

INDUCTION OF LABOUR

Lecture 2

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Objectives

At the end of this Class , you should be:

- Aware of the indications and contraindications for induction of labor
- Aware of the different methods of induction of labor
- Able to select the appropriate method of labor induction for an individual patient.

III-Surgical Methods

1-Stripping the membranes:

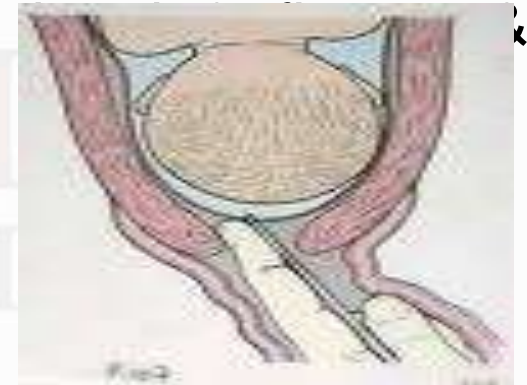
- Stripping the membranes mechanically dilates the cervix which releases prostaglandins. The membranes are stripped by inserting the examining finger through the internal os & moving it in a circular direction to detach the inferior pole of the membranes from the lower uterine segment.
- Risks include patient's discomfort, infection, bleeding from undiagnosed placenta previa or low lying placenta, and accidental ROM.
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III-Surgical Methods (Cont.)

2-Amniotomy - Technique:

- The FHR is recorded before the procedure.
- A pelvic examination is performed to evaluate the cervix & station of the presenting part. The presenting part should be well fitted to the cervix.
- The membranes are identified and a kocher is inserted through the cervical os by sliding it along the membranes are ruptured.
- Nature of the amniotic fluid is recorded
[clear, bloody, thick, thin, or meconium]
- The FHR is recorded after the procedure.



Amniotomy (ARM): Contd...

- **Why?**

performed to induce labor, to augment contractions, to shortening the duration of labor, to visualize the color of the liquor, or to attach a fetal scalp electrode for the fetal heart rate.

- **When?**

ARM done when the cervix is favorable (high Bishop's score)



III-Surgical Methods (Cont.)

Risks of amniotomy:

- 1 Prolapse of the umbilical cord (0.5%)
- 2 Chorioamnionitis: Risk increases with prolonged induction delivery interval
- 3 Postpartum hemorrhage: Risk is doubled compared with women with spontaneous onset of labor
- 4 Rupture of vasa previa
- 5 Neonatal hyperbilirubinemia

IV-Pharmacologic Induction of Labor

1-Prostaglandin E2: (dinoprostone): It is inserted vaginally as a gel (Prepidil), as a removable tampon (Cervidil) or as a vaginal pessary. It acts on the cervical connective tissue and relaxes muscle fibres of the cervix. Dinoprostone should only be administered at hospital and the patient is expected to stay recumbent and monitored, at least, for the first 30 minutes after insertion. Contractions usually start within 60 minutes of commencing induction and peak within 4 hours. If optimal response is not achieved by 6 hours, another dose can be administered. The maximum allowed dose is 3 doses be administered over 24 hours.



Before Interventions:

- 1 Review patient history before administration (to ensure there are no contraindications or any caution).
- 2 Fetal heart rate and uterine contractions should be monitored continuously for 30- 60minutes after administration. (there is a risk of uterine hyperstimulation and ruptured of uterus with or without fetal distress)



Before Interventions:Contd..

- Instruct woman to pass urine before administering prostaglandin because she will stay for long time in bed
- The mother should remain in lateral or supine position with hip tilt for 30 to 60minutes after administration of gel, for 2 hours after insertion of vaginal tablets. (to minimize leakage and improve effectiveness).
- Assess cervical dilatation 6 hours after insertion.
- Monitor side effects of prostaglandins
- It is necessary to allow at least 2 hours to elapse between the last prostaglandin dose and starting

IV-Pharmacologic Induction of Labor

2- Misoprostol:

Pharmacokinetics:

- Route of administration: Oral, vaginal and sublingual route for induction. Rectal route is used to prevent and treat postpartum hemorrhage.
- Bioavailability: Extensively absorbed from the GIT
- Metabolism: De-esterified to prostaglandin F analogs
- Half life: 20–40 minutes
- Excretion: Mainly renal 80%, remainder is fecal: 15%

IV-Pharmacologic Induction of Labor (Cont.)

2-Misoprostol:

- Misoprostol (Cytotec) is a synthetic PGE1 analog that has been found to be a safe and inexpensive agent for cervical ripening.
- Clinical trials indicate that the safe optimal dose and dosing interval is 25 mcg intravaginally every 4-6 hours. A maximum of 6 doses was suggested. Higher doses or shorter dosing intervals are associated with a higher incidence of side effects, especially hyperstimulation syndrome.
- Misoprostol should not be used in women with previous CS because of increased rates of uterine rupture (Reference 8 - Evidence level B).

IV-Pharmacologic Induction of Labor (Cont.)

