

Pre-Lecture

I. You are the Provider

Time: 10 minutes

Small Group Activity/Discussion

Purpose

This activity is designed to help introduce your students to the content of this chapter.

Instructor Directions

1. Direct students to read the “You are the Provider” scenario found throughout Chapter 39.
2. You may wish to assign students to a partner or a group. Direct them to review the discussion questions at the end of the scenario and prepare a response to each question. Facilitate a class dialogue centered on the discussion questions.
3. You may also assign this as an activity and ask students to hand in their comments on a separate piece of paper.

Lecture

I. Introduction

Time: 5 minutes

Slides: 2, 3

Lecture

A. Obstetric Crisis

1. Several key issues
 - a. Pregnancy is not a disease that needs treatment.
 - b. Women have been having children without the benefit of emergency departments, painkillers, and enhanced 9-1-1 since time began.
 - c. Childbirth, for the most part, is a happy event.
 - d. The number of patients increases to a minimum of two (or more).
2. Complications
 - a. Maternal and fetal death
 - b. Modern medicine has reduced mortality rates.
 - c. Contributing factors include malnutrition, disease, lack of education, and lack of adequate medical care.

II. Anatomy of the Female Reproductive System

Time: 10 minutes

Slides: 4–9

Lecture

A. Overview

1. Female reproductive organs
 - a. Mammary glands
 - b. Vagina
 - c. Uterus
 - d. Ovaries
 - e. Fallopian tubes
2. Ovaries
 - a. Beginning point for reproduction
 - b. Next to the uterus
 - c. About the size and shape of an unshelled almond
 - d. Homologous to the testes in the male
 - e. Each contains about 200,000 follicles.
 - f. Each follicle contains an oocyte (egg).
 - g. Atresia: process in which immature follicles die
 - h. Follicle-stimulating hormone (FSH): released by the anterior pituitary gland
 - i. Luteinizing hormone (LH): the preovulatory phase stimulates the anterior pituitary gland to release this, which stimulates ovulation (release of the egg).
 - j. Corpus luteum: what is left of the follicle after the egg has been released; secretes progesterone
 - k. Secretory phase: second phase of the menstrual cycle
 - l. Glands of the endometrium increase in size and secrete the materials on which the fertilized egg will implant and grow (embryo and then fetus).
 - m. If the ovum is not fertilized, it dies and degenerates 36 to 48 hours after being released; corpus luteum also degenerates about 10 days later. (The endometrium breaks down and is shed as menstrual flow.)
3. Fallopian tubes
 - a. The ovum passes from the ovaries to the uterus.
 - b. About 4" long
 - c. Each tube extends laterally from the uterus terminating just short of an ovary.
 - d. Three layers of tissue
 - i. Serosa: outer layer consisting of a serous membrane that protects the tubes
 - ii. Muscularis: middle layer made of smooth muscle; contractions help move the ovum through the tube and into the uterus.
 - iii. Internal mucosa: innermost layer containing secretory cells and ciliated columnar cells that move the ovum

- e. Fertilization can occur at any time within about a 24-hour window following ovulation.
4. Uterus
- a. Muscular, inverted pear-shaped organ
 - b. Lies between the urinary bladder and the rectum
 - c. Fundus: dome-shaped top of the uterus
 - d. Cervix: narrowest portion of the uterus; opens into the vagina
 - e. External os: junction of the cervix and the vagina
 - f. Uterine cavity: interior body of the uterus
 - g. Cervical canal: interior of the cervix
 - h. Fertilized ovum will implant, fetus will develop, and labor will occur.
 - i. Perimetrium: outer, protective layer
 - j. Myometrium: middle layer
 - i. Three layers of muscle fibers
 - ii. Contractions help expel the fetus during childbirth.
 - k. Endometrium: inner lining
 - i. Mucous membrane composed of two layers
 - ii. Stratum basalis: permanent; produces a new stratum functionalis following the period
 - iii. Stratum functionalis: innermost layer; shed during menstruation
5. Vagina
- a. Highly muscular, tubular organ lined with mucous membranes
 - b. Serves as a receptacle for the male penis during sexual intercourse, and allows for the exit of the menstrual flow
 - c. The interior is acidic (breakdown of glycogen), creating an environment that inhibits bacterial growth (injurious to sperm cells).
 - d. Lower portion of the birth canal
 - e. Can stretch widely to accommodate the delivery of a fetus
 - f. Tissues in and around the perineum may tear.
 - g. Episiotomy: incision in the perineal skin
 - h. In the prehospital setting, provide gentle pressure against the infant's head to prevent an explosive birth and to give the tissues time to expand.
6. Mammary glands
- a. Breasts
 - b. Modified sweat glands
 - c. Mainly composed of adipose tissue
 - d. Primary purpose is lactation to provide nourishment to the newborn.
 - e. Milk is carried to the surface of each breast through lactiferous ducts that terminate in a nipple.
 - f. Breast enlargement, tenderness, and milk excretion are all signs that a woman is most likely pregnant.

- g. Unilateral enlargement, discolored or foul fluid excretion, or pain and tenderness in the breasts may indicate a more serious underlying condition.

III. Conception and Gestation

Time: 15 minutes

Slides: 10–18

Lecture

A. Overview

1. Once the egg has been fertilized and implanted in the endometrium of the uterus
 - a. Both the egg and the pregnant woman begin to undergo major physiologic, hormonal, and chemical changes.
 - b. Egg begins absorbing uterine fluid through the cell membrane.
 - c. Cell division increases rapidly and cells multiply on the outside of the egg surface, forming layers that will eventually generate the fetal membrane, placenta, and embryo.
 - d. Blastocyst: egg that migrates to the endometrial wall (becomes implanted approximately 1 week after conception).
 - e. Occasionally the mechanism of implantation may result in vaginal bleeding that is spotty and painless.
2. Development of placental tissues
 - a. Triggered by implantation
 - b. Stimulates the release of human chorionic gonadotropin hormone (sends signals to the corpus luteum that pregnancy has begun)
 - c. The corpus luteum begins to produce hormones designed to support the pregnancy.
 - d. By the second week after conception, the blastocyst has evolved into an embryonic disc. (The amniotic sac and placenta differentiate into their specialized duties.)
 - e. Lacunae: spaces filled with maternal blood; connect the placenta to the blastocyst; allow for oxygenation and nutrition from the mother and embryonic waste products to be shunted safely away; beginning of the umbilical cord
3. Embryo
 - a. Third week after conception
 - b. Ready to begin the process of forming specialized body systems (rudiments of the central nervous system, cardiovascular system, spine, and portions of the skeletal anatomy)
 - c. S-shaped tubular heart begins to beat.
 - d. Blood cells begin to circulate.
4. Placenta
 - a. Essentially an enlarged endocrine gland
 - b. Serves as an early liver (synthesizes glycogen and cholesterol, metabolizes fatty acid, and produces antibodies that protect the fetus)
 - c. Respiratory gas exchange: functions as the fetal lungs
 - d. Transport of nutrients

- e. Excretion of wastes
 - f. Transfer of heat
 - g. Hormone production
 - h. Formation of a barrier against harmful substances in the mother's circulation
5. Umbilical cord
- a. Connects the placenta to the fetus via the fetal umbilicus (navel)
 - b. Gray, easily compressed, and soft and pliant though structurally tough
 - c. The interior contains Wharton's jelly (a mucoid material keeping the umbilical cord from becoming knotted) and a supportive framework of loose connective tissue.
 - d. Two arteries and one vein
 - e. SUA: single umbilical artery; may be normal genetically in some children; may indicate a congenital abnormality (heart or kidney malformations)
6. Fetal circulation
- a. The umbilical vein carries oxygenated blood from the placenta to the fetus.
 - b. The umbilical arteries carry arteriovenous blood to the placenta.
 - c. Bypasses the lungs until birth
 - d. Two ducts connect the veins and arteries to the inferior vena cava and the heart, respectively.
7. Amniotic sac
- a. Membranous bag that encloses the fetus in a watery fluid
 - b. Amniotic fluid: volume reaches 1 L by the end of pregnancy, provides the fetus with a weightless environment in which to develop
 - c. In latter stages of pregnancy, the fetus swallows the amniotic fluid and passes wastes out into the fluid.
8. Fourth through eighth weeks
- a. Critical for normal development
 - b. Major organs and other body systems are forming (most susceptible to damage).
 - c. Prescription and over-the-counter medications may have side effects that harm the fetus.
 - d. Illicit drugs, tobacco, alcohol, or toxic materials can result in birth defects.
9. Gestational period
- a. Time that it takes for the infant to develop in utero
 - b. Normally 38 weeks
 - c. Calculated from the first day of the pregnant woman's last menstrual period (adds 2 weeks to the entire calculation)

IV. Physiologic Maternal Changes During Pregnancy

Time: 25 minutes

Slides: 19–32

Lecture

A. Overview

1. Several physiologic changes
 - a. Many can alter the normal response to trauma
 - b. Exacerbate or create medical conditions
 - c. Hormonal changes precipitate physiologic changes.
 - d. The rapidly changing internal environment puts stress on the woman.
 - e. Metabolic demands increase during pregnancy.
2. Most significant changes occur in the uterus.
 - a. Before a woman's pregnancy, the uterus measures about 3" long by 2" wide, is approximately 1" thick, and weighs about 0.07 oz with a total fluid capacity of about 10 mL.
 - b. After pregnancy it will rarely return to its previous dimensions.
 - c. By the end of pregnancy it may weigh as much as 2.2 oz and have a capacity of about 5,000 mL.
 - d. Measurement of the fundus can indicate possible developmental problems.
3. Circulatory system
 - a. The average woman has about 4 to 5 L of blood available.
 - b. Blood volume in the pregnant female increases gradually throughout gestation.
 - c. The level of increase depends on patient size, number of times gravid and para, and number of fetuses she is carrying.
 - d. Necessary to meet the metabolic needs of the developing fetus, to adequately perfuse maternal organs, and to help compensate for blood loss during delivery
 - e. The uterus tends to shunt blood back into maternal circulation as it contracts.
 - f. The number of RBCs increases, increasing the need for iron (prenatal vitamins).
 - g. The WBC count also increases (clotting factors as well).
 - h. The size of the heart increases to maintain/increase cardiac output.
 - i. Heart rate gradually increases during pregnancy (15 to 20 beats/minute by term).
4. Sensitivity to body positioning increases.
 - a. Resting or lying supine can cause the uterus to impinge upon the inferior vena cava, decreasing venous return to the heart.
 - b. If the pressure is not released, cardiac output is decreased, blood pressure drops, and lower extremity edema will result.
 - c. Blood return to the heart is reduced as venous ends of the capillaries become dilated.
 - d. The bedridden are at risk of experiencing deep venous thrombus.
5. Labor position stresses the cardiovascular system
 - a. Lithotomy position
 - i. Standard position in the US
 - ii. Supine with her knees spread apart
 - iii. Maternal cardiac output can increase as much as 25% from uterine contractions.
6. Workload of the heart
 - a. Increases significantly during both gestation and labor
 - b. For a healthy woman this presents no undue complications.

