Chapter 5

Nursing Care of Women with Complications During Pregnancy

Causes of High-Risk Pregnancies

- Can relate to the pregnancy itself
- Can occur because the woman has a medical condition or injury that complicates the pregnancy
- Can result from environmental hazards that affect the mother or her fetus
- Can arise from maternal behaviors or lifestyles that have a negative effect on the mother or fetus

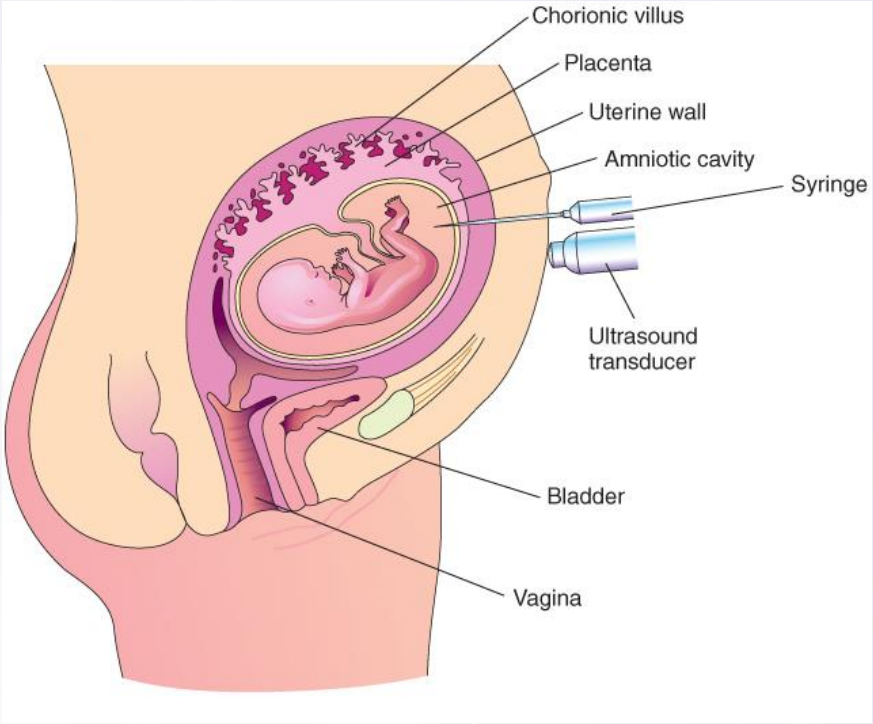
Nursing Responsibilities

- **Preparing the patient properly**
- **Explaining the reason for the test**
- **Clarifying and interpreting results in collaboration with other health care providers**

Danger Signs in Pregnancy

- Sudden gush of fluid from the vagina
- Vaginal bleeding
- Abdominal pain
- Persistent vomiting
- Epigastric pain
- Edema of face and hands
- Severe, persistent headache
- Blurred vision or dizziness
- Chills with fever over 38.0° C (100.4° F)
- Painful urination or reduced urine output

Amniocentesis



Pregnancy-Related Complications

- Hyperemesis gravidarum
- Bleeding disorders
- Hypertension
- Blood incompatibility between woman and fetus

Fetal Diagnostic Tests

- **Ultrasound-will be noninvasive using a probe; requires full bladder-will have to drink 1-2 qts of water**
- **Alpha-fetoprotein-can help with open defects such as spina bifida**
- **Amniocentesis-help identify chromosome abnormalities**
- **Non-stress test-help identify fetal compromise in conditions such as poor placenta function among others**
- **Tests of fetal lung maturity-evaluate if fetus is likely to have respiratory complications**

Hyperemesis Gravidarum

- **Manifestations**
  - **Excessive nausea and vomiting**
  - **Can impact fetal growth**
  - **Dehydration**
  - **Reduced delivery of blood, oxygen, and nutrients to the fetus**

