

Factors associated with the postpartum glucose intolerance in patients with gestational diabetes mellitus diagnosed by first-visit fasting blood glucose

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Objective: To evaluate the incidence and the predictors factors associated with glucose intolerance at six weeks postpartum in patients who presented gestational diabetes mellitus (GDM) diagnosed by fasting blood glucose (FBG)

Table 1. Clinical and sociodemographic data of pregnant women with gestational diabetes diagnosed by abnormal fasting blood glucose, according to the persistence of glucose intolerance (São Paulo, 2012-2015) ¹Student's t test; ²Chi-square test

	Without intolerance (n=191)	Glucose intolerance (n=39)	P-value
Maternal age (years), mean ± SD	33.4 ± 6.0	35.1 ± 5.4	0.110 ¹
Primigravida, n(%)	39 (20.4)	11 (28.2)	0.295 ²
Pre-pregnancy BMI (kg/m ²), mean ± SD	29.8 ± 6.7	32.8 ± 6.2	0.003 ¹
Pre-pregnancy BMI category			0.046 ²
obesity (BMI > 29.9 kg/m ²), n (%)	82 (42.9)	26 (66.7)	
overweight (BMI > 24.9 kg/m ²),n (%)	67 (35.1)	8 (20.5)	
normal / low weight (BMI <25kg/ m ²),n (%)	42 (22.0)	4 (10.3)	
Weight gain during pregnancy (kg), mean ± SD	8.3 ± 9.5	8.4 ± 5.7	0.678 ¹
Family history of diabetes, n (%)	120 (62.8)	28 (71.8)	0.280 ²
Prior GDM, n (%)	23 (12.0)	7 (17.9)	0.348 ²
Prior fetal macrosomia, n (%)	19 (9.9)	4 (10.3)	0.999 ²
Chronic Arterial hypertension, n (%)	45 (23.6)	16 (41)	0.030 ²
Gestational age at diagnosis (weeks), mean ± SD	10.8 ± 4.0	11.0 ± 3.8	0.709 ¹
FBG at diagnosis (mg/dL), mean ± SD	97.7 ± 6.3	102.0 ± 7.5	<0.001 ¹
HbA1C at diagnosis, mean ± SD	5.2 ± 0.5	5.5 ± 0.5	<0.001 ¹
Treatment with insulin, n(%)	60 (31.4)	26 (66.7)	<0.001 ²

Materials and Methods: Observational, retrospective cohort study with pregnant women diagnosed with GDM before 24 gestational week according to International Association of Diabetes and Pregnancy Study Groups (IADPSG) criteria who attended antenatal care visits at a tertiary teaching hospital in Sao Paulo city (Brazil) from 2012 to 2015. Subjects were divided into two groups according to the results normal or not of the postpartum glucose tolerance test. Groups were compared regard to clinical and laboratorial data. A logistic regression model was designed to evaluated the capability of the factors in predicting postpartum glucose intolerance

Results: Postpartum glucose intolerance was observed in 39 (17%) of 230 patients included in the study. Women who presented glucose intolerance had higher FBG levels at the diagnosis (p<0.001), higher glycated hemoglobin values (p<0.001) and greater pre-pregnancy body mass index (p=0.003). Chronic arterial hypertension (p=0.030) and insulin need (p<0.001) were more frequently. At the logistic regression model, insulin requirement was the only significant independent variable in predicting postpartum glucose intolerance. If the insulin requirement is excluded from the model, thus the FBG at diagnosis and BMI becomes significant independent variables

Table 2. Results of the final multivariable regression model for the prediction of the persistence of glucose intolerance six weeks postpartum in women who presented gestational diabetes mellitus diagnosed by fasting blood glucose (São Paulo, 2012-2015). *"No" as baseline

Variable	Coefficient	Standard Error	OR (95% CI)	p-value
Intercept	-2.310	0.291		
Insulin*	1.474	0.3737	4.367 (2.099 - 9.084)	<0.001

Table 3. Results of the final multivariable regression model if the insulin requirement is excluded from the model for the prediction of the persistence of glucose intolerance six weeks postpartum in women who presented gestational diabetes diagnosed by fasting blood glucose (São Paulo, 2012-2015)

Variable	Coefficient	Standard Error	OR (95% CI)	p-value
Intercept	-10.726	2.504		
BMI	0.054	0.025	1.056 (1.003 - 1.110)	0.036
FBG (mg/dL)	0.075	0.023	1.077 (1.028 - 1.129)	0.002



Conclusions: In women who presented GDM diagnosed by the first visit FBG, the glucose intolerance can be predicted by the requirement of insulin for glycemic control during pregnancy and by BMI and the level of FBG at diagnosis.