- c. For a woman with heart disease or other forms of cardiac compromise, the increased work can result in ventricular failure or pulmonary edema.
 - d. Pain and pressures of labor can further stress the heart, resulting in cardiac arrest.
7. Respiratory stresses
- a. The uterus pushes the diaphragm up toward the abdominal cavity; rib margins flare outward to compensate.
 - b. Abdominal muscles tend to lose their tone during pregnancy, allowing respiration to be more diaphragmatic.
 - c. Maternal oxygen demand increases.
 - d. Progesterone decreases the threshold of the medullary respiratory center to carbon dioxide (also acts on the bronchi and regulates mucus production).
 - e. Oxygen consumption increases by about 20%. (Tidal volume increases gradually to about 40%.)
 - f. Slight increase in plasma pH levels
 - g. Respiratory alkalosis is balanced by metabolic acidosis.
 - h. At term, the displacement of the diaphragm by the fully enlarged uterus causes a decrease in expiratory reserve volume, functional residual capacity, and residual volume.
 - i. Structural changes within the respiratory mucous membrane result in increased vascularity and edema. (Avoid nasal intubation in pregnant patients.)
8. Metabolic changes
- a. Most obviously, weight gain and alterations in physical structure
 - b. Weight gain
 - i. Partly due to increased blood volume
 - ii. Intracellular and extracellular fluid (6 to 7 lb)
 - iii. Uterine growth (3 lb)
 - iv. Placental growth (2 lb)
 - v. Fetal growth (7 lb)
 - vi. Breast tissue (2 to 3 lb)
 - vii. Increased protein and fat deposits
 - viii. Average weight gain in pregnancy is 27 lb.
 - c. Relaxin
 - i. Hormone released during pregnancy
 - ii. Causes collagenous tissues to soften
 - iii. Produces a generalized relaxing of the ligamentous system
 - iv. Contributes to the characteristic lordosis of later pregnancy and the increased flexion of the neck (compensate for balance)
 - v. Also appears to enhance mammary gland enlargement, soften the cervix, and increase pelvic joint motility
9. Demand for carbohydrates increased by pregnancy
- a. Seems to be based on fetal demand for glucose
 - b. Insulin is unable to pass through the placental barrier.

- c. Women predisposed to a diabetic state may become chemical diabetics during pregnancy, but return to a normal carbohydrate metabolism postpartum.
 - d. Increased production of insulin as a result of free cortisol and progesterone
 - e. Human chorionic somatomammotropin (hCS) is released to help stimulate lipolysis (also acts on glucose to increase peripheral utilization).
 - f. Gestational diabetes or eclampsia is a possibility if a balance cannot be reached.
10. Gestational diabetes mellitus
- a. Inability to process carbohydrates during pregnancy
 - b. Increased maternal insulin production results in increased placental production of human placental lactogen.
 - c. Leads to an imbalance between the supply of the mother's insulin and glucose production
 - d. The patient may be asymptomatic or may exhibit the same signs as a patient with diabetes mellitus.
 - e. Treatment consists of diet control and oral hypoglycemic medications.

B. You are the Provider

Slide: 33

Lecture/Discussion

1. Present the case study provided on the slide:
 - a. You are dispatched to the scene of a car accident involving three vehicles. ALS has been requested. There are an unknown number of patients.
 - b. You arrive first on scene, followed by another ALS medic unit within 2 minutes of your arrival. One driver is bleeding from the nose where he hit the airbag in his car. Another appears to be unhurt. The third driver is a woman who appears to be in her third trimester of pregnancy. Her car was hit by both other vehicles, and she is pinned in her car by the driver's side door, which is bent inward. The airbag has deployed.
 - c. You can see that the seatbelt is around the woman's lap and upper body, but is unlocked and lying loose. She is barely conscious (alert and oriented \times 1—to person only). She does complain of abdominal tightness and some pain.
 - d. *What should your immediate concern be for the pregnant patient?*

V. Medical Conditions That Can Be Detrimentially Affected by Pregnancy

Time: 40 minutes

Slides: 34–58

Lecture

A. Heart Disease

1. Major concern
 - a. Nature and treatment of any heart conditions
 - b. Medications?
 - c. Defects or dysrhythmias?

B. Hypertension

1. Major cause of mortality and morbidity
 - a. Blood pressure is generally lower during the gestational period.
 - b. Previous hypertension may be exacerbated by pregnancy.
2. Chronic hypertension
 - a. Blood pressure equal to or greater than 140/90 mm Hg prior to the 20th week of pregnancy
 - b. Diastolic pressure higher than 110 mm Hg places the patient in an increased risk category for stroke and other cardiovascular dangers.
3. Gestational hypertension
 - a. Develops after the 20th week of pregnancy in women with previously normal blood pressures
 - b. Resolves spontaneously in the postpartum period
 - c. More commonly experienced by women who are obese or glucose intolerant
 - d. May be an early sign of preeclampsia
 - e. Generally benign
4. Preeclampsia
 - a. Also called toxemia of pregnancy
 - b. Most serious of the hypertensive disorders
 - c. Occurs in about 8% of all pregnancies
 - d. Women younger than 20 experiencing their first pregnancy are at the highest risk.
 - e. Women of advanced maternal age, with a history of multiple pregnancies, or with risk factors of chronic hypertension, renal disease, and diabetes are also at risk.
 - f. Race also tends to play a factor (African-American women being most susceptible).
 - g. Triad of symptoms: edema (face, ankles, and hands), gradual onset of hypertension, and protein in the urine
 - h. Other symptoms include severe headache, nausea and vomiting, agitation, rapid weight gain, and visual disturbances.
 - i. Can lead to chronic hypertension (retard growth and development of the fetus, impair liver and renal function, cause pulmonary edema, or progress to life-threatening grand mal seizures)
 - j. Other risk factors include liver or renal failure, cerebral hemorrhage, placental abruption, and HELLP syndrome.
 - k. Normally resolves with delivery

C. Diabetes

1. Markedly affected by pregnancy
 - a. Hormones of pregnancy alter the insulin-regulating mechanisms.
 - b. Wildly fluctuating blood glucose levels
 - c. Oral hypoglycemic agents can cross the placental barrier.

D. Respiratory Disorders

1. Breathlessness or general dyspnea

- a. Often precipitated by hormone-related anatomic changes
 - b. Generally only of minor concern and discomfort to the patient
 - c. Important to distinguish between physiologic dyspnea and pathologic dyspnea
 - d. May be an underlying condition aggravated by pregnancy
2. Asthma
 - a. One of the most common conditions that can complicate pregnancy
 - b. Either aggravated as a preexisting illness or occurs for the first time during pregnancy
 - c. Acute attacks render the fetus and the woman vulnerable to progressive hypoxia.
 - d. Maternal complications include premature labor, preeclampsia, respiratory failure, vaginal hemorrhage, or eclampsia.
 - e. Fetal complications include premature birth, low birth weight, growth retardation, and quite possibly fetal death.
3. Tuberculosis
 - a. Not directly aggravated by pregnancy
 - b. Effects of the disease on the respiratory tree can overtax the respiratory system burdened by pregnancy.
 - c. Prone to premature delivery as well as spontaneous abortion
 - d. Endometritis and placentitis with tuberculosis as the causative agent are also potential complications.
4. Cystic fibrosis (CF)
 - a. Hereditary disease affecting the whole body
 - b. Autosomal-recessive mutation that impairs the genes responsible for creating sweat, mucus, and digestive juices
 - c. Causes intense scarring of targeted organs
 - d. Lungs are particularly susceptible.
 - e. No cure
 - f. Women with CF have a greater chance of developing diabetes.
 - g. The primary effects on pregnancy appear to be collateral.
5. Pneumonia
 - a. The third most indirect cause of maternal death.
 - b. Illness of the respiratory system and lungs
 - c. Alveolar inflammation and edema
 - d. Fungal, viral, or bacterial infection; parasitic infestation; or traumatic or chemical insult to the lungs
 - e. Alcohol abuse is also a factor.
 - f. Can be especially virulent during pregnancy
 - g. Can have a significant impact on maternal mortality and morbidity
 - h. Low birth weight and premature labor are common complications.

