Assessment of Pregnancy and Estimating Date of Delivery

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Normal Pregnancy

• THE POSSIBILITY OF PREGNANCY MUST BE CONSIDERED IN EVERY WOMAN OF REPRODUCTIVE AGE REGARDLESS OF CHIEF COMPLAINT!!!!
Normal Pregnancy

• A study showed that 7% of women who stated there was no chance of pregnancy and had normal on-time last menstrual periods were pregnant.

• Barrier method use, contraceptives, and tubal sterilization does not guarantee pregnancy prevention!!
• **Gravidity**
  – Total # of pregnancies regardless of duration or outcome.

• **Parity**
  – # of pregnancies completed to delivery during viable period.

• **G#P# (Full term-Preterm-Aborted-Living)**
  • G3P2 (2-0-1-2)
Terminology

- Duration = 40 weeks (calculated from first day of last menstrual period)
- 3 Trimesters of Equal Length -
  - 1st - Conception to 14 weeks
  - 2nd - 14-28 weeks
  - 3rd - 28-42 weeks
- Term pregnancy requires completion of at least 37 weeks.
Physiology Changes

• Cardiovascular
  – 40-45% ↑ circulating blood volume
  – 43% ↑ in CO
  – 17% ↑ in resting HR
  – 20% ↓ in SVR
  – ↓ BP
  – ↑ of diaphragm displaces heart
Physiology Changes

- **Respiratory**
  - Dyspnea common complaint
  - Hormone-induced 40% ↑ in tidal volume
  - $pCO_2 \downarrow$ (nl. Pregnancy value 30mmHg)
  - Functional residual capacity $\downarrow$ b/c of ↑ of diaphragm
Physiology Changes

• GI
  – Gastric reflux 2° to delayed gastric emptying, ↓ intestinal motility, and ↓ lower esophageal sphincter tone.
  – Gallbladder emptying delayed and less efficient⇒↑ risk of cholesterol stone formation.
Physiology Changes

• GU
  – ↑ renal blood flow
  – ↑ kidney size
  – ↑ GFR (up to 50% by 2^{nd} trimester)
  results in ↓ BUN/Creatinine
Physiology Changes

• Hematopoietic
  – 40-45% ↑ circulating blood volume 2º to ↑ plasma volume and # of erythrocytes
  – HgB conc. ↓ 2º to dilutional intravascular volume but should not ↓ below 11g/dL
Physiology Changes

- Hematopoietic
  - High Fe requirements
  - Reticulocyte count ↑ 2\textsuperscript{nd} half of preg.
  - Leukocyte counts range 5000-12000 cells/µL
  - Leukocyte function ↓ 2\textsuperscript{nd} trimester so ↑ susceptibility to infection.
  - ↑ coagulation factors
  - ↑ ESR
  - Slight ↓ platelets
Physiology Changes

• Endocrine
  – Hyperinsulinemia and fasting hypoglycemia \(2^{\circ}\) to changes in carbohydrate metabolism
  – Postprandial hyperglycemia \(2^{\circ}\) to altered response to glucose ingestion.
  – Thyroid with ↑ vascularity and mild hyperplasia but clinically detectable goiter is not normal. (Free thyroxine and TSH to assess thyroid function during pregnancy)
Physiology Changes

- Uterus
  - † uterine weight (70⇒1100g)
  - † intrauterine volume (10⇒5000mL)
  - 12 weeks uterus expands into abdominal cavity
Physiology Changes

• Breasts
  – Breast tenderness and tingling starting in 1\textsuperscript{st} trimester
  – Breasts enlarge
  – Nipple size ↑
  – ↑ pigmentation
Assessment of Intrauterine Pregnancy - Presumptive Changes

• Amenorrhea - often the earliest symptom of pregnancy
• Nausea and vomiting (morning sickness)
  – Experienced by almost half of all pregnant women
  – Occurs during first 3 months of pregnancy
• Urinary frequency - enlarging uterus exerts pressure on the bladder
Assessment of Intrauterine Pregnancy - Presumptive Changes

