Objectives:

• Differentiate between a normal and abnormal delivery
• State indications for imminent delivery
• Discuss possible complications of pregnancy/delivery and associated assessments and interventions.
Objectives

• Describe the steps in assisting with delivery
• Describe management of the mother and infant immediately after delivery.
• Identify ACLS modifications for the pregnant patient.
What to do if . . .

- **Emergency Delivery**
  - Get to the nearest hospital quick
  - Call ahead with as much notice as possible to the receiving facility

- **QUICK** history
  - How many babies are in there?
  - Have they seen an OB?
  - Have they had problems with the pregnancy?
  - Prior pregnancies?
  - Have they been told if the baby is head down?
Questions for Pregnancy History

• Number of previous pregnancies (Gravida)
• Number of previous live births (Para)
• Expected date of delivery or due date (EDC)
• When did contractions begin?
• Any history of labor complications?
  – Premature births?
  – C-Section?
  – Multiple births?
Questions for Pregnancy History

• What is the duration and frequency of contractions?
  – **Duration** – Timed from the time the contraction starts to the time the contraction stops (eg. 45 seconds, 1 minute, etc.)
  – **Frequency** – Timed from the beginning of one contraction to the beginning of the next contraction (eg. 2 minutes apart, 4 minutes apart, etc.)
Questions for Pregnancy History

• Evidence of bloody show or spotting?
• Did the water break?
  – When?
  – What was the color? (eg. Clear, greenish, brownish)
  – Did it have an unusual odor?
• Does the patient have an urge to push?
Questions for Pregnancy History

• Does the patient feel like she has to move her bowels?

If the patient is complaining of uterine contractions, an external visual examination for crowning should be done to determine if the delivery is imminent.
Prepare for Delivery

• Prepare delivery area
  – Clean adequate space

• Provide oxygen to mother
  – 100% NRB mask

• Establish IV
  – KVO/TKO rate

• Position mother on her back and drape appropriately
Delivery Equipment

• OB Kit:
  – surgical scissors
  – cord clamp/umbilical tape
  – towels
  – surgical masks
  – 4x4 gauze sponges
  – sanitary napkins
  – bulb syringe and DeLee suction kit
  – baby blanket and stocking cap
  – plastic bag for placental transportation
  – neonatal resuscitation equipment
  – IV fluid supplies
Normal Delivery

• Hips and knees flexed, thighs abducted, feet on the stretcher
• Elevate hips if able, drain the bladder
• Mom should bear down and hold as long as she can and/or do whatever comes naturally
• Support perineum with a towel.
• Nothing fast over the perineum
• Tell mom to stop pushing when the head is delivered
Assisting with Delivery

- Responsible for
  - preventing an uncontrolled delivery
  - protecting infant from cold and stress after birth
- Wear sterile gloves and personal protective equipment
- When crowning occurs, apply gentle palm pressure to infant’s head to prevent tearing of perineum
- If membranes intact, tear sac with finger
Assisting with Delivery

- Inspect and palpate the newborn’s neck for umbilical cord. If present, carefully unwrap the cord from the neck. If unable to remove the cord, apply 2 umbilical clamps and cut between the clamps to release the cord.

  – 25% incidence

- Once airway is clear and cord is free from around the neck, instruct mother to push on her next contraction to complete delivery
Assisting with Delivery

• Support infant’s head as it rotates for shoulder presentation.
  – Most infant’s present face down and then rotate to left so shoulders are in anterior-posterior position.
Assisting with Delivery

• Gently, guide infant’s head downward to deliver anterior shoulder and then upward to deliver posterior shoulder.

• Rest of infant will deliver quickly.
Assisting with Delivery

- Grasp and support infant carefully as he/she emerges. (Infant will be very slippery.)
- Hold infant slightly downward to encourage drainage of secretions.
- Clear airway w/ sterile gauze and repeat suction of nose and mouth if needed.
- Dry infant w/ sterile towels and cover infant (especially head) to reduce heat loss.
Cutting Umbilical Cord

- First clamp approx. 4 inches from neonate
- Second clamp approx. 6 inches from the neonate
- Cut between 2 clamps w/ sterile scissors or scalpel.
- Do not strip or milk the cord (causes RBC destruction, polycythemia, hyperbilirubinemia)
Cutting Umbilical Cord

- Examine ends of cord to ensure no bleeding (if bleeding, re-clamp cord proximal to previous clamp and reassess for bleeding. Do not remove first clamp.)

