

ASSOCIATION BETWEEN FIRST-TRIMESTER GLYCEMIC MARKERS AND FETAL ABDOMINAL CIRCUMFERENCE AT 28–32 WEEKS OF GESTATION

Garbí S, Jiménez C, Lorca I, Carnero M, Crimella M, Larque E, García M, Varó O, Almeida L

Department of Maternal-Fetal Medicine — Hospital Sant Joan de Déu, Barcelona, Spain

117

Singleton pregnancies (prospective cohort)

r = 0.23

FPG vs fetal AC (p = 0.01)

r = 0.17

HbA1c vs fetal AC (p = 0.05)

28–32w

Gestational age at fetal AC assessment

1st trim.

Timing of glycemic marker sampling

BACKGROUND

Maternal glycemic status in early pregnancy may influence fetal growth trajectories, but the relationship between first-trimester glucose metabolism and later fetal biometry remains incompletely defined.

OBJECTIVES

To assess the association between first-trimester fasting plasma glucose (FPG) and glycated hemoglobin (HbA1c) levels and fetal abdominal circumference (AC) measured at 28–32 weeks of gestation.

METHODS

- Preliminary analysis of an ongoing prospective cohort study
- 117 singleton pregnancies included
- FPG and HbA1c measured in the first trimester
- Fetal AC assessed by obstetric ultrasound (28–32 weeks)
- Pearson’s correlation coefficients calculated

STUDY FLOW

117 singleton pregnancies

First-trimester FPG & HbA1c measured

Fetal AC assessed by ultrasound (28–32w)

Pearson correlation analysis

Findings are preliminary; participant recruitment for the cohort is ongoing.

CONCLUSIONS

- First-trimester fasting plasma glucose is positively associated with fetal abdominal circumference at 28–32 weeks.
- The modest strength of the correlations suggests multiple maternal and fetal factors contribute to this relationship.
- Early maternal glycemic status may influence fetal growth trajectories.
- Further studies are warranted to determine the predictive value of early glycemic markers for fetal overgrowth.

FASTING PLASMA GLUCOSE (FPG)

Correlation with fetal abdominal circumference (28–32 weeks)

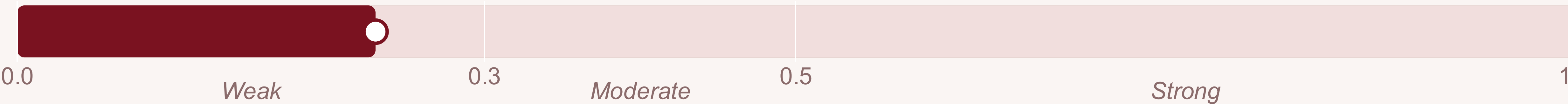
0.23

Pearson correlation coefficient (r)

0.01

p-value (statistically significant)

r = 0.23



Higher first-trimester fasting glucose is associated with greater fetal abdominal growth at 28–32 weeks — early glycemic status may influence fetal growth, supporting interest in first-trimester metabolic screening.

GLYCATED HEMOGLOBIN (HbA1c)

Correlation with fetal abdominal circumference (28–32 weeks)

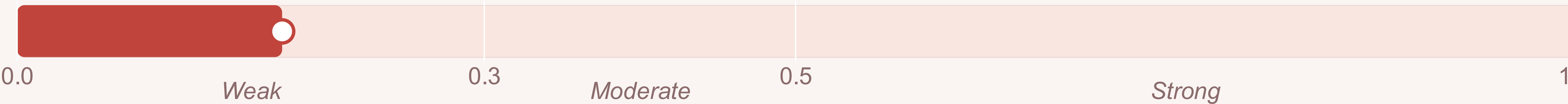
0.17

Pearson correlation coefficient (r)

0.05

p-value (borderline significant)

r = 0.17



A weak positive correlation links first-trimester HbA1c with fetal AC. Given its modest strength, multiple maternal and fetal factors likely contribute to fetal growth.

