

# Correlation of ultrasonographic estimated fetal weight with actual birth weight in the event of sonographically predicted large for gestational age (LGA) versus normal-weight fetuses

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## Objectives

Describe the percentage of error, correlation and approximation degree between the ultrasonographic estimated fetal weight (EFW) and actual birth weight (ABW); and to assess whether there are differences between the estimated weight in the event of sonographically predicted large for gestational age (LGA) versus sonographically predicted normal-weight fetuses.

As secondary objectives: to assess the ultrasound detection of fetal macrosomia and to establish maternal-fetal risk factors for fetal LGA.

## Methods

Observational, retrospective, case-control and single-center study that included 99 pregnant women whose delivery occurred between January 2019 and April 2021 at a tertiary hospital: 49 pregnant women with labor induction due to a suspected LGA and 50 pregnant women with labor induction due to other reasons, and ultrasonographic estimated fetal weight (EFW) performed no more than ten days prior to delivery.

Multiple gestations and fetuses with known fetal malformations were excluded.

## Results

The **error percentage between the EFW and ABW** corresponds to **6.5%** (0.01 - 16.8%) with a tendency to overestimate about 152g (absolute value of maximum error of 558g) being 55.5% as opposed to 44.5% in underestimation, with a mean degree of ultrasound approximation of 239g.

In 78% of the cases the error rate has been less than 10% without statistically significant differences between the estimation of the sonographically predicted macrosomia and sonographically predicted normal-weight fetuses.

84% of newborns with macrosomia have been detected at the ultrasound, thus establishing correct ultrasound sensitivity, with only 3 cases of macrosomia not detected by ultrasound as a LGA fetus.

**A clear relationship between EFW and ABW has been described with a high positive correlation and statistical significance** (Pearson's Correlation  $R=0.8$  and  $p=0.01$ ) (Figure 1).

As maternal risk factors for LGA, maternal obesity stands out: 71% of pregnant women with a BMI greater than 30 presented fetal LGA, being statistically significant ( $p<0.05$ ).

Excessive weight gain (more than 20 kilograms) was also associated with an increased risk of LGA ( $RR=3$ ), with **75%** of cases of pregnant women with **excessive weight gain having LGA fetuses**.

**Regarding fetal and delivery complications**, a case of shoulder dystocia that required neonatal admission due to respiratory distress stands out, without finding significant differences on the Apgar scale at 5 minutes or the risk of greater perineal injury between a LGA and a normal-weight fetus.

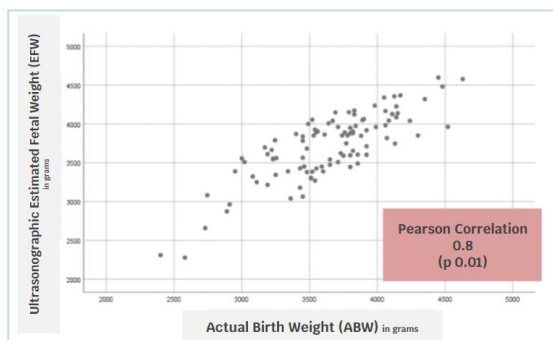


Figure 1: Pearson Correlation graphic.

High positive correlation between EFW and ABW, statistically significant ( $R=0.8$  and  $p=0.01$ )

## Conclusions

**As a general rule, a correct ultrasonographic estimated fetal weight (EFW) is made with an approximate error of 6% and a significant positive correlation.**

**The ultrasonographic estimated fetal weight (EFW) is a good estimator of weight at birth and presents a high sensitivity for fetal LGA detection. However, further studies are needed.**