

Prediction of Fetal Death in Monochorionic Diamniotic Twin Pregnancies with sFGR

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OBJECTIVE

To identify prenatal predictors of fetal death in monochorionic diamniotic twin pregnancies complicated by selective fetal growth restriction (sFGR).



METHODS

- Retrospective cohort study of monochorionic diamniotic twin pregnancies with sFGR managed at a tertiary center between 2014 and 2025.
- sFGR type was classified according to end-diastolic flow in the umbilical artery of the smaller twin.
- Pregnancies with missing delivery data or prior fetal intervention were excluded.
- Demographic, sonographic, and outcome variables were compared between pregnancies with and without fetal death.
- Multivariable regression and ROC analysis were performed.



CONCLUSION

Abnormal MCA and **umbilical artery Dopplers** in the growth-restricted twin, along with **greater intertwin EFW discordance**, were associated with fetal death. A predictive model incorporating these parameters showed high discriminative performance, supporting individualized management and identification of cases that may benefit from *in utero* intervention rather than conservative management.

RESULTS

Baseline Characteristics and Outcomes

	Double survivors N=64	Single/No survivors N=11	P-value
Maternal age, years	30 (25.25–33)	32 (30–35)	0.12
BMI, kg/m ²	22.3 (20.9–26.4)	24.4 (23–25.6)	0.30
GA at diagnosis, weeks	22.3 (20.9–26.4)	18.4 (16.3–21.3)	0.03
EFW < 3 rd of IUGR at presentation	29 (45.3)	7 (63.6)	0.28
Abnormal MCA-PSV for the small	5 (7.8)	4 (36.4)	<0.01
EFW discordance, %	26 (21–28.5)	27 (26–37)	0.08
Discordance ≥ 25%	37 (57.8)	10 (90.9)	0.03
Discordance ≥ 35%	5 (7.8)	3 (27.3)	0.05
Type of sFGR			<0.01
Type I	38 (59.4)	1 (9.1)	
Type II	18 (28.1)	6 (54.5)	
Type III	8 (12.5)	4 (36.4)	
GA at delivery, weeks	33.2 (30.5–34.5)	30.3 (23–33.9)	0.11
Preterm birth <32 weeks	23 (35.9)	4 (36.4)	0.45
Number of live-birth			<0.01
Double survivors	64 (100)	0 (0)	
Single survivors	0 (0)	7 (63.6)	
No survivors	0 (0)	4 (36.4)	

Data are presented as n (%) or median (interquartile range)

BMI- Body Mass Index, GA- gestational age, EFW-estimated fetal weight

Bolded if significantly different

Multivariable Analysis for Prediction of Fetal Death

Outcome	Double survivors N=64	Single/No survivors N=11	OR ##	aOR *	P-value	CI 95%
UA abnormal Doppler for the small twin	26 (40.6)	10 (90.9)	14.6	22.7	0.01	1.7, 306.1
MCA abnormal Doppler for the small twin	5 (7.8)	4 (36.4)	7.1	14.6	0.02	1.4, 151.1
Discordance ≥ 25%	37 (57.8)	10 (90.9)	7.3	18.6	0.03	1.1, 298.4

Unadjusted OR

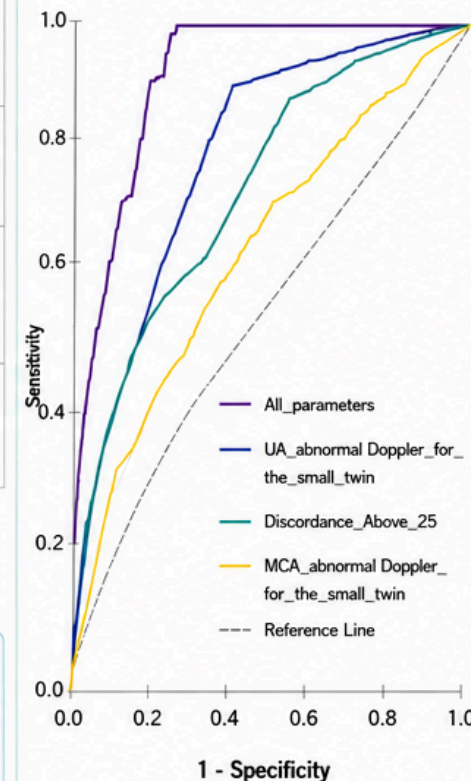
CI: confidence interval, aOR: adjusted odds ratio



Key Findings

- Pregnancies complicated by fetal death were diagnosed at an earlier gestational age (18.4 vs. 22.3 weeks, $p = 0.03$).
- Abnormal MCA Doppler (PSV >1.5 MoM) in the growth-restricted fetus was more common in fetal death cases (36.4% vs. 7.8%, $p < 0.001$).
- Greater intertwin EFW discordance ($\geq 25\%$) was more frequent in fetal death cases (90.9% vs. 57.8%, $p = 0.03$).
- A multivariable model including EFW discordance $\geq 25\%$ and abnormal UA and MCA Dopplers achieved an AUC of 0.87 for predicting fetal death.

ROC CURVE



AUC = 0.87
(95% CI: 0.78–0.96)