High Risk Pregnancy: Complicated Antepartum

- Complications/deviations from normal
- Maternal Deaths do occur:
  - thromboembolism
  - hemorrhage
  - infection
  - PIH
  - anesthesia complications
  - ectopic pregnancy
  - heart disease

Low odds, but devastating results….

- Nurse is responsible to:
  - assess for any deviations from normal
  - risk assessments each visit
  - know how to teach to patient’s level
  - encourage phone calls
  - Anticipatory Guidance
REMEMBER???
- The Warning Signs to report in pregnancy?? (vaginal bleeding, spots before eyes, sudden gush of fluid, etc)
- This is why!

Bleeding in Pregnancy
- Always abnormal, potentially serious
- What you see is not representative of what is lost
- Can impair outcome of pregnancy
- Can cost a woman her life!

First Trimester
- Spontaneous abortion/miscarriage
- Ectopic pregnancy
- A. spontaneous ab – “abortion” is any interruption of a pregnancy before a fetus is viable (20 weeks, 500 grams)
- Genetics, hormone levels, teratogens, immune responses, implantation problems, 50-80% structural problems
Assessment of early bleeding
- Vaginal spotting
- Teach early to call nurse or MD
- Elicit history of episode – activity/anything placed into uterus? What have you done about it?
- Threatened Ab – vag bleeding, scant, slight cramping, no cervical dilatation
  - US, FHR, hCG level repeated then in 48h
  - Care: Rest

Imminent/ Inevitable
- Vaginal spotting with cervical dilation and uterine contractions
- Save any tissue that is passed
- D&E – dilatation and evacuation if pregnancy is already lost, clean uterus to prevent infection & bleeding
- Saturating >1 peri pad per hour is excessive bleeding!

Other types of Spont. Ab.
- Complete – lost pregnancy, minimal bleeding
- Incomplete – has lost the pregnancy, part retained, usually membranes or placenta; risk hemorrhage because uterus can’t contract; D&C
- “Missed” – “Early Pregnancy Failure”; no growth, no FHT, usually had some painless spotting; D&E or Cytotec
Septic abortion

- With infection, usually after attempt to "self-abort"
- CBC, Lytes, Creatinine, blood type and Rh, cultures
- Foley, IV fluids, combo ABX:
  - gram neg aerobic – Gentamycin
  - gram positive – Penicillin
  - gram neg anaerobic – Clindamycin

Recurrent Loss

- 3 or greater spontaneous miscarriages at the same gestational age
- Defect in sperm or ovum, defect in uterus, endocrine – thyroid, progesterone, iodine; infection, autoimmune
Whatever the miscarriage, concern for:

- Risk for HEMORRHAGE:
  - VS, monitor bleeding, massage uterus if large enough; possible D&C, transfusions, fibrinogen replacement;
  - pad count - >1 pad/hr, red → brown → serous; clots, large amt bleeding
  - Methergine – usually q4hr X 24 hr

- Risk for INFECTION – usually with blood loss, which debilitates the patient
  - Fever >100.4 oral
  - Abdominal pain
  - Tenderness
  - Foul discharge
  - Check hydration level
  - E. coli common – teach front to back wiping, no tampons, peri wash/hygiene
  - Metritis
  - Patient MUST KNOW how to detect!

- ANXIETY/ Powerlessness of both partners
  - loss of control
  - sadness/grief
  - fear
  - loss of the expected changes
Isoimmunization

- Whenever a placenta is dislodged blood from placental villi (fetal) may enter the maternal circulation
- If mom is Rh negative AND the fetus is Rh positive, isoimmunization may occur – production of antibodies by maternal system against the Rh positive blood cells, attempting to destroy them. Can “destroy” fetus
- Give Rh(D antigen) immune globulin (RhIG) (RhoGAM) after miscarriage to prevent antibody formation

Checkpoint #1 – p 408

The ER nurse is advising a patient who is miscarrying. Which response is best for the nurse to teach the pt?

a. Lie down and don’t move for 24 hours to stop the bleeding.

b. Don’t do anything special; early miscarriages happen all the time.

c. Save any clots or material passed for your doctor to see.

d. Use a tight tampon to put pressure on your cervix to stop the bleeding.

Other source of 1st trimester bleeding:

- ECTOPIC PREGNANCY – very serious; implantation occurs outside the uterine cavity
- Assessment – positive hCG, N/V, no menstrual flow (is pregnant)
- Sharp, stabbing lower quadrant pain; scant vag bldg; bleeding into abdo; lightheaded, tachycardic, shock signs
Rupture/Shock??

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<td>Pregnancy test</td>
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<td>until neg hCG</td>
<td>STAT OR</td>
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Give Rho GAM!!