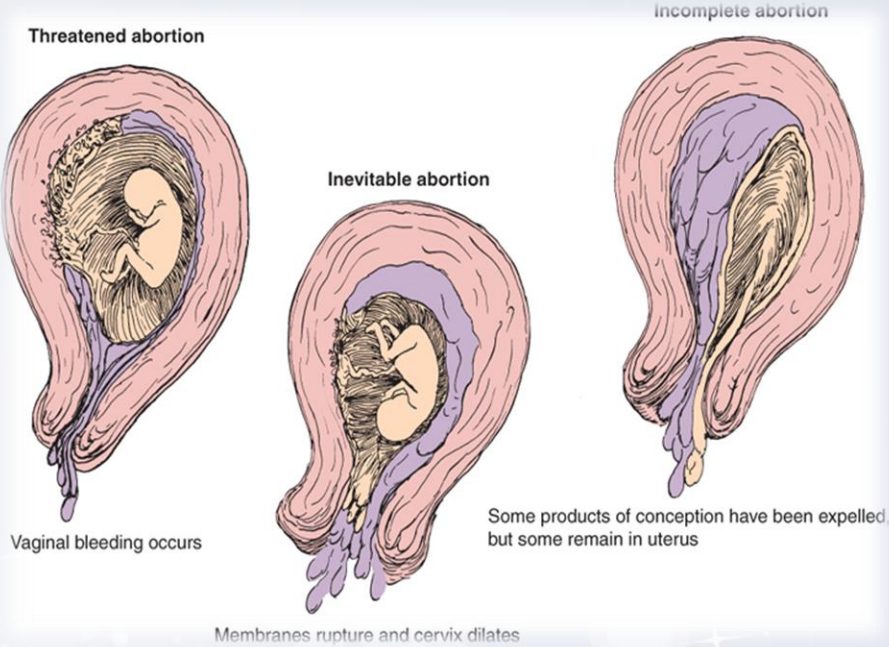
Hyperemesis Gravidarum

- **Treatment**
  - **Correct dehydration and electrolyte or acid-base imbalance**
  - **Antiemetic drugs may be prescribed**
  - **In extreme cases**
    - **TPN may be required**
    - **Hospitalization**

Bleeding Disorders of Early Pregnancy

Types of Abortions

- Spontaneous (nonintentional)
  - Threatened
  - Inevitable
  - Incomplete
  - Complete
  - Missed
  - Recurrent
- Induced
  - Therapeutic
  - Elective



Nursing Care of Early Pregnancy Bleeding Disorders

- Document amount and character of bleeding
- Save anything that looks like clots or tissue for evaluation by a pathologist
- Perineal pad count with estimated amount of blood per pad (i.e., 50%)
- Monitor vital signs
- If actively bleeding, woman should be kept NPO in case surgical intervention is needed

Post-Abortion Teaching

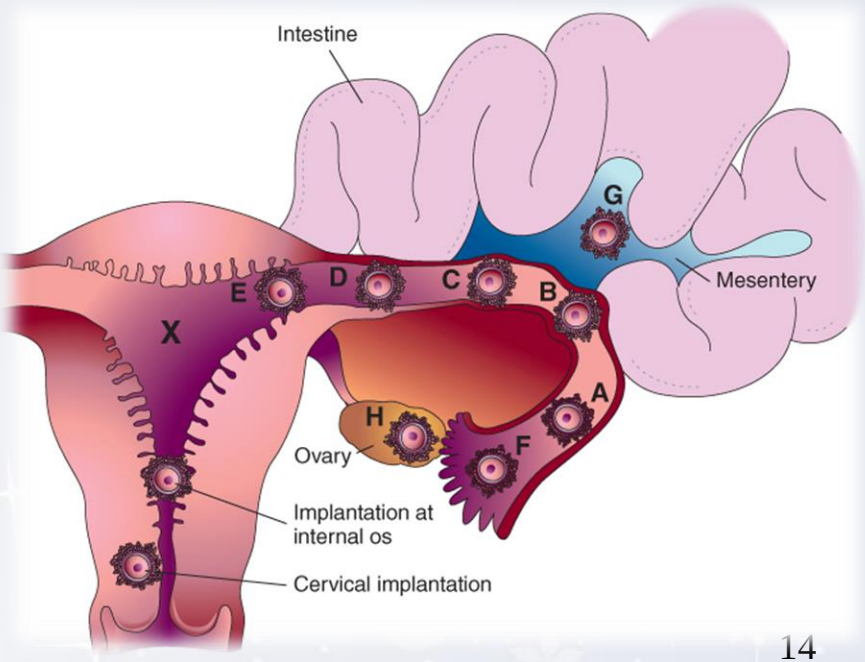
- Report increased bleeding
- Take temperature every 8 hours for 3 days
- Take an oral iron supplement if prescribed
- Resume sexual activity as recommended by the health care provider
- Return to health care provider at the recommended time for a checkup and contraception information
- Pregnancy can occur before the first menstrual period returns after the abortion procedure