E. Renal Disorders

1. Kidneys
 - a. Increase in length by up to 5" during pregnancy

- b. Ureters get longer, wider, and more curved.
 - c. Can lead to urinary stasis, resulting in urinary tract infections (can be mild)
 - d. May result in low fetal birth weight and retarded fetal development, premature labor, or even intrauterine fetal death
2. Pressure on the bladder
 - a. Increases urinary frequency
 - b. Patients with prerenal disease are likely to experience compounding of associated problems.
 - c. Renal malfunctions due to hypertensive disorders or conditions such as hyperemesis gravidarum

F. Hemoglobinopathies

1. Inherited hemoglobin disorders
 - a. About 50,000 Americans
 - b. Most prominent in African Americans and Native Americans
 - c. Hemoglobin: protein in RBCs responsible for oxygen transport; changes structurally as a result of genetic mutation
 - d. Sickle cell anemia (SSA) and thalassemia
2. Sickle cell disease
 - a. RBCs malformed (sickle shape)
 - b. Cell alteration inhibits the RBCs from passing smoothly through the small capillaries.
 - c. Complications include severe acute pain, strokes, and target organ damage (spleen and liver).
 - d. Prone to infectious states (pneumonia)
 - e. Pregnant patients with SSA are prone to pain crises, seizure disorders, and thrombosis.
 - f. Anemia can also significantly affect fetal growth and mortality.
 - g. Can cause conditions such as kidney failure and congestive heart failure
3. Thalassemias
 - a. Genetic mutations result in a decrease in the amount of normal hemoglobin.
 - b. More common in people of Mediterranean descent as well as in African and Middle Eastern populations
 - c. Severity of condition depends on severity of mutation.
 - d. Anemia causes such a high level of oxygen deprivation that the fetus cannot survive.
 - e. Massive fluid accumulation can manifest in the fetus resulting in neonatal death.
 - f. Cooley's anemia: most severe form

G. Isoimmunization (Rh Disease)

1. Rh factor
 - a. Protein found on the RBCs of most people
 - b. When absent, the person is said to be Rh negative.
 - c. When a woman who is Rh negative becomes pregnant by a man who has the Rh factor and the fetus inherits the factor, the fetal blood can pass into the mother's circulation and produce maternal antibody to the factor.

- d. Not normally a problem in first pregnancies
- e. In subsequent pregnancies the antibody will aggressively cross the placental barrier to attack the fetal RBCs.
- f. Can result in death for the fetus or hemolytic disease in a newborn

H. Group B Streptococci Perinatal Infections

1. Group B streptococcus
 - a. Leading cause of life-threatening infections in newborns
 - b. Women are not routinely screened for it.
 - c. Caused by *Streptococcus agalactiae* (bacteria living in the genitourinary and gastrointestinal tracts of healthy individuals)
 - d. Urinary tract infection, infection of the uterus, and still birth are possible.
 - e. If passed onto the newborn, can cause respiratory problems, pneumonia, septic shock, and meningitis.

I. Perinatal Viral and Parasitic Infections

1. In pregnancy
 - a. Can cause significant problems for the pregnant woman and child
 - b. Early in the pregnancy can affect the formation of the organ systems of the fetus
 - c. Later in the pregnancy can result in neurologic impairments, growth disturbances, and heart and respiratory effusions
 - d. Most commonly encountered infections include varicella zoster virus, human parvovirus B19 (fifth disease), toxoplasmosis, and cytomegalovirus.

J. Epilepsy

1. Most have normal pregnancies
 - a. Women taking medication to control seizures may be affected by the altered hemodynamics of pregnancy.
 - b. Nearly one third will experience an increase in seizures.
 - c. Generalized tonic-clonic seizures have been known to cause miscarriages.
 - d. The onset of labor can trigger seizures resulting in fetal distress.
 - e. Increased risk of vaginal bleeding both during and after pregnancy

K. Seizures

1. Two patients are involved.
 - a. Can be caused by hypertension, toxemia, preeclampsia, or a preexisting seizure disorder
 - b. Diazepam and phenobarbital can cross the placental barrier, causing fetal distress.
 - c. Magnesium sulfate is the recommended treatment.
 - d. High-flow supplemental oxygen is needed for both patients to counteract hypoxia.
 - e. Potential complications may include placental abruption, hemorrhage, disseminated intravascular coagulation, and death.

L. Thyroid Disorders

1. Thyroid

- a. Butterfly-shaped endocrine gland
 - b. Located in the neck, directly in front of the trachea
 - c. Produces several hormones that regulate the metabolic rate and affect the functions of growth of other organ systems
 - d. Calcitonin: controls calcium blood levels
 - e. Preexisting thyroid conditions or developed during pregnancy
2. Hyperthyroidism
 - a. Thyroid produces too much thyroid hormone.
 - b. Symptoms include fatigue, forgetfulness, constipation, bradycardia, feeling cold, and muscle and joint aches.
 - c. Preeclampsia is a serious complication.
 3. Hypothyroidism
 - a. Produces too little thyroid hormone
 - b. Symptoms include nervousness and irritability, tachycardia, and feeling warm.
 - c. Can cause long-term neurologic or development deficits in the fetus (may result in mental retardation)

M. Cholestasis

1. Disease of the liver
 - a. Occurs only during pregnancy
 - b. Hormones affect the gallbladder by slowing down or blocking the normal bile flow from the liver.
 - c. Bile: aids in the process of digestion by breaking down fats; produced in the liver and stored in the gallbladder
 - d. Bile acids build up in the liver and spill out into the bloodstream.
 - e. The most common symptom is profuse, painful itching, particularly of the hands and feet.
 - f. May also complain of fatigue or depression, nausea, and right upper quadrant pain
 - g. Color changes in waste elimination (dark urine and light gray or yellow bowel movements)
 - h. Women carrying multiple fetuses are at a higher risk for the development of cholestasis.
 - i. Relatively benign and transitory for the pregnant woman
 - j. Can have serious effects on the fetus
 - k. Stress on the fetal liver
 - l. Preterm birth and still birth are potential complications of untreated cholestasis.

N. You are the Provider (continued)

Slide: 59

Lecture/Discussion

1. Continue reading the case study provided on the slide:
 - a. The woman is extricated from the car as quickly and carefully as possible.

- b. The oxygen seems to have improved the woman's level of consciousness. She is now alert and oriented $\times 2$ (person and place) and much less confused. She tells you she has not had prenatal care because she has no health insurance. This is her first pregnancy. She is not due for another 5 weeks.
- c. *In moving this woman to a backboard, what position is extremely important for the mother to be in? Why?*
- d. *If the woman has had no prenatal care, what new problems do you have to consider?*

VI. Complications of Pregnancy

Time: 35 minutes

Slides: 60–82

Lecture

A. Cephalopelvic Disproportion

1. Head larger than the pelvis
 - a. Cephalopelvimetry: radiographic measurement performed to acquire the dimensions of the fetal head
 - b. In most cases, a cesarean section will be required.
 - c. May cause massive hemorrhage

B. Abortion

1. Defined
 - a. Expulsion of the fetus, from any cause, before the 20th week of gestation
 - b. Most occur during the first trimester before the placenta is fully mature
2. Spontaneous versus induced abortion
 - a. Spontaneous abortion
 - i. Occurs naturally
 - ii. Affects about 1 of every 5 pregnancies
 - iii. Causes may include acute or chronic illness in the pregnant woman, maternal exposure to toxic substances (illicit drugs), abnormalities in the fetus, or abnormal attachment of the placenta.
 - iv. In many cases, the cause cannot be found.
 - b. Induced abortion
 - i. Brought about intentionally
 - ii. When taking a medical history that includes an abortive history, be dispassionate and professional regardless of your personal convictions.
 - iii. Complications such as vaginal bleeding or sepsis from having parts of the fetus in utero
 - iv. "Self-medicated" in an attempt to induce an abortion; experiencing toxic effects of the herbal remedy as well as a threatened or progressing abortion
 - v. Herbal preparations work by making the uterus and bloodstream too toxic for the fetus to survive (may be too toxic for the woman to survive).
3. Stages of abortion

- a. The specific management of spontaneous abortion depends on the stage of the abortion.
- b. All patients presenting with vaginal bleeding or abdominal pain should be transported and evaluated at a definitive care facility.
- c. Threatened abortion
 - i. Attempting to take place
 - ii. Generally characterized by vaginal bleeding during the first half of pregnancy
 - iii. May present with abdominal discomfort or complain of menstrual cramps
 - iv. Can progress or subside
 - v. Treatment is usually complete bed rest (often in a hospital environment).
- d. Inevitable abortion
 - i. Spontaneous abortion that cannot be prevented.
 - ii. Presents with severe abdominal pain caused by strong uterine contractions
 - iii. Vaginal bleeding (often massive) will be present, as well as cervical dilation.
 - iv. Treatment goals are maintaining blood pressure and preventing hypovolemia.
 - v. IV line of normal saline, 100% supplemental oxygen, ECG, and emotional support
- e. Incomplete abortion
 - i. Part of the products of conception are expelled but some remain in the uterus.
 - ii. Cervix dilated to expel the fetus
 - iii. Vaginal bleeding will be present (slight or profuse).
 - iv. Be alert for signs and symptoms of shock.
 - v. If products of conception are protruding from the vagina, consult medical control for instructions (gentle removal of protruding tissues may prevent or relieve signs of shock).
 - vi. Most often encountered when you find the patient on the toilet (having attempted a bowel movement) with the fetus in the toilet still attached to the umbilical cord hanging from the vagina
 - vii. Collect the fetus and provide emotional support
 - viii. Fundal massage may be beneficial in stimulating the placenta to deliver.
 - ix. All products of conception need to be collected and presented to the receiving facility.
 - x. Do not deter the patient from viewing the fetus if she wishes (be prepared for a strong emotional reaction).
 - xi. Complete abortion when all the products of conception have been expelled.
- f. Missed abortion
 - i. Fetus dies during the first 20 weeks of gestation but remains in utero.
 - ii. No field management of a missed abortion other than transport and emotional support
 - iii. Suspect a missed abortion when the patient presents with a history of threatened abortion.
 - iv. Typical history will be a cessation of vaginal bleeding followed by a gradual diminishing of the signs of pregnancy (uterine and breast enlargement).

- v. May report having had a brownish vaginal discharge (possibly accompanied by a rank smell)
- vi. The uterus may feel like a hard mass in the abdomen (fetal heart sounds cannot be heard).
- vii. Generally caused by anembryonic gestation (blighted ovum), maternal disease, uterine abnormalities, embryonic abnormalities, placental abnormalities, or fetal chromosomal abnormalities
- viii. Generally precedes a spontaneous abortion
- g. Septic abortion
 - i. Once the leading cause of maternal death worldwide
 - ii. Puerperal fever was a common complication but the incidence rate was reduced significantly when physicians began routinely washing their hands between patients.
 - iii. The uterus becomes infected (often by common vaginal bacterial flora) following any type of abortion.
 - iv. Generally have a history of fever and bad-smelling vaginal discharge
 - v. Physical examination will reveal fever and abdominal tenderness.
 - vi. In severe cases, the infection will have progressed to septicemia (resulting in septic shock).
 - vii. Prehospital management consists of starting an IV line of normal saline, administering 100% supplemental oxygen via nonrebreathing mask, ECG monitoring, and rapid transport.

