“PLACENTAL” FGR

vs

“NON-PLACENTAL” SGA

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www.fetalmedicinebarcelona.org/
“SMALL FETUSES” AND MORTALITY AT TERM

Gardosi 2005 and 2013
Figueras 2012, Vasak 2015

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Gardosi et al. BMJ 2005 and 2013

Overall stillbirth / 1000 births: 2.4 in non-SGA vs 19.8 in not detected SGA

n = 26 968
Placental insufficiency = high risk of IUFD and fetal/neonatal acidosis

Fetal Smallness = higher risk of placental insufficiency

- Placental “respiratory” smallness = risk distress + IUFD
- Non-“respiratory” smallness = no distress/IUFD risk

“Small fetuses”
1. Identify small fetus
2. Identify placental insufficiency (FGR vs. SGA)
3. Determine timing of delivery
Neonatal vs Fetal GA “normal” weight in the same population
IMPROVING DETECTION & DEFINITION OF “RESTRICTION”
Birthweight inverse relation with perinatal outcome AND brain-cardiac remodelling

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5-15% during 3rd trimester

30% perinatal complications; 10-15% term stillbirth

4% preterm delivery
1% stillbirth

25% IUGR

70% Normal

stillbirth reduction
OR 0.36

increase IUGR detection
(IUGR > 36 w not diagnosed before)
Neonatal vs Fetal GA “normal” weight in the same population
1. Identify small fetus

2. Identify placental insufficiency (FGR vs. SGA)

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Placental insufficiency = high risk of IUFD and fetal/neonatal acidosis

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“Small fetuses”

Placental “respiratory” smallness = risk distress + IUFD

Non-“respiratory” smallness = no distress/IUFD risk

Risk of placental insufficiency

Fetal weight centile
ISOLATED FETAL SMALLNESS (= POORER PROGNOSIS)

Perinatal and Long-term Outcomes

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FGR vs. SGA: DIFFERENT MANAGEMENT

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The discovery of UA and hemodynamics of FGR

- Constitutionally small
- Placental insufficiency
- Extrinsic cause

SGA
FGR

FGR = abnormal UA Doppler

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Evidence #1:

SGA + NORMAL UA DOPPLER = POORER OUTCOMES
(n= 376)

Figueras 2011
Evidence #2: “SGA” have higher risk of IUFD at term

Stillbirth by relevant condition at birth (ReCoDe)
Gardosi et al. BMJ 2005 and 2013

IUGR as relevant condition identified in 43-60%
Overall stillbirth / 1000 births: 2.4 in non-SGA VS. 19.8 in not detected SGA

www.medicinafetalbarcelona.org/
FGR = Abnormal UA Doppler?

NOT ANYMORE

Savchev 2013

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Prognostic criteria for poor outcome among small fetuses with normal UA Doppler

- CPR <p5
- UtA >p95
- EFW CENTILE <3

![Graph showing normal UA Doppler](Parra 2015)

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Cerebroplacental ratio is more sensitive than UA or MCA alone.

IPUA = p80

IPMCA = p20

CPR < p5

Sensitivity (95% CI)
- Bahado-Singh RO: 0.41 (0.30 - 0.52)
- Obido AO: 0.61 (0.49 - 0.72)
- Arias F: 0.49 (0.32 - 0.65)
- Gramellini D: 0.86 (0.42 - 1.00)
- Makhseed M: 0.63 (0.42 - 0.81)
- Habek D: 0.39 (0.17 - 0.64)
- Sterne G: 0.58 (0.39 - 0.75)
- Yalti S: 0.86 (0.57 - 0.98)
- Ebrashy A: 1.00 (0.89 - 1.00)

Pooled Sensitivity = 0.59 (0.53 to 0.64)
Chi-square = 57.86, df = 8 (p = 0.0000)
Inconsistency (I-square) = 86.2%

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FGR = EFW <p10 + any of

- CPR <p5
- UtA >p95
- EFW CENTILE <3
Distribution of cases when FGR = abnormal UA Doppler

Savchev 2013
Distribution of cases when FGR = abnormal CPR or UtA or EFW <p3

Savchev 2013

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Exclude primary fetal defect

Exclude extrinsic cause

ISOLATED FETAL SMALLNESS = POORER PROGNOSIS
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FGR vs. SGA: DIFFERENT MANAGEMENT

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1. Identify small fetus

2. Identify placental insufficiency (FGR vs. SGA)

3. Determine timing of delivery
FGR = abnormal CPR or UtA or EFW<p3
Management = when should we deliver?

Early-severe
High risk IUFD preterm
PROBLEM: TIMING DELIVERY
Q: Delivery? Next exam?

Late-mild
No IUFD <37w (risk at term)
PROBLEM: DETECTION
Q: Is it FGR or SGA?

Savchev 2013

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RATIONALE FOR AN INTEGRATED STAGE-BASED APPROACH TO THE MANAGEMENT OF FGR

**PLACENTAL DISEASE**

- Diagnostic/chronic markers
  - Difference
    - FGR vs. SGA

**HYPOXIA**

- Prognostic/Acute markers
  - Indication about the **SHORT-TERM RISK** of IUFD/Brain Injury

**ACIDOSIS**

**SERIOUS INJURY**

**DEATH**

**Stage fetal deterioration**

- I
- II
- III
- IV

**Risks of prematurity**

- Minimal
- MILD
- HIGH

**cCTG: reduced STV**

**BPP < 4**

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Fetal Growth restriction:

Stage 1

Recommended management:
Follow-up in 1 week

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Stage 1
Recommended management:
Delivery
First goal:
Identify small fetus (EFW<p10)

Second goal:
Classify as FGR vs SGA using CPR, UtA and EFW<3.

Third goal:
Decide timing of delivery and follow-up scheme:
use a stage-based integrated protocol.