# INTRAUTERINE GROWTH RESTRICTION (IUGR)

Definition:

- Fetus whose estimated weight is <10$^{th}$ percentile for its gestational age and whose abdominal circumference is < 2.5$^{th}$ percentile
- At term, the cut-off birth weight for IUGR is 2500g (5#8oz)

    - Symmetric IUGR: entire body small (early global insult)

    - Asymmetric IUGR: normal brain & heart growth with decreased abdominal, musculoskeletal, & fat growth (normal head, decreased abdominal circumference, small limbs) caused by an insult later in pregnancy.

Incidence:

- Approximately 5% in general obstetric population, 12-47% in twin pregnancies.
- It's the 2$^{nd}$ leading cause in perinatal morbidity mortality, usually not detectable before 32-34wk.

Indicators of IUGR:

- Poor maternal weight gain (most sensitive indicator)
- Lagging fundal height ≥ 3-4cm for expected gestational age
- Most present during 3$^{rd}$ trimester.

Risk Factors:

- Maternal Risk Factors: HTN, renal disease, restrictive lung disease, DM with microvascular disease, cyanotic heart disease, antiphospholipid syndrome, collagen vascular disease, hemoglobinopathies, smoking, substance use/abuse, severe malnutrition, primary placental disease, multiple gestation, infection (viral, protozoal), genetic disorder, exposure to teratogen, hx previous IUGR.

- Placental or umbilical cord factors: twin-to-twin transfusion, multiple gestation, chronic abruption, placenta previa, cord anomalies, abnormal cord insertion.

If IUGR suspected:

- Needs detailed history & physical.
- Fetal karyotyping if structural anomalies detected early (< 32 wks), or severe (< 3$^{rd}$ percentile) growth restriction, or polyhydramnios.
- Serial HCMC OB Testing Unit ultrasounds every 2-4 weeks to monitor growth progression. (frequency determined by perinatalogist)
- If any result abnormal, every day testing maybe indicated.
- Abnormal Doppler velocimetry (absence or reversal of flow) and abnormal fetal heart rate suggests poor fetal well being and may require delivery despite prematurity.

Diagnosis: accurate dating (best if US done @ 8-13wk) in early pregnancy is essential for making diagnosis of IUGR (certain LMP with regular cycle or ultrasound less than 20 weeks +/- 10d, early ultrasound ideally @ 13wk, more accurate for estimating dating).

Ultrasound parameters:

- Biometry (growth velocity) gold standard
- Abdominal circumference (<2.5$^{th}$ %), biparietal diameter, crown-rump length
- Doppler velocimetry uterine & umbilical vessel systole:
    - Diastole ratio should decrease as pregnancy progresses due to increased diastolic flow in later pregnancy
    - Abnormal if > 3 @ 30wk
    - 78% sensitive & 85% specific to predict IUGR or fetal aortic flow volume (normal 185-246mL/kg/min),
- Estimated fetal weight
- Amniotic fluid volume (AFI)

Nonstress Test (NST): Twice weekly

Contraction Stress Test (CST): positive if decelerations seen with contractions (abnormal)

Biophysical Profile (BPP) (considered low if < 6): NST, fetal breathing movement, gross body movement, and fetal tone, AFI.

Management: Individualized. Consult HCMC OB/GYN.

Indication for delivery: non-reassuring fetal assessment or complete growth cessation assessed by US over 2-4wk intervals. Prematurity requires a course of corticosteroids. Mild and uncomplicated premature IUGR (no fetal abnormalities or contributing maternal disorders), end diastolic flow present, antepartum fetal testing reassuring, can be delayed until at least 37 wks.

REFERENCES:

ACOG Practice Bulletin January 2000

Resnik, Robert,MD. “Fetal growth restriction: Evaluation and management”. UpToDate December 28, 2006.