Checkpoint

- Suppose your patient was found to have an ectopic pregnancy. What advice would you give her and why?
  - A. Most ectopic pregnancies to go completion although the baby is small.
  - B. If she must have a tube removed, she will be sterile afterward.
  - C. She will have a continuous nagging pain through the rest of the pregnancy.
  - D. Ectopic pregnancy can be either medically or surgically treated.
Second Trimester Bleeding

- TROPHOBLASTIC DISEASE – hydatidiform mole/molar pregnancy
- Abnormal trophoblasts; degenerate to fluid-filled, cystic clusters. Embryo very small, early, stops developing
- See figure 15.4

Assessment…

- Rapid proliferation of trophoblast/cysts
- Uterus grows faster than gestational age – “are you sure your dates are right?” “are you having twins?”
- Early ultrasound – no fetus/no fetal growth
- hCG way elevated (remember, it’s produced by trophoblasts)
- Increased N/V – from high hCG
- Increased BP, protein, edema early
Incompetent Cervix

- ~16 wks – start dark brown bleeding; then profuse fresh bleeding, vesicles.
- Instruct patient to bring all clots/tissues to hospital.
- Treatment – suction curettage; measure hCG levels every 2-4wks for a year; pelvic exams and CXR for metastasis.
- Oral contraceptives for one year so will know hCG is not due to pregnancy.
- Loss, anger, unfair, risk of 2nd molar pregnancy
- Methotrexate prophylactically

Premature Cervical Dilation

- “Incompetent Cervix” – sounds like the woman had a mental problem, when actually....
- Occurs in only 1% of women, but is devastating to lose babies repeatedly.
- Painless, no contractions, cervix just opens
- Pinkish vag d/c, pelvic pressure, ROM, deliver after short labor, ~20wks.
Third Trimester Bleeding…

- Placenta Previa
- Placental Abruption (abruptio placenta)
- Preterm Labor

- ALL are serious!

Placenta Previa

- Low implantation – low-lying, marginal, partial, complete
- Seen with increased parity, age, previous C/S, curettage, multiples
- Most diagnosed before symptoms; uterus is soft, non-tender, no UC
- TEACH ALL Patients – “CALL IF ANY BLEEDING!!”

Placenta Previa – sudden, painless, bright red bleeding
Consequences of previa…
- Maternal hemorrhage
- Fetal oxygenation
- Preterm labor is possible

NO VAGINAL EXAMS!!
- PROFOUND HEMORRHAGE CAN RESULT!

Management…
- Depends on gestational age, condition of fetus, maternal condition, and amount of bleeding
- If bleeding is minimal, pregnancy can continue with bed rest, close observation of bleeding, fetal monitoring. C/S is planned for complete or partial previa. Labor may be tried for low-lying placenta if bleeding slows and fetus is OK.
Nursing Care

- Bed rest, flat, left side-lying
- Continuous fetal monitoring
- Assess gestation, time bleed began, amount, pain?, color? Red/brown? Done anything to stop it? Any prior bleeding? Any cervical surgeries?
- Pad count – sometimes by weight
- Kleihauer-Betke lab test – detect fetal blood cells in maternal circulation/pool

Never do a vag exam on a bleeding patient!!!!

- VS, BP q 5-15 minutes
- Large bore IV
- Hourly output
  - H&H, coagulation screen – PT, PTT, fibrin, platelet count, type/XMatch, Rh

- If MD needs to do a vag exam (if ultrasound is not adequate) it will be done in the OR with everyone ready for emergency C/Section
betamethasone…Celestone

- Steroid - Not for inflammatory disease when given in pregnancy!
- Hastens lung maturity of preterm fetus by increasing surfactant production – keeps lungs open once respirations begins.
- If <34 weeks… 12.5mg IM now and in 24 hours – 2 doses!
- Takes 24 hours (after) to work.

If mom needs STAT C/S...

- Plan for low birth weight infant – NICU in attendance
- Ultrasound for location of placenta (will determine site of incision into uterus)
- Mom will worry about infant, especially since problems with placenta – let her make sure it is OK
- More likely PP hemorrhage, PP infection

Placental Abruption…

- Sudden separation of placenta from uterine wall with ensuing bleeding
- Most frequent cause of perinatal death. Occurs late in pregnancy, even in labor. 1/3 of infants die.
- Increased parity, age, short cord, chronic **HTN, **PIH, trauma, cocaine or tobacco vasoconstriction, sudden loss of most amniotic fluid
Abruption…
- Sudden, stabbing sharp pain high in fundus
- Tenderness
- If having UC, increase in pain between contractions
- Marginal, partial, complete
- Heavy bleeding with any; Couvelaire uterus, shock, fetal distress, DIC

Nursing care…Emergency!
- Time started, amount, done/actions?
- Pain?
  - Hemoglobin, T&C match, fibrinogen, fibrin split products
  - Large bore IV, oxygen
  - EFM, VS q 5-15 min
  - Lateral position
  - NO VAG EXAMS
  - Degree of Separation

Other funky placentas…
velamentous insertion
See part to the side?

