Theoretical Knowledge and Skills to Meet the Needs of the Complicated Antepartal Patient

Lecture Objectives

• Differentiate signs and symptoms, effects on pregnancy and management of preeclampsia and HELLP syndrome.
• Describe appropriate nursing interventions and use of medications for patients with pregnancy induced hypertension.
• Explain the effects of hyperemesis gravidarum on maternal and fetal wellbeing.
• Discuss the different types of miscarriage and appropriate nursing care.

Lecture Objectives

• Understand ectopic pregnancy, signs, symptoms and management.
• Compare and contrast placenta previa and abruptio placentae in relation to signs and symptoms, complications and management.
• Discuss the diagnosis and management of DIC.
• Describe signs, symptoms and management of pregnant women with STI's, GBS and TORCH infections.
• Explain the basic principles of care for a pregnant woman having abdominal surgery.
• Identify priorities in assessment and stabilization measures for the pregnant trauma victim.
Introduction

- Pregnancy is considered normal unless proven otherwise. The factors outside what is normal are considered risk factors. This lecture covers disorders that have occurred during pregnancy and put the woman and fetus at risk.

Disorders During Pregnancy

- Hypertension in Pregnancy
- Hyperemesis Gravidarum
- Hemorrhagic Disorders
- Infections in Pregnancy
- Surgery during Pregnancy
- Trauma

Hypertension in Pregnancy

- Incidence-
  - The most common medical complication of pregnancy with an incidence ranging from 1-5%.
  - Preeclampsia complicates approximately 5-8% of all pregnancies and in women with chronic hypertension or renal disease before pregnancy, the occurrence is 25%.
  - The prevalence rate has risen in all age groups, racial and ethnic groups since the early 1990’s.
Classification of Hypertension in Pregnancy

- Gestational Hypertensive Disorders
  - Transient hypertension – mild hypertension during pregnancy or during the first 24 hours postpartum, in a patient with no past history of hypertension. They display no other symptoms of PIH.

Gestational Hypertensive Disorders

- Preeclampsia – hypertension that develops after 20 weeks gestation, that includes other pathophysiology. (Will be discussed more in depth later in the lecture)
- Eclampsia – onset of seizures in a patient with preeclampsia.
- HELLP – hemolysis, elevated liver enzymes, and low platelets <100,000. Typically is associated with PIH, but can be independent.

Chronic Hypertensive Disorders

- Chronic Hypertension – hypertension present before the pregnancy or diagnosed before the 20th week of gestation.
- Superimposed preeclampsia/eclampsia – development of preeclampsia (PIH) or eclampsia in a patient that has a history of chronic hypertension.
Etiology of Hypertension in Pregnancy

- Preeclampsia is a disease process acquired only during pregnancy. The cure is delivery of the baby. With delivery, signs and symptoms disappear within a few weeks. Although the exact cause is unknown, there are risk factors that have been identified.

Risk Factors for Preeclampsia

- First pregnancy, or first pregnancy with partner.
- <19 or > 40 years of age
- Family history
- Chronic renal disease
- Chronic hypertension
- Multiple gestation
- Obesity
- Rh incompatibility
- Diabetes

Pathophysiology of Preeclampsia

- Generalized arteriospasm – increased peripheral resistance, decreased tissue perfusion, and hypertension.
- Kidney-
  a. reduced renal perfusion and vasospasm that cause glomerular lesions.
  b. damage to membrane-loss of serum protein (proteinuria). Note: Reduced serum albumin/globin ratio alters blood osmolarity – edema.
Pathophysiology cont’d

c. increased tubular reabsorption of sodium – increased water retention – edema.
d. release of angiotensin contributes to vasospasm and hypertension.

- Brain – decreased oxygenation, cerebral edema, and vasospasm—visual disturbances and hyperirritability, convulsions and coma.
- Uterus – decreased placental perfusion – increased risk of SGA (small for gestational age) baby, fetal distress, and abruptio placentae.

Clinical Manifestations of Preeclampsia

- Mild Preeclampsia
  - BP reading of 140/90 x 2, 4-6 hours apart.
  - Sudden weight gain.
  - Proteinuria of 1+ or 2+ on urine dipstick in at least two random urine specimens collected at least 6 hours apart.
  - Edema – dependent edema, puffiness of eyes, face, and fingers. Edema in lower extremities that improves after bedrest.

