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Glycemic patterns during pregnancy and Large-for-Gestational-Age neonates

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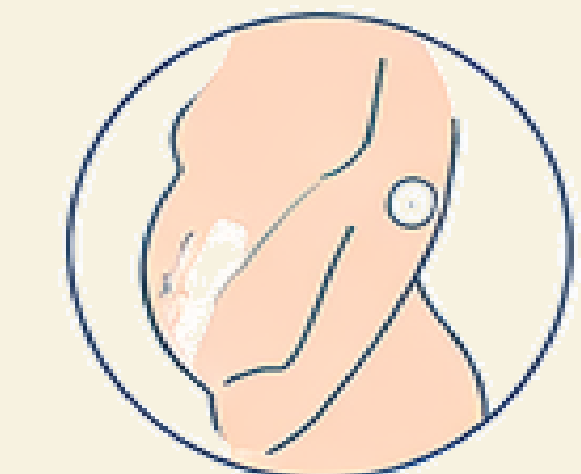
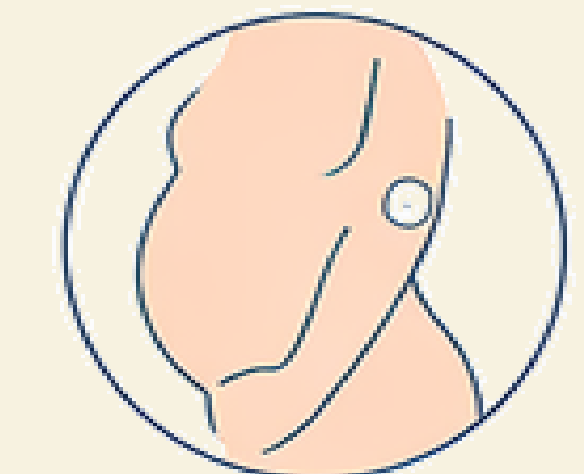
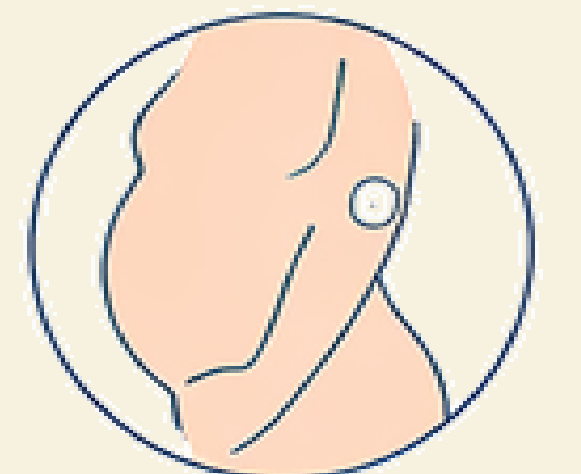
Aim

To investigate the association between CGM metrics across pregnancy and neonatal birthweight.



Prospective cohort study

Normal Pregnancies



1th trimester 2th trimester 3th trimester



Glucose values every 5 minutes

14-days period

N = 59

Neonates were classified as SGA, AGA and LGA.

CGM metrics		Birthweight	
TIR	70-140 mg/dL	AGA	p10 th - 90 th
TAR	>140 mg/dL	LGA	p>90 th
TBR	<54 mg/dL	SGA	p<10 th

CGM metrics included mean glucose, time in range (TIR), time above range (TAR), and time below range (TBR).

Statistical analysis: Kruskal-Wallis tests (p <0.05). **Excluded:** gestational diabetes