C. Third-Trimester Bleeding

1. Vaginal bleeding
 - a. Abortions account for the majority resulting in an emergency call.
 - b. Any detachment of the ovum or embryo from the uterine wall will result in bleeding.
 - c. Passage of tissue or clots may be reported.
 - d. Serious sign at any stage of pregnancy
 - e. Complications of bleeding increase as the gestation time lengthens.
2. Greatest danger of hemorrhage
 - a. Becomes more acute as the woman approaches term
 - b. Large volume of blood present within the pregnant woman's body
 - c. Compensatory mechanisms functioning as a result of pregnancy
 - d. A pregnant woman can lose a full 40% of her circulating volume before significant signs and symptoms of hypovolemia become apparent.
3. Causes of third-trimester bleeding
 - a. Abruptio placenta
 - i. Premature separation of a normally implanted placenta from the wall of the uterus
 - ii. Most commonly occurs during the last trimester of pregnancy (can occur during the second trimester)
 - iii. Affects about 1 of every 100 pregnancies that go to term
 - iv. Maternal hypertension is the most common cause.

- v. Trauma, assault, falls, and infection are other possible causes.
 - vi. Drug abuse, alcohol use, and smoking are also contributing factors.
 - vii. Incidence is greater among multiparous women and those who have previously experienced abruptio placenta.
 - viii. Usually report vaginal bleeding (bright red blood)
 - ix. Sudden onset of severe abdominal pain
 - x. May report that she no longer feels the baby moving inside her
 - xi. Physical examination may reveal signs of shock (out of proportion to the apparent volume of blood loss).
 - xii. The abdomen will be tender and the uterus rigid to palpation.
 - xiii. Fetal heart sounds are often absent (partly or completely cut off from its blood supply).
 - xiv. Other complications include severe hemorrhaging.
- b. Placenta previa
- i. Placenta is implanted low in the uterus and partially or fully obscures the cervical canal
 - ii. Leading cause of vaginal bleeding in the second and third trimesters of pregnancy
 - iii. Maternal age and multiparity are risk factors
 - iv. Occurs in about 5 of every 1,000 births
 - v. Maternal mortality rate of 0.03%
 - vi. Complications include disseminated intravascular coagulation, hemorrhage, and low fetal birth weight.
 - vii. The chief complaint is painless vaginal bleeding.
 - viii. On gentle palpation, the uterus is soft and nontender.
- c. Uterine ruptures
- i. During labor
 - ii. Patients at greatest risk are women who have had many children and those with a scar on the uterus.
 - iii. Typically called for a "possible OB" and find a woman in active labor complaining of weakness, dizziness, and thirst
 - iv. Physical examination will reveal signs of shock (sweating, tachycardia, and falling blood pressure).
4. Assessment and management of third-trimester bleeding
- a. Try to determine as much as possible about the nature of the bleeding.
 - b. OPQRST to elaborate on the chief complaint
 - c. Rate the pains severity on a scale of 1 to 10.
 - d. Physical examination: identify changes in orthostatic vital signs (indicate a significant blood loss)
 - e. Grey Turner's sign or Cullen's sign
 - f. Regardless of the source of hemorrhaging, prehospital management is the same.
 - i. Keep the woman recumbent, lying on her left side.
 - ii. Administer 100% supplemental oxygen.

- iii. Rapid transport
- iv. IV line of normal saline
- v. ECG and obtain baseline vital signs.
- vi. Use loosely placed trauma pads over the vagina in an effort to stop the flow of blood (do not pack the vagina internally with trauma pads).
- vii. If bleeding is severe and signs and symptoms of shock are present, pharmacologic management may be indicated by medical control.
- viii. Tokolytics: drugs that are used to delay preterm labor

D. Disorders of Pregnancy States

1. Hyperemesis gravidarum
 - a. Condition of persistent nausea and vomiting during pregnancy
 - b. Nearly all women experience the infamous "morning sickness," especially during the first several weeks of pregnancy.
 - c. Prolonged vomiting leads to dehydration and malnutrition.
 - d. The exact cause is unknown (increased hormone levels, stress, and changes to the gastrointestinal system).
 - e. Most common in first-time pregnancies, with multiple gestations, and in women who are obese
 - f. May also present in conjunction with molar pregnancy and HELLP syndrome
 - g. Symptoms include severe and persistent vomiting, in excess of three or four times daily.
 - h. Vomiting is usually projectile and generally consists of bile and possibly blood.
 - i. Severe nausea, pallor, and possibly jaundice may also be seen.
 - j. Prehospital treatment
 - i. 100% supplemental oxygen
 - ii. Start an IV line.
 - iii. If protocols allow, administer diphenhydramine.
 - iv. Check blood glucose levels.
 - v. Check orthostatic vital signs.
 - vi. Transport.
2. Molar pregnancy
 - a. About 1 in every 1,000 pregnancies
 - b. Malfunction of the egg or sperm creates a problem at the fertilization stage, resulting in an abnormal placenta.
 - c. Complete mole when an empty egg is fertilized, triggering the normal progression of pregnancy without a fetus
 - d. Partial mole occurs when two sperm fertilize the same egg resulting not in twins, but in an abnormal placenta and a fetus with an abnormal chromosome count.
 - e. Most likely vaginal spotting or bleeding (usually dark brown) or excessive nausea and vomiting
 - f. Preeclampsia is also a potential complication.
 - g. Frightening and heartbreaking as well

- h. Prenatal screenings tend to find most instances of molar pregnancy.
3. Pseudopregnancy
 - a. Pseudocyesis: “psychogenic” pregnancy
 - b. False pregnancy that develops all the typical signs and symptoms of true pregnancy (weight gain, menstrual cessation, tender breasts, enlarged uterus, and even labor pains)
 - c. Exact cause is unknown (presumed to be caused by the emotional desire to be pregnant).
 - d. Provide emotional support.
 4. Ectopic pregnancy
 - a. Severe disorder with potentially life-threatening consequences
 - b. The fertilized ovum becomes implanted somewhere other than in the uterus (usually in a fallopian tube).
 - c. The normal signs of pregnancy are present.
 - d. Severe pain and possibly hypovolemic shock
 5. Pregnancy and drugs
 - a. Drug addict
 - b. Illicit drugs pass through the placenta barrier and enter into the fetal circulation.
 - c. Birth defects and addiction of the fetus
 - d. Baby may have signs of withdrawal after it is born (respiratory depression, bradycardia, tachycardia, seizures, and cardiac arrest).

VII. General Assessment of the Pregnant Patient

Time: 10 minutes

Slides: 83–89

Lecture

A. Some Definitions

1. Special terminology
 - a. Gravidity: refers to the uterus that contains a fetus, whatever the outcome
 - b. Parity: delivery of an infant after the 28th week of gestation, irrespective of whether the infant was born alive or dead
 - c. A woman is classified according to the number of times her uterus has been occupied (gravidity) and the number of times she has carried a fetus more than 28 weeks (parity).
 - d. Primigravida: woman who is pregnant for the first time
 - e. Primipara: woman who has had only one delivery
 - f. Multigravida: woman who has had two or more pregnancies, irrespective of the outcome
 - g. Multipara: woman who has had two or more deliveries (more than five deliveries is referred to as a “grand multipara”)
 - h. Nullipara: woman who has never delivered

B. Scene Size-up and Initial Assessment

1. As with any other call
 - a. Proper physical assessment and medical history are an important part of treating the obstetric patient.

C. Focused History and Physical Exam

1. OPQRST and SAMPLE
 - a. Specifically, you want to know if the patient is pregnant, how many times she has been pregnant, and how many times she has had a live birth.
 - b. If in doubt, ask: can be a rude question.
 - c. Number of times pregnant can be sensitive.
2. Complications of pregnancies
 - a. Obstetric or gynecologic complications
 - b. Cesarean section (vaginal birth after cesarean)
 - c. Ultrasound and what it revealed
3. General impression of overall health
 - a. Smoking, drinking, or illicit drug use
 - b. Pain
 - c. Vaginal bleeding or spotting
 - d. Other vaginal discharge
4. Active labor
 - a. Has her water broken?
 - b. Does she need to move her bowels or push?

D. Focused Physical Exam

1. Based on the chief complaint
 - a. Just because a woman is pregnant, do not rule out the possibility of other conditions (asthma, heart attack, or allergic reactions).
 - b. Should also include fetal heart tones and heart rate
 - c. Pay close attention to the vital signs of both patients.
 - d. Inspect the vaginal area for crowning, vaginal bleeding, or discharge.
2. Braxton-Hicks contractions
 - a. Intermittent uterine contractions
 - b. May occur every 10 to 20 minutes
 - c. Usually seen in the third month of the pregnancy
 - d. Known as false labor
 - e. Transport.

E. Ongoing Assessment

1. Should include
 - a. Assessment of the women's serial vital signs
 - b. Fetal heart rate and heart tones
 - c. Time the contractions.
 - d. Head-to-toe exam

- e. Check interventions.

F. You are the Provider (continued)

Slide: 90

Lecture/Discussion

1. Continue reading the case study provided on the slide:
 - a. Once the woman is secured to a backboard with her right hip elevated to about 6 inches, vital signs should be quickly assessed for mother and fetus.
 - b. The mother's vitals are: blood pressure 148/94; respiratory rate of 18 to 28 breaths per minute, irregular due to contractions; pulse 130 beats per minute, strong but irregular with contractions. Her water broke not long after she was put into the ambulance. Her contractions are about 6 minutes apart and regular.
 - c. *What do the mother's vital signs suggest about her condition?*
 - d. *What should you be prepared for with these vital signs?*

VIII. Trauma During Pregnancy

Time: 20 minutes

Slides: 91–103

Lecture

A. Overview

1. Serious complicating factor in pregnancy
 - a. Physiologic changes during pregnancy
 - b. Involvement of two patients
 - c. Leading cause of maternal death
 - d. Motor vehicle trauma accounts for 60–67% of trauma in pregnancy (accounts for only 21% of maternal deaths).
 - e. Gunshot wounds account for 23% of maternal deaths.
 - f. Stab wounds account for 14% of maternal deaths.
 - g. Nearly 70% of all penetrating abdominal wounds result in injury to the fetus.

