To VBAC or Not To VBAC: What Does the Evidence Say

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Objectives

• Attendees will describe data regarding safety of TOLAC based on a patient’s individual history
• Attendees will describe evidence-based counseling for patients regarding TOLAC.
• Attendees will utilize a VBAC calculator to estimate the likelihood of successful VBAC

Conflicts of Interest

• I have no conflicts to disclose 😊
Cesarean delivery rates in America rose to 32 percent in 2007 from 21 percent in 1996.

Since 1996 one-third of hospitals and one-half of physicians no longer offer trial of labor after cesarean (TOLAC).

The repeat cesarean delivery rate for low-risk women rose to 89 percent by 2003.
Statistics

• Success of trials of labor range from 60-80%. The risk of uterine rupture for spontaneous labor and one prior cesarean section is < 1%.

• Likelihood of VBAC is associated with demographic and obstetric factors, with race and ethnicity the strongest predictors of success.

Factors affecting success - Increased probability

• BMI < 30 is associated with higher success rates.
• Nonrecurring indications for the prior cesarean are also associated with higher success rates (breech or non-reassuring FHTs)
• Any prior vaginal delivery (before or after the cesarean) increases chances for VBAC.
• More dilation, effacement, i.e. higher Bishop score improve chances.
• Spontaneous Labor!
Factors affecting success
Decreased probability

• Latina and African-American women have lower rates of VBAC than non-hispanic white women.
• Increasing maternal age, being single, and having less than 12 years of education are also associated with lower rates of VBAC.
• Induction or augmentation lower the rate of VBAC.

Risks of TOLAC vs. Rpt- for mom

Table 1. Composite Maternal Risks from Elective Repeat Cesarean Delivery and Trial of Labor After Previous Cesarean Delivery

<table>
<thead>
<tr>
<th>Maternal Risks</th>
<th>ERCD (%)</th>
<th>TOLAC (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>One CD</td>
<td>Two or more CDs</td>
</tr>
<tr>
<td>Endometritis</td>
<td>1.5-2.1</td>
<td>2.9</td>
</tr>
<tr>
<td>Operative injury</td>
<td>0.02-0.6</td>
<td>0.4</td>
</tr>
<tr>
<td>Blised transudation</td>
<td>1.4</td>
<td>0.7-1.7</td>
</tr>
<tr>
<td>Hysterecomomy</td>
<td>0.04</td>
<td>0.3-0.5</td>
</tr>
<tr>
<td>Urine nephren</td>
<td>0.4-0.5</td>
<td>0.3-0.9</td>
</tr>
<tr>
<td>Maternal death</td>
<td>0.02-0.04</td>
<td>0.02</td>
</tr>
</tbody>
</table>

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Benefits for mom

• Experience of vaginal birth
• Avoid major abdominal surgery
• Less hemorrhage, infection and shorter recovery
Risks of TOLAC vs. Rpt- for baby

ACOG Practice Bulletin Number 115, August 2010

Table 2. Composite Neonatal Morbidity from Elective Repeat Cesarean Delivery and Trial of Labor After Previous Cesarean Delivery

<table>
<thead>
<tr>
<th>Hemorrhage</th>
<th>ERCD (%)</th>
<th>TOLAC (%)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antepartum</td>
<td>0.00</td>
<td>0.18</td>
<td></td>
</tr>
<tr>
<td>37-38 weeks</td>
<td>0.21</td>
<td>0.14</td>
<td></td>
</tr>
<tr>
<td>39 weeks or greater</td>
<td>0.01</td>
<td>0.14</td>
<td></td>
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</tbody>
</table>

Chances of Success and Morbidity

- Studies have demonstrated that women with a 60-70% chance of VBAC success have \( \leq \) maternal morbidity with TOLAC than elective repeat cesarean delivery (ERCD).
- Women with < 60% chance of VBAC success have more likely morbidity with TOLAC than ERCD.
One Prior Cesarean

- Most women with one prior cesarean with a low transverse incision are candidates for and should be counseled about VBAC and offered TOLAC
  
- The risk of uterine rupture with one prior cesarean section and spontaneous labor is 0.5-0.7% (1/150-1/200).

2 or more prior Cesareans

- Studies differ with regards to risk of uterine rupture with greater than one prior uterine incision.
  
- Rupture risks vary from 0.9-1.8%.
  
- Maternal morbidity increased
  
- Similar likelihood of success
  
- Reasonable to consider as candidates for TOLAC although data is limited!

Estimated Fetal Weight

- If the EFW is greater than 4000g, likelihood of VBAC success is lower, especially in women who had a prior cesarean for dystocia with a smaller baby.
Incision Type

- Prior classical uterine incision not recommended for TOLAC (~5% rupture risk)
- Prior low vertical - similar risk to low transverse incision
- Unknown - No significant increase in TOLAC risk. Scar type can often be inferred from indication. With high suspicion (very preterm delivery, e.g.) recommend repeat cesarean.

Twin Gestation

- VBAC outcomes and success similar to singleton gestations.
- May be considered for TOLAC per ACOG.

