Postdates & Postterm Pregnancies
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Revision of ACOG Induction Guidelines: August 2009

- Avoid elective induction prior to 39 weeks to prevent the negative effects of iatrogenic prematurity which have skyrocketed
- Data is mounting about a subcategory of term births called "early term," from 37 0/7 to 38 6/7 weeks of gestation, because these births have increased mortality and neonatal morbidity as compared with neonates born later at term.


ACOG Guidelines Aug 2009:

- Labor also may be induced for logistic reasons, for example, risk of rapid labor, distance from hospital, or psychosocial indications.
- In such circumstances, at least one of the gestational age criteria in the box should be met, or fetal lung maturity should be established.
- A mature fetal lung test result before 39 weeks of gestation, in the absence of appropriate clinical circumstances, is not an indication for delivery.


The New ACOG Guidelines

- Encourage and clearly define methods for confirming Term Gestation
- Emphasizes the correct and detailed assessment of gestational age
- Explicitly say that nulliparous women should be counselled about the two-fold increased risk of CS birth related to induction
- Encourage allowing at least 12-18 hours of latent labor before diagnosing a failed induction which may reduce the risk of cesarean birth.

ACOG Guidelines Aug 2009:

- "A systematic review found that in patients with an unfavorable cervix, Foley catheter placement before oxytocin induction significantly reduced the duration of labor (21). The addition of oxytocin along with the use of the Foley catheter does not appear to shorten the time of delivery in a randomized controlled trial."

- "Mechanical methods may be particularly appropriate in the outpatient setting. A randomized trial comparing the Foley catheter in an outpatient versus inpatient setting for preinduction cervical ripening demonstrated similar efficacy and safety with a reduction of hospital stay of 9.6 hours."

Epidemiology Review

Appendix 1: Formulas for commonly used measures of therapeutic effect

<table>
<thead>
<tr>
<th>Measure of effect</th>
<th>Formula</th>
</tr>
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<tbody>
<tr>
<td>Relative risk</td>
<td>(event rate in intervention group) / (event rate in control group)</td>
</tr>
<tr>
<td>Relativ risk reduction</td>
<td>1 - relative risk</td>
</tr>
<tr>
<td>Absolute risk reduction</td>
<td>(Absolute risk reduction) / (event rate in control group)</td>
</tr>
<tr>
<td>Number needed to treat</td>
<td>1 + (absolute risk reduction)</td>
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</table>

Cochrane Review 2007

- Includes 19 trials reporting on 7984 women
- A policy of labour induction at 41 completed weeks or beyond was associated with fewer (all-cause) perinatal deaths
- V2956 versus S2953
- The Relative risk reduction is 75% (CI 1%-95%)
- The risk difference is 0.00 (95% CI 0.01 to 0.09)
- The "Number needed to treat to prevent one perinatal death is not very helpful as it varies between 100 to infinity."

- There was no evidence of a statistically significant difference in the risk of caesarean section for induced women.
  - 41 weeks - RR 0.92; 95% CI 0.76 to 1.12
  - 42 weeks - RR 0.97; 95% CI 0.72 to 1.31

Cochrane Review 2007

- Women induced at 37 to 40 completed weeks were more likely to have a caesarean section with expectant management than those in the labour induction group
  - RR 0.58; 95% CI 0.34 to 0.99
  - Absolute Risk Reduction 42% (CI 1%-66%)
- There were fewer babies with meconium aspiration syndrome in the labor induction group, but the difference was not statistically significant in the 42+ group.
  - 41+: RR 0.29; CI 0.12 to 0.68
  - Absolute Risk Reduction 71% (CI 32%-88%)
  - 42+: RR 0.66; CI 0.24 to 1.81

Cochrane Review 2007

- "Fetal monitoring in the expectant arms mostly included twice weekly nonstress tests and amniotic fluid index measurements and it can perhaps be speculated that in the urban, relatively well-equipped settings and where women can access these services, expectant management could be safely practised."

Cochrane Review 2007

- Authors' conclusions
  A policy of labour induction after 41 completed weeks or later compared to awaiting spontaneous labour either indefinitely or at least one week is associated with fewer perinatal deaths.
  - However, the absolute risk is extremely small. Women should be appropriately counselled on both the relative and absolute risks.
Guidelines for the Management of Postterm Pregnancy from the World Association of Perinatal Medicine, 2010

- The most important specific risk factors are restricted fetal growth and fetal malformations.
- With the goal of preventing postterm pregnancies and associated complications, routine induction before 42 weeks has been proposed, but there is no conclusive evidence that routine induction improves outcomes or reduces maternal and neonatal risks, as compared to expected management.
- It is also unclear if the rate of caesarean sections is different between the two management strategies.
- After careful identification and exclusion of specific risk factors, it would seem appropriate to let women make an informed decision about which management they wish to undertake.
- There is consensus that the number of inductions necessary to possibly avoid one stillbirth is very high.
- There is evidence that this policy improves fetal, maternal and neonatal outcomes as compared to expectant management.
- Close intrapartum fetal surveillance should be offered, irrespective of whether labor was induced or not.
- Women should be offered membrane sweeping to prevent one induction of labor.
- It is also unclear if the rate of cesarean sections is different after induction.