B. Vulnerability of the Pregnant Woman to Trauma

1. In general
 - a. Abdominal trauma occurs from the same mechanisms in pregnant and nonpregnant women.
 - b. The likelihood of domestic abuse increases greatly during a woman's pregnancy.
2. Anatomic changes
 - a. Important implications for trauma
 - b. Higher incidence of abdominal injuries in association with chest trauma
 - c. The peritoneum is maximally stretched. (Significant abdominal trauma may occur without peritoneal signs.)
3. Uterus

- a. First trimester, uterus is well protected in the woman's bony pelvis and rarely damaged from abdominal trauma.
 - b. Second and third trimesters, uterus grows out from the pelvis and extends into the abdomen (more vulnerable to blunt and penetrating trauma).
 - c. Lap belt in motor vehicle crashes
 - d. The uterus shields other organs in penetrating trauma. (Pregnant women with penetrating wounds have excellent outcomes; the fetus is often injured.)
4. Bladder
- a. Displaced upward and forward as early as the second trimester (lies outside of the pelvic cavity)
 - b. Make a note of belt placement in a restrained pregnant patient in a motor vehicle collision.
5. Vascular volume
- a. Significant increase in pregnancy (nearly 50% during the first 6 months of pregnancy)
 - b. Cardiac output and resting pulse rate increase.
 - c. Makes it difficult to interpret tachycardia
 - d. Signs of hypovolemia may not be evident as quickly.
 - e. Relative redistribution in blood volume, especially in the pelvic region. (Pelvic fractures can lead to significant blood loss.)
6. Respiration
- a. Higher base metabolism (increased need for oxygen)
 - b. More carbon dioxide to eliminate as well
 - c. Tidal and minute volume increase to compensate.
7. Digestion
- a. Slows
 - b. Bowel motility decreases.
 - c. Stomach stays full longer.
 - d. Chances of aspiration are dramatically increased.

C. Vulnerability of the Fetus to Trauma

1. Muscular wall of the uterus
 - a. Acts as a cushion for the fetus against the direct effects of blunt trauma
 - b. Fetal injury as a result of deceleration of circulation or may be secondary to impaired fetal circulation
 - c. The most common cause of fetal death is maternal death.
2. Bleeding
 - a. Maternal circulation will shunt blood away from fetal circulation to maintain maternal homeostasis.
 - b. Any injury involving significant bleeding will threaten the life of the fetus.
3. Fetal heart rate
 - a. Best indication of status of the fetus after trauma
 - b. Normal is between 120 and 160 beats/minute.

- c. Anything slower means fetal distress and signals a dire emergency.
- d. Listen with the bell of the stethoscope over the pregnant woman's abdomen.
- e. Palpate the woman's pulse at the same time as you count the fetal heart rate. (If they match you are most likely listening to an echo of the maternal heart sounds.)

D. Treatment of the Pregnant Trauma Patient

1. You can only treat one patient directly.
 - a. In general, what is good for the woman will be good for the fetus.
 - b. Potential damage to the fetus cannot be measured in the field.
2. In general
 - a. Prehospital management of the pregnant patient is the same as for nonpregnant patients.
 - b. ABCs are highest priority.
 - c. A large uterus can compress the vena cava. (Transport on left side unless a spinal injury is suspected.)
 - d. If you must transport in the supine position, elevate her right hip about 6" to minimize the pressure on the vena cava.
3. Field treatment of a pregnant trauma patient
 - a. Ensure an adequate airway.
 - b. Administer oxygen.
 - c. Assist ventilations as needed, and provide a higher minute volume than usual.
 - d. Control external bleeding promptly.
 - e. Start one or two IV lines of normal saline.
 - f. Notify the receiving hospital.
 - g. Transport.
 - h. If cardiac arrest, provide CPR and ALS as you would for a nonpregnant patient.
4. If resuscitation efforts are not effective within 5 minutes.
 - a. Emergency cesarean section must be performed to save the woman and possibly the baby.
 - b. Immediate evacuation of the uterine contents provides the most favorable resuscitation scenario for the woman.
 - c. If done within 5 minutes of maternal death, the fetus at term has a 70% chance of survival.
 - d. Not commonplace and remains highly controversial
 - e. CPR and ventilatory support may keep the fetus viable until a cesarean section can be performed.

IX. Normal Childbirth

Time: 55 minutes

Slides: 104–124, 126–139

Lecture

A. Overview

1. Assisting in childbirth
 - a. The event is often a happy one.
 - b. Pregnant women rarely call 9-1-1 unless extraordinary circumstances are occurring.
 - c. The chances of complications increase significantly when delivery occurs unplanned outside of the hospital.
 - d. Uncontrolled, nonsterile environment

B. Labor

1. Mechanism by which the products of conception are expelled from the pregnant woman's uterus
 - a. Progresses through several well-defined stages
 - b. Prodromal stage
 - i. Often goes unnoticed
 - ii. The woman begins to feel a relief of pressure in her upper abdomen and a simultaneous increase of pressure in her pelvis.
 - iii. A plug of mucus, sometimes mixed with blood, is expelled from the dilating cervix and discharged from the vagina (bloody show).
2. First stage of labor
 - a. Begins with the onset of labor pains (crampy abdominal pains that may radiate into the small of the back)
 - b. Early contractions come at 5- to 15-minute intervals.
 - c. Maneuver the baby into position and prepare the cervical opening for the baby's egress
 - d. As the uterus contracts, its less muscular lower segment is pulled upward over the presenting part, resulting in effacement of the cervix.
 - e. Progressive cervical dilation: stretching of the cervical opening until it is wide enough to accommodate passage of a baby
 - f. Lasts until the cervix is fully dilated
 - g. The amniotic sac often ruptures, with a dramatic gush of fluid pouring out of the vagina.
3. Second stage of labor
 - a. Begins as the baby's head enters the birth canal
 - b. The woman's contractions become more intense and more frequent (2 to 3 minutes apart).
 - c. Pulse rate increases and sweat appears on her face.
 - d. Tends to bear down with each contraction and may feel as if she has to move her bowels
 - e. The cervix becomes fully dilated and effaced.
 - f. Crowning: presenting part of the baby begins bulging out of the vaginal opening
 - g. Delivery is imminent.
 - h. Concludes when the baby is fully delivered
4. Third stage of labor
 - a. Placental stage

- b. Period from the delivery of the baby until the placenta has been fully expelled and the uterus has contracted
- c. Uterine contraction is necessary to squeeze shut all of the tiny blood vessels left exposed when the placenta separates from the uterine wall.
- d. See Table 39-1 The Stages of Labor: Nullipara Versus Multipara.

C. Assessment of the Obstetric Patient

1. Answer two questions
 - a. Am I going to have to deliver this baby?
 - b. If so, which potential complications, if any, should I anticipate in this particular case?
2. Is there time to reach the hospital?
 - a. Has the woman had a baby before?
 - b. What are the contractions like? (Table 39-2 False Labor Versus True Labor)
 - c. How frequent are the contractions?
 - d. Does the woman feel an urge to move her bowels?
 - e. The answers to these questions should give you a good idea of whether there will be time to transport to the hospital.
 - f. Inspect for crowning.
3. Is this likely to be a complicated delivery?
 - a. Has the patient been receiving prenatal care?
 - b. What is the actual due date of the baby?
 - c. Has the patient's water broken?
 - d. Does the patient have a history of cesarean section?
 - e. Has the patient experienced any previous complications of pregnancy?
 - f. What number child is this?
 - g. If delivery is imminent, you will not have time to conduct an extensive physical examination, but try to do the following:
 - i. Assess the woman's vital signs.
 - ii. Try to estimate the gestational age.
 - iii. Listen for fetal heart tones.
 - h. If ample time to reach the hospital is indicated, place the woman in the lateral recumbent position.
 - i. If there is not enough time, prepare to assist in delivery of the baby.
 - i. Try to find an area of maximum privacy and cleanliness.
 - ii. Keep nervous bystanders occupied, preferably elsewhere.
 - iii. Be calm and reassuring.

D. Setting Up for Delivery Outside the Hospital

1. Time
 - a. Not enough to reach the hospital
 - b. Not enough to make a lot of preparations
 - c. Get the mother into position, open the OB kit, and catch the baby.
 - d. The sequence needs to be well planned and well rehearsed.

2. Position the pregnant woman.
 - a. In the home, usually in the supine position in a bed (preferably with a Reeves stretcher and sheet beneath her to facilitate movement after delivery)
 - b. The supine position makes things much more difficult for the mother (push against gravity).
3. Delivery modalities
 - a. More women are opting for home deliveries versus in-hospital care.
 - b. Natural childbirth is becoming more popular.
 - c. The use of nurse midwives, lay midwives, professional birth assistants, chiropractors, and doulas (an assistant who “mothers” the mother) is gradually gaining acceptance within the medical community.
 - d. Alternative pushing positions are becoming more popular.
4. Standing birth
 - a. Ancient practice
 - b. Used in several areas of the world
 - c. Sometimes used in the active birth model (mother is allowed total freedom to move around and be active up to the point of delivery)
 - d. Allows the mother to take advantage of gravity
 - e. Allows the pelvis to open to a maximal position
 - f. Purportedly allows breech births to proceed without complications (no verifiable statistical data are available to quantify this claim)
5. Semi-Fowler's position
 - a. Supine lithotomy position with the woman's torso propped up to a high Fowler's or Fowler's position
 - b. Seems to help some women with pushing
 - c. Can lie back to rest in between contractions
6. Kneeling birth
 - a. The woman kneels with her buttocks in the air and usually rests on her elbows.
 - b. Provides some of the same advantages as squatting
 - c. Some may use this method in a bathtub full of water (reputed to ease delivery)
 - d. Unintentional submersion is a possible downside.
7. Side-lying position
 - a. Essentially a left-Sims position, with the upper torso possibly supported with pillows
 - b. Ensures that the uterus and the fetus are moved away from the inferior aorta
 - c. Allows the knees to be held together (purportedly reduces tearing)
8. Standard delivery set-up
 - a. In the ambulance, there isn't enough working space to permit the woman to sit or squat for delivery.
 - b. Position the woman on her back on the stretcher, with a folded sheet under her buttocks. (Bend her knees and spread her thighs apart.)
 - c. Sterile obstetric kit
 - d. See Table 39-3 Sterile Obstetric Kit for Ambulances.

