INDUCTION OF LABOUR PROTOCOLS

Dr. Ilham Hamdi
Nizwa Hospital
Labour

- The process of uterine contractions leading to progressive effacement and dilatation of the cervix and birth of the baby
- The term is usually restricted to pregnancies at gestations greater than the legal definition of fetal viability (24 - 26 weeks).
Induction of Labour (IOL)

- An intervention designed to artificially initiate uterine contractions leading to progressive dilatation and effacement of the cervix and birth of the baby (IOL).

- It includes:
  - Women with intact membranes
  - Women with spontaneous rupture of membranes who are not in labour.
Augmentation

A process where the progress of labour is enhanced by administration of an infusion of oxytocin. (Clinical Guideline 2008)
# Cervical Favourability

<table>
<thead>
<tr>
<th>Cervical feature</th>
<th>Pelvic score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Dilatation (cm)</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>Length of cervix (cm)</td>
<td>&gt; 4</td>
</tr>
<tr>
<td>Station (cm)</td>
<td>- 3</td>
</tr>
<tr>
<td>Consistency</td>
<td>Firm</td>
</tr>
<tr>
<td>Position</td>
<td>Post</td>
</tr>
</tbody>
</table>
Uterine Hyperstimulation

Over activity of the uterus as a result of IOL. It is variously defined as:

- **Tachysystole**, more than five contractions per 10 minutes for at least 20 minutes)
- **Uterine hypersystole / hypertonus**
  A contraction lasting at least two minutes.
- They may or may be not associated with changes in fetal heart rate pattern.
Information and decision – making

- Women should be informed that most women will go into labour spontaneously by 42 wks.
- At 38 wk antenatal visit, all women should be offered information about the risks associated with pregnancies that last longer than 42 wks, and their options.
Information and decision – making

- Information should cover:
  - Membrane sweeping
  - IOL between 41 – 42 weeks
  - Expectant management
Information and decision – making

- Healthcare professionals should explain the followings to women being offered IOL
  - The reason for IOL
  - When, where, and how IOL could be carried out
  - Arrangement for support and pain relief
  - Potential risks and consequences of accepting or declining an offer of IOL
Information and decision – making

- The alternative options if she chooses not to have IOL
- The risks and benefit of accepting IOL in specific circumstances and the proposed induction methods
- IOL may not be successful and what the women’s options would be
Information and decision making

Healthcare professionals offering IOL should:

- Allow the woman to discuss the information with her husband before coming to a decision
- Encourage her to look at a variety of sources of information
- Invite her to ask questions, encourage her to think about her options
- Support her in whatever decision she makes.
Care during IOL

- Informed consent accepting or declining IOL, the risks, proposed methods used, should be taken & documented
- Wherever induction of labour occurs, facilities should be available for continuous electronic uterine and fetal heart (FHR) monitoring
- IOL should be carried out in the morning because of higher maternal satisfaction.
Care during IOL

- Before IOL is carried out, Bishop score should be assessed and recorded, normal FH rate pattern should be confirmed using electronic fetal monitoring.
- After administration of vaginal PGE2, when contractions begin, fetal wellbeing should be assessed with continuous electronic fetal monitoring.
Care during IOL

- Once the cardiotocogram is confirmed as normal, intermittent auscultation should be used unless there are clear indications for continuous electronic fetal monitoring. (Nice CG 55)

- Bishop score should be reassessed 6 hours after vaginal PGE2 tablets or gel insertion to monitor progress.
Care during IOL

- If the fetal heart rate is abnormal after administration of vaginal PGE2, recommendations of management of fetal compromise should be followed.
- Where oxytocin is being used for induction or augmentation of labour, continuous electronic fetal monitoring (CTG) should be used.
Indications

Maternal indications

1. Pregnancy induced hypertension/severe
2. Essential hypertension
3. Abruptio Placentae
4. Medical indications (Diabetes, renal, lupus)
5. Maternal request
Fetal indications

- Prolonged pregnancy
- Intra uterine growth restriction, oligohyramnios
- Intra uterine fetal death
- Rh – isoimmunisation
- Gross fetal anomalies
IOL in specific circumstances

- Fetal growth restriction
  - When a fetus fails to reach its growth potential, may be associated with serious intrapartum and neonatal complications. It results mostly from chronic placental insufficiency, these fetuses are identified by the presence of:
    - Growth below 10th centile
    - Umbilical artery Doppler abnormalities
    - Usually associated with reduced amniotic fluid volume.