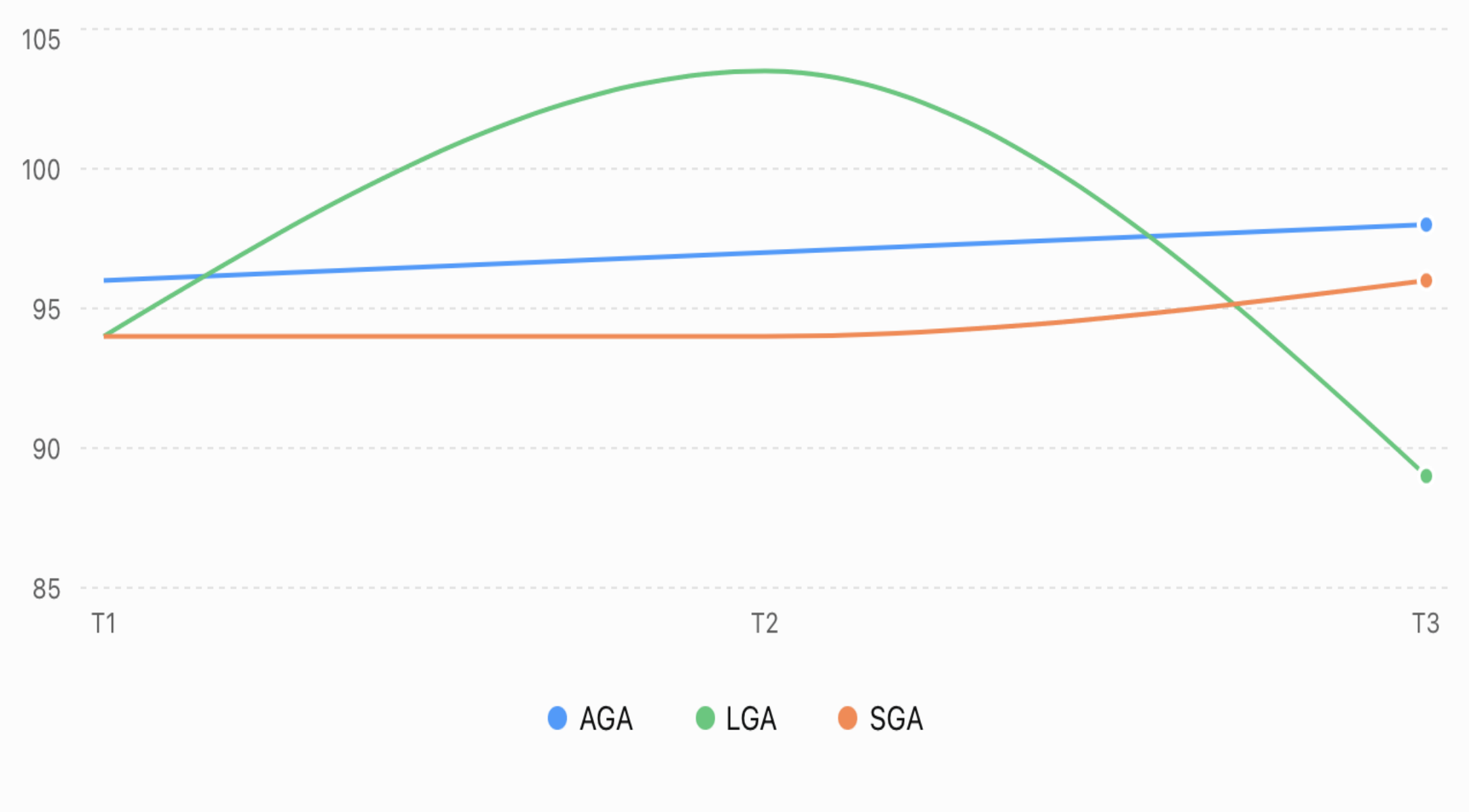


Figure 1. Conceptual glycemic trajectories according to fetal growth phenotype based on median CGM glucose values across pregnancy

*Adjusting for maternal age and BMI

Results

Second-trimester TAR (TAR_2) and third-trimester TBR (TBR_3) were significantly higher in pregnancies resulting in LGA fetuses (p=0.009, and p=0.033).

Domain	Variable	AGA (median)	LGA (median)	SGA (median)	p-value
Glucose (mg/dL)	Glucose_1	96	94	94	0.943
	Glucose_2	97.0	103.5	94.0	0.211
	Glucose_3	98	89	96	0.381
Time in Range 70-140 mg/dL (% per day)	TIR_1	95.0	97.5	96.0	0.174
	TIR_2	94	95	98	0.063
	TIR_3	93.5	83.0	97.0	0.136
Hyperglycemia >140 mg/dL (% per day)	TAR_1	2	1	1	0.625
	TAR_2	1.0	3.5	0.0	0.009*
	TAR_3	1.5	1.0	1.0	0.777
Hypoglycemia <54 mg/dL (% per day)	TBR_1	0	0	0	0.727
	TBR_2	0	0	0	0.370
	TBR_3	0	1	0	0.033*

Conclusion

Pregnancies with LGA newborns were associated with greater exposure to hyperglycemia in the second trimester and hypoglycemia in the third trimester.