- e. Wash your hands thoroughly.
- f. Put on sterile gloves.
- g. Maintain BSI precautions.
- h. Prepare the woman for delivery by draping her with towels using the sterile towels in the OB kit.
- i. If no time to prepare, control the delivery as best as you can.
- j. Do not forget to attend to the emotional needs of the patient and family members.
 - i. Emotions tend to run high during deliveries.
 - ii. Additional stress if the delivery is occurring in a crowded area
 - iii. Partner should take a position at the woman's head to help keep her calm.
- k. Encourage the woman to rest between contractions and to resist bearing down until you are ready to assist.
- l. If she finds it difficult not to bear down, instruct her to "pant like a dog" during each contraction.

E. You are the Provider (continued)

Slide: 125

Lecture/Discussion

1. Continue reading the case study provided on the slide:
 - a. During the ride to the hospital, the woman's contractions come closer together, and her pain increases. You try to help her remain as calm as possible, and take deep breaths during contractions.
 - b. About 10 miles from the hospital, the woman tells you that she feels increasing pressure in her lower abdomen and lower back. Her blood pressure is now 158/110, and her respirations have increased to 22 to 30 breaths per minute, varying with contractions.
 - c. *Given the pressure she feels in her lower abdomen and back, and the length apart of her contractions, should you check to see if there is any sign of the baby crowning or any other issues?*
 - d. *Do you give her medication for her high blood pressure at this point to avoid possible seizures that may harm the unborn child?*

F. Assisting Delivery

1. Steps
 - a. Control the delivery. When crowning occurs, place gentle pressure on the baby's head with the palm of your gloved hand.
 - b. As the baby's head begins to emerge from the vagina, it will start to turn. Support the head as it turns. Do not attempt to pull the baby from the vagina.
 - c. Slip your middle finger alongside the baby's head to check for a nuchal cord.
 - d. If you find a nuchal cord, try to slip it gently over the baby's shoulder and head.
 - e. With the baby's head cradled and supported in your hand, clear the baby's airway by suctioning with the bulb syringe. Suction the nose first.
 - f. Gently guide the baby's head downward to allow delivery of the upper shoulder
 - g. Gently guide the baby's head upward to allow delivery of the upper shoulder.

- h. Once the shoulders are delivered, the baby's trunk and legs will follow rapidly. Be prepared to grasp and support the infant as it emerges.
 - i. Once the baby is delivered, lay the baby along your arm and grasp it like a football, with one arm and shoulder between your fingers and the head held dependent to aid drainage.
 - j. Wipe any blood or mucus from the baby's nose and mouth with a sterile gauze.
 - k. Dry the baby with sterile towels, place the infant in the foil bunting, and wrap with a dry blanket.
 - l. Record the time of birth for your PCR.
2. Apgar scoring
- a. Useful means of evaluating the adequacy of a newborn's vital functions immediately after birth
 - b. Five parameters (heart rate, respiratory effort, muscle tone, reflex irritability, and color)
 - c. Score from 0 to 2 both 60 seconds and then 5 minutes after birth
 - d. Vigorous 7 to 10
 - e. Moderately depressed 4 to 6
3. Cutting the umbilical cord
- a. Once the infant has been delivered and is breathing well
 - b. No longer necessary for the infant's survival
 - c. Handle the umbilical cord with care.
 - d. Tie or clamp the cord about 8" from the infant's navel, with two ties placed 2" apart. Cut the cord between the two ties or clamps.
 - e. Examine the cut ends of the cord to be sure that there is no bleeding.
 - f. Once the cord is clamped and cut, wrap the baby in a dry blanket and place him or her at the mother's breast.
4. Delivery and management of the placenta
- a. Usually within 20 minutes of the baby's arrival
 - b. Do not attempt to speed delivery of the placenta by pulling on the umbilical cord.
 - c. The first sign is usually the onset of contractions.
 - d. The end of the umbilical cord protruding from the vagina lengthens, and there is usually a gush of blood from the vagina.
 - e. Instruct the patient to bear down to expel the placenta.
 - f. As she does so, hold the placenta with both hands and gently twist it so that the membranes will peel completely off the uterine wall.
 - g. Gently massage the abdomen over the uterus to aid in its contraction.
 - h. If protocols allow, add 10 units of oxytocin to the mother's IV bag.
 - i. Examine the placenta for completeness.
 - j. One side should be gray, shiny, and smooth (fetal side); the other should be dark maroon with a rough texture (maternal side).
 - k. White fringe around the placenta is the remnant of the amniotic sac.
 - l. Pallor may indicate hemorrhage or fetal anemia.

- m. Place the placenta in one of the plastic bags from the OB kit, and transport it with you to the hospital.
- n. Examine the perineum for lacerations and apply pressure to any bleeding tears.
- o. If the placenta has not delivered after 15 minutes, transport the patient anyway.
- p. Some women may request to keep the placenta (standard practice in some parts of the world); respect such requests.

X. Abnormal Deliveries

Time: 25 minutes

Slides: 140–154

Lecture

A. Breech Presentations

1. Most enter the world headfirst
 - a. The head serves to open a path through the cervix for the narrower shoulders and hips.
 - b. In a breech presentation, another part of the body leads the way (usually the buttocks).
 - c. Occurs in 4% of all deliveries and is more common with premature births
2. If you determine the buttocks is the presenting part and that delivery is imminent
 - a. Position the woman with her buttocks at the edge of the bed or stretcher and her legs flexed.
 - b. Allow the buttocks and trunk of the baby to deliver spontaneously. Do not pull on the baby
 - c. Once the baby's legs are clear, support the baby's body on the palm of your hand and volar surface of your arm.
 - d. Lower the baby slightly so that it very nearly hangs by its own weight downward.
 - e. When you can see the baby's hairline, grasp the baby by the ankles and lift him or her upward in the direction of the woman's abdomen.
 - f. If the baby's head does not deliver within 3 minutes, the child is in danger of suffocation, and immediate action is indicated. Place your gloved hand in the vagina, with your palm toward the baby's face. Form a V with your fingers on either side of the baby's nose, and push the vaginal wall away from the baby's face until the head is delivered.
 - g. Remember: This is a delivery, not an extrication.

B. Other Abnormal Presentations

1. Footling breech
 - a. One or both feet will dangle down through the vaginal opening.
2. Transverse presentation
 - a. The fetus lies crosswise in the uterus and may wave at the paramedic with one hand protruding through the vagina.
3. Most important point
 - a. Don't attempt delivery in the field.

- b. Nearly all will require delivery by cesarean section.

C. Prolapsed Umbilical Cord

1. The cord emerges from the uterus ahead of the baby.
 - a. With each uterine contraction, the cord is then compressed between the presenting part and the bony pelvis, shutting off the baby's supply of oxygenated blood from the placenta.
 - b. Fetal asphyxia may ensue if circulation through the cord is not rapidly reestablished and maintained until delivery.
 - c. 3% of deliveries
2. Treatment
 - a. Position the woman supine with her hips elevated as much as possible on pillows.
 - b. Administer 100% supplemental oxygen.
 - c. Instruct the woman to pant with each contraction.
 - d. With two fingers of a gloved hand, gently push the baby back up into the vagina until the presenting part no longer presses on the cord.
 - e. While you maintain pressure on the presenting part, have your partner cover the exposed portion of the cord with dressings moistened in normal saline.
 - f. Somehow, you must try to maintain that position, with a gloved hand pushing the presenting part away from the cord, throughout urgent transport to the hospital.

D. Premature and Small Infants

1. Late in the second trimester or early in the third trimester of pregnancy
 - a. Start to experience contractions
 - b. May also have spotting and leaking of amniotic fluid
 - c. Less of a chance of survival and more birth defects if born before 37 weeks of gestation
 - d. Prevent labor from occurring.
 - e. Medications given to halt preterm labor may include terbutaline sulfate and magnesium sulfate.
2. Born before 37 weeks or weighing less than 5.5 lb
 - a. Needs special care
 - b. Keep the baby warm.
 - i. Dry the baby thoroughly.
 - ii. Wrap the baby in a foil bunting, from head to toe.
 - iii. Cover the baby with a dry blanket.
 - iv. Place the baby on the mother's chest, and cover both with another blanket.
 - c. Keep the ambulance interior nice and warm.
 - d. Maintain the baby's airway.
 - e. Prevent bleeding from the umbilical cord.
 - f. Administer supplemental oxygen through a tent above the infant's head.
 - g. Prevent contamination.

E. Multiple Births

1. Multiple gestations
 - a. Occur in about 3% of all pregnancies
 - b. The older a woman is at the time of conception, and the more pregnancies she has had, the higher her chances of a multiple birth.
 - c. Use of fertility drugs
2. Incidence
 - a. In the US has risen significantly in recent years
 - b. Always have a spare OB kit on hand.
 - c. Greater chance of encountering breech presentations in such births
 - d. Babies are usually smaller. (Delivery is easier than in a single breech birth.)
3. Mother
 - a. Generally aware that she is carrying more than one baby (appropriate prenatal care)
 - b. May be unaware
 - c. If the mother is still suspiciously large after delivery of the first baby, or another clue presents itself, get ready for another delivery.
4. Steps
 - a. Repeat the earlier preparations.
 - b. Twins are usually delivered single file, one after the other (some share a placenta, others have their own).
 - c. Contractions will usually start again within about 5 to 10 minutes after the birth of the first baby, and the second baby can be expected to arrive within 30 to 45 minutes (time to transport).
 - d. Usually both babies are born before the first placenta is delivered.
 - e. Treat as you would premature babies.

