

ASSESSMENT OF OPTIMAL ULTRASOUND TIMING FOR CONFIRMATION OF SUSPECTED LARGE FOR GESTATIONAL AGE DETECTION: An Observational Retrospective Cohort Study

Mafalda Florenciano ¹, Mariana Quilhó Pereira ¹, Sara Vargas ¹, José Carlos Ferreira ^{1,2}

¹ - Department of Obstetrics and Gynecology, Hospital de Santa Maria, Unidade Local de Saúde de Santa Maria, Lisboa, Portugal

² - Department of Fetal Ultrasonography, Senior Fetal Medicine Specialist, MD, PhD, Hospital de Santa Maria, Unidade Local de Saúde de Santa Maria, Lisboa, Portugal

INTRODUCTION

Third trimester ultrasound estimation of fetal weight is frequently used as a tool to predict large for gestational age (LGA) newborns (fetal birth weight $\geq P90$). However, optimal timing is still uncertain. Accurately screening for LGA newborns is essential for minimizing unwarranted interventions and ensuring appropriate counseling.

OBJECTIVES

Primary:

To determine the timing at which ultrasound can most accurately confirm suspected LGA fetuses.

Secondary:

To assess the timing at which ultrasound can estimate more accurately the birth weight percentile.

METHODS

An observational, retrospective, cohort, and single-centre study was conducted at a tertiary center, between January 2020 and December 2023.

Inclusion Criteria:

Fetuses with at least **one ultrasonographic examination** in the third trimester **indicating suspected macrosomia** (estimated fetal weight $\geq P90$)

Exclusion Criteria:

Multiple-gestation fetuses and those with known malformations

Ultrasound evaluations were categorized into **FOUR TEMPORAL PERIODS**, based on gestational age, beginning at the examination indicating estimated fetal weight $\geq P90$.

28 to 31⁺⁶ weeks

32 to 33⁺⁶ weeks

34 to 35⁺⁶ weeks

≥ 36 weeks

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Association between estimated fetal weight $\geq P90$ and LGA at birth, for each timing, was analyzed using:

Pearson's χ^2 test

ROC Curve

2

The period during which the ultrasound provided the most accurate estimate of the birth weight percentile was determined using:

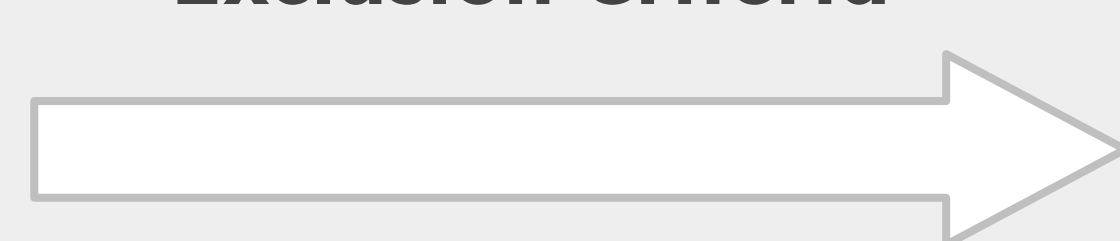
Wilcoxon test

RESULTS



264 gestations

Exclusion Criteria



256 gestations

RESULTS

Association between Suspected Macrosomia and LGA at birth

Table 1. Pearson's χ^2 Test

	28 -31 ⁺⁶ weeks	32 -33 ⁺⁶ weeks	34 - 35 ⁺⁶ weeks	≥ 36 weeks
χ^2	0.629	3.311	0.031	11.112
p value	0.428	0.069	0.861	<0.001

Table 2. Cross Table of Suspected Macrosomia at Ultrasound after 36 weeks and being LGA at birth

		Suspected Macrosomia (≥ 36 weeks)							
		No				Yes			
LGA		Counting	$\geq P90$ (%)	LGA(%)	Total (%)	Counting	$\geq P90$ (%)	LGA(%)	Total (%)
	No	19	73.1	25.0	10.8	76	38.0	75.0	32.4
	Yes	7	26.9	7.0	4.0	100	62.0	93.0	52.8
Total	26	100.0	14.8	14.8	176	100.0	85.2	85.2	

