Educational Topic 20: Multifetal Gestation

Rationale: Multifetal gestation imparts additional risks and complications to the mother and fetus which requires specialized care.

Intended Learning Outcomes:

A student should be able to:

- List the risk factors for multifetal gestation
- Describe embryology of multifetal gestation
- Describe the unique maternal and fetal physiologic changes associated with multifetal gestation
- Describe the diagnosis and management of multifetal gestation
- Describe the potential maternal and fetal complications associated with multifetal gestation

TEACHING CASE

CASE: You are seeing a 28 year-old G2P1 now at 12 weeks. Her first pregnancy was full term and uncomplicated. At her first trimester screen she was noted to have a dichorionic diamniotic twin gestation with size equal to dates.

COMPETENCY-BASED DISCUSSION & KEY TEACHING POINTS:

Competencies addressed:

- Communication
- Patient Care
- Medical Knowledge
- Systems Based Practice

1. How is the diagnosis of chorionicity and zygosity made?

   - 1st trimester ultrasound is the most accurate time to identify chorionicity.
   - In addition to the identification of 2 placentas, membrane thickness and evaluation of the membrane insertion site are also used to identify chorionicity
• Monozygous embryos dividing <72 hours after fertilization will be dichorionic (30% of monozygous twins).
• Ultrasound diagnosis of dichorionic twins cannot determine zygosity.
• Monochorionic embryos dividing >72 hours after fertilization are always monozygous.

2. What nutritional deficiencies is she at higher risk for in a twin gestation? What recommendations will you make to her because of them, including weight gain?

• The increased circulating blood volume of multiple gestations accentuates the dilutional anemia of pregnancy.
• Each fetus will extract Fe from maternal circulation further exacerbating the physiologic anemia.
• Calcium depletion is also exacerbated in multiple gestations.
• Normal weight women are recommended to gain an additional 10-15 lbs (total 35-40).
• Calcium and iron supplementation should be recommended even prior to anemia.

3. You are counseling her about the increased maternal and fetal risks during the pregnancy, what specifically are you concerned about?

• Maternal risks include increased incidence of gestational diabetes, hypertension, anemia as well as antepartum and postpartum hemorrhage.
• There is an increased incidence of thrombosis, compounded by the increased risks of obesity, maternal age, bed rest and Cesarean deliveries in multiple gestations.
• Fetal risks include an increased chance of miscarriage, fetal growth restriction, preterm delivery, perinatal asphyxia and stillbirth (of one or both). All are more common in monochorionic gestations.
• The risk of fetal anomalies is more common in all multiple gestations, but each of a dichorionic twin set has the same risk of structural anomalies as a singleton. The risk to a fetus of a monochorionic gestation is double a singletons baseline risk.

4. What additional management strategies are recommended in twin pregnancy?

• More frequent prenatal visits to screen for maternal hypertension.
• Periodic ultrasound surveillance to screen for fetal growth.
• Serial cervical ultrasound has been shown to be able to predict preterm delivery in twins to allow time for betamethasone use.
• Antenatal fetal testing is generally recommended in later pregnancy to evaluate increased fetal risk of continuing pregnancy.

5. Your patient is now at 29 weeks without any complications. You are going to counsel her about delivery planning. What factors will determine the safest timing of delivery in a multiple gestation?

• 38 weeks has been shown to have the lowest risk of perinatal mortality in uncomplicated twin gestations.
• Maternal or fetal complications of pregnancy may warrant safest delivery at an earlier gestational age.

6. What are the risks of delivery in a multiple gestation and what are considerations for mode of delivery?

• Increased fetal risks include perinatal asphyxia, birth trauma; both primarily to the second twin.
• Discussion of mode of delivery needs to include fetal presentation, fetal and maternal status and time of delivery and ability to monitor both fetuses reliably.
• Maternal risks include increased risk of Cesarean delivery, postpartum hemorrhage, and anesthesia complications.

REFERENCES