F. Stillborn Babies

1. Baby is born dead.
 - a. 1 of every 200 pregnancies
 - b. Good prenatal care identifies a stillborn child well before delivery.
 - c. Complications of labor and delivery can also precipitate with the baby dying in utero shortly before birth.
2. Resuscitation
 - a. Should always be attempted, unless the baby is obviously dead
 - b. Emotional trauma can create additional patients.

G. You are the Provider (continued)

Slide: 155

Lecture/Discussion

1. Continue reading the case study provided on the slide:
 - a. When you examine the patient (with her permission), you see part of the umbilical cord protruding from her vagina. You are still 10 miles from the hospital.
 - b. *How do you handle this situation? What are the steps, in order, that you should follow?*

XI. Complications of Labor and Delivery

Time: 20 minutes

Slides: 156–167

Lecture

A. Postpartum Hemorrhage

1. Blood loss
 - a. Average during the third stage of labor is normally about 150 mL
 - b. If it exceeds 500 mL during the first 24 hours after giving birth, it is considered postpartum hemorrhage.
 - c. Prolonged labor or delivery of multiple babies
 - d. Retained products of conception
 - e. Grand multiparity
 - f. Multiple pregnancy
 - g. Placenta previa
 - h. A full bladder
2. Management
 - a. Continue uterine massage.
 - b. Put the baby (or babies) to the mother's breast(s).
 - c. Add 10 units of oxytocin to the IV bag.
 - d. Notify the receiving hospital of the mother's status and your estimated time of arrival.
 - e. Transport without delay.
 - f. Start another large-bore IV line en route.
 - g. Do not attempt internal examination of the vagina.
 - h. Do not attempt to pack the vagina with any form of dressing.
 - i. Manage external bleeding from perineal tears with firm pressure.

B. Meconium Staining

1. In utero
 - a. The fetus passively ingests several elements (lanugo, mucus, and amniotic fluid).
 - b. Stored in the intestines and constitutes the first stool the infant passes
 - c. Meconium: first stool; odorless, greenish-black, and has a tar-like consistency; sterile
 - d. In cases of fetal distress, the fetus may void the meconium into the amniotic fluid.
 - e. If done in utero, it may result in chemical pneumonia in the child.
2. Amniotic fluid
 - a. No way to ascertain until the bag of waters breaks
 - b. Normally clear
 - c. A yellow tint to the amniotic fluid suggests the meconium has been in the amniotic fluid.
 - d. A greenish black color indicates recent passage of meconium and is a sign of danger.
3. Suctioning

- a. Be vigilant if meconium staining is present.
- b. Meconium aspiration syndrome can develop.
- c. The viscosity of the meconium can cause the infant's airway to become partially or completely blocked.
- d. If possible use a suction trap or meconium aspirator.
- e. Tracheal suctioning may be indicated.

C. Supine Hypotensive Syndrome

1. The gravid uterus compresses the inferior vena cava.
 - a. Venous blood return is diminished or occluded.
 - b. Occurs mainly when the woman assumes a supine position
 - c. Usually associated with late-stage pregnancy
 - d. Woman prone during labor
 - e. Can result in significant maternal hypotension and potentially lead to fetal distress as the maternal hypotension translates into placental hypoperfusion
 - f. Signs and symptoms include nausea, dizziness, tachycardia, and claustrophobia, progressing to breathing difficulty and syncopal episodes.
2. Management
 - a. Left lateral recumbent position
 - b. Treat underlying causes.
 - c. Monitor blood pressure and other vital signs.
 - d. Cure is delivery of the fetus.

D. Pulmonary Embolism

1. One of the most common causes of maternal death
 - a. During childbirth or postpartum
 - b. May form from a number of sources
 - c. A clot arising in the pelvic circulation is a frequent cause.
 - d. Leakage of amniotic fluid into the maternal circulation, a clot arising from DVT, and water or air entering the vagina after a water birth are other potential embolic processes.
 - e. Suspect if the woman experiences sudden dyspnea, tachycardia, atrial fibrillation, or hypotension in the postpartum state.
 - f. May complain of sudden, sharp chest pain or abdominal pain, or experience syncope
 - g. Physical examination may reveal nothing unusual except for an increased pulse rate, tachypnea, and hypotension.

E. Uterine Inversion

1. Potentially fatal complication of childbirth
 - a. 1 of every 2,000 pregnancies
 - b. The placenta fails to detach properly and adheres to the uterine wall when it is expelled.
 - c. The uterus literally turns inside-out.

- d. Usually occurs as a result of mismanaging the third stage of labor (placing excessive pressure on the uterus during fundal massage or exerting strong traction on the umbilical cord in an attempt to hasten delivery of the placenta)
2. Severity
 - a. How much of the uterus has reversed itself?
 - b. Incomplete, complete, prolapsed, and total inversion
 - c. Incomplete and complete: uterus does not protrude externally.
 - d. Prolapsed: fundus of the uterus can be seen protruding from the vagina.
 - e. Total: both the uterus and the vagina protrude inside-out.
 - f. Very painful
 3. Management
 - a. Keep the patient recumbent.
 - b. Administer 100% supplemental oxygen via nonrebreathing mask.
 - c. Start two IV lines with normal saline.
 - d. If the placenta is still attached to the uterus, do not attempt to remove it.
 - e. Carefully monitor vital signs, and treat for shock.
 - f. Consider oxytocin.
 - g. Make one attempt to replace the uterus.
 - i. Push the uterine fundus up and through the vaginal canal by applying pressure with the fingertips and the palm of a gloved hand.
 - ii. If this fails, cover all protruding tissues with moist sterile dressings and provide rapid transport.

XII. Emergency Pharmacology in Pregnancy

Time: 10 minutes

Slides: 168–174

Lecture

A. Overview

1. Dangerous effects on the fetus
 - a. Secondary when the life of the mother is at stake
 - b. Maternal physiology changes in pregnancy.
 - c. Gastric absorption is slowed.

B. Magnesium Sulfate

1. Electrolyte
 - a. Acts as a central nervous system depressant
 - b. Principally used in eclampsia
 - c. Sometimes used in preeclampsia to prevent seizures
 - d. Can cause respiratory distress, hypotension, and, potentially, circulatory collapse
 - e. Needs to be administered slowly

C. Calcium Chloride

1. Supplement

- a. Mainly used in the field for managing cases of hypocalcemia
- b. Acts as an antidote to counter the effects of magnesium sulfate
- c. Side effects include nausea and vomiting, syncope, bradycardia, and dysrhythmias, and the drug may precipitate cardiac arrest.

D. Terbutaline

1. Tokolytic and sympathetic agonist

- a. Can be administered to suppress preterm labor through the action of uterine relaxation
- b. Necessary in the case of cord prolapse
- c. Can also be used to treat pregnancy-induced asthma
- d. Side effects may include hypertension, nausea and dizziness, vomiting, chest pain, and cardiac dysrhythmias.

E. Valium

1. Benzodiazepine classified as a sedative/anticonvulsant

- a. Principal use is as a seizure medication.
- b. Indicated in eclampsia if the patient's seizures do not respond to magnesium sulfate
- c. May also be ordered to treat anxiety (preeclampsia)
- d. Principal side effects include nausea and vomiting, respiratory depression, and hypotension.

F. Diphenhydramine

1. Antihistamine

- a. Used to treat allergic reactions
- b. Sedative and antiemetic properties (useful for hyperemesis gravidarum)
- c. Side effects include drowsiness, headache, tachycardia, and hypotension.

G. Oxytocin

1. Naturally occurring hormone

- a. Causes uterine contractions by acting on smooth muscle
- b. Can be used to induce labor
- c. Should be used only to manage severe postpartum bleeding
- d. Side effects include nausea and vomiting, tachycardia, seizures, and cardiac arrhythmias.
- e. Can also induce coma or result in uterine rupture and hypertension if administered in excess

XIII. Postdelivery Care

Time: 5 minutes

Slides: 175, 176

Lecture

A. Overview

1. After delivery
 - a. Take the mother's vital signs.
 - b. Sanitary napkin in front of the vagina to collect any discharge after the birth
 - c. Monitor the mother's condition closely.
 - d. Cover the mother with blankets to prevent mild hypothermia.
 - e. Monitor the baby's vital signs.
 - f. Watch out for any signs of cardiopulmonary distress.
 - g. Keep the baby warm.

B. You are the Provider Summary

 Slide: 177

 Lecture/Discussion

1. Continue reading the case study provided on the slide:
 - a. The patient was rapidly transported to the hospital. Your partner called in to let them know the situation (exactly how serious) and the ETA (estimated time of arrival).
 - b. 23 minutes after you turned over your patient to the hospital staff, she delivered a 5 lb, 2 oz baby girl with no serious problems.
 - c. Any step in this scenario that was not carried out correctly would likely have ended in the death of the baby. Use your training, and trust your instincts. If you're not sure, examine the patient/call medical control/use the protocol book, etc. Don't risk a life (or two in this case) by overlooking a small detail.

C. Summary

1. Anatomy and physiology
2. Medical conditions
3. Assessment and management
4. Complications
5. Pharmacology

Post-Lecture

I. Prep Kit Activities

 Time: 55 minutes

Note: This section contains various student-centered end-of-chapter activities designed as enhancement to instructor's preparation. As time permits, these activities may be presented in class. They are also designed to be used as outside homework/activities.

A. Assessment in Action

 Time: 20 minutes

 Individual/Small Group Activity/Discussion

Purpose

This activity is designed to assist students in gaining a further understanding of the chapter content. This activity allows students an opportunity to analyze an emergency care scenario, develop responses, and integrate what they have learned.

Instructor Directions

1. Direct students to read the "Assessment in Action" scenario located in the Prep Kit at the end of Chapter 39.
2. Direct students to read and individually answer the quiz questions at the end of the scenario. Facilitate a class review and dialogue of the answers, allowing students to correct responses as may be needed. Use the quiz question answers noted below to assist in building this review.
3. You may also wish to assign these as individual activities and ask students to turn in their comments on a separate piece of paper.