Emotional Care

- Communication-listen to her; use quietness; use touch; make referrals; etc- Nursing Care Plan and Communication Techniques
- Spiritual support of the family's choice and community support groups may help the family work through the grief of any pregnancy loss

Ectopic Pregnancy

- 95% occur in fallopian tube
- Scarring or tubal deformity may result from
  - Hormonal abnormalities
  - Inflammation
  - Infection
  - Adhesions
  - Congenital defects
  - Endometriosis



Ectopic Pregnancy

Manifestations

- Lower abdominal pain and light vaginal bleeding
- If tube ruptures
  - Possible sudden severe lower abdominal pain
  - Vaginal bleeding
  - Signs of hypovolemic shock
  - Shoulder pain may also be felt

Treatment

- Pregnancy test
- Transvaginal ultrasound
- Laparoscopic examination
- Priority is to control bleeding
- Three actions can be taken
  - No action
  - Treatment with methotrexate to inhibit cell division
  - Surgery to remove pregnancy from the tube

Signs and Symptoms of Hypovolemic Shock

- Fetal heart rate changes (increased, decreased, less fluctuation)
- Rising, weak pulse (tachycardia)
- Rising respiratory rate (tachypnea)
- Shallow, irregular respirations; air hunger
- Falling blood pressure (hypotension)
- Decreased or absent urinary output (usually less than 30 mL/hr)
- Pale skin or mucous membranes
- Cold, clammy skin
- Faintness
- Thirst

Nursing Tip

- Supporting and encouraging the grieving process in families who suffer a pregnancy loss, such as a spontaneous abortion or ectopic pregnancy, allows them to resolve their grief

Hydatidiform Mole

- Also known as gestational trophoblastic disease or molar pregnancy
  - Occurs when chorionic villi abnormally increase and develop vesicles
  - May cause hemorrhage, clotting abnormalities, hypertension, and later development of cancer
  - More likely to occur in women at age extremes of the reproductive life

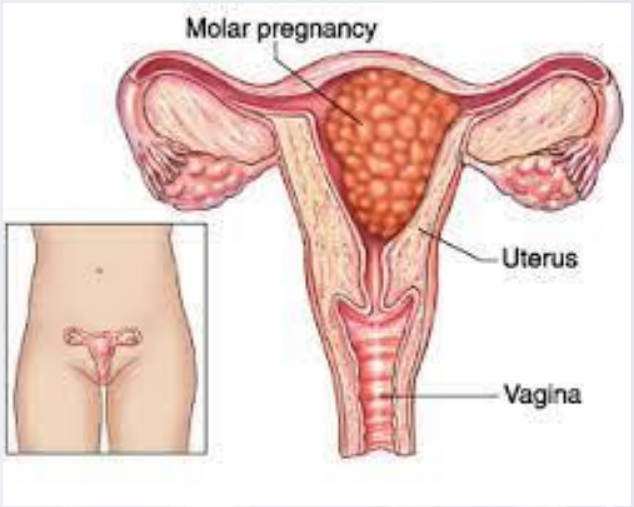
Hydatidiform Mole

Manifestations

- Bleeding
- Rapid uterine growth
- Failure to detect fetal heart activity
- Signs of hyperemesis gravidarum
- Unusually early development of GH
- Higher-than-expected levels of hCG
- A distinct “snowstorm” pattern on ultrasound with no evidence of a developing fetus