Mild Preeclampsia cont’d

- Urine output matching intake
- Headache – may be absent or transient
- Labwork normal or with minimal changes
- Reflexes may be normal or with mild hyperreflexia
Clinical Manifestations of Preeclampsia

- Severe Preeclampsia
  - BP reading of > 160/110 x 2, 4-6 hours apart at bedrest.
  - Sudden weight gain.
  - Proteinuria of 3+ or 4+ on urine dipstick, or greater than 5g of protein in a 24 hour urine collection.
  - Edema – generalized edema, noticeable puffiness: eyes, face, fingers, lower extremities, and possible pulmonary edema.

Clinical Manifestations of Preeclampsia cont’d

- Severe Preeclampsia cont’d
  - Reflexes- hyperreflexia > 3+, possible clonus.
  - Urine output - < 20 ml/hr or < 400-500 ml in 24 hours.
  - Headache- usually present and may be severe.
  - Visual – some blurred vision, photophobia.
  - Epigastric pain – may be present to severe.
    (This indicates liver edema)
  - Lab work – elevated liver enzymes, elevated LDH, elevated serum creatinine, and possibly decreased platelet count.

Eclampsia

- Identified by seizure activity in the woman with PIH (pregnancy induced hypertension) or preeclampsia.
- Sometimes the seizure can be the initial symptom of preeclampsia.
HELLP

• HELLP syndrome is a laboratory, not clinical diagnosis. To be diagnosed the patient’s platelet count must be less than 100,000, her liver enzymes must be elevated, and there must be some evidence of intravascular hemolysis. All other coagulation studies remain normal. Complications reported with HELLP include renal failure, pulmonary edema, ruptured liver hematoma, DIC, and abruptio placentae.

Assessment of PIH Patients

• Interview- Must complete a thorough physical assessment, reviewing the patient’s family history, past medical history and prenatal record, noting any risk factors. Should also include questions regarding physical symptoms such as amount of weight gain, headaches, visual disturbances and epigastric pain.

Physical Examination

• Accurate and consistent blood pressure assessment.

• Assessment of edema – amount and location
Physical Examination cont’d

• Symptoms reflecting CNS and visual system involvement usually accompany facial edema. Auscultation of lungs to assess for crackles, which may indicate pulmonary edema.
• Deep tendon reflexes are evaluated. Normal response is 2+.

Physical Examination cont’d

• Lab tests – complete blood count including platelet count, clotting studies, liver enzymes, chemistry panel, and type and screen. A 24 hour urine collection may be done for protein and creatinine clearance.

Plan of Care and Implementation

• Nursing interventions for mild preeclampsia. These patients can usually be managed at home with frequent follow-up care.

Education
Promote Bedrest
Assess emotional support
Nursing Interventions for Severe Preeclampsia

• With a diagnosis of severe preeclampsia, most patients will be admitted to the hospital. If the patient is 36 weeks gestation or greater, the physician will usually choose to deliver the baby. If the patient is less than 36 weeks gestation, interventions will be instituted to attempt to alleviate the severe symptoms to allow the fetus to continue to develop in utero.

Interventions Cont’d

• Support bedrest – must have a quiet environment!
• Monitor maternal well-being. Very close monitoring of BP, lab values, headache, visual problems, epigastric pain, etc.
• Monitor fetal well-being – may be on continuous fetal monitoring or intermittent.
• Administer medications.

Medications

• MgSo4 (magnesium sulfate) – Drug of choice in preventing or controlling seizures in patients with preeclampsia. This medication is a CNS depressant, so assessments must be made by the nurse to prevent MgSo4 toxicity. Symptoms are decreased reflexes, decreased respiratory rate, muscle weakness, and slurred speech. The antidote for MgSo4 is calcium gluconate.
Medications cont’d

• Antihypertensive Medications:
  Hydralazine (apresoline) a peripheral vasodilator.
  Dosage is 5mg IV push followed by 5-10mg IV push no
  more than every 20 minutes, for a total of 30-40mg.

  Labetalol (normodyne) – beta blocker. May be given IV
  bolus or titrated drip. If IV bolus, initial dose is 10mg,
  subsequent doses progressively increase (20,30,40 mg)
  every 10 minutes. Maximum dose is 300mg. If titrated or
  continuous infusion, start at 1-2mg/min until therapeutic
  goals achieved. Onset of action is 1-2 min. BP must be
  monitored closely!

Medications

• Anticonvulsants:
  Valium (diazepam) – dosage is 5-10mg/IV.
  Administer slowly. Dose may be repeated
  q 5-10 min up to 30 mg/hr.

  MgSo4 – another loading dose of 4-6gm
  may be administered during seizure.

