COURSE DESCRIPTION

For most expectant mothers, labor and delivery follows a predictable path. This continuing education course describes a brief overview of the normal progression of this process. Included are some of the common complications and treatments. Additionally, the complications and contraindications to treatment are discussed.

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OBJECTIVES

Upon completion of this continuing education course, the professional should be able to:

1. Describe the normal progression of labor and delivery.
2. Identify the average time of each stage of labor.
3. Define and give examples of dystocia.
4. Identify potential treatments of dystocia.
5. List the complications of administering oxytocin, e.g., Pitocin®.
6. List the contraindications to the use of oxytocin, e.g., Pitocin®.

Disclaimer

The writers for NCCT continuing education courses attempt to provide factual information based on literature review and current professional practice. However, NCCT does not guarantee that the information contained in the continuing education courses is free from all errors and omissions.
VOCABULARY

*Dystocia* – A general term for any abnormal labor

*Braxton-Hicks contractions* – Though sometimes referred to as “false labor,” these are uterine contractions occurring without the onset of true labor. This is not done in error but, instead, to insure the body system is working correctly.

*Postpartum* – The time after delivery.

*Nulliparous* – A female who has never given birth.

*Multiparous* – A female who has given birth several times.

*Arrest disorder* – Also known as failure to progress. The cessation of labor once true labor has begun.

*Cephalopelvic disproportion* – The baby’s head is too large to pass through the maternal pelvis. This is sometimes abbreviated CPD.

*Malpresentation* – Sometimes referred to as breech, in this case the baby’s head is not the presenting part.

*Oxytocin* – The endogenous hormone released from the posterior pituitary gland that acts on the uterus to trigger contractions. Pitocin® is the exogenous form of oxytocin administered by the physician.

*Prostaglandin gel* – A medication used for cervical ripening to help with the induction of labor.

*Cesarean delivery* – The delivery of the baby through an incision in the abdomen and anterior uterus.

*Version maneuver* – A manual attempt to correct a malpresentation.

*Fetal heart decelerations* – A slowing of the baby’s heart rate indicating distress.

*Placenta previa* – A condition where the placenta partially or completely blocks the cervical os, the opening of the cervix.

*Prolapsed umbilical cord* – An obstetrical emergency where the umbilical cord extends through the cervical os and vagina before delivery of the baby. This can cause umbilical cord compression.

STAGES OF A NORMAL VAGINAL LABOR AND DELIVERY

There are three (some say four) stages of labor.
1. The first stage of labor is evident as demonstrated by regular uterine contractions and cervical dilation. The absence of either of these signs indicates the patient is not in true labor and the patient may instead be experiencing Braxton-Hicks contractions. The first stage of labor is divided into two phases: the latent phase and the active phase.

- The latent phase shows cervical dilation from 0 – 4 centimeters with slow and irregular contractions. In the nulliparous patient, this may last up to 20 hours. In the multiparous patient, this may last up to 14 hours.

- The active phase of the first stage of labor demonstrates rapid and regular contractions with the cervix dilating completely to 10 cm. This phase is highly variable in both the nulliparous and multiparous patient.

2. The second stage of labor includes the crowning and ultimate delivery of the baby. This stage can be as short as 5 minutes or as long as 3 hours, on average, in the multiparous and nulliparous patient, respectively.

3. The third stage of labor includes the delivery of the placenta and, regardless of number of previous deliveries, can last from 0 to 30 minutes.

4. Some sources include a fourth stage of labor as maternal stabilization, while others only consider a fourth stage in the presence of postpartum complications.

**DYSTOCIA**

Dystocia is a general term used to describe prolonged or difficult labor. With dystocia, the patient is in true labor though at a slower rate than predicted as described above. This is different from an arrest disorder, where the patient fails to progress with cervical dilation or descent of the baby. In either case, the problem may be the result of

- cephalopelvic disproportion,
- abnormal lie (position) of the baby, or
- uterine dysfunction.

**Cephalopelvic disproportion** (CPD) occurs when the baby's head is too large to pass through the maternal pelvis. CPD can have various causes including a small or abnormally shaped maternal pelvis, an abnormal fetal position, or a large baby, e.g., diabetes, hereditary factors. CPD is rarely diagnosed before labor. The most accurate diagnosis of CPD is a physical examination that measures the pelvic size. In cases of CPD, the safest type of delivery for both the mother and baby is a cesarean section.

**Fetal lie** is the relationship between the head to tailbone axis of the mother and the head to tailbone axis of the fetus. Almost all babies are in a longitudinal lie where the baby and mother head to tailbone axis are parallel to each other. If the mother and baby head to tailbone axis are at a 90º angle, the baby is said to be in a transverse lie. (refer to the graphic on the following page.) This is sometimes referred to as a shoulder presentation. A baby in a transverse lie cannot be delivered vaginally. If the baby cannot be turned, a cesarean section is necessary for a safe delivery.
Two types of **uterine dysfunction** can occur during labor. Hypotonic uterine dysfunction usually occurs during the active phase of labor after the cervix has dilated to 4 cm or more. The contractions are irregular and not forceful enough to dilate the cervix further. Hypertonic uterine dysfunction causes frequent and intense contractions that are not effective. It generally occurs during the latent phase of labor.

Hypertonic uterine dysfunction is treated with mild sedation, position changes, and administration of tocolytic drugs to reduce the high uterine tone.