- Handle cord carefully at all times--it can tear easily.
Cutting Umbilical Cord
Evaluation of Infant

- Dry and cover infant
- Position infant on side or w/padding under back and clear airway
- Provide tactile stimulation to initiate respirations
- Suction as needed
- Assign an APGAR score--not to be used to determine need for resuscitation
- Record infant’s gender and time of birth.
# APGAR Score

## Table 14-2: The APGAR Score

<table>
<thead>
<tr>
<th>Element</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance (skin color)</td>
<td>Body and extremities blue, pale</td>
<td>Body pink, extremities blue</td>
<td>Completely pink</td>
<td></td>
</tr>
<tr>
<td>Pulse rate</td>
<td>Absent</td>
<td>Below 100/min</td>
<td>100/min or above</td>
<td></td>
</tr>
<tr>
<td>Grimace (Irritability)</td>
<td>No response</td>
<td>Grimace</td>
<td>Cough, sneeze, cry</td>
<td></td>
</tr>
<tr>
<td>Activity (Muscle tone)</td>
<td>Limp</td>
<td>Some flexion of extremities</td>
<td>Active motion</td>
<td></td>
</tr>
<tr>
<td>Respiratory effort</td>
<td>Absent</td>
<td>Slow and irregular</td>
<td>Strong cry</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL SCORE =**
Third Stage of Labor

- Signs of placental separation
  - Gush of blood
  - Cord lengthens at vaginal opening
  - Fundus rises in abdomen
  - Uterine shape changes from flat to firm and globular
Third Stage of Labor

- Delivery of the placenta
- 5-20 minutes after delivery
  - Keep clamp on the cord
- Do not delay transport for placental delivery
- Do not cut if sterile scissors are unavailable
- Placenta will need to be inspected by OB for completeness
- After the placenta, administer oxytocin per protocol (10-20 units in 1000cc NS)
Intact Placenta
Placenta Concerns

• If the placenta does deliver, preserve it in a container.

• After delivery of the placenta, clean perineal area and remove soiled drop sheets from under mother’s buttocks. Visually inspect perineal area for tears. If active bleeding is present, apply direct pressure with sterile gauze. Apply sanitary napkin to vaginal opening.
Immediate Postpartum Period
Physical Assessment

- BP Q 15 minutes
  - Transient changes due to…
    - Decreased blood volume after delivery
    - Excitement may elevate BP
    - Low reading is often a late sign of blood loss

- Pulse check Q 15 minutes
  - Tachycardia may indicate increased blood loss or temp elevation

- Temp—slight elevation (100 F) normal
• Fundus check Q 15 minutes
  – Firm, well contracted
  – Midline between umbilicus and symphysis
  – Rises slowly to level of umbilicus during 1st hour after delivery
- Lochia estimation Q 15 minutes
  - Nature of flow
    - Intermittent
    - Trickle
    - Clots
  - Character and odor of flow
  - Amount of flow $\rightarrow$ 500 ml = PP hemorrhage
    - Weigh pads/chux (1g = 1ml)
    - Saturated peri pad < 1 hour
Delivery/Pregnancy Complications

- Postpartum hemorrhage
- Abnormal presentations
- Rupture of Membranes
- Bleeding during Pregnancy
- Hypertensive Disorders
- Premature birth
- Trauma/ACLS modifications
Postpartum Hemorrhage

• Blood loss >500 ml after delivery of infant
• Often occurs w/in first few hours after delivery but can occur postpartum.
• Occurs in 5% of all deliveries
• Related to 33% of maternal deaths
• Often caused by ineffective or incomplete contraction of uterine muscle fibers
Postpartum Hemorrhage--Risk Factors

- Precip or prolonged first or second stage of labor—uterine atony
- Overstretched uterus (large fetus, hydramnios, multiples)
- Drugs (general anesthesia, oxytocin, MgSO4)
- Trauma (use of midforceps or intravaginal manipulation)
- Placenta previa
- Uterine malformation
- Grand multiparity
- Uterine infection
- Toxins (amnionitis, IUFD)
- Full bladder
Postpartum Hemorrhage—Findings

• Uterine atony
  – Boggy, large uterus
  – Expelled clots
  – Bleeding
    • Bright red, visible, evident
    • Slow, steady
    • Sudden and massive