Hyperemesis Gravidarum

• Definition – when vomiting during
  pregnancy becomes excessive enough to
  cause weight loss of at least 5% of
  prepregnancy weight and is accompanied
  by dehydration, electrolyte imbalances and
  ketosis.
Hyperemesis Gravidarum

• Incidence and Etiology
  - complicates approximately 70% of all pregnancies.
  - usually begins in the first 10 weeks
  - true cause is unknown
  - stress may contribute.

Hyperemesis Gravidarum

• Clinical Manifestations
  - Severe nausea and vomiting – unable to keep even clear liquids down.
  - decreased BP
  - increased pulse rate
  - poor skin turgor
  - electrolyte imbalances
  - weight loss

Hyperemesis Gravidarum

• Initial plan of care
  - Assessment to determine severity, frequency, and duration of vomiting episodes.
  - pharmacologic and nonpharmacologic treatments should be recorded.
  - weight and vital signs.
  - urine dipstick for ketonuria.
  - lab work, CBC, electrolytes, liver enzymes
  - psychosocial assessment
• Initial Plan of Care cont’d
  - IV therapy, and NPO until resolved.
  - Antiemetic medications – promethazine, droperidol, metoclopramide.
  - In severe cases, TPN
  - Accurate I & O
  - Progress diet slowly

Hemorrhagic Disorders in Pregnancy
• Bleeding in pregnancy that may jeopardize maternal and fetal well-being. It predisposes the woman to increased risk for hypovolemia, hypoxia, anemia, infection, preterm labor and preterm birth. Fetal risks are blood loss or anemia, hypoxemia, hypoxia and preterm birth. This can be a medical emergency!

Incidence of Bleeding in Pregnancy
• 1 in 5 pregnancies is complicated by bleeding
• Incidence and type of bleeding vary by trimester
• 50% in the 3rd trimester is caused by abruptio placentae or placenta previa
• Antepartal hemorrhage is the leading cause of maternal death, with ectopic pregnancy rupture and abruption responsible for most deaths.
• Maternal exsanguination can occur within 8-10 minutes.
Early Pregnancy Bleeding

• Miscarriage or Spontaneous Abortion – pregnancy that ends before 20 weeks gestation resulting from natural causes. D&C may be necessary to evacuate the uterus.

• Different types of miscarriage –
  Threatened – cramping and vaginal bleeding during 1st trimester with no cervical change, may subside or follow with and incomplete abortion.

Early Pregnancy Bleeding cont’d

Imminent or inevitable – bleeding, cramping and cervical dilation, termination cannot be prevented.
Incomplete – expulsion of only part of the products of conception, bleeding with cervical dilation.
Complete – complete expulsion if all products of conception.

Early Pregnancy Bleeding cont’d

Missed – early intrauterine fetal death and products of conception are not expelled; cervix remains closed. There may be dark brown vaginal discharge, negative pregnancy test and cessation of uterine growth and breast tenderness.
Habitual – spontaneous abortion or miscarriage of three or more consecutive pregnancies.
Early Pregnancy Bleeding

• Premature Dilation of Cervix or Incompetent Cervix
  Passive and painless dilation of the cervical os without labor or contractions. May occur in the 2nd trimester or early 3rd trimester. Miscarriage or preterm birth may occur. Clinical diagnosis is based on history of patient.

Incompetent Cervix

• Etiology/Risk Factors
  History of cervical lacerations during childbirth
  Excessive cervical dilation for curettage or biopsy.
  DES use by patient’s mother during pregnancy
  Congenitally short cervix, cervical or uterine abnormalities
Incompetent Cervix

• Medical Management
  Conservative management consists of bedrest, hydration and tocolysis (use of medications to inhibit uterine contractions)
  Cervical cerclage may be performed (surgically stitching the cervix closed) This is usually performed at 10-14 weeks gestation after which the patient is told to avoid intercourse, prolonged standing and heavy lifting.

Incompetent Cervix

• Cerclage -

Incompetent Cervix

• Cerclage cont’d
  Removed when patient is 37 weeks gestation or left in place and csection is performed.
  80-90% of pregnancies treated with cerclage result in live birth.
  Nursing Management –
  Monitor postoperatively for contractions, ruptured membranes or infection.
  Teaching home care, use of tocolytics, bedrest or activity restrictions and possible home monitoring.
Ectopic Pregnancy

- Implantation of products of conception in a site other than the endometrium (fallopian tube, ovary, cervix, peritoneal cavity).
- Etiology and incidence
  95% occur in the fallopian tube.
  Responsible for 10% of all maternal mortality
  Is a leading cause of infertility.
  Incidence is rising due to improved diagnostic techniques and an increased incidence of STI's, better treatment of PID (which formerly would have caused sterility) and increased numbers of tubal sterilizations and surgical tube reversals.