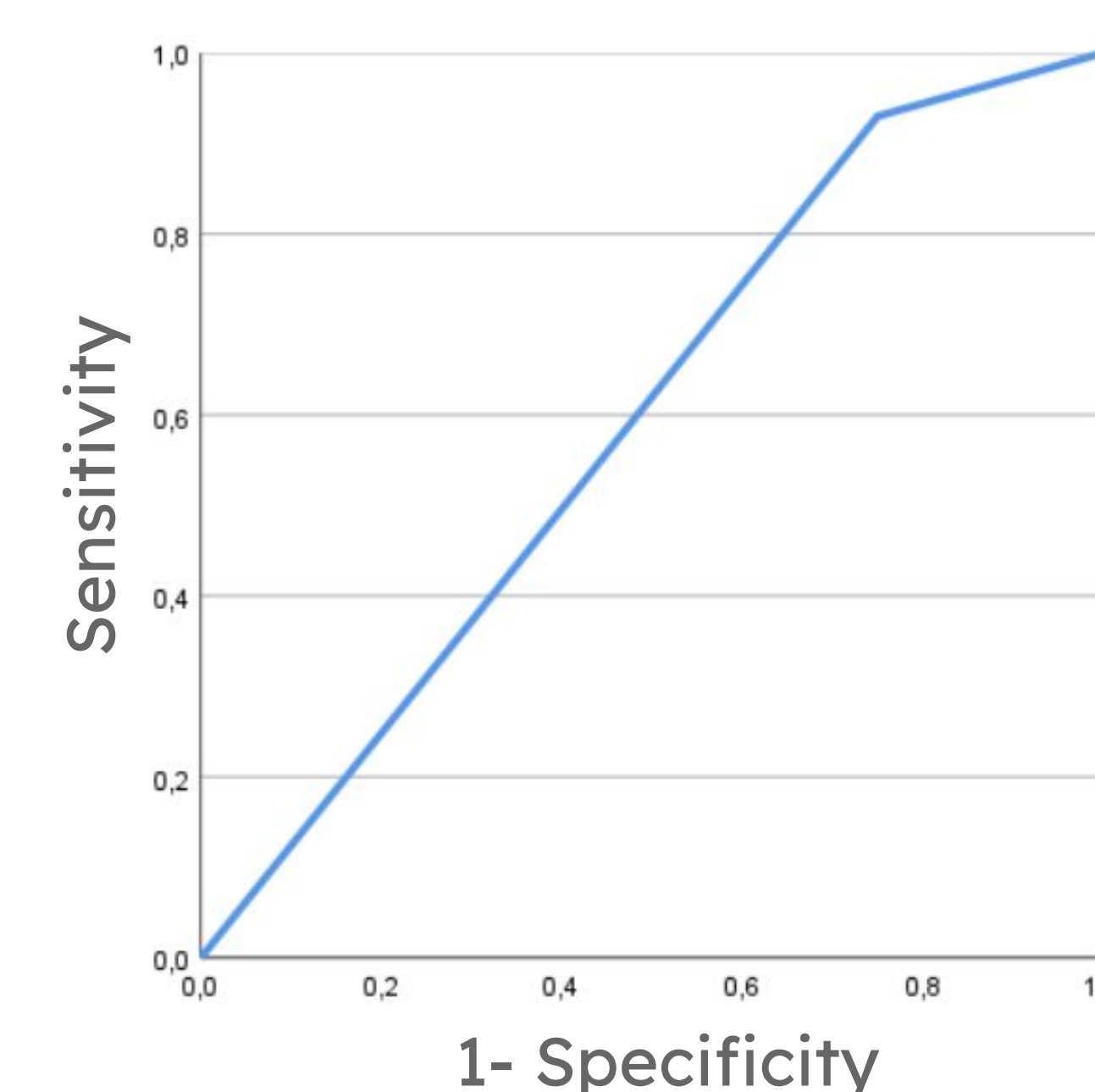
Specificity: 25%

Sensitivity: 93%

Figure 1. ROC curve of Suspected Macrosomia at Ultrasound ≥ 36 weeks with an area under the curve of

0.590

([95% confidence interval 0.504 - 0.676], $p=0.041$)



Most Accurate Estimate

Table 3. Wilcoxon Test comparing estimated percentile at multiple timing and at birth

	28 -31 ⁺⁶ weeks	32 -33 ⁺⁶ weeks	34 - 35 ⁺⁶ weeks	≥ 36 weeks
Z-Score	-3.935	-2.975	-1.795	-5.814
p value	<0.001	0.003	0.073	<0.001

CONCLUSION

The ultrasound ability to accurately predict whether the newborn is LGA is poor across all the periods considered. Although, our analysis reveals it is slightly better when performed after 36 weeks of gestation. Of note, although between 34 and 35⁺⁶ weeks, ultrasonographic examination is more prone to failure than in the subsequent period when it comes to detecting LGA, the estimated percentiles ended up being closer to those at birth.