• Lacerations
  – Firm uterus with bright red blood
  – Steady stream or trickle of unclotted blood

• Hematoma
Postpartum Hemorrhage—Findings

• Retained placental fragments
• DIC
  – Petechiae
  – Ecchymosis
  – Prolonged bleeding from gums and venipuncture sites
  – Tachycardia
  – Oliguria
  – Sx of renal failure
  – Convulsions
  – Coma
Postpartum Hemorrhage—Findings

- Decreased BP
- Reduced pulse pressure and delayed cap refill
- Sx of shock
  - *Do not appear until hemorrhage is advanced*
  - Profound hypotension
  - Cold, clammy skin
  - Metabolic acidosis
Postpartum Hemorrhage--Management

- Control external hemorrhage from perineal tears with pressure
- Massage uterus
  - palpate for firmness or loss of tone
  - apply fundal pressure and support lower uterine segment with hand just above symphysis
  - massage until firm and reevaluate q 10 minutes
  - note location in relation to umbilicus, degree of firmness, and vaginal flow
Postpartum Hemorrhage--Management

- Assess fundus Q 4 hours
- Manual uterine massage
- Start IV of LR or saline solution
- Monitor lochia for color, odor, amount, consistency, clots, count, or weight of used pads (1 g = 1 ml)
- Monitor I&O
- Monitor VS
Postpartum Hemorrhage--Management

- Turn client when assessing so blood does not pool underneath (unnoticed)
- Keep flat to supply blood to heart and brain
- Cath if bladder distended
- Encourage infant to breast feed
- Administer oxytocin (if placenta has delivered)
- No vaginal examination or vaginal packing
Abnormal Presentations
Assessing Position
Abnormal Presentation--Breech

- Largest part of fetus (head) delivered last
- Occur in 3-4% of term deliveries
- More frequent with multiple births and when labor is <32 weeks gestation
- Several types
- Cord accidents are common
Breech Delivery

- Provide O2, IV, and monitor FHTs
- key is to allow the delivery to occur spontaneously
- refrain from touching the fetus until the umbilicus is visible
- premature assistance will result in:
  - incomplete cervical dilatation
  - Deflexion of the head
  - entrapment of a nuchal arm
Head Deflexion

A. SPONTANEOUS EXPULSION

B. UNDESIRED DEFLEXION
Breech Delivery

- deliver the legs by externally rotating one thigh and rotating the pelvis in the opposite direction
Breech Delivery

- grasp the feet but NO traction
Breech Delivery

- continue maternal expulsive efforts
- sacrum is anterior
Breech Delivery

• further descent to the clavicles from maternal expulsive efforts
Breech Delivery

- to deliver the arms, rotate 90°…
Breech Delivery

- and use fingers to hook the arm out
Breech Delivery

- deliver the head with pressure on the maxilla to maintain flexion
- assistant applies suprapubic pressure
- may apply gentle downward traction, do not lift body above parallel
- main force of delivery is still maternal effort
Breech Delivery
Breech Delivery

• **DO NOT PULL ON THE NEWBORN**
• **If head does not deliver immediately, you must act to prevent suffocation.**
  
  – Allow the delivery to proceed normally, supporting the newborn with the palm of your hand and arm, allowing the head to delivery.

  – If head is not delivered within 3 minutes, place gloved hand in the vagina with your palm towards the newborn’s face. Form a “V” with your index and middle finger on either side of the newborn’s nose and push the vaginal wall away from the newborn’s face to create an airspace for the newborn until delivery of the head. Suction may be provided PRN.
Shoulder Dystocia

- Occurs in 0.15 – 1.7% of all deliveries
- Turtle sign
- Risk factors
  - Prolonged pregnancy
  - Gestational diabetes
  - Macrosomic infant
  - Maternal obesity
  - Prolonged second stage
  - Previous infant with shoulder dystocia
Shoulder Dystocia - Turtle Sign

DO NOT PULL ON HEAD!!!!
Shoulder Dystocia

- incidence 0.15-1.7%
- be defined by a prolonged head-to-body delivery time (> 60 s) or the need for ancillary obstetric maneuver
- due to impaction of the fetal shoulders within the maternal pelvis
- True OB emergency!
Shoulder Dystocia