Ectopic Pregnancy

- Sites of Implantation

Ectopic Pregnancy

- Clinical Manifestations
  May have symptoms of normal pregnancy or be asymptomatic.
  Adnexal fullness and tenderness that can progress from a dull pain to a colicky pain when the tube stretches.
  Pain may be unilateral, bilateral or diffuse.
  Abnormal vaginal bleeding occurs in 50-80%
Ectopic Pregnancy

• Clinical Manifestations cont’d
  If tube ruptures, pain increases. Pain may be
  generalized, unilateral or acute deep lower
  quadrant pain. Can also have referred shoulder
  pain.
  May exhibit signs of shock related to blood loss
  (may be abdominal, not vaginal)
  Can produce life threatening complications such
  as hemorrhage, shock and peritonitis.

Ectopic Pregnancy

• Care and Treatment
  Treatment is surgical, often laparotomy for
  removal of the tube. Residual tissues may
  be dissolved with a dose of methotrexate.
  Best results from early detection, before
  rupture.
  Pt is at an increased risk for recurrent
  ectopic pregnancy.

Gestational Trophoblastic Disease

• Definition – alteration of embryonic growth;
  occurs in 1 in 1000 pregnancies. If benign is
  referred to as hydatidiform mole. In 15 % of
  cases is malignant and is referred to as
  choriocarcinoma.
  Hydatiform Mole – trophoblastic cells continue to
grow, form an invasive tumor characterized by
placental villi that are edematous and form
grapelike structure. There is no fetus or sac.
Hydatiform Mole

• Signs and symptoms/diagnosis -
  High Levels of hCG
  Nausea and vomiting
  PIH before 24 weeks.
  Vaginal bleeding
  Ultrasound shows characteristic molar growth

Hydatiform Mole

• Treatment –
  Suction curettage
  hCG levels weekly – hCG levels should return to normal by 10-14 weeks after evacuation. After this they are done monthly for a year. Chest x-ray every 2-4 weeks until hCG levels are normal, then every month.
  Chemotherapy is done for choriocarcinoma.

Hydatiform Mole

• Maternal Implications –
  No pregnancy or birth control pill for at least one year because it suppresses LH which interferes with hCG monitoring.
Late Pregnancy Bleeding
Placenta Previa

• Definition – placenta is implanted in the lower uterine segment or over the internal cervical os instead of the upper portion of the uterus.

• Types –
  Complete or total – if the internal os is entirely covered by the placenta.
  Partial – incomplete coverage of the internal os.
  Marginal or low lying – placenta is implanted in the lower uterine segment but does not reach the os.

Placenta Previa

- Clinical Manifestations
  70% of women with placenta previa have painless, bright red bleeding.
  Bleeding is typically after 24 weeks and is associated with the stretching and thinning of the lower uterine segment.
  Soft, relaxed, non-tender uterus with normal tone.
Placenta Previa

- Diagnosis – typically found in routine ultrasound.
- Nursing Implications –
  No vaginal exam should be done because profound hemorrhage may result.

Placenta Previa

- Medical Management
  Management depends on gestational age, condition of fetus, amount of bleeding and maternal condition.
  If bleeding is minimal, pregnancy may be continued with observation, bedrest, and fetal monitoring.
  C/section will be planned for complete or partial previa.
  Close observation during labor for a low lying placenta.

Abruptio Placentae

- Definition – premature separation of the placenta from the uterine wall, before birth of the fetus.
- Incidence –
  Premature separation is a serious event and accounts for significant maternal and fetal morbidity and mortality.
  Accounts for 15% of all perinatal deaths.
  1/3 of infants born to women with abruption die, and 50% of these deaths are the result of preterm birth and many others are the result of intrauterine hypoxia.
Abruptio Placentae

- Etiology
  Maternal hypertension is the most identified risk factor.
  Cocaine Abuse
  Blunt external abdominal trauma
  Maternal smoking
  Poor nutrition

- Clinical Manifestations
  Abruptio should be strongly suspected in the woman who has a sudden onset of intense uterine pain, with or without vaginal bleeding.
  Approximately 60% of live fetuses exhibit nonreassuring signs (decreased variability and late decelerations)
  Uterine hyperstimulation and increased resting tone.