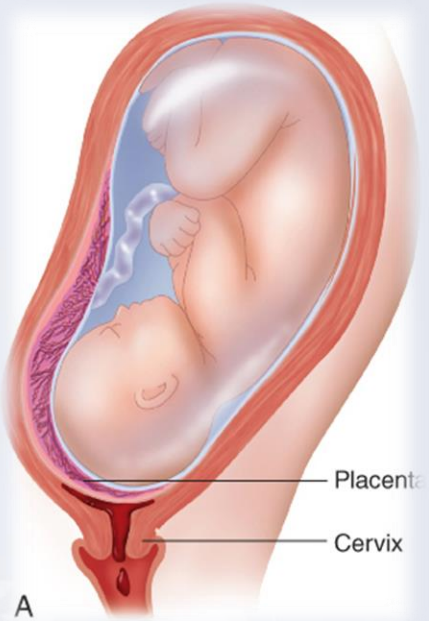
Treatment

- Uterine evacuation
- Dilation and evacuation



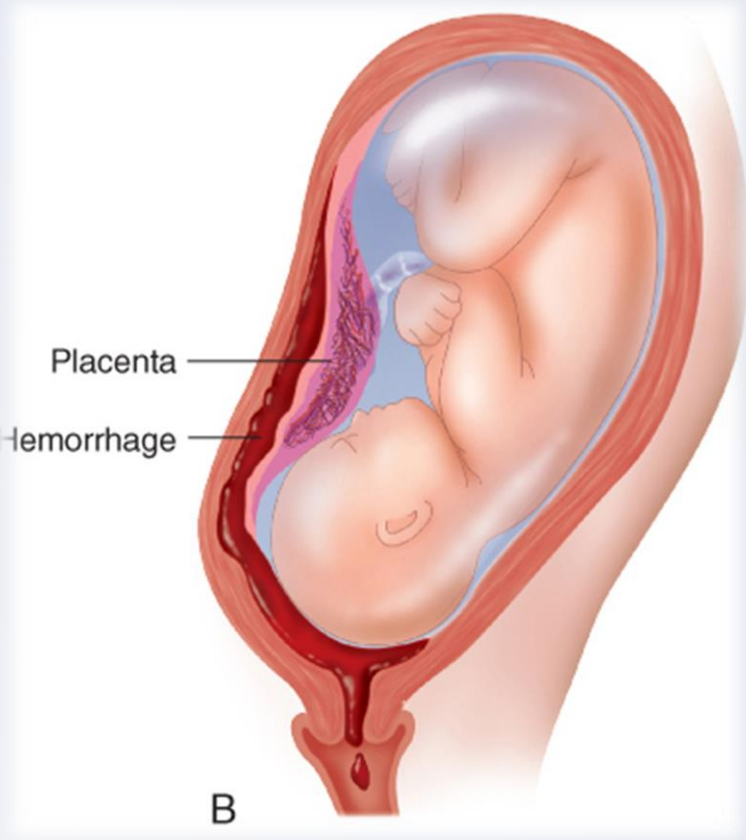
Bleeding Disorders of Late Pregnancy

- Placenta previa
  - Abnormal implantation of placenta
  - Bright-red bleeding occurs when cervix dilates, resulting in painless bleeding
  - Three degrees
    - Marginal
    - Partial
    - Total
  - Treatment-depends on gestation and amount of bleeding
    - Have woman lie on side or pillow under hip
    - C-section if gestation near term for partial or total



Bleeding Disorders of Late Pregnancy

- Abruptio placentae
  - Normal implantation of placenta
  - Dark-red bleeding with pain to abdominal area or back, enlarging uterus suggest blood is accumulating within the cavity



Complications or Risk

- Placenta previa
  - Infection because of vaginal organisms; excellent growth medium
  - Postpartum hemorrhage, because if lower segment of uterus was site of attachment, there are fewer muscle fibers, so weaker contractions may occur
- Abruptio placentae
  - Predisposing factors
    - Hypertension
    - Cocaine or alcohol use
    - Cigarette smoking and poor nutrition
    - Blows to the abdomen
    - Prior history of abruptio placentae
    - Folate deficiency

Nursing Tip

- Pain is an important symptom that distinguishes abruptio placentae from placenta previa

Care of the Pregnant Woman with Excessive Bleeding

- Document blood loss
- Closely monitor vital signs, including I&O
- Observe for
  - Pain
  - Uterine rigidity or tenderness
- Verify that orders for blood typing and cross-match have been carried out
- Monitor intravenous infusion
- Prepare for surgery, if indicated
- Monitor fetal heart rate and contractions
- Monitor laboratory results, including coagulation studies
- Administer oxygen by mask
- Prepare for newborn resuscitation

Hypertension During Pregnancy

- Gestational hypertension (GH)
  - Preeclampsia-given Magnesium Sulfate-prevent convulsions-
    - Need to monitor respirations; report ↓ 12 bpm
    - Need to monitor DTR
    - Therapeutic level 4 to 8 mg/dL
    - Monitor contractions/maintain firm uterus postpartum
    - Calcium gluconate
  - Eclampsia

Hypertension During Pregnancy

- Chronic hypertension
- Preeclampsia with superimposed chronic hypertension
- Presents 20 weeks before pregnancy
- New occurrence of proteinuria or thrombocytopenia
- Aim is to lower blood pressure
- Hydralazine and labetalol drugs of choice

Hypertension During Pregnancy

- An increase over baseline blood pressure of 30 mm Hg or more systolic
- 15 mm Hg diastolic increase will place the woman in a high-risk category for GH

