What are the clinical implications of a recurrent pregnancy affected by Gestational Diabetes?

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Background: Recurrent Gestational Diabetes (GDM) has been shown to increase the risk of large for gestational age infants (LGA) by 70%(1). The aim of this study was to evaluate the implications of recurrent GDM pregnancies.

Methods: We analysed de-identified prospectively collected singleton pregnancy data (1992-2013) from women diagnosed with GDM on a 75-gram oral glucose tolerance test according to 1991 GDM Ad Hoc Working Party, thence 1998 ADIPS criteria. We specifically analysed women who had a total of three pregnancies affected by GDM at Bankstown-Lidcombe Hospital. Fourth pregnancies were not included due to small patient numbers. Antenatal characteristics and perinatal outcomes were compared between first and second/third pregnancies. Excessive gestational weight gain (eGWG) was defined according to Institute of Medicine (IOM) weight gain targets(2). LGA and small for gestational age (SGA) infants were defined as >90^{th} and <10^{th} centiles respectively, using a customised centile calculator.. Paired samples t-tests and McNemar's tests were used to assess statistical significance for continuous and categorical data respectively over subsequent pregnancies.

Results: There were a total of 62 women who had three GDM pregnancies. Compared to the first GDM pregnancy, both second and third GDM pregnancies were diagnosed at an earlier gestational age and exhibited higher pre-pregnancy weight/BMI. The third GDM pregnancy also required a larger maximal dose of insulin.

In regards to perinatal outomes, second GDM pregnancy women were more likely to require insulin therapy, and less likely to have eGWG. Third GDM pregnancy women, had a significantly higher rate of LGA (31.1% vs 11.3%, $p<0.01$.) compared to the first GDM pregnancy

Conclusion: Following analysis of paired data, subsequent pregnancies affected by GDM, exhibit higher risk antenatal characteristics as well as a high risk of adverse pregnacy outcomes including need for insulin therapy and a significantly higher rate of LGA.

References:

(1) Boghossian NS, Yeung E, Albert PS, Mendola PM, Laughon SK, Hinke SM, Zhang C. Changes In diabetes Status Between Pregnancies and Impact on Subsequent Newborn Outcomes. Am J Obstet Gynaecol. 2014:210(5). e1-431.
(2) Institute of Medicine. Weight gain during pregnancy: re-examining the guidelines. Washington, DC. The National Academies Press, 2009