Induction of Labor Protocol for Singleton Pregnancies

Indications:

1. Continuing the pregnancy is believed to be associated with greater maternal or fetal risk than intervention to deliver the pregnancy
2. There is no contraindication to vaginal birth

Contraindications:

1. Active genital *Herpes simplex* infection
2. Placenta or vasa previa
3. Umbilical cord compromise or risk
4. Fetal malpresentation (breech, transverse lie)
5. Non-reassuring fetal status indicating urgent delivery

Pre-induction Assessment:

1. Evaluate gestational age- ACOG Criteria (see Ultrasound Criteria for Pregnancy Dating Guideline)
   a. *Elective* induction of labor (no maternal or fetal medical indications) not performed in our practice as a rule.
      i. MD faculty involvement and documentation required for any elective induction of labor
   b. *Postdate* inductions (no other indications for delivery prior to such time) are scheduled in the 41st week of pregnancy
   c. *Indicated* inductions require documentation regarding rationale for induction and rationale for gestational age that induction initiated if dating ACOG dating criteria not met for induction without amniocentesis.
2. Amniocentesis for fetal lung maturity if gestational dating criteria not met and delivery planned and indicated.
3. Indication for induction determined and documented
4. Ultrasound evaluation: Assessment of fetal size, presentation, maternal clinical pelvimetry and amniotic fluid index
5. Cervical exam with documentation of Bishop score of cervix for each patient
6. GBS prophylaxis as per protocol
7. Evaluation of fetal heart rate via tocodynamometer, with presence of a reassuring pattern for 30 minutes prior to initiation of induction.

Methods for Induction of Labor:

I. Favorable Cervix (Bishop score ≥ 6 or cervical dilatation ≥ 3 cm)
   a. Pre-cervical ripening is not needed
   b. Amniotomy: Can only be performed if cervix is adequately dilated with the fetal head well applied to the cervix to prevent cord prolapse.
   c. Oxytocin: administer as per Oxytocin Induction/Augmentation Protocol

II. Unfavorable Cervix (Bishop score < 6 or cervical dilatation ≤ 2cm)
   Select one method from those listed below. Noted that only one medical [pharmacologic] agent is to be used at any one time. However, the balloon catheter and oxytocin can be used
together if there are no contraindications and the balloon catheter and PG can be used together if there are no contraindications.

a. **Mechanical ripening:** Insertion of a balloon catheter above the internal cervical os (#16 with the tip removed and a 30 to 80 mL balloon).
   1. Not to be used with ruptured membranes
   2. Not to be used with evidence of chorioamnionitis

b. **Oxytocin:** see Oxytocin/Augmentation Protocol

c. **Prostaglandins:**
   1. **Dinoprostone**
      a. Intravaginal inserts (Cervidil) containing 10 mg of prostaglandin E2 in a timed-release formulation (the medication is released at 0.3 mg/h).
      b. The insert is left in place until active labor begins or for 12 hours for a maximum of 2 doses only
      c. Oxytocin may be initiated per protocol 60 minutes after the removal of insert and the patient then deemed to be a candidate for oxytocin
   2. **Misoprostol:** (Vaginally)
      a. 25 microgram tablet should be used with re-dosing intervals of 4 hours
      b. Oxytocin may be initiated per protocol **four hours** after the last misoprostol dose that is needed to initiate active labor
      c. Maximum dose= 6 doses.
      d. Misoprostol not to be used in patient with prior C-section or uterine scar.
   3. **Monitoring During Administration of Prostaglandin Ripening Agents:**
      a. 30 min. fetal heart rate and contraction monitoring before cervical ripening
      b. Continuous fetal heart and contraction monitoring once the prostaglandin administered
      c. Hold PG if 5 contractions/10 min. achieved or patient is more than 3 cm dilated regardless of effacement or when maximum dose of PG used or active labor

**Management of complications of cervical ripening:**

1. **Hyperstimulation:**
   - Lateral decubitus positioning of the patient
   - Inhaled oxygen until fetal heart rate monitoring non-reassuring changes have resolved
   - Intravenous fluid bolus
   - Physician notification
   - Removal of prostaglandin delivery system and/or temporary reduction or discontinuation of oxytocin administration.
   - Uterine relaxant therapy (e.g., terbutaline 0.25 mg subcutaneously) may be considered if contractions are refractory and contraindications for use of terbutaline not present.

2. **Management of unsuccessful induction**
   - Cervical dilatation of 4 cm not achieved after 12 hours (multipara) or 16 hours (nullipara) in patient who initially had a Bishop score of 0 to 3.
   - Inability to achieve cervical dilatation of 4 cm and 80 percent effacement or 5 cm (regardless of effacement) after a minimum of 12 to 18 hours of both oxytocin administration and membrane rupture, provided adequate uterine contractile activity has been achieved (defined as 5 contractions/10 minutes or 250 Montevideo units).
   - Note that if continued induction is deemed unsuccessful by the above criteria, it is necessary for the OB Service to document the assessment and patient counseling in the patient's medical record. The plan for further management (C-section, further observation of labor, serial induction, etc) should be clearly outlined in the medical record and discussed with the patient.
Management of Labor Induction in a Patient with Prior Cesarean

1. Candidates:
   - No other contraindications for vaginal delivery
   - One previous low-transverse cesarean delivery
   - Clinically adequate pelvis (previous vaginal delivery)
   - No other uterine scars or previous rupture
   - Physician immediately available throughout active labor capable of monitoring labor and performing an emergency cesarean delivery
   - Availability of anesthesia and personnel for emergency cesarean delivery
   - Pre-induction criteria (See: Patients without Uterine Scar) otherwise met.

2. Contraindications to VBAC Attempt:
   - Previous classical, T-shaped incision, or prior uterine corpus surgery
   - Previous uterine rupture
   - Medical or obstetric complication that precludes vaginal delivery
   - Inability to perform emergency cesarean delivery because of unavailable surgeon, anesthesia, sufficient staff, or facility
   - Two or more uterine scars
   - Undocumented uterine scar

3. Management:
   1. Appropriate counseling of patient in regard to risks and benefits of VBAC based on the patient uterine scar and previous indication for Cesarean
   2. Documentation of the counseling and VBAC consent in chart
   3. Induction Methodology:
      a. Bishop score ≥ 6- low dose oxytocin per protocol with amniotomy as indicated
      b. Bishop score ≤ 6 do pre-cervical ripening if labor induction is indicated at ≥ 39 weeks as follows:
         i. Use amniotomy with low dose oxytocin
         ii. Use intracervical balloon catheter then after removal of balloon or failure of balloon, then use amniotomy and low dose oxytocin
   4. No prostaglandins or double pharmacologic agents are to be used
   5. Induction generally not advised and C-section best medical advice instead of induction:
      a. Unfavorable cervix present or ripening not successful
      b. EFW > 4500 gram in non-diabetic patient,
      c. EFW > 4000 gram in diabetic patient
      d. BMI > 30
      e. Continuous fetal heart rate monitoring not feasible
      f. Other maternal relative contraindications exist to either an induction or if medical issues are present which confound the ability to perform an emergency C-section if necessary during labor.

4. Monitoring during Labor:
   1. Continuous fetal heart rate and contraction monitoring
   2. Once membrane are ruptured, use internal fetal monitoring and contraction monitoring when clinically feasible (unless use otherwise contraindicated).
   3. Observe for any signs or symptoms of uterine rupture
   4. Nurse must notify physician for any evidence of tachysystole, hyperstimulation, or non-reassuring fetal status.
   5. CNM’s should only manage induction of patients with previous C-section with active co-management by the OB Service physician team.

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