- Excessive fatigue--may persist throughout the first trimester
  - Change in breasts--engorgement, tenderness, tingling, darkening of the nipple area
- Quickening - mother's perception of fetal movement
  - 18 to 20 weeks after LMP
  - 16 weeks in multigravidas
Changes in the Pelvic Organs

• Goodell's sign
  – Softening of the cervix caused by increased vascular congestion
  – Slight uterine enlargement on pelvic exam
  – The only physical signs detectable within the first three months of pregnancy
Changes in the Pelvic Organs

• Chadwick's sign
  – The deep red to purple or bluish coloration of the mucous membranes
  – The cervix, vagina and vulva involved
  – Due to increased vasocongestion of the pelvic vessels
Changes in the Pelvic Organs

• Enlargement of the abdomen - uterus enlargement on pelvic exam
• Braxton Hicks contractions
  – Are painless contractions that occur at regular intervals throughout pregnancy but are
  – Felt more commonly after 28 weeks
  – Also known as false labor
Changes in Skin

- Abdominal strial-stretch marks
- Facial chloasma - after 16 weeks
- Nipples and areola -- may darken especially in primigravidas and darkhaired women
- Linea nigra - pigmented line of the abdomen may develop
Fetal Outline

- Identified by palpation in many pregnant women after 24 weeks of gestation

- Ballottement
  - Passive fetal movement elicited by tapping the cervix with two fingers
  - This pushes the fetal body up, and as it falls back, the examiner feels rebound
Pregnancy Tests

• Urine Test
  – First urine specimen in AM (midstream)
    - not necessary, but preferred if tested early
  – Approximately 95% accurate
  – 10 to 14 days after first missed menstrual period
  – More accurate now - can detect pregnancy around time of missed period
Pregnancy Tests

• Blood test
  – Most accurate pregnancy test
  – Few days after presumed implantation
  – Can be used in diagnosis of ectopic pregnancy or Trophoblastic disease
Pregnancy Tests

• Over-the-counter pregnancy tests
  – Performed on urine
  – False positive rate - approximately 5%
  – False negative rate - approximately 10%
  – Must follow instructions carefully
• Positive changes
  – Positive signs of pregnancy are completely objective
  – Usually not present until the fourth month of pregnancy
• Palpation of fundus of uterus
  – 12 weeks - Symphysis pubis
  – 16 weeks - Midway between symphysis pubis and umbilicus
  – 20 weeks - Umbilicus
  – 20-32 weeks - ↑ 1 cm above umbilicus for every ↑ 1 week
Positive Changes

• Fetal Heartbeat
  – Detected with a fetoscope by approximately week 17 to 20 of pregnancy
• Fetal Heart Rate
  – Between 120 and 160 beat/min
Positive Changes

- Fetal movement -- palpable by a trained examiner after about 18 weeks of pregnancy
  - Faint flutter in early pregnancy
  - Vigorous movement later in pregnancy
  - Fetal electrocardiographic evidence -- recorded as early as 84 days of pregnancy
  - Ultrasound -- positive diagnosis as early as the sixth week of pregnancy
Gestation

- Approximately 9 1/3 calendar months or 40 weeks + 2 1/2 weeks from (LMP) last menstrual period
Nagele's Rule

• Most common method of determining the EDD
• Begin with the first day of the last menstrual period (LMP)
• Subtract three months and add seven days
ESTIMATING DATE OF DELIVERY

Date LMP: 3-15-2007
Subtract 3 Months: 12-15-2006
Add 7 Days & 1 year: 12-22-2007
EDD: 12-22-2007
Guidelines for Maternal Health

• Meals should not be avoided - the fetus is nourished by what is consumed
• Regular, well-balanced meals should be eaten
• Eat frequent, small meals if upset stomach is a problem in early months
• Foods high in protein, minerals, and vitamins should be consumed
Guidelines for Maternal Health

• High salt intake should be avoided
• Smoking should be avoided - affects heart rate, blood pressure, and cardiac output of both the mother and fetus
• Alcohol should be avoided - may affect mental and physical development of the fetus
Guidelines for Maternal Health

• Medications other than those prescribed by a doctor or medic should not be taken

• The need for vitamin is increased A, B, C, and D

• Iron supplements may be indicated for patients with a history of anemia, multiple births, or frequent pregnancies.