The Seduction of Induction

Presented by
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Normal Onset of Labor

“A biochemical conversation takes place between mother and child throughout pregnancy”

“The fetus has a large say in exactly when labor will begin.”

--Christopher Vaughn, 1996
Fetus controls onset of labor

- Hypothalamus (CRH) stimulates
- Pituitary gland (ACTH) stimulates
- Adrenal gland (Cortisol) stimulates
  - Placenta to convert progesterone to estrogen
Fetus controls onset of labor

- Estrogen increases oxytocin receptors in uterine lining by 100-200 times
- Uterus more sensitive to oxytocin, and ↑ contractions
- Contraction ↑ pressure and stretching
  - Causes pituitary to ↑ oxytocin, ↑ contractions, ↑ pressure and stretching etc.
- A “positive feed forward mechanism”
Fetus controls onset of labor

- Estrogen also instructs uterus, membranes, and placenta to produce prostaglandins
  - Prostaglandins stimulate uterine contractions and ripen cervix
- Estrogen improves mother’s clotting ability (protects against hemorrhage)
Placenta in cross-section at umbilical cord
Why Would Anyone Want to Interfere With This Elegant Design?
“How about adding predictability to the birth process?”

--from an ad in an obstetric journal for a timed release prostaglandin “tampon”

Why Not?
History of Induction of Labor

- Need to control parturition is as old as birth
- Ergot (rye fungus) used from ancient times until early 1900s
- “Daylight Deliveries” – 1960s, 1970s
  - Buccal Pitocin
- Interest in non-medical & nonsurgical induction -- nipple stimulation, stripping membranes, castor oil, etc. was rekindled
History of Induction of Labor

- Elective inductions increased in 60s & 70s
- Disapproval of elective inductions in late 1970s by FDA
  - Iatrogenic prematurity
  - Overcrowded Neonatal Intensive Care Units
  - Huge unnecessary costs
History of Induction of Labor

- Prostaglandin gel introduced in Europe and Australia in 1970s, USA in the 1980s
  - FDA did not approve Pg gel use until 1994,
  - Hospital pharmacies made their own
  - Unreliable dosages, poorly stored
- Misoprostol introduced in the late 1990s
- “Daylight deliveries” once again the goal
History of Induction of Labor

- Incidence of labor induction in the USA:
  - Official CDC rate for 2000 – 19%
  - Listening to Mothers Survey (2000-02) – 43%
  - [Anecdotal reports often higher]

- Why the difference between the two reports?
  - Underreporting on medical charts?
  - Differences in definition of “induction?”
  - Difference in time period of reporting?
Indications for Induction

- Medical indications
  - Illness in Mother
  - Oligohydramnios
  - Postdates
  - Prolonged PROM (esp. if + for Group B Strep)
  - IUIGR
- NOT suspected macrosomia (ACOG)
Problem: Inductions for Macrosomia

- Reasons for inducing for suspected “big baby”
  - Fear of shoulder dystocia
  - “The baby isn’t getting any smaller”
Indications for Induction

- Other indications
  - Window between herpes outbreaks
  - Previous rapid labor
  - Long distance to hospital
  - Father/partner must leave home
Indications for Induction

- **Elective Induction**
  - At or near term: Why not induce?
  - To have own caregiver attend the birth
  - Schedule to ensure adequate staff
  - Choose date to coincide with or avoid meaningful dates
Induction Issues for the Woman

- Elective (non-medical) inductions have not been found to improve obstetric outcomes.
- In fact, numerous studies report that elective inductions for primigravidas increase the cesarean rate by 2 to 4 times.
Induction Issues for the Woman

- Ignorance of difference between *medically indicated* and *elective* induction
- Difficult to resist an offer of induction (“9th month woman”)
- A long period of fasting
- “Hurry up and wait” – get to hospital at 7:00; induction begins at 10:00 or later
- May be sent home if unit is too busy
The Concept of “Inducibility”

- The ripe cervix
- The need to ripen the cervix
## The Bishop Score

<table>
<thead>
<tr>
<th>Factor</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
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<tbody>
<tr>
<td>Dilation</td>
<td>0 cm</td>
<td>1-2 cm</td>
<td>3-4 cm</td>
<td>5-6 cm</td>
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<tr>
<td>Effacement</td>
<td>0-30%</td>
<td>40-50%</td>
<td>60-70%</td>
<td>80%</td>
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<tr>
<td>Station</td>
<td>-3</td>
<td>-2</td>
<td>-1 or 0</td>
<td>+1 or +2</td>
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<tr>
<td>Consistency</td>
<td>Firm</td>
<td>Medium</td>
<td>Soft</td>
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<tr>
<td>Position</td>
<td>Post.</td>
<td>Mid</td>
<td>Anterior</td>
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Methods of Cervical Ripening and Labor Induction

- Sexual intercourse, clitoral stimulation, orgasm
- Nipple stimulation
- Enemas
- Acupuncture
- Osmotic cervical dilators
Methods of Cervical Ripening and Labor Induction