Risk Factors for GH

- First pregnancy
- Obesity
- Family history of GH
- Age over 40 years or under 19 years
- Multifetal pregnancy
- Chronic hypertension
- Chronic renal disease
- Diabetes mellitus

Manifestations of and Systems Affected by GH

- Hypertension
- Sudden weight gain
- Edema- especially in face
- Proteinuria
- Blood clotting
- Central nervous system
- Eyes-vision problems
- Urinary tract
- Respiratory system
- Gastrointestinal system and liver

Management of GH

- Depends on severity of the hypertension and on the maturity of the fetus
- Treatment focuses on
  - Maintaining blood flow to the woman's vital organs and to the placenta-placing on activity restrictions
  - Preventing convulsions
- Magnesium Sulfate for Preeclampsia

Conservative Treatment

- Activity restriction
- Maternal assessment of fetal activity
- Blood pressure monitoring
- Daily weight
- Checking urine for protein
- Drug therapy
  - Magnesium sulfate
  - Calcium gluconate reverses effects of magnesium sulfate
  - Antihypertensives

Nursing Care Focus

- Assisting the woman to obtain prenatal care
- Helping her cope with therapy
- Caring for acutely ill woman
  - Know what signs/symptoms to monitor for and when to intervene
- Administering medications as prescribed

Bleeding Incompatibilities

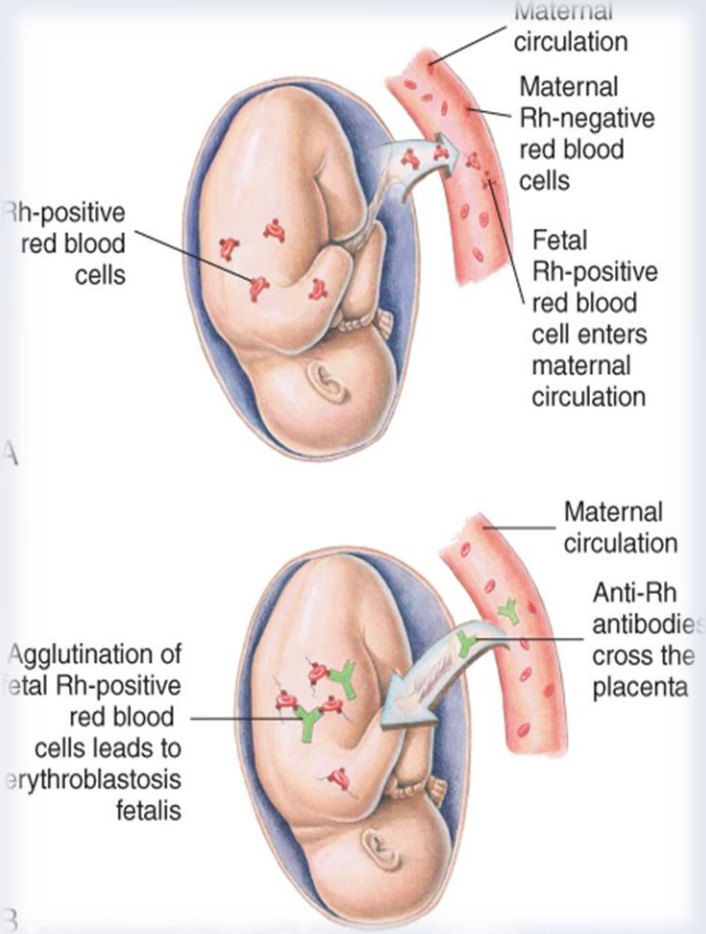
- Rh-negative blood type is an autosomal recessive trait
- Rh-positive blood type is a dominant trait
- Rh incompatibility can only occur if the woman is Rh-negative and the fetus is Rh-positive

Isoimmunization

- The leaking of fetal Rh-positive blood into the Rh-negative mother's circulation, causing her body to respond by making antibodies to destroy the Rh-positive erythrocytes
- With subsequent pregnancy, the woman's antibodies against Rh-positive blood cross the placenta and destroy the fetal Rh-positive erythrocytes before the infant is born

Erythroblastosis Fetalis

- Occurs when the maternal anti-Rh antibodies cross the placenta and destroy fetal erythrocytes
- Requires RhoGAM to be given at 28 weeks and within 72 hours of delivery to the mother
  - Also given after amniocentesis, woman who experiences bleeding during pregnancy
- Fetal assessment tests must be done throughout pregnancy
- An intrauterine transfusion may be done for the severely anemic fetus



