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Slowing of fetal growth in the third trimester, a predictor of significant placental pathology

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Objective

It´s well stablished that adequate weight for gestational age (AGA) fetuses have a low rate of adverse perinatal outcome. However, since this is the largest group, AGA fetuses that are born with problems should not be underestimated. We could select those AGA fetuses at risk assessing fetal growth rate in the third trimester, so we could detect some of them with a slowing growth trajectory and subclinical placental insufficiency.

Methods

We conducted in La Paz Hospital (Madrid) a prospective longitudinal study including low risk women. Three ultrasound scans were carried out, at 28, 32 and 36 weeks, assessing biometric details, and Doppler study in umbilical artery, mid cerebral artery, uterine artery and ductus venosus. We obtained birth data and placental histological study of each case. We excluded SGA at 36 weeks, preterm birth and mothers or fetal medical problems, also cases were birth outcome couldn't be obtained. We ended up collecting information from 72 patients.

Results

The mean (SD) age of the participants was 33. 4 (5. 5) and body mass index was 22. 8 (3. 6) kg/m2. Most of them were nulliparous (57. 8%) product of spontaneous conception (90. 6%). The mean gestational age at birth was at 39. 6 (1. 2) weeks, and 74. 5% were vaginal delivery without complications. The mean birthweight was 3263 (485) g, with pH in umbilical cord blood sampling of 7. 27 (0. 07). In relation with fetal growth, we observed a mean abdominal circumference growth of 10, 9 mm per week in the first period (28 to 32 weeks) and 8, 7 in the second one (32 to 36 weeks). In the other side, mean estimated fetal weight in 28-32 weeks was 190 g per week, and 208 in 32-36 week. Placental mean weight was 484, 2 (98. 1), with 14. 3% of these being under the 10th percentile and 7. 1% below 90th percentile. Only 1. 4% of the placental weight/birthweight rate were pathological. We could find at least one pathological finding in placental examination in 28. 6% of the whole studies, 4 cases were maternal underperfusion, 7 cases were fetal underperfusion and 9 cases were both of them. None of these findings correlated with any changes of individual measures of biometry; instead, we could demonstrate a relation between pathological findings and a slowing growth rate in EFW 28-36 weeks ($p<0, 005$).

Conclusion

A slowing of growth velocity in fetuses between 28 and 36 weeks are related to placental histopathological findings. This could reflect retarded intrauterine growth, not evident by a EFG under the 10th percentile. These fetuses couldn´t reach their optimal weight even though being AGA.