SOGC Clinical Practice Guideline

- Non-stress testing and amniotic fluid volume assessment in otherwise healthy postdates pregnancies should begin between 287 and 294 days (41 and 42 weeks), or two weeks before the time of an adverse event in a previous pregnancy.
- Antenatal fetal testing should be performed without delay for women who present with decreased fetal movement.
- Antenatal testing frequency should reflect the degree of risk in cases where the perceived risk persists, and testing will usually be performed once or twice weekly.
- Despite widespread use, there is poor evidence that antenatal non-stress testing can reduce perinatal mortality or morbidity.

Ultrasound Dating

- Prior to 10 weeks
  - +/- 5 days
- 10-22 weeks
  - +/- 10 days
- Fetus
- 22-30 weeks
  - +/- 14 days
- >30 weeks
  - +/- 21 days

"We're replacing you with a midwife."

Cochrane Review: Membrane Sweeping

- Sweeping of the membranes at term (38-41 weeks) reduced the frequency of pregnancies continuing:
  - After 41+0 weeks
    - RR 0.59, CI 0.46–0.74
  - After 42+0 weeks
    - RR 0.28, CI 0.15–0.50
  - NNT=8 Thus eight women would need to undergo sweeping of membranes to prevent one induction of labour.

Cochrane Review. Stripping/membrane sweeping the membranes for inducing or preventing postterm pregnancy, 2006.
Membrane Sweeping: Potential Benefits

- Plasma prostaglandin concentrations after sweeping are 10% of those achieved in labour, thus possibly improving labour outcomes.
- Multiple episodes of membrane sweeping may be more efficacious.
- Membrane sweeping is generally most efficacious in nulliparous women with unfavourable Bishop scores.
- Not all studies have noted a reduction in the need for post-term induction.
- Multiple episodes of membrane sweeping may be more efficacious. (p. 803)
- In a recent NED study (n=750), benefits were noted in both nulliparous and multiparous patients.
- And 88% of all women randomized to sweeping reported that they would choose sweeping in the next pregnancy, despite the discomfort.

Membrane Sweeping: Potential Risks

- Theoretical risks of membrane sweeping include chorioamnionitis, PROM, and bleeding from an undiagnosed placenta previa.
- Although membrane sweeping has been associated with increased risk of PROM (28), other published systematic reviews, including one with 1,525 women, failed not to corroborate this finding (27). ACOG 2009
- In review of clinical trials, there was no increased incidence of fetal infection or neonatal morbidity related to the procedure.
- A small study did not find any increased colonization with group B streptococcus during membrane sweeping.
- Maternal morbidity:
  - Significant discomfort or pain during procedure
  - Bleeding
  - Contractions not leading to labour within 24 hours

Membrane Sweeping Effectiveness & PROM

- Overall rates of induction, postmaturity, and prelabour membrane rupture were similar in both groups.
- n=300, RCT of women at 38 wk who were SWEEPING or no membrane sweeping, intention to treat analysis.
- No significant between-group difference in occurrence of:
  - PROM of 1.9% women without sweeping vs. 12% of women with sweeping (P=0.19)
  - Among women with cervical dilation 1 cm, however, 9% in the sweep group had PROM vs. no patients in the no-sweeping group (P=0.08).
  - Similar rates in both groups of other outcomes, including C/S, spontaneous labor, induction, and postmaturity.
  - These data indicate neither great value nor great risk from membrane sweeping starting at 38 weeks.
  - Women with cervical dilation 1 cm during late pregnancy could be at risk for PROM in association with sweeping, suggesting that such women might be more sensitive to the procedure.
  - The data suggest that there is no need to sweep.

Acupuncture for Induction: Cochrane Review 2004

- Fewer women receiving acupuncture required use of induction methods (RR 1.45, CI 1.08 to 1.95)
- Compared with standard care (RR 1.45, CI 1.08 to 1.95)
- There were no differences between groups in the reporting of other outcomes
- n=147
- “More research is needed”
**Cochrane Review 2010: Outpatient Methods of Induction**

- 28 studies with 39,045 women assessing different methods of induction of labour where a woman received treatment at home or at a midwife run or hospital based outpatient service.
- Studies examined rates of instrumental delivery (VD), other obstetric intervention, immediate and long-term complications, and experience.
- Overall, the results demonstrate that outpatient induction of labour is feasible and that important adverse events are rare.
- There was no strong evidence that agents used to induce labour in outpatient settings had an impact on outcomes.
- There was insufficient evidence to determine whether induction methods were more or less effective than expectant management.
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**College of Midwives of BC Guidelines for Post-Dates Pregnancy, 2003**

- The College of Midwives of British Columbia supports registered midwives in providing primary care for women with post-dates pregnancies. This guideline is intended to assist midwives in offering choices to these women.
- An uncomplicated pregnancy with a certain EDD would only be considered outside the standard deviation of normal, if the duration of pregnancy is greater than two weeks and three days (296 days).
- Both induction and expectant management remain options for the woman after 42 weeks.

