

Protocol #8- Maternal Fetal Medicine, University of New Mexico

Intrauterine Growth Restriction (IUGR)

Definition: Failure to achieve the intrauterine growth potential directed by genetic constitution and optimal environmental influence. Diagnosis is clinically suggested when there is a lag in fundal height of 4 cm or more. An ultrasound diagnosis is made when a fetus has an estimated weight below the 10th percentile for its gestational age. At term, the cutoff birth weight for IUGR is 2,500 g (5 lb, 8 oz). The etiology of IUGR is multifactorial and may be caused by maternal, fetal, placental, and/or external factors.

- A. Perform detailed ultrasound examination.
 - a. Measure BPD, HC, AC and the FL to obtain the EFW and weight percentile.
 - i. Symmetric IUGR is diagnosed when, in the presence of certain dates, all parameters measure $< 10^{\text{th}}$ %-ile.
 - ii. Asymmetric IUGR is diagnosed when the AC measures $< 10\%$ -ile.
 - iii. Concomitant asymmetric and symmetric IUGR may occur as pregnancy progresses.
 - b. Document AFI. Reduced amniotic fluid or oligohydramnios may be present.
 - c. Perform Doppler assessment of the following after 24 weeks:
 - i. S/D [Systolic/Diastolic] ratio or PI [Pulsatility Index] of the Umbilical Arteries to assess placental sufficiency
 1. Normal is when the S/D ratio and/or PI is within 2SD of the mean for gestational age.
 2. Abnormal is when the S/D ratio is $> 2\text{SD}$ above the mean for GA, as evidenced by reduction, loss of or absent diastolic flow and a PI of $> 2\text{SD}$ of the mean for gestational age.
 - ii. PI of the MCA to assess cerebral compensation
 1. Normal is PI within 2SD of the mean for gestational age.
 2. Abnormal will be subjectively seen as increasing diastolic flow, followed by subsequent decreasing diastolic flow as depicted by PI below 2 SD of the mean for gestational age.
 - iii. Flow pattern of the Ductus Venosus to assess cardiac function
 1. Normal demonstrates a triphasic forward flow pattern of the “S”, “d” and “a” waveforms.
 2. Abnormal is present when the “a” wave is reduced toward or reversed below the baseline.
 - iv. Flow pattern of the Uterine Artery to assess maternal flow to placenta

1. Normal 1st trimester demonstrates “notching” of the post peak systolic flow.
 2. Normal 2nd and 3rd trimester demonstrates forward flow and broadening of the entire waveform.
 3. Abnormal 2nd and 3rd trimester demonstrates “notching” of the post peak systolic flow
- B. Management decisions are dependent upon gestational age, maternal age, underlying cause, amniotic fluid levels, and Doppler findings.
- C. Perform serial growth measurements (with at least two weeks in between exams) to demonstrate inadequate or worsening growth patterns.

Reference:

1. Mandruzzato G et al. J Perinata Med 36:277-281, 2008. Recommendations and guidelines for perinatal practice. Intrauterine restriction (IUGR)

CONSULTATION: Twenty-four hour consultation is available by calling the Maternal Fetal Medicine service at the University of New Mexico Hospital, 1-888-866-7257.