Preterm FGR risk assessment and antenatal surveillance

Algorithm

Risk assessment

At booking & regularly through pregnancy

Early-onset FGR risk factors <32 weeks

- Previous FGR with birth <32 weeks*
- Previous hypertensive disorder of pregnancy with birth <34 weeks*
- Chronic hypertension*
- Renal impairment*
- Antiphospholipid syndrome*
- Diabetes with vascular disease*
- Previous stillbirth

FGR major risk factors

Demographic
- Wahine/person age ≥40 years (nulliparous)
- Cigarette smoking ≥16 weeks & >10 per day†
- Non-prescribed drug use†

Previous pregnancy history
- Previous FGR*
- Previous hypertensive disorder of pregnancy*
- Previous stillbirth

Medical history
- Chronic hypertension
- Renal impairment*
- Antiphospholipid syndrome*
- Diabetes with vascular disease*

Current pregnancy
- Heavy bleeding <20 weeks
- Preeclampsia/gestational hypertension
- Antepartum haemorrhage/placental abruption

FGR minor risk factors

Demographic
- Wahine/person age ≥40 years (multiparous)
- Cigarette smoking ≥16 weeks & 1-10 per day†

Previous pregnancy history
- Nulliparity
- Pregnancy interval <6 months
- Pregnancy interval >5 years

Medical history
- Conception through assisted reproduction
- BMI ≥30 kg/m^2
- BMI <18.5 kg/m^2

Current pregnancy
- Placenta praevia
- Low gestational weight gain

*Recommend aspirin use: commence 12^{+0} to 16^{+6} weeks using 100mg dose at night/evening until 36^{+0} weeks

†Cigarette smoking and non-prescribed drug use – advise and support to stop, referral to cessation programmes

No major & ≤2 minor risk factors (low risk)

- Serial fundal height measure from 26-28 weeks until birth, plotted on customised fundal height chart

Suspected FGR

Slowing of customised fundal height >30 centiles OR centile <10th

- Arrange growth ultrasound

Unreliable fundal height

Such as BMI >35 kg/m^2, large and/or multiple fibroids, polyhydramnios

- Growth ultrasound at 30-32 and 36-38 weeks

≥1 early-onset FGR risk factor

- Ut A Doppler 20-24 weeks
- Monthly growth ultrasound from 24-26 weeks until birth

≥1 major FGR risk factor

- Monthly growth ultrasound from 28-30 weeks until birth

≥3 minor FGR risk factor

- Consider growth ultrasound at 30-32 and 36-38 weeks

Surveillance

Starting from 20 weeks & continue until birth

Growth ultrasound

- Fetal biometry plotted on ASUM chart
- EFW calculated using the Hadlock 3 or 4 formulae
- EFW and AC centile reported
- Customised EFW centile chart should be used (reported by USS provider or plotted by LMC)

Abnormal biometry &/or growth

Customised EFW and/or AC <10th centile AND/OR slowing of fetal growth (decline in AC or customised EFW trajectory >30 centiles from 28^{+0} weeks)

- Perform Doppler waveform assessment

Doppler waveform assessment

- Umb A – abnormal if PI >95th centile (forward flow), AEDF or REDF
- DV (<32 weeks)– abnormal if PI >95th centile, absent or reversed a wave
- CPR (≥32 weeks) – abnormal if <5th centile
- Ut A (only required at time of diagnosis) – abnormal if mean PI >95th centile or bilateral notching

Normal biometry & growth

Customised EFW and AC ≥10th centile AND normal interval growth

- Low risk – return to fundal height measures
- Others – continue planned ultrasound schedule

Isolated SGA

EFW and/or AC 3rd-9th centile with normal Umb A and Ut A (normal CPR ≥32 weeks)

- Referral for specialist review within 1-2 weeks

FGR with normal Umb A

EFW and/or AC <3rd centile any gestation

EFW and/or AC 3rd – 9th centile and abnormal Ut A <32^{+0} weeks

EFW and/or AC 3rd – 9th centile PLUS two of abnormal growth, CPR or Ut A ≥32^{+0} weeks

- Referral for specialist review within 1 week

FGR and Umb A with PI >95th centile (forward flow present)

- Same day referral for specialist review

FGR and Umb A with AEDF or REDF

- Same day referral for specialist review
- Urgent in-patient management

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Comprehensive clinical oversight of māmā/person and pēpi wellbeing is required and may override recommendations within this algorithm.

For more information including access to Taonga Tuku Iho (national best practice guide), you can access the Carosika Collaborative website **www.carosikacollaborative.co.nz** or by using the QR code.

Abbreviations: *AC – abdominal circumference, AEDF – absent end diastolic flow, BMI – body mass index, CPR – cerebroplacental ratio, DV – ductus venosus, EFW – estimated fetal weight , FGR – fetal growth restriction, PI – pulsatility index, REDF – reversed end diastolic flow, SGA – small for gestational age, Umb A – umbilical artery, Ut A – uterine artery.*

Adapted with permission from: *'Small for gestational age and fetal growth restriction in Aotearoa New Zealand He Aratohu Ritenga Haumanu mō te Tōhuatanga Kōpiri me te Pakupaku Rawa. A clinical practice guideline. Wellington: Te Whatu Ora – Health New Zealand.'*