Pregnancy Complicated by Medical Conditions

Diabetes Mellitus (DM)

Classified if preceded pregnancy

- Type 1: pathologic disorder
- Type 2: insulin resistance; genetic predisposition
- Pregestational DM: Type 1 or 2 DM
- Gestational DM (GDM)
  - Glucose intolerance with onset during pregnancy
  - In true GDM, glucose usually returns to normal by 6 weeks postpartum

Effect of Pregnancy on Glucose Metabolism

- Hormones (estrogen and progesterone), insulinase (an enzyme), and increased prolactin levels have two effects
  - Increased resistance of cells to insulin
  - Increased speed of insulin breakdown

Preexisting Diabetes Mellitus

- Major risk for congenital anomalies to occur from maternal hyperglycemia during the embryonic period of development

Gestational Diabetes Mellitus (GDM)

- If woman cannot increase her insulin production, she will have periods of hyperglycemia
- Because fetus is continuously drawing glucose from the mother, she will also experience hypoglycemia between meals and during the night
- During the second and third trimesters, fetus is at risk for organ damage from hyperglycemia because fetal tissue has increased tissue resistance to maternal insulin action

Factors Linked to GDM

- Maternal obesity (>90 kg or 198 lbs.)
- Macrosomic-Large infant (>4000 g or about 9 lbs.)
- Maternal age older than 25 years
- Previous unexplained stillbirth or infant having congenital abnormalities
- History of GDM in a previous pregnancy
- Family history of DM
- Fasting glucose over 126 mg/dL or postmeal glucose over 200 mg/dL

Macrosomic Infant

Treatment

- Diet
- Monitoring blood glucose levels
- Ketone monitoring
- Exercise
- Fetal assessment

Care During Labor of the Woman with GD

- Intravenous infusion of dextrose may be needed
- Regular insulin-given because does not cross placenta
- Assess blood glucose levels hourly and adjust insulin administration accordingly

Care of the Neonate Whose Mother Has GDM

- May have the following
  - Hypoglycemia
  - Respiratory distress
- Injury related to macrosomia
- Blood glucose monitored closely for at least the first 24 hours after birth
- Breastfeeding should be encouraged

Heart Disease

- Manifestations
  - Increased levels of clotting factors
  - Increased risk of thrombosis
    - If woman's heart cannot handle increased workload, congestive heart failure (CHF) results
    - Fetus suffers from reduced placental blood flow

Signs of CHF During Pregnancy

- Persistent cough
- Moist lung sounds
- Fatigue or fainting on exertion
- Difficulty breathing on exertion
- Orthopnea
- Severe pitting edema of the lower extremities or generalized edema
- Palpitations
- Changes in fetal heart rate
  - Indicating hypoxia or growth restriction

Treatment

- Under care of both obstetrician and cardiologist
  - Priority of care is limiting physical activity
  - Drug therapy
- May include beta-adrenergic blockers, anticoagulants, diuretics
- Vaginal birth is preferred as it carries less risk for infection or respiratory complications

Anemia

- The reduced ability of the blood to carry oxygen to the cells
- Four types are significant during pregnancy
  - Two are nutritional
    - Iron deficiency
    - Folic acid deficiency
  - Two are genetic disorders
    - Sickle cell disease
    - Thalassemia

Nutritional Anemias

- Symptoms
  - Easily fatigued
  - Skin and mucous membranes are pale
  - Shortness of breath
  - Pounding heart
  - Rapid pulse (with severe anemia)

Iron-Deficiency Anemia

- RBCs are small (microcytic) and pale (hypochromic)
- Prevention
  - Iron supplements
  - Vitamin C may enhance absorption
  - Do not take iron with milk or antacids
    - Calcium impairs absorption
- Treatment
  - Oral doses of elemental iron
  - Continue therapy for about 3 months after anemia has been corrected
  - Avoid tea due to the tannic acid

Folic-Acid Deficiency Anemia

- Large, immature RBCs (megaloblastic anemia)
- Anticonvulsants, oral contraceptives, sulfa drugs, and alcohol can decrease absorption of folate from meals
- Folate essential for normal growth and development
- Prevention
  - Daily supplement of 400 mcg (0.4 mg) per day
- Treatment
  - Folate deficiency is treated with folic acid supplementation
  - 1 mg/day (over twice the amount of the preventive supplement)
    - Dose may be higher for women who have had a previous child with a neural tube defect

