

Abstract

Title

Assessment of Glucose Kinetics with Real-Time Continuous Glucose Monitoring during Labor

Aim: Changes in glucose levels during labor have not been sufficiently investigated in pregnant women. Using real-time continuous glucose monitoring, we aimed to assess glucose kinetics during labor among pregnant women with gestational diabetes mellitus (PwGDM), and those with normal glucose tolerance (PwNGT).

Methods: Japanese PwGDM and PwNGT who had planned a transvaginal delivery at Okayama University Hospital were enrolled. The correlation between changes in glucose levels during labor among the PwGDM and PwNGT groups at four time periods was assessed: (i) active phase of 1st stage of labor; (ii) 2nd stage of labor; (iii) postpartum 0–12h; and (iv) postpartum 12–48h.

Results: In total, 18 and 22 PwGDM and PwNGT, respectively, were enrolled. During labor, both groups had similar changes in glucose levels over time, which peaked during period 3. The main effect of glucose level changes was the labor period ($P < 0.001$), not the presence of gestational diabetes mellitus. Furthermore, differences in glucose levels in the PwGDM group were observed between periods 1 and 2 ($P = 0.037$), 1 and 3

($P=0.024$), 3 and 4 ($P=0.005$); differences in glucose levels in the PwNGT group were observed between periods 3 and 4 ($P=0.024$).

Conclusions: During labor, both PwGDM and PwNGT groups showed similar changes in glucose levels over time. During delivery, the PwGDM who regularly measured their own glucose levels could be managed using the same nutritional management methods as those for PwNGT.