**College of Midwives of BC Guidelines for Post-Dates Pregnancy, 2003**

- Women experiencing a post-dates pregnancy should be provided with the following information along with the range of options for care available in their community:
  - Induction of labour after 41 weeks gestation has been shown to slightly reduce the risk of perinatal death.
  - Induction before 41 weeks is not associated with any advantage and increases the likelihood of cesarean.
  - Periodic assessment of fetal heart patterns through non-stress testing (NST) and assessment of amniotic fluid volume (AFV) have been shown to be as effective as more complex forms of monitoring fetal well-being. These tests assess well-being at the point they are performed and will need to be repeated if the results are not reassuring.
  - Midwives are required to refer their clients to a physician consultation visit at 42 weeks. A midwife will generally request one of the above tests just prior to this 42 week consultation so that the results can be provided to the consultant.

**Maternal obesity, length of gestation, risk of postdates pregnancy and spontaneous onset of labour at term.**

- Higher maternal BMI in the first trimester and a greater change in BMI during pregnancy were associated with longer gestation and an increased risk of postdates pregnancy.
- Higher maternal BMI during the first trimester was also associated with decreased likelihood of spontaneous onset of labour at term and increased likelihood of complications.

**Maternal obesity, length of gestation, risk of postdates pregnancy and spontaneous onset of labour at term.**

- Increasing maternal age (P < 0.001), height (P < 0.001) and having a family situation other than living with the father (single or other; P = 0.025) were also associated with longer gestation, whereas smoking (P > 0.001) and being non-European (compared with European: P < 0.001) were associated with shorter gestation.
- n=143,519 (Sweden), Retrospective
Obesity Associations

<table>
<thead>
<tr>
<th>BMI category</th>
<th>% of women</th>
<th>Spontaneous onset of labour</th>
<th>Inductions</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥35.0 kg/m²</td>
<td></td>
<td>1.21 (1.11–1.32)</td>
<td>100</td>
</tr>
<tr>
<td>30.0–34.9 kg/m²</td>
<td></td>
<td>0.92 (0.83–1.03)</td>
<td>100</td>
</tr>
<tr>
<td>25.0–29.9 kg/m²</td>
<td></td>
<td>0.79 (0.70–0.89)</td>
<td>100</td>
</tr>
<tr>
<td>&lt;25.0 kg/m²</td>
<td></td>
<td>0.69 (0.60–0.79)</td>
<td>100</td>
</tr>
</tbody>
</table>

CONCLUSION: The odds that X will happen are x:1

Odds tend to inflate the effect size of an analysis (esp. if the events being studied are relatively common)

Probabilities/Relative Risks are relatively easy to interpret but odds can be tricky

Odds ratios can illegitimately inflate the effect size substantially

Obesity Facts

- There is currently a paucity of interventional studies on obese women who have attempted to modify risk and improve pregnancy outcome.
- Overall, 24.5% of women 20-44 years of age were overweight (BMI ≥ 30.0 kg/m²) and 23.0% were obese (BMI ≥ 35.0 kg/m²).
- Among those who were obese, 10.3% met the criteria for class II or III obesity.


- Women who underwent spontaneous onset of labor (n = 112) had a significantly shorter cervical length (mean(SD) 25.0 (8.3) mm) than had women whose labor was induced (n = 67; mean(SD) 29.7 (8.5) mm).
- Sonographic assessment of cervical length is a significant independent predictor of the likelihood of the onset of spontaneous labor in nulliparous women, and of successful vaginal delivery in both nulliparous and parous women with prolonged pregnancy.

Interpreting Odds Ratios

- The odds that X will happen are x:1
- Odds tend to inflate the effect size of an analysis (esp. if the events being studied are relatively common)
- Probabilities/Relative Risks are relatively easy to interpret but odds can be tricky
- Odds ratios can illegitimately inflate the effect size substantially

Hot of the Press: Slow-release Prostaglandin Estradiol Pessary for Induction

- In 50-term nulliparous women receiving a slow-release prostaglandin estradiol pessary
- Prospective RCT to assess predictability of successful induction.

RESULTS: The group of patients delivering within 24 hours differed significantly from the remaining patients by higher Bishop scores, body mass index, estimated fetal weight at presentation, gestational age, preterm deliveries, second trimester delivery, and elective cesarean deliveries.

The change in cervical length and estimated cervical length at 18 weeks of gestation achieved a sensitivity of 100% (CI, 71.3–100%) and a specificity of 94.1% (CI, 83.5–96.1%).

CONCLUSION: Cervical length and the extent to which it shortens are good predictive indicators of the response to the induction of labor in postterm pregnancies.

References


References


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