

EP09.63 The effect of maternal glycemic control on fetal cardiac function in pregnancies with diabetes.

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Objectives

To estimate the effect of maternal glycemic control on fetal cardiac function in pregnancies with diabetes.

Methods

A retrospective cohort study of singleton pregnancies with diabetes in a tertiary referral hospital. The percentage of capillary glycemia goal-compliant (%G) and HbA1c were measured. Fetal cardiac function was assessed by echocardiography. Statistical analysis included correlation, regression, and linear mixed effects models.

Results

A total of 81 pregnancies were included. Both %G and HbA1c significantly correlated with fetal cardiac function, except for right MPI and right E/A ratio. The effects of the correlated observations per patient were random for a fixed-slope intersection ($p < 0.001$). The type of diabetes was not significant ($p = 1.000$).

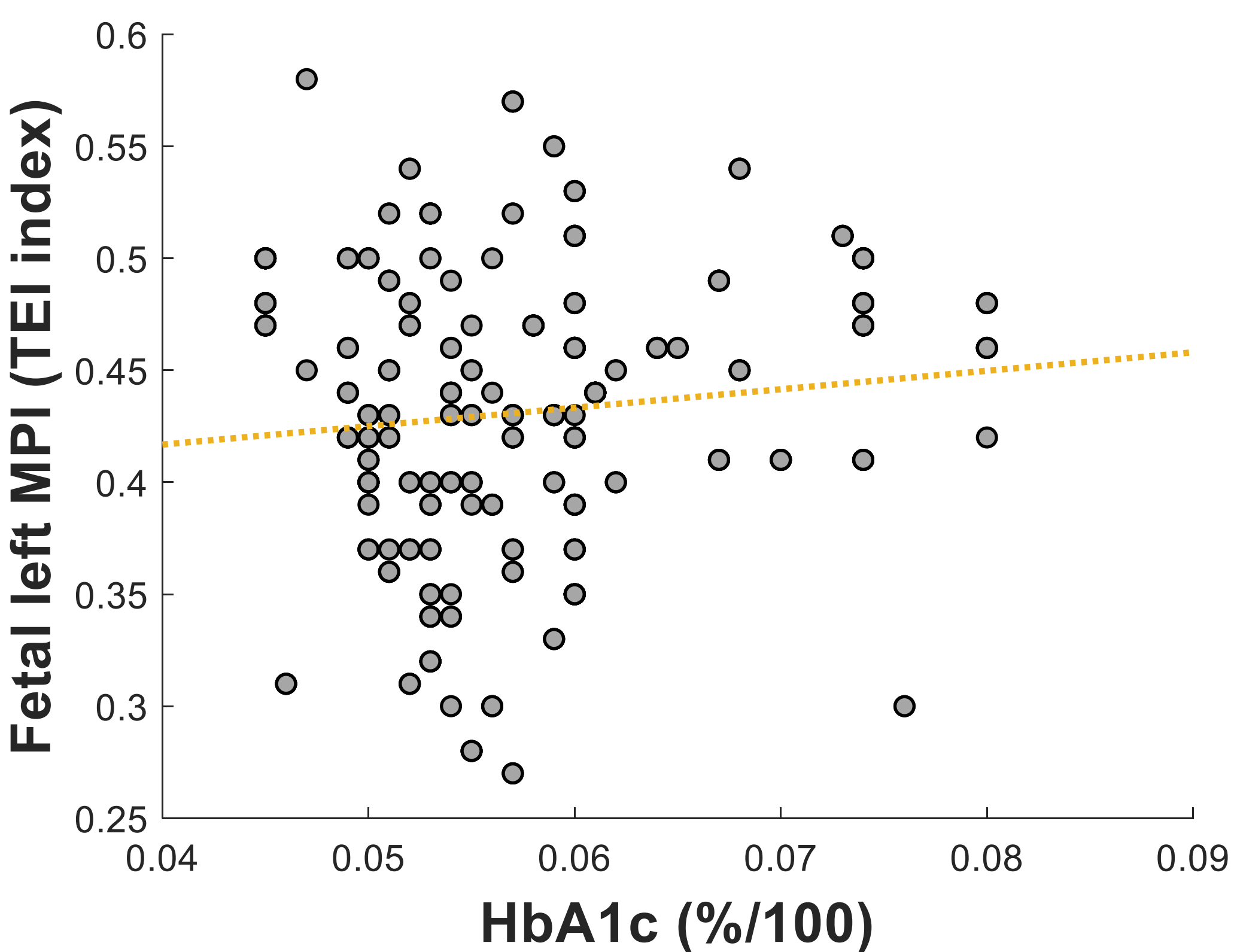


Figure 2. Scatter plot of **HbA1c** and left myocardial performance index MPI (TEI index) with regression line. $r = 0.24$ ($p < 0.001$).

Conclusion

Fetuses from diabetic mothers might experience a specific type of cardiovascular remodeling, in which atrial contraction increases to compensate for a lower preload, with a trend to overall myocardial dysfunction of the left ventricle, but no clear inflection points on the gradient response.

