In The Name of God

Trial of labor after cesarean birth

DR.VENUS CHEGINI

FACILITY RESOURCES

- Physicians **capable** of **monitoring labor and performing an emergency cesarean birth**
- Clinicians capable of providing **obstetric anesthesia** for emergency cesarean birth
- **Nursing personnel** to assist with emergency cesarean birth
- Clinicians **capable** of providing **neonatal resuscitation**
- **Equipment** necessary for personnel to provide these services

PATIENT PREPARATION

- **Documentation of informed consent**
- Upon admission, we obtain consent **for both TOLAC and repeat cesarean birth**
- Consent for the latter is important in the event that an intrapartum cesarean birth becomes necessary
- Ideally, women have been thoroughly counseled **about the risks and benefits** of TOLAC versus Physicians capable of monitoring labor and performing an emergency cesarean birth
- Clinicians capable of providing **obstetric anesthesia** for emergency cesarean birth
- **Nursing personnel** to assist with emergency cesarean birth
- Clinicians capable of providing **neonatal resuscitation**
- **Equipment necessary** for personnel to provide these services
- planned **repeat cesarean** birth during the course of prenatal care

Admission laboratory tests

- **baseline hemoglobin or hematocrit measurement** and **blood type** and **screen**

- considered at moderate risk of receiving a **postpartum blood transfusion**

Intravenous access

- recommend placement of **intravenous access at admission**

Anesthesia evaluation

- **Evaluation by the anesthesia team at admission** is prudent in case cesarean birth **becomes necessary**, as well as for reviewing options for labor analgesia

- **Neuraxial analgesia** may be used to provide adequate pain relief during labor. It **does not** appear to **reduce** the chances of VBAC or mask the signs and symptoms of uterine rupture

- women undergoing TOLAC are encouraged to have a neuraxial anesthetic as it can provide **adequate anesthesia** in the event of an emergency cesarean birth for suspected uterine rupture and thus can **facilitate more rapid delivery** of a compromised fetus than induction of general anesthesia

Cardiotocography

- Most experts recommend **continuous monitoring** of **uterine activity** and **fetal heart rate** during TOLAC given an increased risk of uterine rupture in women undergoing TOLAC
- The **most common sign** associated with uterine rupture is a **fetal heart rate abnormality,** which is often sudden and a dramatic change
- **Abnormal uterine contraction and fetal heart rate patterns** associated with uterine rupture are reviewed in more detail separately
- **External fetal heart rate monitoring** is as **reliable** as **internal monitoring** in most cases, but internal fetal heart rate monitoring is preferable when the externally derived tracing is difficult

Cardiotocography

- **External uterine contraction** monitoring is usually **adequate**
- intrauterine pressure monitoring **no advantages** for **early diagnosis** of uterine rupture

LABOR MANAGEMENT

- Many aspects of labor management **are the same** for women with and without a scarred uterus

- **The major differences** are issues related to the use **of pharmacologic agents used for cervical ripening and stimulation of labor**

Assessment of labor progress

- assess labor progress by the **same standards** as in women **without a** scarred uterus

Assessment of labor progress

- labor progress **between 4 and 7cm** in women undergoing TOLAC with **no previous vaginal births** was **slightly longer** that in nulliparous women in spontaneous labor

- this difference disappeared after adjustment for oxytocin dosing, suggesting that the **slower progress** may have been related **to more conservative** use of oxytocin in TOLAC patients
- A **retrospective cohort study of 5388 consecutive term births** at a single institution reported **similar** durations for the first stage of labor (4 to 10 cm) among women undergoing TOLAC and women with no history of cesarean birth

  (TOLAC patients 3 hours and non-TOLAC patients 2.8 hours)
- **suggesting that the same labor curve standards should be applied in the setting of TOLAC**

Prolonged latent phase

- Women with a prolonged latent phase can be offered
- **therapeutic rest**
- **oxytocin**
- **and/or**
- **amniotomy**
- to assist with transition to active phase, **similar to** the management of women without a scarred uterus

Prolonged second stage

- These data are subject to the **limitations of observational studies** but suggest that decision making regarding management of the second stage **does not need** to be modified in women undergoing TOLAC.

- there should be a **low threshold for operative delivery** if
- **maternal vital signs** or
- **symptoms** or
- **fetal heart rate monitoring** suggest **uterine rupture**

Induction of labor

- For women **planning TOLAC** who require delivery **before the onset** of spontaneous labor, **induction is a reasonable option** in those with **no** standard **contraindications** to labor and vaginal delivery
- **Two concerns** about inducing labor in women with a prior cesarean birth are the potentially
- **lower probability of vaginal birth after cesarean (VBAC)**
- **increased risk for uterine rupture**
- Women with a **prior vaginal delivery** and/or a **favorable cervix** do
- **not** appear to be at increased risk of **uterine rupture** with induction
- **Avoidance of a prostaglandin** for cervical ripening is also important

Techniques for cervical ripening

- Options for induction of labor in women with a TOLAC include
- **mechanical ripening** with a **transcervical balloon catheter**
- **amniotomy**
- **oxytocin**
- Cervical ripening, when indicated in the setting of TOLAC, is accomplished with a **60 mL transcervical balloon**, transitioning to **oxytocin** and/or **amniotomy** when the cervix is favorable

