MARGARET H. ROLLINS SCHOOL OF NURSING
NURSING 202: ADVANCED CONCEPTS OF NURSING
OBSTETRICAL TRAUMA

I. The incidence of trauma in pregnancy

A. Pertinent Statistics
1. Responsible for 20% of maternal deaths not assoc. with childbirth
2. Trauma is most frequent cause of death in women 35 years and under
3. Increasing incidence of abuse/battering
   a. Prevalence 0.9% – 20% reported during pregnancy
   b. Percent increases if question asked more than once

B. Distribution of injury
1. By trimester:
   a. 1st Trimester – 10%
   b. 2nd Trimester – 40%
   c. 3rd Trimester – 50%
2. By type of injury:
   a. MVC's – 42%
   b. Falls – 34%
   c. Abdominal trauma – 18%
   d. Miscellaneous – 6%

C. Leading causes of death
1. Leading cause of maternal death: head injury, exsanguination
2. Leading cause of fetal death: maternal death
3. Leading cause of fetal death when mother lives: abruption

II. **Physiologic changes in pregnancy that impact a traumatic injury**

A. Cardiovascular changes
1. Blood volume increases by _____%
2. Cardiac output increases by _____% by third trimester
3. Peripheral vascular resistance decreased
4. Heart rate increased by 10 – 20 bpm
5. Blood pressure _____ in second trimester
6. Physiological anemia with decreased H&H
7. Some clotting factors (fibrinogen and factor VIII) are increased

B. Respiratory changes
1. Respiratory rate basically unchanged
2. Increased O_2 consumption
3. Increased tidal volume & normal resp. rate = increased minute volume
4. Progesterone = increased sensitivity to CO_2
5. All of above = chronically compensated respiratory alkalosis
6. Decreased PO_2 in supine position

C. Gastrointestinal changes
1. _____ gastric motility
2. _____ acid production
3. _____ gastroesophageal sphincter competency

D. Reproductive changes
   1. Increased uterine size with increasing gestational age
   2. Increased uterine blood flow
      a. Increased vascularity and dilation of uterine blood vessels
      b. At term 80% of the uterine blood flow goes to the placenta
      c. At term, 1/6 of total blood volume is w/in uterine vascular system
      d. Rate of UBF = 500cc/min

III. Types of injury during pregnancy

A. Blunt force trauma
   1. MVC's previously most common cause, now ↑ due to domestic violence
   2. Increasing prevalence with abuse/battering
   3. Structures at risk 2nd & 3rd trimesters – spleen, liver, uterus, bladder

B. Penetrating trauma
   1. Gunshot wounds
      a. More common, worse prognosis
      b. Cannot predict path of bullet by bullet holes
   2. Stab wounds
      a. 2/3 occur in upper abdomen with better prognosis
      b. lower abdomen = fetal injury

C. Burns
   1. Thermal – prognosis r/t depth and body surface area
   2. Electrical – thermal injury, cardiac arrest, respiratory anoxia

D. Fractures
   1. Pelvic fractures
      a. Most frequent is two-point displacement
      b. Evaluate, but rarely prevents vaginal delivery
      c. Increased risk of retroperitoneal bleeding and placental separation
      d. Increased risk of abruption
   2. Fetal skull fractures
      a. Increased risk if vtx engagement with pelvic fractures
      b. Increased risk of intracranial hemorrhage, with or without skull fx.
      c. Impact forces may cause death regardless of uteroplacental damage

IV. Nursing care of the obstetrical trauma patient

***All critically injured pregnant patients greater than 20 weeks need an OB nurse or provider in attendance in addition to the ER staff!**

A. Stabilization
   1. ABC's
      a. Determine cardiopulmonary status
      b. Resuscitate prn
      c. Position_____
      d. O_2 therapy_____
   2. **Immediate** evaluation:
      a. Gestational age
      b. Fetal heart patterns (EFM)
   3. Fluid / blood volume replacement _____
   4. NG tube
   5. Foley – best measurement for perfusion

B. Assessment and evaluation
1. Fetal
a. Continued FHR monitoring
b. Ultrasound / biophysical profile
c. Pulmonary maturity studies prn
2. Maternal

***ACOG: pregnancy should not result in any restriction of the usual diagnostic, pharmacologic, or resuscitative procedures or maneuvers of the critically ill trauma pt.!**

a. Detailed head to toe assessment
b. Radiographic studies prn
c. Surgical exploration prn

C. Potential obstetrical complications
1. Placental abruption
a. Placental edges shear r/t increased intrauterine pressure from impact
b. Early fetal signs _____
c. Later signs _____
d. Maternal S&S _____

***use hand, not toco to palpate uterine tenderness and contractility**

e. Danger sign – sinusoidal pattern = severe hypoxia or fetal anemia
2. Hemorrhage
a. Monitor early, and frequently
b. Will not show signs of shock until _____
c. May not develop cool, clammy skin r/t decreased PVR in pregnancy
3. Premature labor and delivery
4. Uterine rupture
a. Rare, approximately 0.6% occurrence
b. usually associated with additional risk factor, i.e. polyhydramnios, uterine scar, or multiple gestation

D. Follow-up care
1. ACOG minimum standards suggest fetal monitoring for at least 4-6^{o} after injury has occurred. If bleeding, contracting, or uterine tenderness, 24-48^{o}.
2. High risk for abruption: 24-48^{o} after injury; has occurred up to 5 days later.
3. Rh negative mothers may need Rh immune globulin

V. Resuscitation protocols and guidelines ***Need to know!

A. Decision tree – who comes first: mom or baby? _____
B. CPR for the pregnant patient
1. C-A-B-U Priority – Displace the uterus!
2. Manual, tilt, or wedge
3. Manual does allow for better chest compressions
4. Intubate early and provide high flow O2
5. Two handed bag-mask ventilation preferred
6. Antemortum C/S may be considered if gestation > 24 weeks
a. Within 4 minutes of cardiac arrest, delivery within 5 minutes
b. Rapid – Apply betadine, incision, antibiotics PP if mom lives
c. CPR continued during procedure