- If there is severe fetal growth restriction with confirmed fetal compromise, IOL is not recommended (NICE CG 70)
IOL in specific circumstances

- Previous caesarean birth
  - If delivery is indicated, women who have had a previous caesarean section may be offered:
    - IOL with vaginal PGE2
    - Caesarean section
    - Expectant management on an individual basis
    - Taking into account the woman’s circumstances and wishes.
IOL in specific circumstances

- **Previous caesarean birth**
  - Women should be informed of the increased risks with induction of labour:
    - Increased need for emergency CS
    - Increased risk of uterine rupture.
    - Informed consent should be taken and documented
  
  - Studies should compare the effectiveness, cost – effectiveness, safety and maternal satisfaction of induction of labour by different methods, repeat elective lower segment caesarean section and expectant management in women with a previous caesarean birth.
IOL in specific circumstances

- **Breech presentation**
  - The perinatal mortality was lower for planned caesarean section compared with planned vaginal breech delivery. Hence, no conclusions were reached from the data regarding IOL with breech presentation (1b) CG No 9 2001
  - IOL is not generally recommended if a woman’s baby is in breech presentation. If external cephalic version is unsuccessful, declined or contraindicated, and the woman chooses not to have an elective caesarean section, IOL should be offered, if delivery is indicated, after discussing the associated risks with the woman, with consent and documentation. (NICE CG 70)
IOL in specific circumstances

- **High parity**
  - IOL in women of high parity with standard oxytocin regimens may be associated with increase in uterine rupture.
  - IOL should be undertaken at consultant level. (NICE, CG 2008)
IOL in specific circumstances

- Prolonged pregnancy
  - Women with uncomplicated pregnancies should be given every opportunity to go into spontaneous labour.
  - IOL should be offered between 41 & 42 weeks.
  - The exact timing should take into account the woman’s preference and local circumstances.
  - If she chooses not to have IOL, her decision should be respected.
IOL in specific circumstances

- From 42 weeks, women who decline IOL should be offered:
  
  - Increased antenatal monitoring consisting of at least twice weekly cardiotochography
  - Ultrasound estimation of maximum amniotic pool depth. (NICE CG 62).
IOL in specific circumstances

- Preterm prelabour rupture of membranes
  - If a woman has preterm prelabour rupture of membranes, IOL should not be carried out before 34 weeks unless there are additional obstetric indications for example:
    - Infection or
    - Fetal compromise.
IOL in specific circumstances

- Preterm prelabour rupture of membranes
  - If it is after 34 weeks, the followings should be discussed with her before a decision is made about whether to induce labour using PGE2:
    - Risk to the woman: sepsis, possible need for CS
    - Risk to the baby: sepsis, preterm birth
    - Local availability of neonatal care facilities. (NICE CG 70)
IOL in specific circumstances

- Prelabour rupture of membranes at term
  - Women with prelabour rupture of membranes at term (37 weeks and over) should be offered a choice of IOL with vaginal PGE2, or expectant management
  - IOL is appropriate approximately 24 hours after prelabour rupture of membranes at term. (NICE CG 70)
IOL in specific circumstances

- Suspected fetal macrosomia
  - In the absence of any other indications, induction of labour should not be carried out simply because a healthcare professional suspects a baby is large for gestational age (macrosomic).
IOL in specific circumstances

- History of precipitate labour
  - IOL to avoid a birth unattended by healthcare professionals should not be routinely offered to women with a history of precipitate labour
  - Studies are needed to qualify the risks for women with history of precipitate labour, and compare effectiveness, safety and maternal satisfaction of different management policies. (NICE CG,70, 2008)
IOL in specific circumstances

- Intrauterine fetal death (IUFD)
  - Healthcare professionals should offer support to help women and their family to cope with emotional and physical consequences of the death. This should include offering information about specialist support.
IOL in specific circumstances

- IUFD
  - If the woman appears to be physically well:
    - The membranes are intact
    - No evidence of infection
    - Or bleeding
    - She should be offered a choice of immediate induction of labour
    - Or expectant management.
IOL in specific circumstances

- **IUFD**
  - If there is evidence of ruptured membranes, infection or bleeding:
    - Immediate IOL is the preferred management
  - If the woman chooses IOL:
    - Oral Mifepristone
    - Followed by vaginal PGE2
    - Or vaginal Misoprostol (for pregnancies between 25 – 36 weeks) should be offered.
IOL in specific circumstances

- **IUFD**
  - The choice & dose should take into account the clinical circumstances, availability of preparation and local protocol
  - Those with previous CS, the risk of uterine rupture is increased. The dose of vaginal PGE, should be reduced accordingly, particularly in the third trimester. (NICE CG, 70, 2008)
IOL in specific circumstances

- **Multifetal pregnancy**
  - The perinatal mortality rate in twin pregnancies is increased in comparison with singleton pregnancies at term
  - No conclusions were drawn from the available trial evidence relating to merits of an active policy of IOL in uncomplicated multifetal pregnancies. (CG 2001)
  - Twins are not a contraindication to IOL. (Dewhurst, 7th Ed 2007)
IOL in specific circumstances

- Diabetes in pregnancy
  - Women who have pregnancies complicated by diabetes should be offered IOL after 38 weeks. (Nice CG, 63, 2008)
  - The risk of late unexpected stillbirth in diabetic pregnancies is approximately fourfold higher than for the non diabetic, for this reason most of the authorities advocate delivery after 38 weeks. (Dewhurst 7th Ed 2007)
IOL in specific circumstances