- Ingested substances
  - Herbs (teas, tinctures)
  - Evening primrose oil
  - Homeopathic solutions
  - Castor oil
<table>
<thead>
<tr>
<th>Variable</th>
<th>Castor oil N = 52</th>
<th>No-tx group N = 48</th>
<th>P value</th>
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<tbody>
<tr>
<td>Nulliparas</td>
<td>42.3%</td>
<td>43.8%</td>
<td>NS</td>
</tr>
<tr>
<td>Gest. age</td>
<td>284 days</td>
<td>285 days</td>
<td>NS</td>
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<tr>
<td>Labor within 24 h.</td>
<td>57.7%</td>
<td>4.2%</td>
<td>&lt;0.001</td>
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<tr>
<td>Meconium</td>
<td>10.4%</td>
<td>11.5%</td>
<td>NS</td>
</tr>
</tbody>
</table>
Methods of Cervical Ripening and Labor Induction

- Foley (balloon) catheters
- Sweeping or stripping the membranes
- Amniotomy (artificial rupture of membranes)
Methods of Cervical Ripening and Labor Induction

- Prostaglandin E$_2$ (Prepidil gel, Cervidil tampon)
- Prostaglandin E$_1$ (oral or vaginal Misoprostol/Cytotec)
- Synthetic Oxytocin or Pitocin (IV, various dosages)
Prostaglandin E₂ (gel & tampon) vs E₁ (in 25-50 µg doses intravaginally):

**PgE₂ Prepidil Cervidil**
- Requires refrigeration
- Costs $85-250/dose
- Less meconium
- Less C/S for fetal distress
- Less uterine hyperstimulation

**PgE₁ (misoprostol, Cytotec)**
- Stable @ Room T°
- Cheap ($0.25/dose)
- More deliveries in 24 h. (66% vs 41%)
- Shorter dose-del. time
- Less oxytocin required
- Less C/S for dystocia
Cytotec is Not FDA Approved

1999: ACOG advocated “appropriate” off-label use of Cytotec for induction


- Warned MDs not to use cytotec to induce labor
- Noted serious adverse events
Cytotec is *Not* FDA Approved (cont)

- **4/2000**: FDA recognized that Cytotec is widely used to induce labor; but continues to contraindicate its use in pregnancy.

- **2002**: DrugIntel News: ACOG, Searle, and the FDA have protected themselves legally, which “puts the MD in a precarious position.”
Before Accepting Induction, the Woman Should Ask:

- Is there a problem? How serious is it? How urgent is it that we induce?
- Describe the induction procedure. If it does not succeed, what are the next steps?
- Are there any risks?
- Are there any alternatives, including waiting or not doing it?
- Ask same questions about alternatives.
Supporting the Woman During an Induced Labor

- Help the woman become informed
- Be sensitive to her values
- Explore her feelings about induction, the reasons, the procedure, and alternatives
- Recognize in yourself the temptation to encourage induction!
Supporting the Woman During an Induced Labor

- Frustrations for the woman and her family:
  - being turned away if hospital is too busy
  - “Hurry up and wait”
  - Labor seems very long
  - Vulnerability to suggestion that something is wrong
Supporting the Woman During an Induced Labor

- When does the doula arrive at the hospital?
- Be guided by needs of woman and doula
  - On admission?
    - May be hours before the doula is needed
    - May mean hours of “small talk” BUT
  - Doula can help with initial anxiety
  - Ensures that doula is there when important things happen
Supporting the Woman During an Induced Labor

- When does the doula arrive at the hospital?
- Await parents’ call?
  - Sometimes labor starts abruptly, and they don’t think or have a chance to call, OR
  - They call when she has already decided on an epidural
Supporting the Woman During an Induced Labor

- When does the doula arrive at the hospital?
  - Doula is pro-active
  - Doula calls parents every hour or two
- Doula joins couple
  - When it seems that contractions are occurring
  - When woman feels things are changing
The infusion pump and “external locus of control”

- Internal vs external locus of control
- Woman focuses on pump or nurse, not her uterus, as the cause of her pain and exhaustion
- A tendency not to own the pain or cope with it; it is an outside force
- Reinforces helplessness
- Increased if woman did not agree to the induction?
Supporting the Woman During an Induced Labor

- Help her accept labor, not resist it
- Focus on the contractions as bringing the baby
- Turn down Pit if contractions have increased w.o. an increase in Pit?
- Encourage woman to express feelings
- Validate how long and hard it seems or feels
- Reframe and simplify (“Our job is…”)

Conclusions

- We are in the midst of an epidemic of induction of labor.
- Most inductions are not indicated.
- There are many ways to induce labor.
- Induction presents an emotional and physical challenge to the woman & couple.
- Supporting a woman during induction requires unique skills.
For the fruits of labour

Cervidil
Controlled cervical ripening