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Antepartum care

Objectives:

- 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

We advise you to study it along with the third lecture “antenatal fetal assessment“

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Introduction

Antepartum (prenatal) care starts from the 1st prenatal visit.

• Women who received Antepartum care in 1st trimester had better pregnancy outcome

• **Home pregnancy test :** positive when beta HCG = 25 or more.

• Early pregnancy symptoms include : **fatigue, vomiting, nausea breast tenderness, and frequent urination.**

• For low risk women : first prenatal visit "booking visit" will be an intake[1] visit at 6-8 weeks followed by first prenatal visit before <12 weeks.

Goals of prenatal care :

1. Early and continuous risk assessment.
2. Health promotion.
3. Medical and psychosocial intervention and follow up.

What do we do in the 1st visit ?

First: we take comprehensive History, focusing on:

1.Chronic medical issues.

2.Past pregnancy and their outcomes.

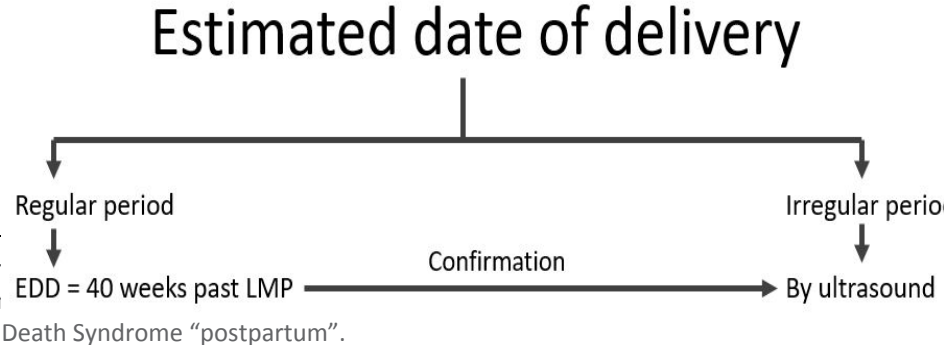
3.Gynecological issues.

4.Genetic screening issues.

5.Social history :

- **Smoking** increases the risk of (MSQ!) : Miscarriage, placental abruption, Growth retardation, SIDS[2], birth defect and preterm delivery.
- **Alcohol** increases the risk of : Mental retardation, Developmental Delay and birth defect.
- Drugs.
- STD.
- Environment and health hazard.
- Domestic violence. (8-10% of pregnant women are physically abused during pregnancy)
- Seatbelt use.

Second: Gestational age and estimated date of delivery should be determined during the first prenatal visit. (estimate date of delivery by LMP and US "MCQs")



[1] It is the first pr ncludes an ultrasound ar

[2] Sudden Infant Death Syndrome "postpartum".

- LMP = first day of Last Menstrual Period.
- The accuracy of ultrasound dating is gestational-age-dependent. **Earlier sonograms are more accurate than later ones.**
    - If the difference between menstrual dates and ultrasound dates is within the normal range of variation, use the menstrual dates.
    - If the difference between menstrual dates and ultrasound dates is outside the normal range of variation, use the ultrasound dates.

Follow up

Normal low risk pregnancy: (MSQs)

- Every **4** weeks, until 28 weeks
- Every **2** weeks, until 36 weeks
- Every **1** weeks, until delivery

During each visit we should assess : weight , blood pressure, fetal assessment

Diabetes screening:

1 hours glucose tolerance test between 24-28 weeks

for obese women, diabetes screening should be done at the first visit.

Fetal monitoring during pregnancy

1. Fetal Heart rate can be assessed by **Doppler** device at 12 weeks
2. Chromosomal abnormality screening :

   A- 1st trimester screen provides the probability of trisomy 21 and trisomy 18.

   Performed between 10-13 weeks by using **ultrasound** to assess the nuchal translucency.

   And a **maternal serum test** of : PAPP-A[3] and free beta HCG

   B- Alternatively, we can use the maternal serum for screening.

   Done between 16-20 weeks. (second trimester)

   Triple test : alpha-fetoprotein , estriol, HCG

   Quad test : alpha-fetoprotein , estriol, HCG, inhibin

   C- Fetal survey ultrasound performed between 18-20 weeks
3. **Non stress Test** only when indicated "see lecture antenatal fetal assessment"
4. **Maternal kick counts (after 32 weeks)**: 5 movement \ 1 hours, or 10 movement\2 hours
5. **Fundal height** : done by measuring the distance from the pubic symphysis to top of fundus. (MSQs)

   the height = the number of weeks gestational (only if it's > 20 weeks)
6. **Amniotic fluid index** : decreased fetal urinary output lead to decrease amniotic fluid.

[3] pregnancy-associated plasma protein-A

7. Fetal lung maturity : done by **amniocentesis** to check for markers of lung maturity (respiratory system is the last system to mature functionally, so it's important to assess it in case of preterm delivery)

Unique nutrition need during pregnancy

1- **Folic acid :** 0.4 mg/day to reduce neural tube defect. In high risk women (DM, antiepileptic medication, previous NTD): give 4 mg/day

2- **Weight:** recommended weight gain based on pre-pregnancy BMI

pre-pregnancy BMI	weight gain
<18.5	12-18 kg
18.5 – 24.9	11– 15 kg
25 – 29.9	6– 11 kg
>30	5– 9 kg

Excessive weight gain	Inadequate weight gain
Increase risk of complication , ex:	Preterm delivery
macrosomia	IUGR
Post partum obesity	Low birth weight

3- **Food with risk :**
Unpasteurized milk and cold lunch meats could carry Listeriosis which increase the risk of **IUFD**.
Large fish (tuna , shark, king mackerel) increases mercury and should be avoided during pregnancy.

Frequently asked questions

Can pregnant women exercise ?
Yes , but any exercise that might carry a risk of fall or abdominal trauma should be avoided.
Can pregnant women have sex ?
Yes , except in the presence of abnormal conditions such as (placenta previa , PROM).
Can pregnant women travel by airplanes ?
Yes up to 36 weeks of pregnancy, but she should wear the seatbelt low on her hip bones . She also should walk every 1-2 hours (to avoid the risk of DVT).
What teratogens should pregnant women avoid ? [list of teratogens that must be avoid]
Medications such as (ACE inhibitors , Coumadin and Isotretinoin)
Radiation exposure :
The fetus exposure should be < 5 rads (they may give it to u in gray in MCQs, so you should know how to calculate it --> gray = rad x 10)
CT scan for abdomen/pelvis : 3.5 rads
CT scan for head : < 1 rad
X ray for abdomen : 100-200 milirads

X ray for chest : 0.02-0.07 milirads

physical examination on obstetric patients

A quick and clear video on how to do it (https://www.youtube.com/watch?v=rQBX2BC61P4)

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.

Case Questions

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
- 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, but small amounts cross into breast milk.
- Methimazole thought to have increased risk of fetal aplasia cutis (recently refuted), also has 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.