Techniques for cervical ripening

- **Misoprostol (prostaglandin E1)**

- is associated with an **increased risk** of **uterine rupture** in women with a prior cesarean birth, and expert opinion generally concurs that it **should not be used** in TOLAC

Labor pattern during induction

- Compared with inductions in women **without a previous cesarean birth**, induced labor in women undergoing **TOLAC** appears to be associated with **slower progression** in the **latent phase** but an **equivalent labor course** in the **active phase**, but data are limited

Oxytocin augmentation

- manage women whose **labors do not** follow generally accepted standards of **labor progression** in the **active phase** with oxytocin augmentation or repeat cesarean birth

- as clinically appropriate The **American College of Obstetricians and Gynecologists** supports **use of oxytocin** for augmentation of labor in women with a previous cesarean birth

Oxytocin augmentation

- It is **unclear** whether oxytocin regimens should be **modified** or an **upper dose** limit should be set to reduce the risk of rupture in women undergoing TOLAC
- Observational studies have suggested an association between **oxytocin doses >20 milliunits/minute, tachysystole, and uterine rupture**
- The low incidence of uterine rupture limits the power of these
- studies to detect small differences in dose-related risk of rupture

Signs and symptoms of uterine rupture

- **Monitoring for evidence of uterine rupture** is a **critical component**
- **fetal heart rate abnormalities (observed in 70 percent of cases)**
- **weakening contractions**
- **loss of fetal station**
- **abdominal pain**
- **suprapubic pain at the level of the hysterotomy**
- **need for frequent epidural dosing**
- **vaginal bleeding**
- **maternal hemodynamic instability**
- **hematuria**
- **Clinical vigilance and careful evaluation** are especially warranted in women with persistent complaints of pain despite **neuraxial anesthesia** or need for **frequent anesthetic redosing** to achieve adequate pain control

Amnioinfusion for management of variable decelerations

- There are sparse data on amnioinfusion in women undergoing TOLAC Although not a first-line approach

- **amnioinfusion** can be used **to relieve umbilical cord compression** in women undergoing TOLAC, similar to women **without** a scarred uterus

- An examination to **ensure** that there are **no other** signs or symptoms of **uterine rupture** should be performed before beginning the infusion since fetal heart rate decelerations may be sign of rupture

Amnioinfusion for management of variable decelerations

- suggest **monitoring the amount of fluid** instilled and draining from the vagina to **prevent over distention** of the scarred uterine cavity

- **Uterine ruptures** have been reported in these patients ,but it is unknown whether the rates of rupture and cesarean birth are different from the rates in women undergoing TOLAC with variable decelerations not treated with amnioinfusion

DELIVERY

- TOLAC involves the **same techniques** for delivery of the fetus and placenta utilized for **any other vaginal delivery**
- **Operative vaginal delivery**
- The indications, contraindications, prerequisites, and procedure for operative vaginal delivery are the **same** as in women without a scarred uterus
- Cesarean Registry demonstrated that operative vaginal delivery was associated **with similar maternal and neonatal outcomes** as cesarean birth for women undergoing TOLAC with **complete dilation and a fetus** with **descent to at least +2 station**

Management of a retained placenta

- **The third stage** of labor should be managed **as per usual practice for any vaginal delivery**.
- If the placenta **is retained** (does not deliver with gentle cord traction for over 30 minutes),consideration should be given to the possibility of **abnormal placentation** (placenta accrete spectrum [PAS]) and appropriate preparations made
- **Bedside ultrasound** can be used to determine whether the placenta is merely trapped or still adherent, and if adherent, whether signs of PAS are present
- A **prudent approach** in TOLAC patients is to evaluate the placenta **sonographically prior** to manual removal and to only attempt manual removal in the operating room so that hysterectomy can be performed rapidly if PAS is unexpectedly encountered

Uterine exploration

- We **do not routinely** explore the uterus after a vaginal birth after cesarean in a hemodynamically stable woman with no abnormal bleeding
- **No data** support routine intrauterine examination to identify or treat asymptomatic scar dehiscence after a spontaneous vaginal delivery
- It is likely that **asymptomatic scar** dehiscences occur **frequently**, and **conservative** management is reasonable
- if the uterus is examined and dehiscence is detected, then it may be prudent to **check serial hematocrit** levels to further ensure that there is no laboratory evidence of occult intraperitoneal bleeding, which would be an indication for laparotomy and repair

Uterine exploration

- if there is **clinical suspicion** that uterine rupture occurred during the second stage of labor, then **manual uterine exploration** should be performed. In postpartum women, uterine rupture that occurred during delivery is characterized **by pain and persistent vaginal bleeding despite use of uterotonic agents**

- **Hematuria** may occur if the rupture extends into the bladder

- **Exploration of the lower uterine segment** to evaluate for uterine rupture is also prudent after an operative vaginal delivery performed for a terminal bradycardia, even in the absence of excessive vaginal bleeding or abdominal pain, since **terminal bradycardia can be a sign of rupture**
- This is **not necessary** if operative vaginal delivery is performed for **another indication**.

Thank you