Hypotonic uterine dysfunction can effectively be treated with application of prostaglandin gel to the cervix and intravenous administration of oxytocin, e.g., Pitocin®. The prostaglandin gel softens and thins out the cervix to prepare it for labor. Oxytocin causes uterine contractions.

**Complications of Oxytocin**

Complications of oxytocin use can include uterine hypersensitivity, with the patient experiencing pain and uncoordinated uterine contractions, and even uterine rupture. Discontinuing the oxytocin is indicated in these settings. It should be noted that although the half-life of oxytocin is less than 10 minutes, its effects can continue to cause uterine contractions for 15 to 20 minutes.

**Contraindications of Oxytocin Administration**

The use of oxytocin is contraindicated in both cephalopelvic disproportion and abnormal presentation. A Cesarean delivery is indicated in the case of CPD and as well as a malpresentation (breech, shoulder, transverse) that cannot be corrected using a version (turning) maneuver.

Any additional evidence of fetal or maternal distress will contraindicate the use of exogenous oxytocin. Examples would include fetal heart decelerations, placenta previa, a prolapsed umbilical cord, as well as any other classical indication for a Cesarean delivery.
TEST QUESTIONS
An Overview of Labor, Delivery, and Dystocia #1220612

Directions:
- Before taking this test, read the instructions on how to complete the answer sheets correctly. If taking the test online, log in to your User Account on the NCCT website www.ncctinc.com.
- Select the response that best completes each sentence or answers each question from the information presented in the module.
- If you are having difficulty answering a question, go to www.ncctinc.com and select Forms/Documents. Then select CE Updates and Revisions to see if course content and/or a test questions have been revised. If you do not have access to the internet, call Customer Service at 800-875-4404.

1. The average length of the latent phase in the first stage of labor in a multiparous patient is less than or equal to __________.
   a. 30 minutes  
   b. 14 hours  
   c. 20 hours  
   d. 48 hours

2. Pitocin® is the exogenous form of __________.
   a. estrogen  
   b. morphine  
   c. oxytocin  
   d. testosterone

3. In which of the following stages is the placenta delivered?
   a. Stage 1, latent phase  
   b. Stage 1, active phase  
   c. Stage 2  
   d. Stage 3

4. The time following delivery is called __________.
   a. active phase  
   b. latent phase  
   c. nulliparous  
   d. postpartum

5. Endogenous oxytocin is released from the __________.
   a. anterior pituitary gland  
   b. cervix  
   c. posterior pituitary gland  
   d. uterus
6. The average length of the latent phase of the first stage of labor in the nulliparous patient is less than or equal to __________.
   a. 20 hours
   b. 14 hours
   c. 30 minutes
   d. 48 hours

7. In which state of labor is the baby is delivered?
   a. Stage 1, latent phase
   b. Stage 1, active phase
   c. Stage 2
   d. Stage 4

8. Which of the following is general term for an abnormal labor?
   a. Dystocia
   b. CPD
   c. Nulliparous
   d. Braxton-Hicks

9. Which of the following is considered by some to be the fourth stage of labor?
   a. Maternal stabilization
   b. Prolapsed umbilical cord
   c. Placenta previa
   d. Braxton-Hicks

10. Which of the following is sometimes referred to as false labor, but in fact is the body's attempt to insure the systems are working properly?
    a. Placenta previa
    b. Nulliparous
    c. CPD
    d. Braxton-Hicks contractions

11. Which of the following is an obstetrical emergency that can cause compression of the umbilical cord?
    a. Prolapsed umbilical cord
    b. Stage 3 lasting more than 5 minutes
    c. Placenta previa
    d. Cesarean delivery
12. Which of the following is a condition where labor fails to progress?
   a. Braxton-Hicks contractions
   b. Arrest disorder
   c. Nulliparous
   d. Latent phase

13. All of the following are contraindications for the administration of Pitocin® except
    __________.
   a. prolapsed umbilical cord
   b. cephalopelvic disproportion
   c. placenta previa
   d. weak contractions in the active phase of stage 1

14. Used with oxytocin, which of the following can help ripen the cervix?
   a. Prostaglandin gel
   b. Pitocin®
   c. Dystocia
   d. CPD

15. How many phases are in the first stage of labor?
   a. 1
   b. 2
   c. 3
   d. 4

16. What is the term used when the baby’s head is too large to fit through the
    maternal pelvis?
   a. Stage 1, latent phase
   b. Nulliparous
   c. Multiparous
   d. Cephalopelvic disproportion

17. Which of the following is a manual procedure used to correct a malpresentation?
   a. Arrest disorder
   b. Version maneuver
   c. Braxton-Hicks
   d. CPD

18. In what stage of labor does complete cervical dilation to 10 centimeters occur?
   a. Stage 1, latent phase
   b. Stage 1, active phase
   c. Stage 2
   d. Stage 3
19. A slowing of the baby's heartbeat that may be indicating distress is called __________.
   a. CPD  
   b. placenta previa  
   c. nulliparous  
   d. fetal heart decelerations

20. The half-life of oxytocin is __________.
   a. less than 10 minutes, though its effects can last twice as long  
   b. less than 10 minutes, though its effects can last for weeks  
   c. more than 10 minutes, though its effects only last for seconds  
   d. more than 10 minutes, though its effects may last for years

*End of Test*