3-Mifepristone:

- Mifepristone (Mifeprex) is an antiprogestosterone agent which counteracts the inhibitory effect of Progesterone on the uterus. Few studies with small number of women enrolled, have shown that women treated with mifepristone in a dose of 600 mg are more likely to have a favorable cervix and deliver within 48 to 96 hrs when compared with placebo and also they these were less likely to undergo C.S.
- Information about fetal outcomes & maternal side effects is scarce and cannot be used to recommend the use of mifepristone for cervical ripening.

IV-Pharmacologic Induction of Labor (Cont.)

High Dose Protocol:

- 1 Prepare 15 IU of oxytocin/500 mL 5% dextrose.
- 2 Start IV solution infusion at a rate of 4.5-6 mU/minute (9-12 mL/hour) and increased by 4.5 mU/minute every 30 minutes for a maximum of 40 milliunits per minute.
- 3 This protocol have the advantage of shorter induction delivery interval but with more hyperstimulation

IV-Pharmacologic Induction of Labor (Cont.)

Oxytocin Protocol

- If infusion volumes were found to be excessive, prepare double strength solution.
- If no progress occurred after 8–12 hours of starting induction, either discontinue the oxytocin and reapply a cervical ripening agent or re-initiate oxytocin the next day.
- Continuous electronic FHR monitoring during induction is essential to monitor fetal response to labor and uterine response to the inducing agent. If severe FHR abnormalities or hyperstimulation occurred, decrease/discontinue the oxytocin infusion.

IV-Pharmacologic Induction of Labor (Cont.)

Side effects of oxytocin use:

1-Uterine hyperstimulation and subsequent FHR abnormalities.

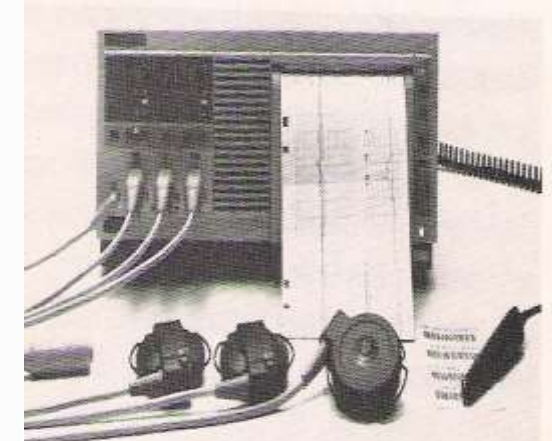
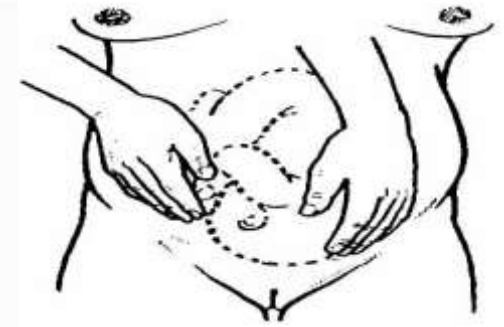
2-Abruptio placentae and uterine rupture.

3-Water intoxication may occur with high concentrations of oxytocin infused with large quantities of hypotonic solutions. Therefore; prolonged administration with doses higher than 40 mu of oxytocin per minute and infusion of fluids in any 10 hours should not exceed 1500 ml. A rapid intravenous injection of oxytocin may cause hypotension.

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Before Interventions

- **Before ARM:**
 - 1 Informed consent obtain.
 - 2 Do abdominal palpation to confirm fetal presentation, position and degree of engagement of the presenting part.
 - 3 Fetal heart rate and uterine contraction should be noted and recorded in patient record.
 - 4 Apply Aseptic technique



Before Intervention Cont..

- **After ARM:**

- 1 The midwife or dr should exclude the presence of cord prolapse.
- 2 Note color, odor, consistency, and quantity of amniotic fluid (to identify if there is any meconium or blood in liquor).
- 3 Note presentation, position and station.
- 4 Monitor temperature q2h (to detect developing infection).

Nursing Interventions if Uterine Hyperstimulation or Fetal Distress Occur: Interventions Rational

1-Turn off immediately
oxytocin infusion

To prevent fetal anoxia-1
.and uterine rupture

Turn woman on her left-2
.side

To improve fetal--2
.placental blood flow

Increase primary I.V-3
rate up to 200 ml/hr
.unless contraindicated

To provide adequate-3
intravascular volume,
support maternal BP, and
I.V route for emergency
.medications

Other Complications may Occur during Oxytocin Infusion:

- In addition to hyper-stimulation of uterus and fetal distress those complications may occur:
- Ruptured uterus as a result of over-stimulation if any cephalopelvic disproportion present.
- Amniotic fluid embolism is rare which may be caused by strong, tumultuous contractions. (usually occur in 3rd stage after placenta separation and with tetanic condition of uterus)

Bibliography

- 1. Text book of obstetrics by D.C. Dutta, 8th edition, Published by Jaypee Brothers
- 2. JB Sharma "midwifery and Gynecological nursing" 1st edition, 2015, published by Avichal publishing house
- 3. William Obstetrics, 24th Edition

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