Labor Management TOLAC

- Is Induction or Augmentation OK?
  - One study of > 20,000 women found an increased rupture rate of 0.77% for induced (no prostaglandins) vs. 0.52% for spontaneous labors. Prostaglandins increased the rate to 2.24%.
    - (Lydon-Rochelle M., et al 2001)
  - Another of > 33,000 women found rates of 0.4% for spontaneous, 0.9% for augmented and 1.1% for oxytocin-induced.
    - (Goldman WA, et al 2007)
Pitocin and TOLAC
- Induction or Augmentation have been shown to increase risk
- Induction beginning with an unripe cervix decreases likelihood of success
- Patients need counseling when pitocin is considered or added; “this essentially doubles your rupture risk from 1/200 to 1/100 (0.5 to 1%)"

Misoprostol and TOLAC
- Multiple small studies have shown increased risk...don’t use it!

Fetal Monitoring and TOLAC
- Often the first indicator of evolving uterine rupture is changes in the fetal heart rate tracing (i.e. before pain, bleeding, loss of fetal station)
- Continuous EFM recommended!
Interdelivery Interval

- Several studies have shown significantly increased risk of uterine rupture with short (< 18 months) interdelivery intervals
- As high as 6% rupture risk
- Believed to be related to scar healing/integrity
Counseling Your Patient

• Early and Often!
• First prenatal visit history to obtain:
  – Complete OB history
  – Years of pregnancies, type of deliveries, reason for C-Section(s), babies' weights, complications during pregnancy or delivery
  – Request Operative Report
  – Solicit TOLAC interest from patient
  – Future fertility plans (family size, religious objections)

Future Fertility Plans

Table 1. Risk of Placenta Accreta and Hysterectomy by Number of Cesarean Deliveries Compared With the First Cesarean Delivery

<table>
<thead>
<tr>
<th>Cesarean Delivery</th>
<th>Placenta Accreta Odds Ratio (95% CI)</th>
<th>Hysterectomy Odds Ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>First*</td>
<td>1.0 (0.2)</td>
<td>1.0 (0.0–0.9)</td>
</tr>
<tr>
<td>Second</td>
<td>1.3 (0.7–2.3)</td>
<td>0.7 (0.4–0.97)</td>
</tr>
<tr>
<td>Third</td>
<td>2.4 (1.3–4.3)</td>
<td>1.4 (0.9–2.1)</td>
</tr>
<tr>
<td>Fourth</td>
<td>9.0 (4.8–16.7)</td>
<td>3.8 (2.4–6.0)</td>
</tr>
<tr>
<td>Fifth</td>
<td>9.8 (3.8–25.5)</td>
<td>5.6 (2.7–11.6)</td>
</tr>
<tr>
<td>Six or more</td>
<td>29.8 (11.3–78.7)</td>
<td>15.2 (6.9–33.5)</td>
</tr>
</tbody>
</table>

*Primary cesarean delivery.

Counseling Your Patient

• Risks/Benefits/Alternatives
• Document the conversation
• Consider using an outpatient handout/consent form
• Calculate their likelihood of success to gauge your advice

Success Prediction

- Consider using a VBAC calculator
- [https://mfmu.bsc.gwu.edu/PublicBSC/MFMU/VGBirthCalc/vagbirth.html](https://mfmu.bsc.gwu.edu/PublicBSC/MFMU/VGBirthCalc/vagbirth.html)
- Accessible through perinatology.com and the MFMU (Maternal-Fetal Medicine Units Network)


Prenatal Calculator

- Gives Prenatal likelihood of success with SPONTANEOUS LABOR
- When counseling your patient prenatally, you must explain this...
- “If you get to 41 weeks and have not labored spontaneously, we will have to have a new and different conversation about options, risks, etc.”
**Induction or Labor Calculator**

![Calculator Image]

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**Likelihood of Success and Recommendations**

- Secondary analysis of MFMU Network study involving 13,541 women eligible for TOLAC
- When the predicted chance of success was < 70%, women had MORE morbidity risk with TOLAC vs. repeat C-Section
- When the chance was > 70%, the risk of morbidity with TOLAC was LESS than with repeat C-Section
- Grobman et al., 2009.

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**Example of changed success prediction**

- **Calculator link**
- **Case study:**
  - 34 y.o. A.A. G3P2002 at 37wks EGA; BMI 38
  - 1st delivery CSx 8lbs/FTP , 2nd delivery VBAC 8lbs
  - Initial counseling/prediction at 12 wk New OB
  - Now with gestational htn/needs IOL/cervix 1/th/-3, med/post
Case Study

• 18 y.o. G2P1
• BMI 20
• 1 prior Cesarean section for FTP (7cm) 2 years ago
• Desires TOLAC
Case Update

• Now she is 40wks EGA
• Diagnosis of Gestational Hypertension
• Cervix 1/thick/-3, vtx
• Considering induction of labor with foley bulb and pitocin
• Should we induce?
Case 2

- 30 y.o G3P2002 Latina
- BMI 34
- h/o 1 SVD 2008, 8lb15oz female
  And 1 CSx 2011, 7lb 11oz Male (breech)

Should she have a TOLAC?


References

- Tahseen, S., & Griffiths, M. Vaginal birth after two caesarean sections (VBAC-2)-a systematic review with meta-analysis of success rate and adverse outcomes of VBAC-2 versus VBAC-1 and repeat (third) caesarean sections. BJOG 2010;117:5-19.