Optimal maternal weight-gain according to pre-pregnancy BMI in women with gestational diabetes mellitus

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Background: Gestational diabetes mellitus [GDM] is a well recognised cause of large for gestational age [LGA] infants. However, pregravid overweight and obesity, and excessive maternal weight-gain are also associated with risk of LGA. There is evidence that optimal weight-gain in women without GDM, differs according to pre-pregnancy BMI. However there is less evidence available on optimal weight-gain range recommendations in women with GDM. Preventing excessive weight-gain must be balanced against the risk of small for gestational age [SGA].

Aim: To identify optimal weight-gain ranges according to pre-pregnancy BMI, which minimise risk of both LGA and SGA birthweight, in women with GDM.

Methods: Data were analysed from a computerised database, for singleton births in women with GDM diagnosed by ADIPS criteria since 1994. Exclusions were: incomplete data, delivery <36 weeks gestation and/or where the last recorded clinic weight was >4 weeks before delivery. Data assessed were: pre-pregnancy BMI [based on self-reported weight] and total maternal weight-gain. Data were analysed according to pre-pregnancy BMI categories [<20; 20-24.9; 25.0-29.9; 30-34.9; 35.0+/kg/m2], and total maternal weight-gain in the following categories: ≤10, 10-15 and 15+ kgs.

Results: Amongst 1698 women, with increasing pre-pregnancy BMI, there was an increasing proportion of LGA and a decreasing proportion of SGA. The amount of weight-gain within each BMI category resulted in a greater [or less] LGA/SGA proportion respectively [See Figures 1&2]. These trends for LGA and SGA across pre-pregnancy BMI categories were all statistically significant.

Conclusions: Conventional GDM treatment concentrates on management of blood glucose levels. The trends identified here stress the need to also address weight gain in association with pre-pregnancy BMI. Overweight and obese women require less total weight gain to achieve appropriate birthweight. Conversely, women with a pre-pregnancy BMI <20kg/m2 need to gain more weight to prevent SGA. Determining specific optimal weight-gain range recommendations, however, requires further research.