Structure can increase likelihood of bleeding...

Disseminated Intravascular Coagulopathy - DIC
- Acquired disorder of blood clotting in which fibrinogen falls below effective limits.
- Occurs when there is so much bleeding that platelets and fibrin are used up trying to stop hemorrhage that there are not enough left for clotting.
To stop the process…

- Stop the reason behind the bleeding…
- Marked coagulation must be stopped so that coagulation factors can be freed up to restore normal clotting.
- Heparin – prevents “microclotting” in blood vessels
- Transfusions, platelets after so the new blood is not consumed in the process.
- Fibrinogen, cryoprecipitate, FFP, etc.

Preterm Labor

- Occurs before end of 37 weeks gestation
- Any woman having persistent uterine contractions should be considered to be in labor – increased uterine activity.
- Actual labor causes cervical change – dilatation and effacement.

Reasons for preterm labor…

- Dehydration
- Urinary tract infection
- Chorioamnionitis
- Environmental
- Unknown
Increased uterine activity =

Uterine contractions

- Persistent, dull, low backache
- Vaginal spotting
- Pelvic pressure, abdominal tightening
- Menstrual-like cramps

Along with fever, UTI symptoms, etc

Fetal Fibronectin

- Protein produced by trophoblast cells
- If present in vaginal mucus, predicts that preterm contractions are ready to occur.
- If not present, predicts that labor will not occur for at least 14 days.
- Swab (without lubricant)

IF...

- Membranes are not ruptured
- Cervical dilated less than 5cm, 50%
- No bleeding
- Fetus is not in distress

- Treat cause and administer tocolytics.
Hydrate – oral or IV replacement fluids
Bed rest, flat, on side – pressure off cervix, perfuse placenta/uterus/fetus
Tocolytic therapy – terbutaline (Brethine) usually subcutaneous until labor stops then convert to PO.

Terbutaline (Brethine)
0.25mg subcu q 30 minutes X 3 doses.
Then converted to PO if stopped, another drug if labor continues.
Beta-2 adrenergic – asthma originally; bronchodilator, vasodilator, smooth muscle relaxant
Causes hypotension and tachycardia so must ALWAYS assess apical pulse before each dose; do not give if >120

Betamethasone (Celestone)
Corticosteroid, not for asthma in pregnancy
24 hours for effect of increasing surfactant production, fetal lung maturity… plan ahead! Balance condition (mom and fetus) with time
12.5mg IM now and in 24 hours.
Magnesium sulfate
- Second choice med for preterm labor
- Central nervous system depressant, smooth muscle relaxant actions will halt contractions
- Used only if terbutaline fails.

If labor is not stopped...
- Rupture of membranes (ROM)
- Cervix continues effacing and dilating
- Concern for infection (membranes are the first line of defense for fetus)
- Delivery may be vaginal or C/Section; risks to fetus are increased for prolapsed cord, pressure on head (IVH), distress, etc.

PROM...premature rupture of membranes
- Rupture at less than 37 weeks gestation
- Usually associated with infection (chorioamnionitis)
- Risk of infection developing, pressure on cord, prolapse, fetal development without fluid.
### How to determine?

- **Nitrazine (litmus) test** – paper strip, between fingers on vaginal exam, will determine pH of fluid...alkaline reaction (paper turns blue) if amniotic fluid. If urine (acid), stays yellow.
- **Sterile speculum exam** – fluid swabbed, smeared on slide. Fern pattern when dries if amniotic fluid.