• Management
  – Help – obstetrician, pediatrician
  – Episiotomy
  – Legs – elevate (McRoberts)
  – Pressure - suprapubic
  – Enter vagina – Rubin’s and Woods’ screw
  – Roll or Remove posterior arm
  – Zavanelli, clavicular #, symphysiotomy
Shoulder Dystocia

- **Maternal pushing**
  - Should be stopped and assistance requested

- **McRoberts maneuver**
  - Legs hyperflexed against her abdomen
  - Usually successful in about 90% of attempts
Shoulder Dystocia

- **Suprapubic Pressure**
  - Suprapubic pressure directed posteriorly against the anterior shoulder to try to dislodge it from under the pubic symphysis

http://www.shoulderdystociainfo.com/resolvedwithoutfetal.htm
Shoulder Dystocia

- **All-Fours Maneuver**
  - changes pelvic dimensions in a similar way to McRoberts maneuver
  - apply downward traction to disimpact the posterior shoulder

- **If maneuvers are unsuccessful...** rapid transport!
Abnormal Presentation--Shoulder Presentation

• Also called “transverse presentation” because long axis of fetus lies perpendicular to that of mother
• Results in fetal arm or hand lying over the pelvic inlet
• Occurs in <1% of deliveries but occurs in 10% of second twins
Abnormal Presentation -- Shoulder Presentation

• **Management:**
  – Spontaneous delivery of this presentation is not possible
  – Provide mother with O2, ventilatory and circulatory support and transport rapidly to hospital
Other Abnormal Presentations

• Include:
  – Face/brow presentation
  – Occiput posterior

• Result in increased perinatal morbidity and mortality

• Often require C/S

• Necessitate:
  – Early recognition
  – Maternal support/reassurance
  – Rapid transport
Abnormal Presentation--
Cord Presentation

- Occurs when cord slips down into vagina or presents externally after ROM
- Cord is compressed against presenting part, diminishing oxygen flow to fetus
- Occurs in about 1 in 200 pregnancies
Abnormal Presentation--Cord Presentation

- **Risk factors** include:
  - breech presentation
  - PROM
  - large fetus
  - multiple gestation
  - long cord
  - preterm labor
Abnormal Presentation--Cord Presentation

- **Management**

- **Ultimate goal is cesarean section**
  - Prevent fetal asphyxia
  - If cord is visible or palpable, take the following steps:
    - Position mother with hips elevated as high as possible (Trendelenburg or knee-chest)
    - Administer O2 to mother
    - Instruct mother to pant w/UCs to prevent bearing down
    - If possible, apply moist sterile dressings to exposed cord to minimize temperature changes that may cause umbilical artery spasm
Abnormal Presentation – Cord Presentation

• If pulse is absent in umbilical cord
  – Insert a gloved hand into the vagina and lift the presenting part, off of the umbilical cord while gently pushing the fetus into the uterus.
  – With the other hand, press on the lower abdomen in an upward or cephalic direction.
  – Push the fetus back only far enough to regain a pulse in the umbilical cord.

• Immediate C/S – transport immediately while maintaining fetal position to maintain umbilical pulse.
Premature Rupture of Membranes (PROM)

- Rupture of amniotic sac before labor onset, regardless of gestational age
- Occurs in 1 in 10 pregnancies
- At term
  - 70% of patients are in labor w/in 12 hours of PROM
  - 85% in labor w/in 24 hours of PROM
PROM--Signs/Symptoms:

- History of “trickle”
- Sudden gush of fluid from vagina
- Treatment--transport for evaluation
  - delivery or infection
Chorioamnionitis

• Associated w/ PROM >24 hrs or prolonged labor
  – maternal fever
  – chills
  – uterine pain

• Treatment
  – antibiotics
  – delivery of infant
Vaginal Bleeding

• Usually results from:
  – abortion (miscarriage)
  – ectopic pregnancy
  – abruption
  – placenta previa
  – uterine rupture
  – postpartum hemorrhage
Abortion

• Termination of pregnancy from any cause before 20 weeks’ gestation (after this date, it is called “preterm birth”)
• Occurs in about 1 in 10 pregnancies
• Most frequent cause of vaginal bleeding
Abortion

- Most occur in first trimester (before 10th week)
- Symptoms:
  - slight or profuse vaginal bleeding
  - suprapubic pain referred to back
  - cramping
Abortion

