INTRA UTERINE GROWTH RESTRICTION

ERPM MADE EASY

IUGR

Causes

Reduced fetal growth support		Reduced fetal growth potential
Maternal factors	**Placental factors**	
1. Under nutrition • Poverty • Eating disorders	1. Reduced uteroplacental circulation • Inadequate trophoblastic invasion • SCD • Multiple gestation	1. Aneuploides
2. Maternal hypoxia • High altitude • Cyanotic HrtDx	2. Reduced feto placental perfusion • Single Umb. Artery • TTTS	2. Single gene defects
3. Drugs		3. Structural anomalies Renal agenesis
4. Chronic DM		4. Intrauterine infections • CMV • Toxoplasmosis

Serial Growth Scan

- Done at least 3 weeks apart in high risk pregnancies for SGA from 26 – 28 weeks onwards
- Measure AC / EFW – Plot in growth chart (Customized)
- If AC < 10^{th} Centile = SGA

Amniotic Fluid Volume

- AFV in SGA is best measured using the **Single Deepest Vertical Pocket**
- Should not be the primary surveillance tool
- Reduced AFV suggest – Oligohydramnios – Possible placental insufficiency or fetal anomaly !

Doppler in SGA

- **Uterine Artery Doppler at 20 – 24 weeks**
  - Moderate predictive value for delivery of severe SGA
  - Offered for high risk pregnancies for SGA (Refer last slides)
  - PI > 95th centile or Notching is considered abnormal
  - If abnormal – **Offer serial biometry + Umbilical artery Doppler from 26 – 28 weeks**

Doppler in SGA

- Doppler study of the End Diastolic flow in the Umbilical Artery is measured – **Primary surveillance tool in SGA**
- Consider the flow (increasing severity down the list)
  - Normal – Repeat UA Doppler two weekly
  - Reduced
  - Absent
  - Reversed

- When UA Doppler indices are abnormal:
  - PI > 2SD of mean for POA and end diastolic flow is present – **UA Doppler twice weekly**
  - PI > 2SD of mean for POA and absent / reversed end diastolic flow – **UA Doppler daily**

Doppler in SGA

- **Middle Cerebral Artery Doppler**
  - Used as a tool to decide TOD in term SGA
  - Fetus (>32 wks) with SGA with **Normal UA Doppler** but **ABNORMAL MCA Doppler** (PI < 5th Centile or Reduced MCA PI/UA PI)
    - Predictive of Fetal hypoxia and subsequent Acidosis at Birth
    - Thus helpful in deciding TOD – Deliver by **37 weeks**

Doppler in SGA

- **Ductus Venosus Doppler**
  - Restricted flow indicates degree of hypoxia
  - Higher PI indicates abnormal DV Doppler
  - A good predictor of fetal out comes in Fetuses < 32 weeks
  - Thus helpful in TOD
- **Umbilical Vein Doppler**
  - Appearances of pulsations predict fetal outcome
  - Thus helpful in TOD in fetuses < 32 weeks

Role of AN CS in SGA

- Give a course of Antenatal Cortico Steroids to women with SGA babies
  - At POA between 24+0 to 35+6 if delivery is considered
- IM Betamethasone 12mg 2 doses 12 hours apart
- IM Dexamethasone 6mg 4 doses 12 hours apart

Timing of Delivery (> 32 weeks)

- Abnormal MCA Doppler (with Normal UA Doppler)
  - No later than 37 weeks
- Abnormal UA Doppler
  - No later than 37 weeks
- Normal UA and MCA Doppler
  - Decision to be taken by a Senior Obstetric team member regarding timing & mode of delivery

Timing of Delivery (< 32 weeks)

- If **UA Doppler – AREDV** (detected before 32 weeks)
  - If AN CS has been completed
  - If fetus is viable
- Consider Delivery ASAP when
  - DV Doppler becomes abnormal or
  - UV pulsation appear
- Consider delivery by 30 – 32 weeks if DV & UV Doppler is normal

Mode of Delivery

- Fetuses with UA Doppler – AREDV
  - EL LSCS
- SGA with Normal UA Doppler or SGA with Abnormal UA PI but Normal EDV
  - Offer IOL and allow for vaginal delivery
  - Need c-EFM from the onset of Uterine Contractions
  - Low threshold for EM LSCS !

Major Risk Factors – at Booking

- Age > 40
- Smoking
- Drugs of abuse
- Previous SGA baby
- Previous still birth
- Chronic Hypertension
- Diabetes with vascular disease
- APLS
- Renal impairment
- Heavy bleeding similar to menses
- Daily vigorous exercise

Minor Risk Factors – at Booking

- Age > 35
- BMI < 20
- BMI > 25
- Smoking
- Hx of Pre eclampsia
- Pregnancy interval < 6 months
- Pregnancy interval > 60 months

- Presence of 3 or more of these risk factors considered as high risk for SGA in this pregnancy

Risk Factors for Fetal Compromise in Labor

▪ Placental insufficiency – IUGR, PIH	▪ Intra partum abruption
▪ Pre maturity	▪ Cord prolapse
▪ Post maturity	▪ Uterine rupture / dehisence
▪ Multiple pregnancy	▪ Maternal DM
▪ Prolonged labor	▪ Cholestatsis of pregnancy
▪ Augmentation with Oxytocin	▪ Maternal pyrexia
▪ Uterine hyperstimulation	▪ Chorioamnionitis
▪ Precipitate labor	▪ Oligohydramnios