- Care – Depends on the degree of separation, severity of blood loss, fetal maturity and status.
  Mild – expectant management if < 36 weeks and not in fetal distress. Intermittent fetal monitoring, NST’s and ultrasounds.
  Severe – emergency c/section, frequent vs, type and crossmatch, monitor urine output. Monitor closely for signs of DIC.
DIC

- Disseminated Intravascular Coagulation – May occur in pregnancy or intrapartum; may be sudden or gradual.
- Etiology and Predisposing factors
  - Septic shock
  - Placental or profuse uterine bleeding
  - Release of fetal thromboplastin after IUFD
  - Amniotic fluid embolism
  - Formation of thrombi in kidney, liver or cerebral vessels secondary to preeclampsia/eclampsia

DIC

- Diagnosis
  - Thrombocytopenia
  - Decreased fibrinogen and platelet count
  - Prolonged prothrombin time and partial thromboplastin time
  - Bleeding from puncture sites, gums, hematuria and ecchymosis

DIC

- Effects on mother and fetus
  - Move to ICU
  - Fetus – at risk because of sepsis, acidosis and hypotension; emergency c-section may be necessary.
DIC

• Treatment
  Treat cause – delivery, remove placenta and stabilize mother's condition. Delivery often eliminates cause except when amniotic fluid embolism has occurred.
  Whole blood transfusion, fresh frozen plasma, platelets, cryoprecipitate, heparin
  Renal failure may occur, treat as necessary

DIC

• Nursing Care
  Administration of blood products; observe for reactions.
  Observe for any bleeding; apply direct pressure to site, monitor vital signs.
  Restraints or padded rails if patient is agitated and anxious.
  Note output – indwelling catheter.
  Central venous pressure catheter.
  Emotional support

Cord Insertion and Placental Variations

• Velamentous insertion of the cord – also called Vasa Previa, is a rare placental anomaly. The cord vessels begin to branch at the membranes then course onto the placenta. Rupture of membranes or traction on the cord may tear one or more of the fetal vessels. As a result, the fetus may rapidly bleed to death.
Cord Insertion and Placental Variations

- Battledore – a marginal insertion of the cord, the cord is attached to the side of the placenta rather than in the center. Increases the risk of fetal hemorrhage.
- Succenturiate Placenta – the placenta is divided into two or more separate lobes. Each lobe has a distinct circulation, the vessels collect at the periphery, and the main trunks unite to form the vessels of the cord. During expulsion of the placenta, one of the lobes may remain attached preventing uterine contraction and increasing risk of postpartum hemorrhage.

Infections in Pregnancy

- STI's – see table 14-7
- Incidence and Etiology
  STI's are responsible for significant morbidity and mortality and cause infertility and sterility.
  Congenitally acquired infection may affect the length and quality of a child’s life.

TORCH Infections – see Table 14-8
Surgery During Pregnancy

• Care Management – Preoperative care for the pregnant woman is different in that consideration must be made for the fetus. Fetal monitoring and uterine monitoring should be performed if the fetus is viable. Anesthesia must be made aware of the pregnancy. Postoperative observations are the same as for other patients with the addition of electronic fetal monitoring.

Surgery During Pregnancy

• Most Common Surgeries Necessary During Pregnancy
  Appendicitis – the most common acute surgical condition seen in pregnancy. The diagnosis is often delayed because the usual signs and symptoms mimic some normal changes of pregnancy, such as nausea and vomiting and increased WBC count. Also, as pregnancy progresses, the appendix is pushed upward and to the right from its usual anatomic location. Because of these two things, rupture and peritonitis occur two to three times more often in pregnant women.

Surgery During Pregnancy

• Intestinal Obstruction- Can be caused by previous abdominal surgery, pelvic inflammatory disease, an enlarging uterus and displacement of the intestines. Diagnosed typically by x-ray. Requires immediate surgery
• Cholecystectomy – surgical removal of the gall-bladder.
Trauma During Pregnancy

• Incidence and Etiology
Approximately 7% of pregnancies are complicated by physical trauma, with the majority being a result of motor vehicle accidents. This is followed by falls and direct assaults to the abdomen. Trauma increases the incidence of miscarriage, preterm labor, abruptio placentae and stillbirth. Fetal death is more common than the occurrence of both maternal and fetal death.

Trauma During Pregnancy

• Care Management
Immediate priority is stabilization of the pregnant woman first and then consider fetal needs. In cases of minor trauma, the woman is evaluated for vaginal bleeding, uterine irritability, abdominal tenderness, abdominal pain or cramping, and evidence of hypovolemia. FHR is evaluated and a blood test for the presence of fetal cells in the maternal circulation are done. Ultrasound may also performed to rule out abruption. In some cases overnight observation may be done.