2016 Update: Prenatal/Antenatal Screening, Testing and Monitoring

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CME Disclaimer

Dr. Landers has no conflict of interest to disclose regarding this topic. His presentation is intended to be free from commercial bias.

Presentation Focus

- List the routine screenings recommended by ACOG during pregnancy.
- Initial evaluation of common abnormalities in screening test.
- Identify indications for screening, testing and monitoring beyond the routine.
- Identify indications for MFM (Perinatology) or other specialty and subspecialty referral.
ACOG Recommendations

- Initially
  - CBC: Hbg/Hct, RBC, WBC and platelets.
  - Urinalysis dipstick, urine culture.
  - Type and screen.
  - Rubella, HIV, Hepatitis B and C, STIs and TB.
- Later in gestation
  - Glucose screen.
  - Repeat CBC, antibody screen.
  - GBS screen.

Prenatal Tests

When are additional lab tests indicated?

CBC
- Hgb: < 12
- Platelets < 150,000
- WBC >15,000

Urine screen
- Glucose >1+
- Protein >1+
- Nitrates, leukocyte esterase: positive.

Prenatal Tests

Genetic Screening
- Screening versus diagnostic tests.
- Nuchal Translucency
- First Trimester Screen
- Quad Screen (MMS)
- Sequential Screen, Integrated Screen.
### Prenatal Tests

**When to order genetic counseling:**
- Request or abnormal 1st tri screen.
- Advanced maternal age ($\geq 35$) at EDD.
- FH of genetic or congenital disorders.
- Markers for aneuploidy on ultrasound.

### Prenatal Tests

**Genetic Screening (easy version)**
- Age $\geq 35$, history or abn genetic screen.
- Non-invasive options: 1st Tri screen, quad screen, sequential screen, integrated screen, non-invasive prenatal test (NIPT).
- Invasive: CVS, amniocentesis, PUBS.
- All gravidas may be offered aneuploidy screening.

### Prenatal Tests

**Genetic Screening**
- Non-invasive prenatal test (NIPT)
  - Fetal cell-free DNA from maternal blood.
  - Illumina (Verifi, Counsyl, InformaSeq)
  - Natera (Panorama)
  - Sequenon (Materna T-21, Visibili-T).
  - Ariosa:Hoffman LaRoche (Harmony)
  - Genesis (Serenity)
Prenatal Tests

Genetic Screening

Chromosomal microarray analysis:
- Identifies chromosomal abnormalities, including some too small for conventional karyotyping.
- Like conventional fetal karyotyping, requires fetal tissue and thus, so far, requires chorionic villus sampling or amniocentesis.

Prenatal Tests

Genetic Screening

Chromosomal microarray analysis recommended:
- When fetus with one or more major structural abnormalities on U/S is having invasive prenatal testing.
- Patients without U/S abnormalities may choose this as it may identify chromosomal abnormalities not associated with AMA.

Prenatal Tests

Genetic Screening

Chromosomal microarray analysis recommended:
- In stillbirth and IUFD, fetal tissue (ie, amniotic fluid, placenta, or POC) is more apt to identify cause if chromosomal.
- Limited utility in 1st and 2nd trimester losses.
- Informed consent as test may find unexpected results including nonpaternity, consanguinity, and adult-onset disease.
Prenatal Tests

Screening for Gestational Diabetes
- Cutoff value (130, 135, 140)
- Borderline test results (125-129)
- Glucose screen > 180, >200
- One abnormal glucose on 3 h GTT

Antenatal Testing

Antepartum Fetal Surveillance
- ACOG Bulletin 145, July 2014
  - Describes the value and limitations of various methods to assess fetal well being.
  - Describes the various tests and their strengths and weaknesses.
  - Discusses frequency of testing.

Antenatal Testing

Fetal surveillance
- Maternal assessment of fetal activity.
- Tests (BPP, NST, Modified BPP)
- Doppler (UAR, MCA, Uterine Artery)
Antenatal Testing

- Doppler (UAR, MCA, Uterine Artery)
- Indications for UAR
  - Oligohydramnios
  - Fetal Growth Restriction

Antepartum Fetal Surveillance

Most frequently asked Questions

- What is best test to use?
- What are the indications? Who needs it?
- When to start and how often?
- How reassuring is it? Does it prevent IUFD?
- How to manage abnormal testing of varying degrees of abnormal?

Summary of conclusion by evidence

- Good, consistent Level A data suggests:
  - Using DVP, as opposed to AFI, to diagnose oligohydramnios reduces un-necessary interventions without more adverse outcomes.
  - In IUGR fetuses, UAR doppler used in conjunction with NSTs, or BPPs, or both, is associated with improved outcomes.
Antepartum Fetal Surveillance

Summary of conclusion by evidence

- Limited or inconsistent Level B data
  - Abnormal NST or modified BPP should be followed by additional testing with either a BPP or a CST.

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Antepartum Fetal Surveillance

Summary of conclusion by evidence

- Expert opinion/consensus opinion (Level C)
  - Begin fetal testing at 32 0/7 weeks of gestation for most at-risk patients. Earlier may be indicated in pregnancies with multiples or particularly worrisome high-risk conditions.
  - When condition persists, repeated weekly to monitor for continued fetal well-being until delivery.

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Antepartum Fetal Surveillance

Summary of conclusion by evidence

- Expert opinion/consensus opinion (Level C)
  - Mode of delivery is not dictated by abnormal test.
  - With isolated and persistent oligohydramnios, delivery at 36–37 weeks of gestation is recommended.
  - At < 36 0/7 weeks of gestation oligohydramnios, delivery should be individualized based on gestational age and the maternal and fetal condition.
When you may consider MFM referral

Maternal-Fetal Medicine Specialist are also known as perinatologist will see referrals for:

Maternal Conditions** (examples)
Mother with significant chronic medical condition such as Lupus, chronic hypertension, heart condition, diabetes, Crohn’s disease, cystic fibrosis, thyroid disease, thrombocytopenia, thrombophilias, multiple sclerosis etc.

**Consider other specialists as well.

When you may consider MFM referral

Maternal-Fetal Medicine Specialist are also known as perinatologist will see referrals for:

Fetal Issues (examples)
Genetic screening, Ultrasound abnormalities, history of, or suspected birth defects, multiples (twins, triplets, more), growth abnormalities (IUGR), exposure to fetal infection (Zika, HIV, CMV, Fifth’s Disease, syphilis etc).

When you may consider MFM referral

Maternal-Fetal Medicine Specialist are also known as perinatologist will see referrals for:

Pregnancy Issues (examples)
History of preterm delivery, cervical cerclage, shortened cervix, placental abnormalities (previa, accreta, percreta), cord abnormalities (cord cyst, umbilical vein varix, velamentous cord insertion), etc etc.
Questions?

Thank you for attending the session!