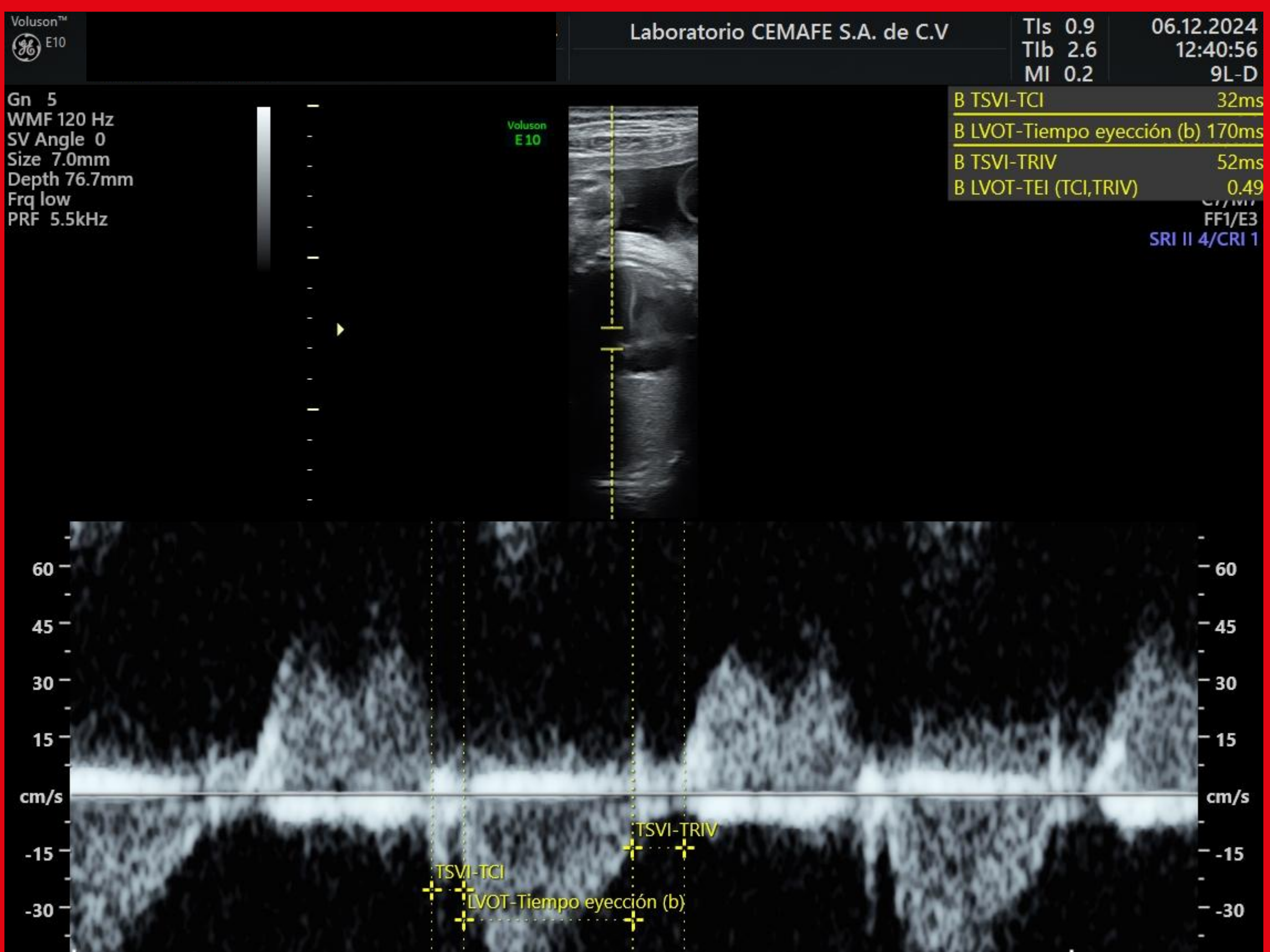


Figure 1. An example of the measurement of the left myocardial performance index MPI (TEI index)

Fetal	Term	Coefficient (95% CI)
Left MPI (Z)	Intercept	-0.97 (-1.39 to -0.55)
	HbA1c	13.01 (7.45 to 18.57)
	%G	0.11 (-0.11 to 0.33)
Left E/A ratio (Z)	Intercept	1.25 (0.63 to 1.87)
	HbA1c	-15.75 (-23.74 to -7.77)
	%G	-0.26 (-0.58 to 0.07)
Peak flow right A-wave (Z)	3rd trimester	-0.69 (-0.97 to -0.41)
	Fetal heart rate (Z)	-0.12 (-0.26 to 0.03)
	Intercept	0.44 (0.02 to 0.87)
	3rd trimester	-0.26 (-0.44 to -0.09)
	Fetal heart rate (Z)	0.13 (0.03 to 0.22)
	HbA1c	-2.14 (-7.37 to 3.09)
	%G	-0.08 (-0.27 to 0.11)

Figure 3. Mixed linear effects models for Z-scores of three indexes of fetal cardiac function in pregnancies affected by diabetes ($n = 374/67$, $384/68$, $380/67$).