### Nursing Care

- Avoid vag exams – increase infection
- Vaginal cultures – Beta strep B, chlamydia, gonorrhea
- WBC, done serially; observe >20,000
- Absolute bed rest, usually slight Trendelenburg position
- Broad-spectrum antibiotics
- Temperature - <100.4
- Observe for uterine tenderness, foul discharge
- Long-term hospitalization or possibly home care

### Pregnancy-Induced Hypertension

- Hypertensive disorders of pregnancy are the second leading cause of maternal death in the United States.
- Hypertensive disorders can result in cerebral hemorrhage, DIC, hepatic failure, renal failure, and abruptio placenta.
- The pathophysiology, classification, and treatment are different in pregnancy.
Hypertension in pregnancy

- Chronic Hypertensive Disorders:
  - 1. Chronic hypertension – before pregnancy or before 20 wks gestation
  - 2. Superimposed preeclampsia/eclampsia – develops in patient with chronic hypertension... with PIH S/S

PIH – gestational hypertensive disorders

- Transient hypertension – mild hypertension in pregnancy or 1st 24 hrs postpartum, with no history. No other symptoms of PIH
- Preeclampsia – develops after 20 weeks gestation
- Eclampsia – onset of seizure in a patient with PIH
- HELLP syndrome – hemolysis, elevated liver enzymes, low platelets

Etiology/Risks

- Disease process acquired only during pregnancy. Cure is delivery of the baby. With delivery, signs and symptoms disappear within a few weeks.
- Risk factors – Primigravida, <20 >40, family hx, chronic renal disease, chronic HTN, multiple gestation, obesity, Rh incompatibility, diabetes
Pathophysiology of PIH

- Generalized vasospasm (arterial) occurs in both large and small arteries.
- Triad of symptoms develops:
  - hypertension
  - proteinuria
  - edema
- Affects most all organs

Vasospasm...

- Increased cardiac output injures endothelial cells of arteries along with prostaglandin changes.
- Blood vessels normally resistant to angiotensin and norepinephrine changes in pregnancy, but in PIH they do not resist, become constricted with dramatic BP elevations.

Vasospasm → hypertension...

- Heart is forced to pump against resistance… reduced blood supply to organs…
- Kidney – degenerative changes occur in glomeruli, allows proteins to escape into urine (proteinuria), decreased filtration lowers output and clearance of creatinine, increased reabsorption of sodium (edema)
Most blood is pooled in venous circulation so lower arterial volume.
Low platelets because they go to sites of endothelial damage.
Hematocrit elevated r/t fluid (plasma) in interstitial spaces… intravascular dehydration.
Brain – decreased oxygenation, cerebral edema, vasospasm – visual disturbances, hyperirritability, seizures, coma
Uterus – decreased placental perfusion – small baby, fetal distress, abruption

Assessment – mild PIH
BP reading of 140/90 X 2, >6 hr apart
30/15 above pre-pregnancy
Proteinuria – 1+ or greater, 2 dipsticks > 6 hr apart
Edema - >2lb/wk second trimester; >1lb/wk third trimester
Reflexes – normal to mildly hyper
Urine output matches intake?

Severe Preeclampsia/PIH
BP >160/110 X 2, 6 hr apart
Proteinuria - 3+ or greater, 5g in a 24hr collection
Edema – generalized, noticeable puffiness of eyes, face, fingers, pulm?
Hyperreflexia - >3+, possible clonus
Urine output - <20ml/hr, <500/24 hr
PLUS →
○ Headache – severe  
○ Visual disturbances – blurred, spots, photophobia  
○ Epigastric pain – present to severe  
○ Lab work – elevated liver enzymes (ALT, AST), elevated creatinine, decreased platelet count  
  ○ Signs of impending seizure!
Checkpoint
- If a patient developed HELLP syndrome, what symptoms would be most important to assess for?
  - A. Rapid, anxious breathing
  - B. Ecchymosis or petechiae
  - C. Blink reflex
  - D. Enlarged thyroid

Nursing care – mild PIH
- Sometimes managed at home with bed rest and close supervision. Seen at least weekly; call if any further S/S
- Sodium excreted faster in recumbent position, diuresis occurs. Left side-lying
- Nutrition – eat a balanced diet; higher protein. No sodium restriction
- Education – understand implications for self and fetus. “silent killer”

Nursing care – Severe PIH
- BP>160/110, profound edema, proteinuria, hyperreflexia, cerebral irritation, oliguria
- Admitted to hospital. If >36 wks, fetal lungs mature, induce labor once stable
- Bed/Rest enforced. Quiet, darkened environment. With cerebral irritation, noise/stimulation can induce seizures.
- Seizure precautions – padded rails, O2 ready, suction
Blood pressure monitoring
- Lab findings – CBC, Plt. Count, liver enzymes, BUN, Creatinine, Fibrin split products – renal, hepatic fct, DIC, type and cross match – risk for hemorrhage
- Hematocrit – daily
- Fundoscopic exam (eyes, not uterus!)
- Daily weight
- Foley catheter, hourly output - >30ml, protein
- 24 hour urine collection – protein, creatinine

Fetal well-being – FHT q 4 hr, NST daily, continuous monitoring? O2?
- Diet high in protein
- IV fluids to correct hypovolemia
- Medications to prevent seizures, lower BP:
  - Apresoline (hydralazine)
  - Normodyne (labetalol)
  - peripheral vasodilators
- Most common – magnesium sulfate!

