

Delivery Indications in Early-Onset Fetal Growth Restriction

A. Dakin^{1,2}, R.V. Daly^{1,2}, D. Asandei¹, Z. Molphy¹, P. Dicker¹ E. Kent^{1,2}, F. D. Malone^{1,2}

1. Department of Obstetrics and Gynaecology, RCSI Unit, Rotunda Hospital, Parnell Street, Dublin.
2. Rotunda Hospital, Parnell Sq. East, Dublin.



Objective

Early-onset fetal growth restriction (EOFGR) carries significant perinatal risks and there are considerable management challenges regarding delivery timing, balancing the risk of intrauterine demise versus prematurity.

Our aim was to evaluate perinatal outcomes, timing and indications for delivery in EOFGR.

Methods

A retrospective cohort study was carried out from July 2016 to June 2022 of cases diagnosed with EOFGR between 18-32 weeks’ gestation in a single Irish tertiary maternity hospital, as defined by Delphi consensus (i.e. estimated fetal weight or abdominal circumference <3rd centile, or estimated fetal weight or abdominal circumference <10th centile with abnormal umbilical artery doppler).

Genetic, structural or infectious causes of FGR, multiple pregnancies and preterm prelabour rupture of membranes at time of diagnosis of FGR were excluded from analysis.

Maternal characteristics, mode of delivery and delivery indications were compared across gestational age groups. Chi square test was used for statistical analysis.

Results

343 cases of uteroplacental EOFGR were diagnosed during the study period, with a 95% livebirth rate (327/343). There were 16 intrauterine deaths (4.7%, 16/343) and 11 neonatal deaths (3.2%, 11/343) and no terminations of pregnancy. Table 1 stratifies presence of maternal characteristics by gestational age groups, and table 2 describes mode of delivery and indications for delivery across gestational age groups. Maternal indications for delivery decreased with advancing gestation, as opposed to fetal indications which remained consistent across gestation. Routine delivery for IUGR at term was the most common fetal indication for delivery (32%, 97/303), followed by abnormal CTG (16%, 47/302) and abnormal Dopplers (15%, 44/302). Pre-eclampsia is the most common maternal indication for delivery (13%, 38/302).

Table 1: Maternal Demographics Stratified by Gestational Age at Delivery

Maternal Characteristic	All (N=343)	Gestational Age at Delivery				P-value
		<28/40	28+0-31+6/40	32+0-35+6/40	≥36/40	
		(N=44, 12.8%)	(N=51, 14.9%)	(N=57, 16.6%)	(N=191, 55.7%)	
Maternal BMI	25.3 [22.0,29.1]	26.4 [23.2, 33.5]	26.3 [24.0, 31.8]	25.2 [22.2, 29.3]	23.9 [21.5, 27.7]	0.007
Essential hypertension	24 (7%)	5 (11%)	9 (18%)	7 (12%)	3 (2%)	<0.001
Pre-eclampsia	69 (20%)	21 (48%)	27 (53%)	14 (25%)	7 (4%)	<0.001

Data presented as median [interquartile range] for BMI and n (%) for essential hypertension and pre-eclampsia



Table 2: Delivery Outcome and Indications Stratified by Gestational Age at Delivery

		All (N=343)	Gestational Age at Delivery				P-value
			<28/40	28+0-31+6/40	32+0-35+6/40	≥36/40	
Mode of Delivery	SVD	216 (63%)	26 (59%)	47 (92%)	51 (89%)	92 (48%)	<0.001
	OVD	17 (5%)	1 (2%)	0 (0%)	1 (2%)	15 (8%)	0.047
	LSCS	104 (30%)	13 (30%)	2 (4%)	5 (9%)	84 (44%)	<0.001
	Classical CS	6 (2%)	4 (9%)	2 (4%)	0 (0%)	0 (0%)	<0.001
Delivery Indication		N=302*					
	Fetal	255 (83%)	34 (83%)	41 (80%)	43 (80%)	137 (84%)	0.863
	Maternal	80 (23%)	13 (30%)	19 (37%)	17 (30%)	31 (16%)	0.006

Excludes spontaneous onset of labour
Some cases are delivered for both maternal and fetal indications

Conclusion

Reassuringly, our cohort has a high livebirth rate, and high term delivery rate, with over half of patients delivering after 36 weeks’ gestation. Those who deliver at an earlier gestation are more likely to have a higher BMI or coexistent hypertensive disorders. Patients are less likely to be delivered for maternal complications with advancing gestation. This information provides valuable insights for clinicians counselling women with these high-risk pregnancies.