Answers to Multiple-Choice Questions

You are called to a street corner for a person who fell. When you arrive, you see an obviously pregnant woman who has fallen and sprained her ankle. As you are assessing the patient's ankle, you note that both of her ankles are swollen. You obtain a set of vital signs that include a pulse rate of 110 beats/min; blood pressure, 150/92 mm Hg; respiratory rate, 20 breaths/min; and a pulse oximetry reading of 100% on room air. When you took the patient's pulse rate, you noticed that her hands and wrists appeared swollen as well. You prepare her for transport to the hospital and while you are driving to the hospital, the patient begins to complain of abdominal cramping. The woman's eyes roll back and she has a full-body seizure.

1. This patient's medical condition is probably related to:
 - A. preeclampsia.
 - B. eclampsia.
 - C. abruptio placentae.
 - D. spontaneous abortion.

Answer: A. Preeclampsia is a disease of unknown origin that occurs after 20 weeks' gestation, often near full term. It is characterized by edema and hypertension.

2. Treatment of the above patient includes all of the following except:
 - A. splinting of the ankle.
 - B. placing the patient in the left lateral recumbent position on a stretcher.
 - C. administering IV normal saline and oxygen.
 - D. placing the patient in the right lateral recumbent position on a stretcher.

Answer: D. You should transport the pregnant woman in the left lateral recumbent position because of the potential for supine hypotension.

3. The criteria for the diagnosis of preeclampsia includes all of the following except:

- A. hypertension.
- B. proteinuria.
- C. excessive weight gain with edema.
- D. hypotension.

Answer: D. Factors that also predispose a patient to preeclampsia include advanced maternal age, chronic hypertension, diabetes, lupus, and multiple gestation.

4. Which medications should you be prepared to administer?
- A. Magnesium sulfate and diazepam
 - B. Morphine and diazepam
 - C. Magnesium sulfate and morphine
 - D. Epinephrine and atropine

Answer: A. You should anticipate further seizures at any moment and administer magnesium sulfate and diazepam. You also need to prepare to provide airway and ventilatory support as needed.

5. When does ectopic pregnancy occur?
- A. When a fertilized ovum implants in the uterine cavity
 - B. When a fertilized ovum implants anywhere other than the uterine cavity
 - C. Usually later in pregnancy
 - D. When a patient becomes hypertensive

Answer: B. Ectopic pregnancy occurs when a fertilized ovum implants anywhere other than the uterine cavity. It is the leading cause of first-trimester death and accounts for more than 11% of maternal deaths in the United States; this usually occurs from excessive hemorrhage.

6. The absence of abdominal pain is associated with:
- A. spontaneous abortion.
 - B. placenta previa.
 - C. uterine rupture.
 - D. abruptio placentae.

Answer: B. Placenta previa is placental implantation in the lower uterus and is characterized by painless, bright red bleeding without contractions. Bleeding may be slight to moderate, becoming more profuse when labor begins.

7. How many stages of labor are there?
- A. 3
 - B. 5
 - C. 4
 - D. 6

Answer: A. There are three stages of labor: Stage 1 (dilation stage), Stage 2 (expulsion stage), and Stage 3 (placental stage). The length of each stage varies depending on the woman.

8. The period during which intrauterine fetal development takes place is known as:
- A. gestation.
 - B. para.
 - C. uterine contractions.
 - D. gravida.

Answer: A. Gestation usually averages 40 weeks from the time of fertilization to delivery of the newborn. The progress of gestation usually consists of three 90-day periods, or trimesters.

9. Pregnant patients are described by their gravid and parous states. What is the correct terminology?
- A. Gravida and parachute
 - B. Gravida and para
 - C. Live and aborted
 - D. Para and gravitation

Answer: B. Gravida and para. The term *gravida* refers to the total number of pregnancies and the term *para* refers to only the number of pregnancies that have remained viable for delivery.

10. Uterine rupture refers to:
- A. painless, bright red bleeding without uterine contraction.
 - B. localized uterine tenderness.
 - C. absent fetal heart tones.
 - D. spontaneous or traumatic rupture of the uterine wall.

Answer: D. Uterine rupture is spontaneous or traumatic rupture of the uterine wall. It is characterized by sudden abdominal pain described as steady and tearing, active labor, early signs of shock, and vaginal bleeding. The abdomen is usually rigid with diffuse pain.

Challenging Question

11. What special considerations will you need to take into account for this trauma patient?

Rationale: First and absolutely foremost, you must terminate the patient's seizure! The fetus will experience the same negative effects of a seizure that mother will—hypoxia, hypercarbia, and potential acidosis. Patients experiencing a generalized motor seizure—eclamptic or otherwise—often do not breathe adequately and should receive high-flow oxygen, via assisted ventilation if necessary. Protect the mother from injury during the seizure, and establish vascular access. Remember, intraosseous (IO) access is no longer exclusive to the pediatric population.

Magnesium sulfate (1 to 4 g over 3 minutes) is the preferred pharmacologic agent to terminate eclamptic seizures. Benzodiazepines such as diazepam (Valium) and lorazepam (Ativan) are *not* first line therapy for eclamptic seizures; they may exacerbate fetal hypoxia by depressing its respirations and slowing its heart rate. If the patient's seizure is refractory to magnesium, however, then a benzodiazepine should be administered. Remember, if the mother dies, her baby dies!

After the seizure has stopped, continue to administer high-flow oxygen, and assist the mother's ventilations if her breathing is inadequate (that is, rapid or slow respirations with reduced tidal volume). Medical control or your local protocols may call for a magnesium sulfate infusion to prevent further seizure activity.

Place the mother in a left lateral recumbent position to relieve pressure of the gravid uterus off of the inferior vena cava. Although the mechanism of injury (MOI) associated with this patient's isolated ankle injury (fall from a standing position) probably does not warrant spinal precautions, if spinal precautions are taken, the backboard should be tilted slightly to the left.

During transport, focus your efforts on preventing another seizure and maximizing fetal and maternal oxygenation. Following a seizure, the brain remains irritable, and as such, is vulnerable to another seizure. The auditory and visual stimuli produced by lights and siren may precipitate seizures—don't use them! Provide emotional support to the mother and orient her to her surroundings. Remember that the postictal phase is generally characterized by confusion, lethargy, and in some cases, combativeness.

If time permits, conduct a physical examination to assess for other injuries caused by her fall, as well as for any injuries that may have occurred during the seizure.

B. Points to Ponder

Time: 20 minutes

Individual/Small Group Activity/Discussion

This activity addresses the affective objectives of the chapter, allowing you to help students probe the more difficult situations that they face. Use this as an opportunity to allow them to express differences of opinion and approach, while directing them to be thorough and decisive in their answers. Encourage challenges.

Purpose

To allow students an opportunity to apply critical thinking analysis to a given case study.

Instructor Directions

1. Direct students to read the "Points to Ponder" scenario found in the Prep Kit at the end of Chapter 39.
2. You may wish to assign students to a partner or a group and direct them to review the discussion question at the end of the scenario and prepare a response. Facilitate a class dialogue centered on the discussion point.
3. You may also ask students to complete this activity on their own and hand in their comments on a separate piece of paper.

4. Personally review the scenario and discussion question based on your experience and knowledge as an emergency care worker. Develop your own key points for guiding this discussion.

Scenario

You respond to an obstetric emergency. On arrival you find a 23-year-old woman in the final trimester of pregnancy. She is seated in the living room on a chair. She is sobbing uncontrollably. You notice that she is sitting on a towel, and the towel has blood on it. Her chief complaint is a sudden onset of vaginal bleeding that has been occurring for 20 minutes. You ask if she is in pain, and she replies "a little." You ask if she has ever been pregnant, and she replies "once before, and I began hemorrhaging 2 weeks before delivery. I delivered a stillborn baby." She sobs.

Discuss how you will address this patient's emotions in a way that will enable you to best care for her emergency.

Issues

Dealing with Personal Tragedy, Determining a Pregnant Woman's History, Empathetic Response, Implementing a Treatment Plan.

Discussion

Sometimes as a paramedic, you will encounter patients who have serious medical problems that are compounded by emotional considerations. Occasionally the questions you must ask can stir uncomfortable memories and make it difficult to implement treatment plans. Losing a child is one of the greatest stresses humans can endure. Careful questioning and honesty are key. Acknowledge the loss, but do not delay treatment plans. At the same time, display honest consideration and concern for the patient.

In this case the patient was initially upset because she is scared because of the bleeding. When you begin questioning her, she relives the last pregnancy and loss of the child. The patient is in serious condition and you must immediately begin medical stabilization. Treatment must include attention to her emotional issues.

You should honestly tell the patient that you are sorry about the loss of the first child. You should assure her that you will do everything possible, but that in order to give this child the best chance, you must immediately initiate treatment and move to the hospital. While treating and transporting the patient, she should be reassured that you are doing everything possible to help her and her child. From time to time during transport, make the patient as comfortable as possible, and on arrival at the facility notify the staff of her history.

II. Lesson Review

Time: 10 minutes

Discussion

Note: Facilitate the review of this lesson's major topics using the review questions as direct questions or overhead transparencies. Answers are found throughout this lesson plan. Each question includes a reference to the slide where the information is covered

1. List five functions of the placenta during gestation. (Lecture III-A)
2. List five of the more common pregnancy-related complications. (Lecture VI)
3. Define abortion and list six different stages of abortion. (Lecture VI-B)
4. Briefly describe the three major causes of antepartum bleeding. (Lecture VI-C)
5. List the four disorders of pregnancy states and define each. (Lecture VI-D)
6. Define the following terms:
 - a. Primigravida
 - b. Primipara
 - c. Multigravida (Lecture VII-A)
7. List the seven steps used in the field treatment of a pregnant trauma patient and briefly describe each. (Lecture VIII-D)
8. List four alternative pushing positions that are becoming more popular during out-of-hospital deliveries. (Lecture IX-D)
9. Postpartum hemorrhage is blood loss in excess of 500 mL during the first 24 hours after giving birth. State six conditions that may promote postpartum hemorrhage. (Lecture XI-A)
10. State the classification, indication, and possible side effects of magnesium sulfate. (Lecture XII-B)

III. Assignments

Time: 5 minutes

Lecture

1. Review all materials from this lesson and be prepared for a lesson quiz to be administered (date to be determined by instructor).
2. Read Chapter 40: *Neonatology* for the next class session.