Postpartum Complications

Paul Barter, FNP, EMT-P
Postpartum Period
or
Postnatal period

• The period beginning immediately after the birth of a child and extending for about six weeks
World Health Organization (WHO)

• describes the postnatal period as the most critical and yet the most neglected phase in the lives of mothers and babies
  ▫ most deaths occur during the postnatal period
  ▫ a time in which the mother's body, including hormone levels and uterus size, returns to a non-pregnant state
    • scientific literature, the term is abbreviated to Px, where x is a number
    • day P2
Common Postpartum Complications

• Hemorrhage
• Perineal pain
• Hemorrhoids and Constipation
• Breast Problems
  ▫ Mastitis
  ▫ Swollen breasts
  ▫ Clogged ducts
• Infections
• Urinary incontinence
Hemorrhage
Definition and Incidence

- Leading cause of maternal morbidity and mortality in the US and worldwide
- Life-threatening event with little warning
  - Loss of > 500 ml after vaginal delivery
  - Loss of > 1,000 ml following c-section
- Classification {in respect to birth}
  - Early / Acute or Primary
    - With 24 hours of birth
  - Late or Secondary
    - > 24 hrs but < 6 weeks
PPH - Causes

- **Uterine Atony**
  - Marked hypotonia of the uterus
  - Leading cause of PPH
  - 1:20 births

- **Associated with**
  - High parity
  - Multifetal gestation
  - Traumatic births
  - Use of Magnesium Sulfate
  - Rapid or prolonged labor
  - Use of Pitocin for labor induction
PPH - Causes

- Lacerations of the Genital Tract
  - Cervix; vagina; perineum
- Retained Placenta
  - Very common in very preterm births (20 to 24 weeks)
- Inversion of the Uterus
  - Potentially life threatening
    - 1 in 2,000 to 2,500 births
  - Contributing factors
    - Fundal implantation of placenta
    - Vigorous fundal pressure
    - Excessive traction applied to the cord
    - Uterine atony
PPH Hemorrhage Treatment

• Goal
  ▫ Prevent adverse sequela
  ▫ Restoring circulating blood volume
  ▫ Treat the cause of hemorrhage

• Oxygen
  ▫ High concentration
    • Non-rebreather

• IV Fluids
  ▫ Crystalloids
  ▫ Colloids
  ▫ Blood transfusion

• ECG Monitoring
Risk Factors for PPH

- Overdistended uterus
  - Large fetus
  - Multiple fetuses
- Anesthesia and analgesia
- Previous h/o uterine atony
- High parity
- Prolonged labor, oxytocin-induced labor
- Lacerations of birth canal
- Ruptured uterus
- Inversion of the uterus
- Retained placental fragments
- Trauma during labor and birth
  - Forceps-assisted birth
  - Vacuum-assisted births
  - Cesarean birth
- Coagulation disorders
  - idiopathic thrombocytopenic purpura
    - Autoimmune - platelets
  - Von Willebrand Disease
    - Type of hemophilia – Factor VIII deficiency
    - Most common congenital clotting defect
  - Disseminated intravascular coagulation
    - Pathologic form of clotting and consumes platelets, fibrinogen, factor V and VIII
      - Abruptio placenta
      - Amniotic fluid embolism
      - Dead fetus syndrome
      - Severe preeclampsia
      - Septicemia
      - Cardiopulmonary arrest
      - hemorrhage
- Placental abruption
- Placenta previa
- MgSO₄ administration during or postpartum period
- Endometritis
Perineal Pain
- Region between the vagina and rectum
- Experiences the most stretching and bruising during delivery
- Episiotomy site

Hemorrhoids and Constipation
- Results in discharge of blood along with painful defecation
  Resolves spontaneously within few weeks

Breast Problems
- Mastitis
  - Infection secondary to bacteria gaining entry into breast from babys mouth, dirty clothing

- Swollen Breasts
  - Engorged with milk

- Clogged ducts
  - Result of small clogs in ducts through which milk is passed out
Common Postpartum Complications
[con’t]

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    • Discussed later
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Common Postpartum Complications
[con’t]