- Maternal request for IOL
  - IOL should not routinely offered on maternal request alone. However, under exceptional circumstances for example, if the woman’s husband is soon to be posted abroad, induction may be offered at or after 40 weeks
  - Audit research is needed to assess the prevalence of maternal request for IOL and the reasons for such request. (CG 2008)
IOL in specific circumstances mentioned before

- The clinical decision regarding the timing and method of IOL should be undertaken at consultant level.
- The induction process should not occur on an antenatal ward.
Method of induction

- **Membrane sweeping**
  - Prior to formal IOL, women should be offered a vaginal examination for membrane sweeping, with informed consent and documentation, 40 – 41 wk in nulliparous, 41 wk in parous women
  - Is not associated with an increase in maternal or neonatal infection
  - Is associated with increased levels of discomfort during the examination and bleeding. (A)
Method of IOL

- Pharmacological based method
  - Prostaglandins (PGE2), Dinoprostone
    - Vaginal PGE2, is preferred method of IOL, unless there are specific clinical reasons for not using it in particular, the risk of uterine hyperstimulation
    - It should be administered as gel, tablets or controlled release pessary.
Method of IOL

- Vaginal PGE2
  - The recommended regimens are:
    - One cycle of vaginal PGE2 tablets or gel, one dose, followed by a second dose after 6 hrs if labour is not established (up to maximum of two doses)
    - PGE2 tablets: 3 mg, repeat after 6 hrs, total 6 mg
    - PGE2 gels: 2 mg in nulliparous with unfavourable cervix (Bishop’s score less than 4). 1 mg for all other women
      In either, a second dose of 1 – 2 mg can be administered six hrs later
      The maximum dose is 4 mg for nulliparous with unfavourable cervix and 3 mg for all other women.
When offering PGE2 for IOL, healthcare professionals should inform women about the associated risks of uterine hyperstimulation. Despite extensive studies carried out over the past 30 years to determine the most effective ways of inducing labour with PGE2, uncertainties remain about how best to apply these agents in terms of their dose & timing. It would be useful to understand why vaginal PGE2 fails to induce labour in some women.
Intravenous oxytocin alone should not be used for IOL.

Oxytocin should not be started for six hours following administration of vaginal PGE2. (C)
Method of IOL

- Amniotomy with intravenous oxytocin
  - Amniotomy with oxytocin infusion should not be used as a primary method of IOL unless there are specific contraindications to the use of vaginal PGE2, in particular the risk of uterine hyperstimulation.
  - When the cervix is favourable.
Method of IOL

- **Misoprostol**
  - Synthetic prostaglandin (PGE1)
  - Can be given orally, vaginally or sublingually
  - It is not licensed for IOL yet
  - It is used for incomplete abortion
  - Induction of abortion
  - IOL between 25 – 36 weeks (strictly for IUFD only)
  - Consultant decision.
Method of IOL

- **Misoprostol**
  - 50 microgram vaginally, every 4 hours total 4 doses
  - Reduce the dose in previous LSCS (consultant decision)
  - If syntocinon is required for augmentation of labour, should be given 6 hours after the last dose of misoprostol.
Method of IOL

- **Mifepristone**
  
  Antiprogestin, antagonise the action of progesterone
  
  Used for IOL in IUFD orally followed by:
  
  Vaginal PGE2
  
  Or vaginal Misoprostol.
Pain relief during IOL

- Women being offered IOL should be informed that induced labour is more painful than spontaneous labour.
- During IOL appropriate pain relief should be offered to the patient according to availability of the analgesics, ranging from simple to epidural analgesia.
- Labour in water is recommended for pain relief.
Complications

- **Uterine hyperstimulation**
  Tocolysis should be used if uterine hyperstimulation occurs during IOL.

- **Failed induction**
  If IOL fails, the management options are:
  - A further attempt to induce labour
  - Caesarean section, according to the woman’s wishes.
Complications

- **Cord prolapse**
  - Before IOL, engagement of the presenting part should be assessed.
  - Obstetricians and midwives should palpate for umbilical cord presentation during preliminary vaginal examination and avoid dislodging the baby’s head.
  - Amniotomy should be avoided if the baby’s head is high.
Complications

- Uterine rupture
  - If uterine rupture is suspected during induced labour, the baby should be delivered by emergency caesarean section.
References

- Induction of labour, evidence – based clinical guideline, No 9, June 2001
- Diabetes in pregnancy, NICE clinical guideline 63, March 2008
- Induction of labour, NICE clinical guideline, 70, June 2008
- Intrapartum care, NICE clinical guideline, 55, Sept 2007
References

- High Risk Pregnancy, 3rd edition, Chapter 68, Induction of labour, Luis Sanchez, Issac Delke, 1392 - 1404
Thank You