

EP 08.56: ISUOG vs SMFM: Surveillance methodology in fetal growth restriction secondary to pre-eclampsia

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Introduction

- Fetal growth restriction (FGR) necessitates close antenatal monitoring with sonographic Doppler interrogation.
- Both the International Society of Ultrasound in Obstetrics and Gynecology (ISUOG) and the Society for Maternal-Fetal Medicine (SMFM) guidelines outline specific Doppler patterns to guide delivery timing, including the umbilical artery (UA), ductus venosus (DV) and middle cerebral artery (MCA).

Objectives

- Perinatal outcomes of pregnancies with FGR secondary to pre-eclampsia (PET) were compared according to surveillance with SMFM and ISUOG recommended guidelines.

Methods

- A retrospective analysis (2009 – 2022) was conducted on singleton non-anomalous fetuses with FGR due to PET < 37 weeks.
- The SMFM surveillance approach relied solely on UA Doppler, whereas ISUOG included assessments of the DV and MCA
- Descriptive statistics, bivariate associations using chi-square tests and logistic regression were performed.

Results

- Of 123 cases analyzed, ISUOG vs. SMFM surveillance methods showed no significant difference for gestational age at delivery, birth weight, 5-minute APGAR, NICU admission, or perinatal death.
- ISUOG was more predictive of BWT<3rd centile compared to SMFM (OR = 2.5 vs 0.39, p = 0.04).
- After adjusting for maternal BMI, aOR was 0.23 for SMFM and 4.4 for ISUOG (p =0.04).

Table: Regression Analysis

Outcomes (dependent)	Predictors – p value (independent)	Univariate OR (95% CI)	Adjusted OR (95% CI)
BWT < 3 rd centile	SMFM surveillance (p value .043*)	0.39 (.16 - .97)	Adj for maternal age (p value .043*) 0.39 (.16 - .97)
	ISUOG surveillance (p value .043*)	2.5 (1.0 – 6.1)	Adj for BMI (p value .041*) 4.4 (1.1 – 18.6)

Table: Associations of Perinatal outcomes with SMFM / ISUOG surveillance

Perinatal Outcomes	SMFM N = 58	ISUOG N = 65	P
Mean GA at delivery (SD)	31.1 (2.9)	32.1 (3.3)	0.08
Mean BWT/g (SD)	1164.3 (508.4)	1214.6 (475.2)	0.57
BWT centile n/(%)			0.09
- ≥ 10 th centile	20 (57)	15 (43)	
- < 10 th centile	20 (53)	18 (47)	
- < 3 rd centile	17 (35)	32 (65)	
APGAR 5 n/(%)			1.00
- ≥ 7	46 (46)	54 (54)	
- < 7	3 (43)	4 (57)	
- < 4	1 (50)	1 (50)	
NICU admission n/(%)			0.85
- No	2 (50)	2 (50)	
- Yes	48 (45)	58 (55)	
Perinatal death n/(%)			0.81
- Yes	19 (49)	20 (51)	
- No	39 (46)	45(54)	

BWT – birth weight, GA – gestational age, NICU – neonatal intensive care unit, SD – standard deviation

Conclusion

- Comparison of ISUOG and SMFM surveillance methods showed no significant impact on gestational age at delivery, 5-minute APGAR scores, or perinatal death.
- ISUOG monitoring was more predictive of BWT <3rd centile.