

Background

Fetal growth restriction (FGR) is defined by an estimated fetal weight (EFW) or abdominal circumference (AC) that is less than the 10th percentile for gestational age. Based on ACOG guidelines, gestational age is determined by the patient's last menstrual period (LMP) unless there is a discrepancy of a certain number of days between ultrasound dating and LMP dating, which would support redating by ultrasound. Fetal growth restriction can have significant perinatal morbidity and mortality including stillbirth. Thus, close antenatal monitoring and surveillance is usually performed and preterm delivery may be indicated. In this study, we sought to determine if dating by first trimester ultrasound rather than LMP would affect whether the fetus met the diagnostic criteria for FGR.

Objectives

- Our primary objective was to determine if the antenatal diagnosis of FGR was resolved when the estimated due date (EDD) was determined by crown-rump length (CRL) on ultrasound instead of LMP.
- Our secondary objective was to determine if FGR resolution was associated with being small for gestational age (SGA) by birth weight.

Study Design

In this retrospective chart review study, we identified patients with the antenatal diagnosis of FGR at a single institution from 3/1/2018-6/23/2022. Those with EDD determined by their LMP were then identified and their first trimester ultrasounds were reviewed to determine an alternate EDD by the CRL measurement. The ultrasounds that first detected FGR were then reviewed and the percentile for the estimated fetal weight or abdominal circumference were re-calculated using the Hadlock growth curve based on the alternate EDD determined by the first trimester ultrasound.

The primary objective was to determine whether there was a "resolution" of antepartum FGR diagnosis based on this recalculation. The proportion and 95% confidence interval of FGR resolution was computed. Birth weight and gestational age at birth were used to determine the presence of SGA. For our secondary objective, Pearson's Chi-Square test was used to assess the association between resolution of FGR diagnosis and SGA.

Study Design Flow Chart

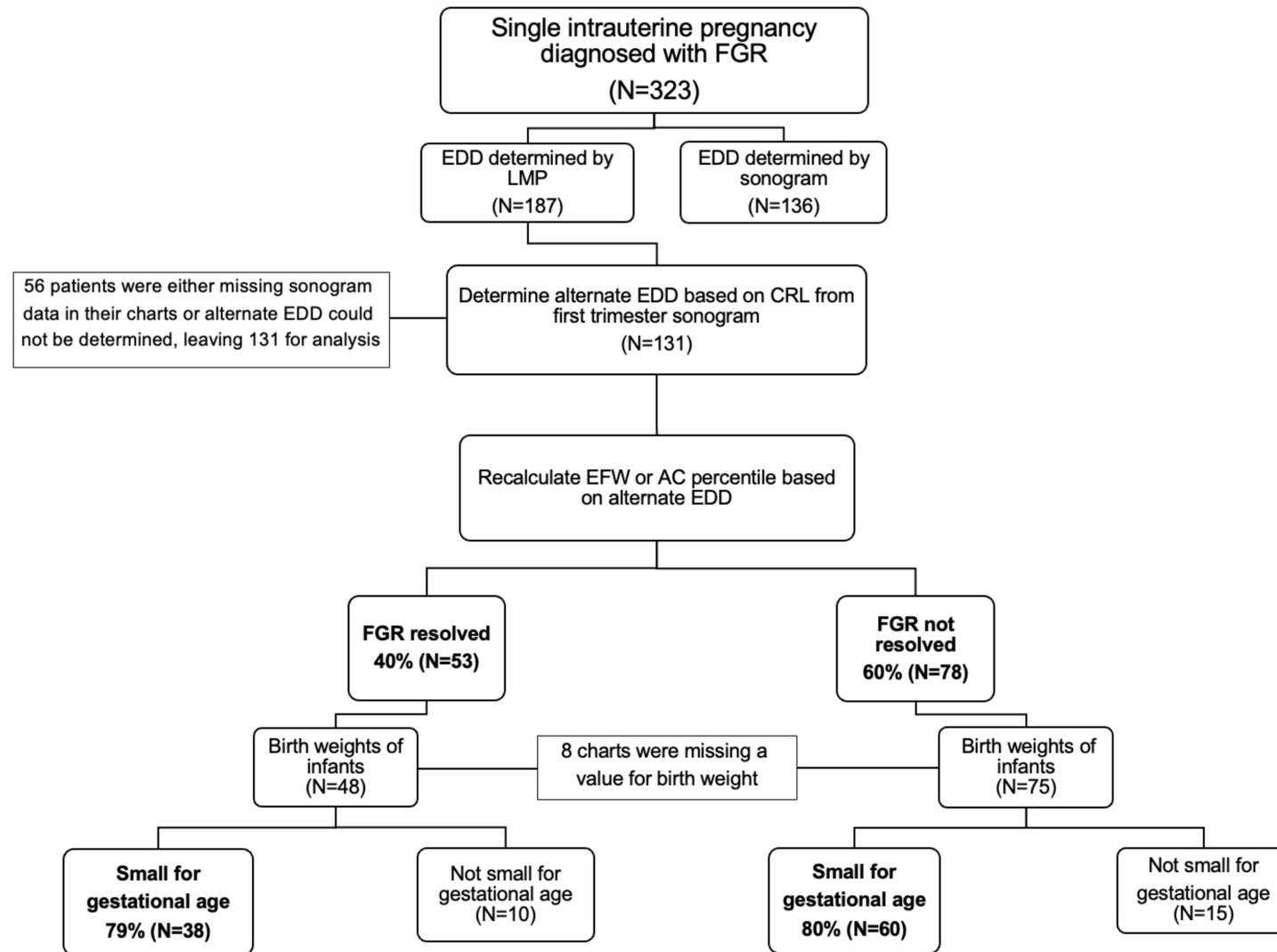


Table 1. Fetal growth restriction (FGR) resolution rates and association between resolution and diagnosis of small for gestational age (SGA) at birth

	n	Proportion % (95% CI)	SGA n (%)	p-value
FGR resolution	53	40 (32-50%)	38 (79)	0.91
No FGR resolution	78	60 (51-68%)	60 (80)	
All those with antenatal FGR	123	--	98 (80)	

* Total number for analysis (n=123) is the total after 8 patients with FGR resolution were excluded for missing chart values for birth weight

Results

- Out of those with an EDD based on LMP and the antenatal diagnosis of FGR (n=131), we found that 53 (40%) had resolution of FGR diagnosis when we adjusted the EDD based on first trimester CRL measurements (95% CI: 32%, 50%).
- FGR resolution was not found to be significantly associated with SGA (p=0.91).
- The proportion of infants with FGR resolution that were found to be SGA at birth was 38 (79%) and the proportion of infants without FGR resolution that were SGA was 60 (80%).

Conclusion

Although 40% of cases had a resolution of their antenatal FGR diagnosis by adjusting their EDD to be based on CRL instead of LMP, this resolution did not impact the proportion of infants who were SGA at birth.

References

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