• Assess:
  – time of onset of pain and bleeding
  – amount of blood loss
  – passage of any tissue

• Observe for:
  – symptoms of significant blood loss and hypovolemia
Abortion- Interventions

- Assess ABCs
- \( \text{O}_2 \)
- Treat for shock
- Monitor vital signs
- Passed tissue/fetus, place in clean plastic bag
- Emotionally traumatic
- Transport for MD evaluation
Terminology

- **Complete** = all products of conception have been passed
- **Incomplete** = some, but not all, products of conception passed
- **Threatened** = patient has some bleeding and cervix is closed; may stabilize and end in normal pregnancy or progress to incomplete or complete AB
Terminology

• **Missed** = retention of fetus in utero for 4+ weeks after fetal death

• **Spontaneous** = usually occurs before 12th week ("miscarriage"); cause often unknown

• **Therapeutic** = pregnancy legally terminated for reasons of maternal well-being

• **Induced** = pregnancy is intentionally terminated
Ectopic Pregnancy

- Occurs when fertilized ovum implants anywhere other than endometrium of uterine cavity
- Occur 1 in 200 pregnancies
- Leading cause of first-trimester death (usually occur by 2-12 weeks’ gestation)
- Accounts for 11% of all maternal deaths in U.S.
Ectopic Pregnancy--
“The Great Imitator”

• Symptoms:
  – abdominal pain
  – vaginal bleeding
    • may be absent, spotty, or minimal
  – amenorrhea
  – sx of early pregnancy
  – referred pain to shoulder
  – N&V
  – syncope
  – classic signs of shock

• difficult to distinguish from ruptured ovarian cyst, PID, appendicitis, abortion
Ectopic Pregnancy--
“The Great Imitator”

- A true emergency requiring resuscitation and rapid transport
- ABCs
- Aggressive IV fluids
Third-Trimester Bleeding

- Occurs in 3% of all pregnancies
- Never normal!
- Usually due to:
  - abruption
  - placenta previa
  - uterine rupture
Abruptio Placentae

- Partial or complete detachment of normally implanted placenta at >20 weeks’ gestation
- Occurs in 2% of pregnancies (1 in 150 deliveries)
- Can cause fetal death
Abruptio Placentae—Predisposing Factors

- Maternal hypertension
- Preeclampsia
- Multiparity (esp. in women < 30 years of age)
- Previous abruption
- Abortions (spontaneous and elective)
- Cigarette smoking (worse if > 40 years vs. teen)
- Cocaine use
- Methamphetamine use
Abruptio Placentae—
Predisposing Factors

- Short umbilical cord
- Abdominal trauma—symptoms may be delayed
- Blunt trauma
- Amniocentesis, uterine catheter, accidents, assaults
- Rupture of membranes
- Uterine leiomyoma located behind placenta
- Questionable etiology…
  - Folic acid deficiency
  - Vena caval compression
Abruptio Placentae

Partial Separation (Concealed Hemorrhage)

Partial Separation (Apparent Hemorrhage)

Complete Separation (Concealed Hemorrhage)
Abruptio Placentae
Symptoms

• Sudden, 3rd trimester bleeding
• Abdominal pain
• Uterine irritability
• Tender, firm uterus
• UCs may be present
  – Tone may be elevated
  – Continuous dull back pain
Abruptio Placentae

Symptoms (cont’d)

• Symptoms of shock
  – Rising pulse with falling BP
  – Pale, clammy skin
  – N&V
  – Increasing uterine distension (more common with concealed bleeding)
Abruptio Placentae—Interventions

• Monitor for shock, transport
• Establish 1 or 2 IV lines with 18-g or larger cath
• Administer oxygen at 8-10 l/min
Placenta Previa

- Placental implantation in lower uterine segment approaching or covering the cervical os
- Occurs in 1 of 300 deliveries (higher in premature births)
  - 12-25% of women may be dx with it < 30 weeks’ gestation
  - Low-lying and previas prior to 30 weeks usually resolve or migrate (88-98%)
Placenta Previa—Risk Factors

- Prior placenta previa (3x greater)
- Short interval between pregnancies
- Multiparity
- Uterine scars
  - Previous abortions with curettage
  - Previous C/S
  - Previous endometritis or conditions that cause defective decidual vasculature, inflammation, or atrophic changes
Placenta Previa—Risk Factors