- Infections
  - **Endometritis**
    - Most common
    - Begins as localized infection at the placental site but can spread to entire endometrium
    - Increase incidence after C-section
    - Signs/symptoms
      - Fever >38 degrees C [100.4]
      - Chills; increased HR; anorexia; nausea; fatigue; lethargy
      - Pelvic pain; uterine tenderness; foul-smelling lochia
  - **Wound infections**
    - From C-section; episiotomy; repaired laceration site
    - Signs/symptoms
      - Erythema; edema; warmth; tenderness; seropurulent drainage; wound separation
  - **Mastitis**
    - Affects about 1% of women, most of whom are first-time mothers breastfeeding
    - Almost always unilateral developing well after milk has established
      - Typically *s.aureus* transmitted via nipple
    - Signs/Symptoms
      - Chills; fever; malaise; local breast tenderness; redness; swelling; axillary adenopathy may occur
Postpartum Complications
[Infections]

- **Urinary tract**
  - Occur in 2% to 4% of postpartum woman
  - Risk factors
    - Urinary catheterization; frequent pelvic exams; epidural anesthesia; genital tract injury; history of UTI’s; cesarean birth

- **Urinary Incontinence**
  - Typically results from stress incontinence
    - Increase incidence/frequency with parity
    - Effects >23% of woman
Other Postpartum Complications

• Post partum depression
• Sheehan’s Syndrome
• Amniotic fluid embolism
• Peripartum cardiomyopathy
Post Partum Depression

- **Etiology**
  - Unclear, may be biologic, psychologic, situational or multifactoral

- **Incidence**
  - About 25-85% of women will experience postnatal blues, only 7-17% will develop clinical depression
    - In the United States, postpartum depression is one of the leading causes of the murder of children <1 yr old which occurs in about 8 per 100,000 births
Post Partum Depression

- **Risk factors**
  - Prenatal depression/anxiety
  - Low self-esteem
  - Stress of child care
  - Life stress
  - Lack of social support
  - Marital relationship problems
  - History of depression
  - “difficult” infant temperament
  - Postpartum blues
  - Single status
  - Low socioeconomic status
  - Unplanned or unwanted pregnancy
Post Partum Depression

• Controversial
  ▫ Multiple repeated mega-studies have not linked hormonal changes with postpartum depression. Concluded that it is a myth that hormonal changes lead to depression
    • Symptoms of preexisting mental illness exists
    • Exacerbated by fatigue, change in routine
Other Postpartum Complications
Sheehan’s Syndrome

- **Sheehan’s Syndrome**
  - Postpartum hypopituitarism caused by ischemic necrosis due to blood loss and hypovolemia during and after childbirth.
  - Rare complication of pregnancy

- **Hypertrophy and hyperplasia of prolactin cells causes enlargement of the anterior pituitary, without a corresponding increase in blood supply.**
  - Secondly, the anterior pituitary is supplied by a low pressure portal venous system
    - When affected by hemorrhage or hypotension leads to ischemia of the pituitary regions leading to necrosis
    - Posterior pituitary is usually not affected due to its direct arterial supply

- **Complications**
  - Since the anterior pituitary is damaged and loses the cells that normally secrete hormones
    - Prolactin - stimulates lactation
    - ADH - stimulates kidneys to reabsorb water
    - TSH - stimulates the thyroid
    - Cortisol - allows the body to survive in times of severe physical stress, such as when one is sick, and helps other hormones keep blood sugar levels elevated
    - Without these hormones, their respective jobs are not performed, and the signs and symptoms of pituitary damage ensue
Sheehan’s Syndrome

• **Signs/Symptoms**
  - Agalactorrhea (absence and/or difficulties with lactation)
  - Amenorrhea or oligomenorrhea after delivery
  - May be asymptomatic, and the diagnosis is not made until years later, with features of hypopituitarism:
    - Hypothyroidism
      - Tiredness; intolerance to cold; constipation; weight gain; hair loss; slowed thinking; slowed heart rate and low blood pressure
      - Adrenal insufficiency [Addison’s Disease]
    - Adrenal Insufficiency [Addison’s disease]
      - Fatigue; weight loss; hypoglycemia; anemia; hyponatremia
    - Gonadotropin deficiency
      - Amenorrhea; oligomenorrhea; hot flashes; decreased libido
    - Growth hormone
      - Many vague symptoms including fatigue and decreased muscle mass
Amniotic Fluid Embolism

