FETAL MOVEMENT

FLAME LECTURE: 57

STELLER 8.25.14

Learning Objectives

- To understand rationale for fetal assessment
- To describe approaches for assessment of fetal well being
- Prerequisites:
  - NONE
- See also – for closely related topics
  - FLAME LECTURE 54: Outpatient Antenatal Testing
  - FLAME LECTURE 54B: The Nonstress Test (NST) and Contraction Stress Test (CST)
  - FLAME LECTURE 56: The Biophysical profile
  - FLAME LECTURE 59: Assessment of amniotic fluid volume

Rationale of Fetal Assessment by "Fetal Kick Counts"

- The fetal brain is incredibly sensitive to changes in O_2 and pH
- Fetal movements decrease as the fetus attempts to conserve energy[1-2]
- Noticing a decrease in fetal movement, therefore, may:
  - Detect Fetal Hypoxia and/or Acidosis
  - Prevent Intrauterine Fetal Demise

1. Olesen AG. Acta Obstet Gynecol Scand. 2004
2. Manning FA. AJOG 1993

Fetal Movement Counting

- Fetal movement (quickening) is perceptible around 17-20 weeks
  - Earlier in subsequent pregnancies
  - Later with anterior placenta, obesity
- 50% of movements are felt by the mother, 80% of movements are seen with ultrasound
- Most providers recommend starting daily Fetal Kick Counts at 28 weeks
  - Lack of consistent evidence demonstrating benefit of an active surveillance program
  - At a minimum, every woman must be counseled that she should contact her provider immediately if she notices a decrease in fetal activity

FM Counting Approaches

Author (Year)	Decreased Activity	Recording
Pearson (76)	< 10 move/12 hours	12 hours QD
Sadovsky (77)	< 2 move/1 hour	2–3X QD
Neldam (80)	< 3 move/1 hour	2hr period QD
Rayburn (82)	< 6 move/2 hours	2hr period QD
Moore (89)	<10 move/2 hours	2hr period QD

FM Counting Approaches

- MOORE:
  - 10 movements in 2 hours = reassuring (mean interval to perceive 10 movements was 20.9 minutes)
- NELDAM:
  - 3 movements OR establish baseline, and count 3X/ week for 1 hour to compare with baseline

3. Moore TR. AJOG 1989
4. Neldam S. Lancet. 1980

Fetal Movement Counting Data

- Moore[3] (1989) – 2,500 patients, prospective study
  - Fetal death rate decreased from 44/1000 to 10/1000
- Neldam[4] (1980) – 2250 patients, prospective
  - 4% reported decreased fetal movement
  - 0 stillbirth with FMC vs. 8 stillbirth in controls
  - 25% of decreased FM patient had abnormal back up test
- Grant[5] (1989) - 68,000 patients, prospective study
  - No difference in outcome but compliance was a concern
- Rayburn[6] (1982)
  - 5% with decreased fetal movement
  - Stillbirth decreased x 60; Low Apgar x 10, IUGR x 10

3. Moore TR. AJOG 1989
4. Neldam S. Lancet. 1980
5. Grant A. Lancet. 1989
6. Rayburn WF. AJOG. 1982.

Fetal Movement Counting

- Advantages: Convenience, cost, universal applicability, no contraindications
- Disadvantages:
  - Maternal Anxiety
    - 40% of women will be concerned at least once
    - 4-15% of women will contact their provider for DFM in the third trimester
  - Failure to Detect Growth Abnormalities (if used alone)
  - Failure to Detect Malformations (if used alone)
  - Difficult to apply with Multiple Gestation
  - Probably a late sign of Fetal Hypoxia

Counseling – THE UCI APPROACH

- If a patient senses subjective decreased fetal movement during the day
  - Patient to lie on left side in a quiet room
  - Count until they feel 10 movements
  - If they do not feel 10 movements within 2 hours, they should report to OB triage for further assessment
  - Further assessment on L&D = mBPP (NST + AFI)
- If patient still complains of decreased fetal movement after normal mBPP, start twice weekly antenatal testing
  - Consider Kleihauer-Betke stain ("KB") to look for fetomaternal hemorrhage[7]

IMPORTANT LINKS & REFERENCES

- PRACTICE BULLETIN 145 – Antepartum Fetal Surveillance
- UpToDate.com – Fretts RC - Evaluation of Decreased Fetal Movement
- Olesen AG. Acta Obstet Gynecol Scand. 2004
- Manning FA. AJOG 1993
- Moore TR AJOG 1989
- Neldam S. Lancet. 1980
- Grant A. Lancet 1989
- Rayburn WF. AJOG. 1982
- Kosasa TS. Obstet gynecol. 1993