medications</th>
<th>Direct questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Of surgical problem</td>
<td>Regular + prn - omit or give usual meds?</td>
<td>Exercise tolerance</td>
</tr>
<tr>
<td>Anaesthesia &amp; problems including PONV</td>
<td>Anticoagulation</td>
<td>Reflux</td>
</tr>
<tr>
<td>Or family history GA problems</td>
<td>Allergies</td>
<td>Snoring</td>
</tr>
<tr>
<td>Past Medical History (PMH)</td>
<td>Ok with NSAIDs?</td>
<td>Motion sickness</td>
</tr>
<tr>
<td></td>
<td>Check drug chart for recently given medication</td>
<td>Smoking / EtOH / Drugs</td>
</tr>
<tr>
<td></td>
<td>Pre-med?</td>
<td>Recent URTI / Illness</td>
</tr>
</tbody>
</table>

### Observations

<table>
<thead>
<tr>
<th>Weight + Height (BMI)</th>
<th>Pulse</th>
<th>Blood pressure</th>
<th>Temperature</th>
<th>Oxygen saturations</th>
<th>BM if diabetic</th>
</tr>
</thead>
</table>

### Examination

<table>
<thead>
<tr>
<th>Cardiovascular</th>
<th>Respiratory</th>
<th>Other?</th>
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### Airway

<table>
<thead>
<tr>
<th>Mallampati (MP)</th>
<th>Jaw protrusion</th>
<th>Thyromental distance (TM)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Neck movement</td>
</tr>
</tbody>
</table>

≥ 2 “OBESI” factors (overweight, beard, elderly, snoring, edentulous): Think difficult ventilation

MP 3 or 4, Jaw protrusion Class B or C, TM < 6 cm, limited neck movement: Think difficult intubation

### Routine preoperative investigations (from NICE guidance 2016)

<table>
<thead>
<tr>
<th>ECG</th>
<th>FBC</th>
<th>U&amp;E</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Major surgery (consider if ASA 1 &amp; ≥ 65 &amp; not done within 12 months)</td>
<td>• All major surgery</td>
<td>• Major surgery</td>
</tr>
<tr>
<td>• ASA 3 or 4 (consider if minor surgery &amp; not done within 12 months)</td>
<td>• Consider for ASA 2 patients and intermediate surgery</td>
<td>• ASA 3 or 4</td>
</tr>
<tr>
<td>• Consider if ASA 2 &amp; intermediate surgery</td>
<td></td>
<td>• If at risk of acute kidney injury (AKI)</td>
</tr>
</tbody>
</table>

- HbA1c within 3 months if patient has diabetes
- Consider haemostasis tests in liver disease; use point of care testing if possible
- Pregnancy test (with consent) if any chance may be pregnant
- Sickle test not routine; ask about PMH or family history
- CXR not routinely required

### Consent

<table>
<thead>
<tr>
<th>GA</th>
<th>Additional procedures for e.g. invasive monitoring</th>
<th>Regional anaesthesia</th>
<th>Peripheral nerve blockade</th>
</tr>
</thead>
</table>

### Surgical issues to consider and discuss during WHO checklist

- Position + access to patient, IV access sites
- Blood loss / Risk of major bleeding / Tourniquet – check G&S / X-match
- Antibiotic prophylaxis
- Thromboembolism prophylaxis
- Temperature management
- Length of surgery / who is operating
OPERATIVE PROCEDURES

- PERINEAL REPAIR
- ABDOMINAL DELIVERY-LSCS
- D&C
- DESTRUCTIVE SURGICAL PROCEDURES
CAESARIAL SECTION
Definition:
It is an operative procedure whereby the foetuses after the end of the 28th week of gestation are delivered through an incision on the abdominal and uterine wall.

Indication
Absolute indications
• Vaginal delivery is not possible.
• Central placenta praevia.
• Contracted pelvis and CPD.
• Pelvic mass.
• Advanced carcinoma of cervix.
• Vaginal obstruction
Relative indications:

- CPD
- Previous CS
- Non reassuring fetal heart.
- Dystocia
- APH
- Mal presentation
- Failed surgical induction.
- Bad obstetrical history.
- Hypertensive disorders
Types:

1. Classical Caesarean Section - Here the upper portion of the uterus is opened by an incision and the baby is then extracted. This is not practiced anymore due to a higher incidence of complications.

2. Lower Segment Caesarean Section - In this case, the uterus is opened in the lower segment and the baby's head or breech as the case may be is delivered.

3. Emergency Caesarean Section - When there is suspected danger to the mother's or baby's condition an emergency section is resorted to.

4. Elective Caesarean Section (Planned C-Section) - The caesarean is planned and done on a specific date chosen by the patient and the doctor after assessing the maturity of the baby.
Pre-operative care

1. Informed written permission for the procedure, anaesthesia and blood transfusion is obtained.
2. Abdomen is scrubbed with non-organic iodide lotion. Hair may be clipped.
3. NPO for 8-12 hours
4. Antacids can be given.
5. Bladder should be emptied by a catheter.
6. Antibiotic prophylaxis is given to prevent puerperal sepsis.
Post-operative care

- The patient is closely monitored for the first 6-8 hours (vital signs, intake-output chart, vaginal bleeding and condition of the uterus (whether contracted or not).
- Parenteral fluids are given the first day. Blood is transfused if there was excessive bleeding during surgery.
- Analgesics and sedation are also indicated. Oral fluids can be started after 6 hours if there is no vomiting.
- Early ambulation and deep breathing exercises are necessary and started the next day.
- On the 3rd day, a light solid diet can be given and a mild laxative prescribed if bowel movement has not taken place.
- If non-absorbable sutures had been used for the skin, the patient can be discharged the day following suture removal. If the skin incision is transverse and sub-cuticular sutures are used, the patient can be discharged on the 5th or 6th day.