

MANAGEMENT OF FGR AND DOPPLER FINDINGS

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1. Doppler in ultrasound indicates information regarding blood flow in blood vessel.

2. TYPES OF DOPPLER

- Colour
- Spectral
- Power

3. DOPPLER INDICES

- Using spectral doppler there is graph showing flow characteristics as a waveform
- These are then quantified as velocities, ratios and indices

INDICES

1. Systole/diastole ratio(S/D)
2. Pulsatility index (PI)= (S-D)/A - Functions better for statistical calculation as it will have a finite value even in absent diastolic flows
3. Resistive index (RI)=(S-D)/D

DOPPLER INDICES

Arterial

- Umbilical artery
- Middle Cerebral Artery (MCA)

- Aortic Isthmus (AOI)
- Uterine artery

Venous

- Ductus venosus

4. FETAL GROWTH DISORDER

- Growth is a serial process
- A deviation from expected growth trajectory is classified as a growth disorder- either be less or more than expected
- Centiles for foetal growth
- 10th, 50th and 90th centiles
- Foetal biometry is considered appropriate for gestational age if individual measurements are falling within the 10th to 90th centile for that stage of gestation
- Slowing by more than 2 quartiles as compared to an earlier growth estimate-FGR

5. GRATACOS STAGING

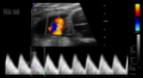
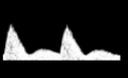
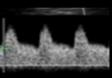
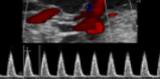
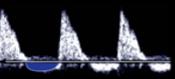
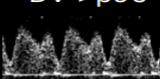
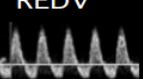
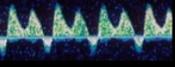
Table 2. Stage-based classification and management of FGR

Stage	Pathophysiological correlate	Criteria (any of)	Monitoring*	GA/mode of delivery
I	Severe smallness or mild placental insufficiency	EFW <3rd centile CPR <p5 UA PI >p95 MCA PI <p5 UtA PI >p95	Weekly	37 weeks LI
II	Severe placental insufficiency	UA AEDV Reverse AoI	Biweekly	34 weeks CS
III	Low-suspicion fetal acidosis	UA REDV DV-PI >p95	1–2 days	30 weeks CS
IV	High-suspicion fetal acidosis	DV reverse a flow cCTG <3 ms FHR decelerations	12 h	26 weeks** CS

All Doppler signs described above should be confirmed at least twice, ideally at least 12 h apart. GA = Gestational age; LI = labor induction; CS = cesarean section. * Recommended intervals in the absence of severe preeclampsia. If FGR is accompanied by this complication, strict fetal monitoring is warranted regardless of the stage. ** Lower GA threshold recommended according to current literature figures reporting at least 50% intact survival. Threshold could be tailored according to parents' wishes or adjusted according to local statistics of intact survival.



Protocol IUGR
First step: UtA + CPR + EFW = SGA or IUGR

I low EFW (<p3) or mild placental resistance / redistribution	 CPR <p5  Ut A >p95  MCA <p5
II Severe placental resistance / redistribution	 AEDV  Aol >p95
III Severe hemodynamic adaptation - Low suspicion acidosis	 DV >p95  REDV
IV High suspicion of acidosis - High risk of death	 DV (a rev) <div style="border: 1px solid black; padding: 2px; width: fit-content;">CGT decelerations of reduced short-term variability</div>



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References:

ISUOG Practice Guidelines: diagnosis and management of small-for-gestational-age foetus and foetal growth restriction

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