Mag sulfate
- Elevates the seizure threshold by blocking neuromuscular transmission of acetylcholine; CNS depressant
- Also reduces edema by causing fluid shift from extracellular to intestine (same med as used in GI preps)
- Loading dose of 4gm over 15-30 minutes via IV pump, piggybacked.
  - Want to quickly protect from seizures and lower blood pressure. Short half life so must be continuous infusion
Hourly assessments… when on mag sulfate infusion
- Blood pressure, pulse, respirations >12
- Reflexes – patellar or biceps, clonus?
- Urine output – foley cath with urimeter, >30ml/hr
- Muscle weakness, slurred speech
- Calcium gluconate must be kept in room. Would mix 1gm (10%) in 10ml
- Salt-poor albumin can be used to treat oliguria – pulls in fluid from interstitial space
- At delivery – expect flaccid infant, respiratory depression

Serum Magnesium Levels
- Normal range – 1.5-3mg/ml
- Therapeutic range – 5 -8
- Patellar reflex disappears 8-10
- Respiratory depression/ paralysis 15-20
- Cardiac conduction arrest >20

Eclampsia
- Cerebral irritation so acute that seizure occurs.
- Late in pregnancy or in first 48 hours postpartum
- Sudden rise in BP, temp, blurred vision, headache, hyperactive reflexes, epigastric pain/nausea
- Premonition
Tonic-clonic seizures – all muscles contract, respirations halt
- Tonic - Lasts 20-30 seconds, may become cyanotic. O2 via mask, pulse oximeter. Concern for fetus! EFM
- TURN ON SIDE!! Aspiration
- Clonic – jerking motions, may breathe, aspirate, be incontinent
- Mag sulfate bolus or Valium IV
- Remains post-ictal (semi-conscious) for several hours. Keep quiet, NPO, ck bldg

Multiple Pregnancy
- Suspected when uterine size increases at a rate more than expected.
- Feel movement all over abdomen
- Multiple sets of fetal heart tones may be heard
- Ultrasound can identify multiple gestation sacs early on..not unusual to see vanishing twin

Multiple pregnancy mgmt.
- More likely to see PIH, hydramnios, placenta previa, PTL, anemia
- Because of excessive uterine stretching, PTL and PP hemorrhage are likely.
- More likely to have anomalies – spina bifida, velamentous insertion of cord
Multiple pregnancy mgmt.

- With one placenta, likely to have vascular problems such as discordant twinning, twin-to-twin shunting
- With one amnion, umbilical cord entanglement, knotting is frequent
- Closer supervision required to observe fetal well-being.

Mother of multiples...

- Fatigue r/t increased stress on body functioning secondary to multiples
- Double weight, double backache, double trouble sleeping, hard to eat much at a time, hard to walk, risk for explosion?
- Extra iron, calories, vitamins, folic acid… rest, fluids, bed rest (PTL risk)

Hydramnios

- Excessive amniotic fluid volume (>2000ml at term)
- Amniotic fluid is formed by amnion and from fetal urine. Typically swallowed by the fetus, absorbed across its intestinal membrane into the vascular compartment and transferred across the placenta.
- Rapid enlargement of the uterus, SOB, varicosities…
What does this mean?
- Fetal malpresentation in labor
- Premature rupture of membranes – prolapsed cord, infection
- Preterm labor
- Bed rest needed to prevent pressure on cervix, increase uteroplacental circulation
- Fetal studies? Amniocentesis?

Post-term/ Post-dates
- Pregnancy that extends beyond 42 weeks gestation.
- Concern for placental functioning; as it ages it doesn’t exchange oxygen and nutrients as effectively.
- Check calculation of dates, early US,
- For some reason labor doesn’t start
- Danger to fetus – meconium aspiration, macrosomia, oligohydramnios

Isoimmunization
- Rh Incompatibility
- As with miscarriages, Rh negative mom, Rh positive fetus
- If mom is sensitized against Rh positive antigen, condition called erythroblastosis fetalis will occur.
- Hemolytic disease of the newborn, destroys its blood cells
- RhO-GAM, check at 28 weeks, <72hr postpartum
Checkpoint

Beverly Muzuki is Rh negative. Under what circumstances would she be eligible for Rh (O) Immune Globulin (RhoGAM)?

a. If she were having a multiple pregnancy
b. If her fetus/newborn infant was found to be Rh neg.
c. If the fetus became tachycardic or fetal anemia was suspected.
d. Only if the fetus’s blood type was found to be Rh positive.