- Smoking
- Living at high altitude
- Minority race (Asian women 86% higher)
- Age
  - > 35 years, incidence = 1/100
  - > 40 years, incidence = 1/50
- Large placenta related to multiple gestation or diabetes
Placenta Previa
Placenta Previa--Symptoms

- Bright red bleeding (sometimes over several weeks)
- No pain in 70-80%
  - Painful bleeding may occur if placenta abrups
- May or may not have uterine contractions
  - Placenta separates from os or lower uterine segment and uterus cannot contract at vessel site
- Presence of clots (indicates normal clotting process)
Placenta Previa—Interventions

• Same as those for abruptio placentae
  – Monitor for shock
  – Transport

• In addition…
  – Consider tocolysis if patient not in active labor
Uterine Rupture

- Spontaneous or traumatic rupture of uterine wall that can result from:
  - Re-opening of previous uterine scar (e.g. previous C/S)
  - Prolonged or obstructed labor
  - Direct trauma
  - Uterine hyperstimulation with labor induction
    - Oxytocin at high infusion rate
    - Cervical ripening (Misoprostol or Dinoprostone)
    - Maternal cocaine use

- Occurs in 1 of 1400 deliveries
  - 5-15% maternal mortality
  - 50% fetal mortality
Types of Uterine Rupture

- Rupture of classical C/S scar
  - Occurs in late pregnancy or early labor
  - Highest risk for rupture
  - Presents at acute abdominal pain and shock
  - Risk of rupture in labor up to 9%
Types of Uterine Rupture

• Rupture of lower uterine segment scar
  – Often occult presentation
  – Occurs with VBAC
  – Lowest risk for rupture
Types of Uterine Rupture

• Spontaneous
  – Risk of rupture in labor < 0.0125%
  – Multiparous women with labor obstruction
    • Fetal malpresentation
    • CPD
  – Strong contractions result in rupture
  – Presents as acute abdominal pain and bleeding
Uterine Rupture

**ASSESSING the Pregnant Woman With Uterine Rupture**

- Falling blood pressure
- Rapid, weak pulse
- Severe abdominal pain
- Halt in contractions
- Absent FHR
- Possible vaginal bleeding
Uterine Rupture—Signs

- Fetal distress
  - Prolonged late decelerations
  - Bradycardia
  - ** most reliable sign of uterine rupture
- Classic signs
  - Sudden tearing uterine pain (13%)
  - Vaginal bleeding (11%)
  - Decreased uterine contractions
- Unusual feeling of fetal parts (fetus can be outside uterus)
- Maternal feeling of “doom”
Uterine Rupture—
Interventions

- Emergency delivery (usually by C/S)
- Hysterectomy ?? After delivery of infant
- Maternal and fetal resuscitation measures may be needed
Uterine Rupture—Complications

- Severe maternal anemia
  - Blood loss = 2 liters in up to 50% of cases
  - Average blood transfusion = 5 liters PRBC
- Hysterectomy – up to 23% of cases
- Maternal mortality—rare, except in pre-hospital rupture
- Neonatal mortality
  - if at tertiary center = 2.6%
  - If at pre-hospital = 6%
Hypertensive Disorders of Pregnancy

• Chronic Hypertension
  – Predates pregnancy

• Gestational Hypertension
  – Replaces the term pregnancy-induced hypertension (PIH)
  – Elevated blood pressure is detected for the first time after midpregnancy ~20 weeks
  – In a previously normotensive woman, gestational blood pressure elevation is defined as:
    • SBP of 140 mmHg or greater
    • DBP of 90 mmHg or greater
    • New onset of hypertension based on two elevated measurements within 7 days
Hypertensive Disorders of Pregnancy

• **Eclampsia**
  - the occurrence of seizure activity or coma in a woman with preeclampsia, which cannot be attributed to other causes

• **HELLP syndrome**
  - **H** (Hemolysis)
    - Burr cells
    - Schistocytes
  - **EL** (elevated Liver Enzymes)
    - Increased serum glutamic oxalacetic transaminase
    - Increased lactic dehydrogenase
    - Increased bilirubin
  - **LP** (low platelets)
What is a hypertensive emergency?

- Acute-onset, severe hypertension that is accurately measured using standardized techniques and is persistent for 15 min or more is considered a hypertensive emergency.