Genetic Anemias

Sickle Cell Disease

Autosomal recessive disorder

- Abnormal hemoglobin
- Causes erythrocytes to become distorted sickle (crescent) shaped during hypoxic or acidotic episodes
- Abnormally shaped blood cells do not flow smoothly
- Can clog small blood vessels
- Pregnancy can cause a crisis
- Massive erythrocyte destruction and vessel occlusion
  - Risk to fetus is occlusion of vessels that supply the placenta
- Can lead to preterm birth, growth restriction, and fetal demise
- Oxygen and fluids are given continuously throughout labor

Thalassemia

- Genetic trait causes abnormality in one of two chains of hemoglobin
- Beta chain seen most often in U.S.
  - Can inherit abnormal gene from each parent, causing beta-thalassemia major
  - If only one abnormal gene is inherited, infant will have beta-thalassemia minor
- Woman with beta-thalassemia minor has few problems, other than mild anemia
- Fetus does not appear affected
- Iron supplements may cause iron overload
  - Body absorbs and stores iron in higher-than-usual amounts

Nursing Care for Anemias During Pregnancy

- Teach woman about foods that are high in iron and folic acid
- Teach how to take supplements
- Do not take iron supplements with milk
- Do not take antacids with iron
- When taking iron, stools will be dark green to black
- The woman with sickle cell disease requires close medical and nursing care
- Taught to prevent dehydration and activities that cause hypoxia
- Avoid situations where exposure to infection is more likely
- Report any signs of infection promptly

Obesity, Bariatric Surgery, and Pregnancy

- Obesity-high risk pregnancy
  - Can lead to possible
  - Gestational Diabetes, Hypertension, Cardiac problems, Preeclampsia, and Respiratory problems
- Bariatric Surgery
  - Deficiency of nutrients
  - Dumping syndrome-can cause nausea, vomiting, cramping, and diarrhea
  - Monitor blood glucose

Infections

- Acronym ***TORCH*** is used to describe infections that can be devastating to the fetus or newborn
  - ***T***oxoplasmosis
  - ***O***ther
  - ***R***ubella
  - ***C***ytomegalovirus
  - ***H***erpes

Viral Infections

- No effective therapy
- Immunizations can prevent *some* infections

Cytomegalovirus

- Infected infant may have
  - Intellectual disability
  - Seizures
  - Blindness
  - Deafness
  - Dental abnormalities
  - Petechiae
- Treatment
  - No effective treatment is known
  - Therapeutic abortion may be offered if CMV infection is discovered early in pregnancy

Rubella

- Mild viral disease
- Low-grade fever and rash
- Destructive to developing fetus
- If woman receives a rubella vaccine prior to pregnancy, she should not get pregnant for **at least 1 month**
- Not given during pregnancy because vaccine is from a live virus
- Effects on embryo or fetus
  - Microcephaly (small head size)
  - Intellectual disability/mental retardation
  - Congenital cataracts
  - Deafness
  - Cardiac effects
  - Intrauterine growth restriction (IUGR)

Herpes virus

- Two types
  - Type 1: likely to cause fever blisters or cold sores
  - Type 2: likely to cause genital herpes
- After primary infection, lies dormant in the nerves, can reactivate at any time
- Initial infection during first half of pregnancy may cause spontaneous abortion, IUGR, and preterm labor
- Infant can be infected in one of two ways

Herpes virus

- Neonatal herpes can be
  - Localized
  - Disseminated (widespread)
  - Attributed to high mortality rate
- Treatment and nursing care
  - Avoid contact with lesions
  - Mother and infant do not need to be isolated as long as direct contact with lesions is avoided
  - Breastfeeding is possible IF no lesions are present on the breasts

Hepatitis B

- Transmitted by blood, saliva, vaginal secretions, semen, and breast milk; can also cross the placenta
- Fetus may be infected transplacentally or by contact with blood or vaginal secretions during delivery
- Upon delivery, the neonate should receive a single dose of hepatitis B immune globulin, followed by the hepatitis B vaccine

Hepatitis B

- Risk for hepatitis B
  - Intravenous drug use
  - Multiple sexual partners
  - Repeated infection with STI
  - Occupational exposure to blood products and needle sticks
  - Hemodialysis
  - Multiple blood transfusions or other blood products
  - Household contact with hepatitis carrier or hemodialysis patient
  - Contact with persons arriving from countries where there is a higher incidence of the disease

Sexually Transmitted Infections (STIs)

