Educational Topic 11: Intrapartum Care

Rationale: Understanding the process of normal labor and delivery allows optimal care and reassurance for the woman and timely recognition of abnormal events.

Intended Learning Outcomes:

A student should be able to:

- Differentiate between the signs and symptoms of true and false labor
- Perform the initial assessment of the laboring patient
- Describe the four stages of labor and recognize common abnormalities
- Explain pain management approaches during labor
- Describe methods of monitoring the mother and fetus
- Describe the steps of a vaginal delivery
- List indications for an operative delivery
- Identify maternal risks specific to delivery in developing countries

TEACHING CASE

CASE: A 23-year old G1P0 woman at 38 weeks gestation comes to Labor and Delivery complaining of a 5-hour history of painful contractions occurring every 5 minutes and lasting 45-60 seconds in duration. She denies leaking of fluid per vagina, but has noted bloody show. She reports normal fetal movement.

In reviewing her chart, you find that she has had an uncomplicated prenatal course. She had an ultrasound at 17 weeks that revealed a male fetus and was consistent with her last menstrual period dating. A screening culture at 36 weeks was positive for group B streptococcus. The cervical exam at the 36-week visit was closed and long.

Her blood pressure is 96/54, pulse 92 beats per minute, respirations are 20/minute and oral temperature is 98°F. Leopold’s maneuver reveals the fetal back is palpable at the right side of the maternal abdomen and the vertex is palpable through the maternal abdomen just below her symphysis pubis. Fetal heart rate (FHR) is in the 150s with moderate variability, with accelerations and no decelerations. Contractions are noted on the external monitor every 3 minutes. The patient’s cervix is 3 cm dilated, 50% effaced with the fetal vertex at 0 station. The remainder of the physical exam is unremarkable.
COMPETENCY-BASED DISCUSSION & KEY TEACHING POINTS:
Competencies addressed:
- Patient Care
- Medical Knowledge
- Systems-Based Practice

1. Is this patient in labor? What elements of the case history support a diagnosis of labor?
   - True labor is defined as progressive dilation and effacement of the cervix in response to regular uterine contractions.
   - False labor is defined as contractions at term that do not result in cervical change and are termed "Braxton-Hicks" contractions.

   The key teaching point for this question is for the student to differentiate between true labor and false labor.

2. In addition to determining whether this patient is in labor or not, what should be included in the initial evaluation of a patient who presents in labor?
   - Establish the gestational age through comparison of available dating criterion such as last menstrual period, sonography, and physical exam (e.g. fundal height).
   - Identify any maternal medical or obstetrical complications of pregnancy by review of patient records and focused history and physical exam.
   - Identify any fetal conditions by review of patient records and focused history and physical exam.
   - Review routine screenings tests (e.g. group B streptococcus)
   - Identify any new maternal conditions that may impact labor management (e.g. preeclampsia, chorioamnionitis).
   - Establish fetal viability using either external ultrasound Doppler or bedside sonography.
   - Evaluate the fetal presentation and estimated fetal weight using either Leopold’s maneuvers, vaginal exam, or bedside sonography.
   - Assess the adequacy of the maternal pelvis through physical examination (clinical pelvimetry) and review of patient’s prior labor outcomes, if applicable.
   - Assess the cervical status and membrane status.

   The key teaching point for this question is for the student to list the initial components of the evaluation of laboring patients and recognize how either maternal or fetal issues might impact intrapartum care.

3. What is the stage and phase of labor for this patient?
   - Stage 1: the onset of labor to full cervical dilation which is further divided into two phases:
     - Latent phase: onset of labor to the beginning of the active phase
     - Active phase: period of rapid cervical dilation (1-2 cm / hr); 60 percent of patients reach the latent-active phase transition by 4 cm dilation and 90 percent by 6 cm dilation
   - Stage 2: complete dilation to delivery of the infant
   - Stage 3: Delivery of the infant to delivery of the placenta
   - Stage 4: Delivery of placenta to 2 hours after. The Friedman curve is falling out of favor, but is important historically. Interventions should be considered based on the specific circumstances involved in each laboring patient.

   The key teaching point for this question is for the student to list the 4 functional stages of the normal labor process.

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4. What are your next steps in management of this patient?

- Appropriate prophylaxis (e.g. group B streptococcus)
- Fetal heart rate monitoring (external vs. internal and intermittent vs. continuous)
- Uterine contraction monitoring (external vs. internal)
- Serial assessment of maternal labor progress (dilation, effacement, station)
- Serial assessment of maternal pain status

The key teaching point for this question is for the student to list the components of intrapartum care, with a focus on options for monitoring the mother and fetus.

5. What options for pain management are available for this patient?

- Pain Pathways
  - Uterine contractions and cervical dilation result in visceral pain (T-10 through L-1)
  - Descent of the fetal head and subsequent pressure on the pelvic floor, vagina, and perineum generate somatic pain transmitted by the pudendal nerve (S2–4).
- Analgesia and Anesthesia options
  - Systemic narcotics
  - Regional
    - Local anesthetic agents
    - Pudendal block
    - Paracervical block
  - Continuous lumbar epidural
  - Prepared childbirth (e.g. Lamaze classes)

The key-learning outcome for this question is for the student to discuss the physiologic basis for intrapartum analgesia and list the available options.

6. Describe the process by which the fetus descends through the birth canal and the steps of vaginal delivery.

- The fetus descends through the maternal pelvis through various flexions and rotations called the cardinal movements of labor.
  - Engagement
  - Descent
  - Flexion
  - Internal rotation
  - Extension
  - External rotation
  - Expulsion
- The APGO clinical skills curriculum provides a vaginal delivery checklist, which may aid in discussion of this topic.

The key-learning outcome for this question is for the student to list the cardinal movements of labor and the steps in vaginal delivery at the end of the 2nd stage.
7. What are other methods of delivery if the patient had not been able to push effectively or if fetal intolerance of labor had developed?

- Modes of operative delivery:
  - Operative vaginal delivery (forceps or vacuum)
  - Cesarean delivery
- Indications for operative delivery can be put into 4 categories:
  - Maternal indications (e.g. poor expulsive effort)
  - Fetal indications (e.g. fetal intolerance of labor, anomalies/malformations)
  - Abnormal labor (e.g. secondary arrest of dilation in the active phase)
  - Elective (primary or repeat Cesarean)

The key-learning outcome for this question is for the student to list the 2 modes of operative delivery and understand that the indications for operative delivery can be grouped into 3 main categories.

REFERENCES


APGO Clinical Skills Curriculum. Vaginal Delivery:

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