- A rare childbirth emergency
  - Amniotic fluid, fetal cells, hair or other debris enters the mother's blood stream via the placental bed of the uterus and triggers an allergic-like reaction
  - This reaction then results in cardiorespiratory collapse and massive hemorrhaging
  - First formally characterized in 1941
    - rare (between 1 in 8000 and 1 in 80,000 deliveries)
    - fifth most common cause of maternal mortality in the world
Amniotic Fluid Embolism

- Some evidence shows that it may be associated with
  - abdominal trauma or amniocentesis
  - A 2006 study showed that the use of drugs to induce labor, such as misoprostol [Cytotec], nearly doubled the risk
  - Maternal age of 35 years or older
  - Caesarean or instrumental vaginal delivery
  - Polyhydramnios
  - Cervical laceration
  - Uterine rupture
  - Placenta previa or abruption
  - Eclampsia
  - Fetal distress
Amniotic Fluid Embolism

- There is no specific treatment for amniotic fluid embolism
- Initial emergency management is the same as for any other cause of sudden maternal collapse
  - cardiovascular and respiratory resuscitation and correction of the coagulopathy
- However, newer research with animal models suggest that significant embolism of any material is followed by:
  - platelet degranulation
  - pulmonary hypertension due to serotonin and thromboxane
  - systemic hypotension due to vagal stimulation.
- Armed with this knowledge, several women have survived and regained a pulse immediately after ondansetron [Zofran], metoclopramide [Reglan], atropine and ketorolax [Toradol] were administered.
Peripartum cardiomyopathy

- Form of dilated cardiomyopathy
- Defined
  - a deterioration in cardiac function presenting typically between the last month of pregnancy up to 6 month postpartum
- Etiology
  - Unknown
  - Incidence
    - 1 in 1,300 to 4,000 live births
    - can occur in any woman of any racial background, at any age during reproductive years, and in any pregnancy
  - Researchers are investigating
    - cardiotropic viruses
    - Autoimmunity or immune system dysfunction
    - Toxins that serve as triggers to immune system dysfunction
    - Micronutrient or trace mineral deficiencies
    - genetics
Peripartum cardiomyopathy

- **Pathophysiology**
  - Like other forms of dilated cardiomyopathy
    - heart muscle cannot contract forcefully enough to pump adequate amounts of blood for the needs of the body's vital organs
    - involves systolic dysfunction of the heart with a decrease of the LVEF
      - with associated CHF
      - increased risk of atrial and ventricular arrhythmias
      - Thromboembolism
      - Sudden cardiac death
Peripartum cardiomyopathy

- Signs/symptoms
  - Orthopnea
  - Dyspnea
  - Pitting edema
  - Nocturia
  - Excessive weight gain
  - Palpitations
  - S3 gallop; murmurs of MR and TR
  - Liver failure
  - Embolus
  - Stoke
  - AMI
Peripartum cardiomyopathy

- Early detection and treatment
  - Higher rates of recovery
  - Decreased morbidity and mortality

- Treatment
  - Similar to CHF
    - Diuretics
    - Beta blockers
    - ACE-I
    - Anticoagulation if EF <35%
    - LVAD
    - Transplant
Peripartum cardiomyopathy

Prognosis

- Recent studies indicate that with newer conventional heart failure treatment survival rate is very high at 98%
  - >50% of PPCM patients experience complete recovery of heart function (EF 55% or greater
  - Almost all recovered patients are eventually able to discontinue medications with no resulting relapse and have normal life expectancy
- It is a misconception that hope for recovery depends upon improvement or recovery within the first six to 12 months.
  - Many women continue to improve or recover even years after diagnosis with continued medicinal treatment
  - Once fully recovered, if there is no subsequent pregnancy, the possibility of relapse or recurrence of heart failure is minimal
- Subsequent pregnancy should be avoided when left ventricular function has not recovered and the EF is lower than 55%
- A significant study reports that the risk for recurrence of heart failure in recovered patients as a result of subsequent pregnancy is approximately 21% or better
  - In any subsequent pregnancy, careful monitoring is necessary
  - If relapse occurs, conventional treatment should be resumed
Peripartum cardiomyopathy