Potentially modifiable predictors of adverse neonatal outcomes in pregnancies complicated by gestational diabetes

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Introduction & Objectives

The incidence of Gestational Diabetes Mellitus (GDM) has increased during the past decades, reflecting the ongoing epidemics of obesity and Type 2 diabetes. The aim of this study is to identify simple clinical predictors of adverse neonatal outcomes which are potentially modifiable in pregnancies complicated with GDM.

Methods

This prospective observational study included 575 singleton multietnic pregnant women with GDM followed in the Diabetes and Pregnancy Unit of the University Hospital of Lausanne (C.H.U.V.) between 4/2012 and 2/2017. The patients were diagnosed after 13 weeks of gestational age, using the International Association of Diabetes and Pregnancy Study Groups (IADPSG) criteria.

The investigated predictors included:

- Glycated hemoglobin (HbA1c) at first booking and at the end of the pregnancy
- T0, T60, T120 glucose OGTT value
- BMI on 1st booking after GDM diagnosis
- Gestational weight gain
- Maternal treatment requirement (insulin and/or metformin vs no treatment)

The neonatal and maternal outcomes included:

- Large for gestational age (LGA - BW-centile > 90)
- Small for gestational age (SGA (BW-centile<10)
- Neonatal hypoglycemia (glycemia < 2.5 mmol/l)
- Prematurity (gestational age<37 weeks)
- Maternal caesarean section requirement

Statistical analysis: Data were analysed using linear or logistic regression analysis, adjusting for newborn sex, gestational age at birth, and maternal age. Predictors with P values<0.2 in the univariate analysis were entered in the multiple regression analysis model. A P value <0.05 was considered statistically significant.

Results

Table 1 contains the maternal and neonatal population characteristics expressed as mean value ±SD for continuous variables and % for binary variables. Table 2 resumes the significant predictors of the investigated neonatal and maternal outcomes in the multivariate analysis. Table 3 shows the probabilities of cesarean section and LGA risk according to median HbA1c and BMI at first booking.

Conclusions

HbA1c at the end of pregnancy constitutes a novel simple marker that may help clinicians in the management of women with GDM. Other biological (OGTT T60 glucose value, HbA1c at 1st booking) as well as clinical (Maternal BMI at 1st booking, Gestational Weight Gain and Maternal treatment requirement) parameters may also be used to predict adverse neonatal and maternal outcomes in pregnancies complicated with GDM, the attention of physicians ought to be drawn to these parameters. Precise and universal guidelines for maternal and neonatal follow-up and interventions (cesarean section, timing of delivery, glucose monitoring), depending on these clinical predictors, are required.

References


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