- SBP $\geq$ 160 mm Hg
- DBP $\geq$ 110 mm Hg
Signs & Symptoms

- Oliguria < 500 mL in 24 hrs
- Cerebral or visual disturbances
- Pulmonary edema
- Epigastric or right upper quadrant pain
- Chest pain
- Cyanosis
- Elevated liver enzymes
- Thrombocytopenia
- Fetal growth restriction
Assessments

– DTRs and clonus

• Reflexes:
  4+ = hyperactive, very brisk, clonus, abnormal
  3+ = brisker than average, but not abnormal
  2+ = average response
  1+ = somewhat diminished, but not abnormal
  0   = no response, hypoactive, abnormal

• Clonus:
  No beat – normal
  1 beat – normal stretch response
  2 beats or more – clonus, abnormal
Assessments

• Note the presence or absence of edema: face, hands, feet and ankles.
  • 1+ = minimal, slight edema of pedal area
  • 2+ = marked edema of lower extremities
  • 3+ = edema of hands, face, lower abdominal wall, and sacrum
  • 4+ = ascites
Expectant Management

- Anticonvulsive therapy
  - Magnesium sulfate is the anticonvulsant drug of choice to prevent seizure activity with preeclampsia and to treat eclampsia.
Expectant Management

• Antihypertensive therapy
  – Indicated in situations in which the diastolic blood pressure is above 110 or the systolic is above 160-180.
  – Treatment should reduce blood pressure to a level that provides maternal safety without compromising uterine perfusion.

• Hydralazine
• Labetelol
Assessment & care of patients with eclamptic seizures

- **At onset of seizure:**
  - Airway
    - Turn on side
    - Oral airway
    - Suction available
  - Protect patient from harm
  - Magnesium sulfate
Assessment & care of patients with eclamptic seizures

- **Once seizure stops**
  - Turn patient on side
  - O₂ 10L/min by face mask-*don’t place the strap on patient*
  - Suction as needed
  - Assess vital signs q 10-15 min until stable
Assessment & care of patients with eclamptic seizures

– Note characteristics of seizure
  • Presence/absence of aura
  • Duration of seizure
  • Tonic-clonic phases
  • Duration of post ictal phase
  • Length of unconsciousness
  • Maternal/fetal response

– Assess for evidence of placental abruption and/or imminent delivery.

– Assess for evidence of intracranial bleed
  • Focal neurologic deficits, may be one sided
  • Labile vital signs
Premature Birth

• Any infant born < 37 weeks’ gestation
• Low birth weight (less than 2.5 kg or 5.5 lbs) although a LBW infant can be considered term
• Occurs in 6-9% of all considered term pregnancies
• Infant at risk for:
  – hypothermia (large surface-mass ratio)
  – cardiorespiratory distress (systems are immature)
Premature Birth--Management

- Maintain thermoregulation
  - keep infant warm
  - dry w/ warm blanket
  - place infant on mother’s abdomen
  - cover mother and infant
- Frequently suction infant’s mouth and nose
- Carefully monitor the cut end of the umbilical cord for oozing
- Provide humidified free-flow O2--but not directly into infant’s face
- Protect infant from contamination (use mask/gown)
- Gently transport to receiving hospital
Trauma in Pregnancy- Handout

- The leading cause of non-obstetrical maternal death
- 1 in 12 pregnant women sustain a significant traumatic injury
- Incidence of trauma in the pregnant patient is 5-10%
- 50% of fetal deaths are due to trauma
- 25%-30% of pregnant women are abused (physically or sexually)
- 10-15% occur in 1\textsuperscript{st} trimester
- 32-40% occur in 2\textsuperscript{nd} trimester
- 50-54% occur in 3\textsuperscript{rd} trimester
- Sources of trauma: MVAs (55%), falls (22%), assault (22%), and burns (1%)
ACLS Modification for Pregnancy - Handout

- **B** Bleeding/DIC
- **E** Embolism: amniotic/pulmonary/cardiac
- **A** Anesthesia Complications
- **U** Uterine Atony
- **C** Cardiac Disease (ischemia/aortic dissection/cardiomyopathy)
- **H** Hypertension/Preeclampsia/Eclampsia
- **O** Other (Hs & Ts)
- **P** Placenta (abruption/previa)
- **S** Sepsis
References:

1. AWHONN. () Patient care guidelines for preeclampsia/hypertension.


