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Neonatal Outcomes According to Different Therapies for Maternal Diabetes Mellitus in a Tertiary Government Hospital: A Cross-Sectional Study

Background:

Diabetes affects a number of women both pre-gestational and during pregnancy. Several researches have shown the effects of uncontrolled hyperglycemia on the outcome of the neonate. However only little information has shown the effects of the treatment for type 1, type 2, and gestational diabetes in pregnant women on the outcome of the neonates. This study compared the neonatal outcomes of mothers with Diabetes Mellitus according to the different types of treatments used in the management of Maternal Diabetes during pregnancy.

Materials and Methods:

This was a cross-sectional study that determines the outcomes of infants born from mothers diagnosed with Type 1, Type 2, and Gestational Diabetes, in terms of treatment received, who gave birth in Batangas Medical Center from January 2015 to December 2019. Review of clinical charts of the mother-infant dyad, including out-patient records and in-patient records was done. Descriptive and multinominal logistic regression were used for data analysis. The study was completed on August 2022.

Results:

The study included 195 women who had diet and exercise only, while 34 women additionally had metformin and 69 additionally had insulin. After adjusting for age and type of diabetes, mothers' type of diabetes treatment was not significantly associated with neonates' risk for small for gestational age, preterm birth, mortality, hypoglycemia, and jaundice. On the other hand, only insulin treatment was associated with an increased risk for large for gestational age relative to appropriate for gestational age among neonates compared to diet and exercise treatment only (OR=2.0, 95%CI=1.1-3.9, p-value=0.029). Maternal insulin treatment was also associated with increased risk for NICU admission (OR=2.7, 95%CI=1.1-6.3, p-value=0.025) and risk for neonatal respiratory distress syndrome relative to having no complication (OR=3.4, 95%CI=1.4-8.6, p-value=0.008) compared to diet and exercise treatment only.

Conclusions:

The current study observed that neonatal complications were more common among mothers with diabetes who received insulin and diet treatment compared to diet and exercise alone, and metformin and diet treatment. Also, maternal insulin use, as compared to diet and exercise treatment, for diabetes treatment was significantly associated with neonatal risk for large for gestational age, NICU admission, and respiratory distress. However, further prospective studies are needed to verify if insulin treatment can cause these adverse outcomes since confounding by indication or other possible risk factors affecting glucose control cannot be ruled out.

doi.org/10.51219/URForum.2023.Tawny-Gaile-A-Olave-Bertulfo

ISBN-978-1-7393132-1-0