ONE HOUR VERSUS TWO HOUR POST PRANDIAL BLOOD GLUCOSE MEASUREMENT IN WOMEN WITH GESTATIONAL DIABETES MELLITUS: WHICH ONE SHOULD WE CHOOSE?

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Introduction

The study aimed to compare the efficacy of 1 hour (PP1) and 2 hour (PP2) postprandial blood glucose test for the prediction of obstetric complications in patients with GDM. Our primary objective was to investigate whether PP1 and PP2 measurements have a correlation with adverse perinatal outcomes and if so the degree of correlation of PP1 and PP2 measurements differed from each other.

Material and Methods

This prospective study consisted of 259 women with GDM who were followed up at Zekai Tahir Burak Women Health Care, Education and Research Hospital, Ankara, Turkey, between June 2010 and January 2013. During each antenatal visit serum HbA1c and fasting capillary glucose (FPG) as well as capillary glucose at postprandial 1-hour (PP1) and postprandial 2-hour (PP2) were analyzed. Patients were screened for delivery route and adverse perinatal outcomes such as preterm delivery, preeclampsia, polyhydramnios, fetal macrosomia, low 5-min Apgar score, neonatal intensive care unit admission, hypoglycemia, hyperbilirubinemia, fetal mortality and malformations.

The patients were divided in two groups as diet and insulin therapy. There were 144 patients on insulin therapy and 115 patients on diet therapy. A total of 531 blood glucose measurements were obtained for different gestational weeks between 24-41 gestational weeks 1-8 cycles per patient. For association between each hour of glucose measurement and each primary outcome, the method developed by Li et al. for modeling cross sectional outcomes with longitudinal covariates is used.

RESULTS

Unadjusted analyses showed that, in the insulin group, macrosomia was positively associated with the change in PP2 (P value=0.0008). In addition, in the insulin group, antenatal, intrapartum and neonatal complications were all positively associated with the change in HbA1c levels. In the diet group, the only association was present between neonatal complications and FPG (P value=0.0001).

But on adjusted analysis FPG, PP1 and PP2 measurements did not predict any antenatal, labor and neonatal complications. Only HbA1c was able to predict fetal macrosomia on insulin therapy when controlled for confounding factors (P value=0.0032).

Conclusion

The findings of the study suggest that none of the four parameters were able to predict GDM related perinatal complications. Moreover, postprandial 1 hour and postprandial 2 hour serum glucose measurements were not superior to each other in predicting fetal macrosomia or perinatal complications. Based on our findings it can be concluded that both methods may be suitable for follow up as there are no clear advantages of one measurement over the other.

REFERENCES