Educational Topic 10: Antepartum Care

Rationale: Antepartum care promotes patient education, provides ongoing risk assessment with the aim to maintain positive maternal and fetal outcomes.

Intended Learning Outcomes:

A student should be able to:

- Diagnose pregnancy
- Determine gestational age
- Assess risk factors for pregnancy complications, including screening for intimate partner violence
- Describe appropriate diagnostic studies and their timing for a normal pregnancy
- List the nutritional needs of pregnant women
- Identify adverse effects of drugs and the environment on pregnancy
- Perform a physical examination on obstetric patients
- Discuss answers to commonly asked questions concerning pregnancy, labor and delivery
- Describe approaches to assessing the following:
  - Fetal well-being
  - Fetal growth
  - Amniotic fluid volume
  - Fetal lung maturity
- Describe the impact of pregnancy on medical problems and the impact of medical problems on pregnancy

TEACHING CASE

CASE: A 24-year-old woman presents to the office for her routine prenatal visit. She appears anxious. She denies fever, chills, abdominal pain or cramping. She says that she has been urinating more frequently than usual, without pain, and notes fatigue that she attributes to stress at her work. Her last menstrual period was 7 weeks ago, and she typically has 28-day cycles. She has never been pregnant. She tells you that she and her boyfriend plan to marry in the next year. Her medical history is only significant for a hyperthyroid disorder, which she has had for over 10 years. Her last check up was about 6 months ago. She takes methimazole. Otherwise, she has had routine gynecologic follow up, with normal pap smears and she has never been diagnosed with a sexually transmitted infection.
The patient is 170 pounds and is 5'5" tall. On physical exam, her vital signs include a pulse of 85, blood pressure of 115/70. Speculum exam reveals normal appearing vaginal epithelium and cervix. The cervical os is closed. Bimanual exam reveals a slightly enlarged and globular uterus consistent with a 7 week sized pregnancy; the adnexae are without masses and tenderness.

COMPETENCY-BASED DISCUSSION & KEY TEACHING POINTS:
Competencies addressed:
- Patient care
- Medical knowledge

1. What are the first steps in the assessment of this patient?
   - If not confirmed, urine or serum HCG to determine if pregnant
   - Evaluate the early gestation with ultrasound (transabdominal or transvaginal) to determine location of pregnancy, confirm due date and number of embryos. Fetal cardiac activity visualized on ultrasound usually confirms early viability
   - Gestational age can be determined from her last menstrual period, and compared to her early ultrasound. Consideration to changing her gestational age on ultrasound criteria would be:
     - If less than 12 weeks, would use the ultrasound date if off by more than 5 days
     - If between 12 and 16 weeks, would use the ultrasound date if off by more than 7 days
   - Address her visible anxiety
   - Related to viability?
   - Related to her medical issues with thyroid disease and medications?
   - Help schedule her for follow up with Maternal Fetal Medicine service, as well as an Endocrinologist

2. With routine prenatal care, what factors need to be discussed with this patient?
   - Nutrition and weight gain counseling: recommended weight gain based on pre-pregnancy BMI <18.5 is 28-40 lbs, 18.5 – 24.9 is 25 – 35 lbs, 25 – 29.9 is 15 – 25 lbs, >30 is 11 – 20 lbs
   - Sexual activity: is not restricted during pregnancy, unless conditions such as preterm labor, placenta previa or preterm premature rupture of membranes is present
   - Exercise: up to 30 minutes of moderate exercise per day is encouraged, as permitted by personal tolerance
   - Travel: without complication, air travel is generally safe up to 36 weeks. However, prolonged periods of inactivity (sitting) should be avoided
   - Environmental and work hazards
   - Tobacco and alcohol use
   - Substance abuse
   - Medication use
   - Intimate partner violence

3. What are the routine laboratory studies collected at the first prenatal visit?
   - Blood and Rh typing, hepatitis and rubella titers, antibody screening, HIV screening, screening for chlamydia and gonorrhea
   - Consideration can be given to screening for hemoglobinopathies (with hemoglobin electrophoresis) and cystic fibrosis
4. What additional screening tests does she require with her thyroid disease?
   • Evaluation of the thyroid should include TSH and Free T4 levels

5. What additional concerns should be discussed with the patient regarding management of her pregnancy
   • With poorly controlled thyroid disease, there may be increased need for medically indicated preterm delivery
   • Slight increased risks in intrauterine growth restriction and fetal loss, requiring antenatal testing in the third trimester, or sooner with more severe disease
   • Increased risks of fetal heart rate abnormalities
   • Increased risks of preeclampsia

6. What concerns are there for medication use for hyperthyroidism in pregnancy?
   • Propylthiouracil generally safe in pregnancy, small amounts cross into breast milk
   • Methimazole thought to have increased risk of fetal aplasia cutis (recently refuted), also higher secretion into breast milk, but generally considered safe

7. How can this patient be followed for fetal well being in the third trimester?
   • Initial development can be evaluated with anatomic survey (scheduled in 16-20 weeks)
   • Fetal growth can be measured monthly with ultrasound
   • Well being can be assessed with either non-stress tests (twice a week) or biophysical profiles (once a week)
   • Biophysical profile includes:
     • Fetal movement: three or more discrete body/limb movements in 30 minutes
     • Fetal tone: one or more episodes of extremity extension/flexion, or open/close of hand
     • Fetal breathing movements: episode of rhythmic fetal breathing for 30 seconds
     • Amniotic fluid volume: pocket of fluid that measures at least 2 cm in 2 perpendicular planes

REFERENCES


ACOG Practice Bulletin #37 Thyroid Disease in Pregnancy, August 2002 (reaffirmed 2013)