- Common mode of transmission is sexual intercourse
- Infections that can be transmitted
  - Syphilis, gonorrhea, Chlamydia, trichomoniasis, and *Condylomata acuminata*
- Vaginal changes during pregnancy increase the risk of transmission

Human Immunodeficiency Virus

- Virus that causes AIDS
- Cripples immune system
- No known immunization or curative treatment
- Acquired in one of three ways
  - Sexual contact
  - Parenteral or mucous membrane exposure to infected body fluids
  - Perinatal exposure
- Infant may be infected
  - Transplacentally
  - Through contact with infected maternal secretions at birth
  - Through breast milk

Nursing Care

- Educate the HIV-positive woman on methods to reduce the risk of transmission to her developing fetus/infant
- Pregnant women with HIV/AIDS are more susceptible to infection
- Breastfeeding is absolutely contraindicated for mothers who are HIV-positive

Nonviral Infections

Toxoplasmosis

Parasite acquired by contact with cat feces or raw meat

- Transmitted through placenta
- Congenital toxoplasmosis includes the following possible signs
  - Low birthweight
  - Enlarged liver and spleen
  - Jaundice
  - Anemia
  - Inflammation of eye structures
  - Neurologic damage

Nonviral Infections

Toxoplasmosis

Treatment

- Therapeutic abortion

- Preventive measures
  - Cook all meat thoroughly
  - Wash hands and all kitchen surfaces after handling raw meat
  - Avoid uncooked eggs and unpasteurized milk
  - Wash fresh fruits and vegetables well
  - Avoid materials contaminated with cat feces

Group B Streptococcus (GBS) Infection

- Leading cause of perinatal infection with high mortality rate
- Organism found in woman's rectum, vagina, cervix, throat, or skin
- The risk of exposure to the infant is greater if the labor is long or the woman experiences premature rupture of membranes
- GBS significant cause of maternal postpartum infection
  - Symptoms include elevated temperature within 12 hours after delivery, rapid heart rate, abdominal distention
- Can be deadly to the infant
- Treatment
  - Penicillin

Tuberculosis

- Increasing incidence in the U.S.
- Multidrug-resistant strains also increasing
- Mother can be tested via PPD skin test or serum Quantiferon Gold®
- If positive, chest x-ray and possibly sputum specimens will be needed
- Report to local public health department (PHD) if active pulmonary TB is suspected
- If mother active, infant *must* be kept away from mother until she has been cleared by the PHD

Urinary Tract Infections

- Pregnancy alters self-cleaning action due to pressure on urinary structures
- Prevents bladder from emptying completely
- Retained urine becomes more alkaline
- May develop cystitis
  - Burning with urination
  - Increased frequency and urgency of urination
  - Normal or slightly elevated temperature
- Pyelonephritis
  - High fever
  - Chills
  - Flank pain or tenderness
  - Nausea and vomiting

Environmental Hazards During Pregnancy

- Bioterrorism and the pregnant woman
- Three basic categories
  - A—Can be easily transmitted from person to person
  - B—Can be spread via food and water
  - C—Can be spread via manufactured weapons designed to spread disease

Environmental Hazards During Pregnancy

- Substance abuse
  - Questions should focus on how the information will help nurses and physicians provide the safest and most appropriate care to the pregnant woman and her infant; screening should be done in nonthreatening manner “Do you take any OTC medications?”
- Alcohol
  - A single episode of consuming two alcoholic drinks can lead to the loss of some fetal brain cells

Trauma During Pregnancy

- Three leading causes of traumatic death
  - Automobile accidents
  - Homicide
  - Suicide
- Battering
  - Bruises in various stages of healing
    - Provide privacy to allow her to speak
    - Determine if others are being hurt
    - Be nonjudgemental
    - Determine if other factors increase risk of being hurt

Safety Alert

- If a woman confides that she is being abused during pregnancy, this information must be kept absolutely confidential.
- Her life may be in danger if her abuser learns that she has told anyone.
- She should be referred to local shelters, but the decision to leave her abuser is hers alone.

Effects of a High-Risk Pregnancy on the Family

- Disruption of usual roles
- Financial difficulties
- Delayed attachment to the infant
- Loss of expected birth experience

Interventions for the Grieving Process

- Allow parents to remain together in privacy
- Accept behaviors related to grieving
- Develop a plan of care to provide support to the family
- Offer a memento such as a footprint
- Offer parents an opportunity to hold the infant, if they choose
- Prepare parents for the appearance of the infant
- Provide parents with educational materials and referrals to support groups
- Discuss wishes concerning religious and cultural rituals