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The effect of intrapartum glycemic control on the incidence of neonatal hypoglycemia

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Introduction: 1-2% and 6-9% of pregnancies are complicated by type I/II and gestational diabetes mellitus (DM), respectively, leading to increased risk of adverse neonatal outcomes. Women with DM require glucose monitoring and glycemic control at the time of delivery; however, it remains unclear how variations in intrapartum glucose impact neonatal hypoglycemia.

Methods: This is a retrospective cohort study of women with singleton pregnancies, diagnosed with DM, who delivered >36 weeks gestation after attempting induction of labor at Thomas Jefferson University Hospital between 01/01/2017 and 01/01/2018. Intrapartum DM management included hourly capillary glucose (CG) monitoring until delivery, insulin drip with CG>110mg/dL and dextrose with CG<60mg/dL. Poor intrapartum glycemic control and neonatal hypoglycemia was defined as CG≥100mg/dL and CG<40mg/dL, respectively. Maternal characteristics, perinatal outcomes, and intrapartum CG values were collected. Primary outcomes included neonatal hypoglycemia. Average intrapartum CG 6-hours before delivery was used to evaluate neonatal hypoglycemia risk.

Results: Data included 67 women with DM (mean age 32±6 years, mean BMI 31.9±8.1) who delivered at mean gestational age 38.2±2.2 weeks. Mean birthweight was 3188±605g; 16.4% and 3.0% of neonates had Apgar scores <7 at 1- and 5-minutes, respectively, and 29.9% were
admitted to the intensive care unit (ICU). Neonatal hypoglycemia was present in n=9 (13.4\%) and was higher in women with poor intrapartum glycemic control (66.7\% vs. 31.0\%, OR=2.15).

**Conclusion:** Poor glucose control in women with DM 6-hours before delivery may be associated with increased incidence of neonatal hypoglycemia. Future prospective studies could examine whether strict intrapartum glycemic control lowers neonatal hypoglycemia.