CONTINUED EXCESSIVE WEIGHT GAIN DURING GDM TREATMENT INCREASES THE LIKELIHOOD OF INSULIN INITIATION AND HAVING A LARGE FOR GESTATIONAL AGE INFANT

R.A. Barnes[1,2], T. Wong[1,3,4], G.P. Ross[1,4], M.M. Griffiths[1], L MacDonald-Wicks[2,5], C.E.M. Smart[2,6], C.E. Collins[2,5], J.R. Flack[1,3,7]

[1] Diabetes Centre,, Bankstown, NSW, Australia
[2] School of Health Sciences, Faculty of Health and Medicine, University of Newcastle, Callaghan, Newcastle NSW, Australia
[3] Faculty of Medicine, University of NSW, Sydney NSW, Australia
[4] Faculty of Medicine, University of Sydney, Sydney NSW, Australia
[5] Priority Research Centre in Physical Activity and Nutrition, University of Newcastle, Callaghan, NSW, Australia
[6] Department of Paediatric Endocrinology and Diabetes, John Hunter Children's Hospital, Newcastle, NSW, Australia
[7] School of Medicine, Western Sydney University, Sydney, NSW, Australia

Introduction:

- The traditional view of Gestational Diabetes Mellitus (GDM) has been dominated by the importance of maternal hyperglycaemia.
- Morbidities attributed to GDM are also strongly associated with maternal obesity and excessive maternal weight gain.
- Women with GDM have commonly exceeded Institute of Medicine (IOM) weight gain targets by first presentation to diabetes services.

Aim:

- Determine whether continued excessive gestational weight gain is associated with greater likelihood of insulin initiation and Large-for-Gestational-Age (LGA) infants.

Materials and Methods [1]:

- Prospectively collected (1992-2015) data from GDM pregnancies managed by Australasian Diabetes in Pregnancy Society guidelines were analysed (1,2).
- Women received two dietetic appointments, with weight measured at 1-2 weekly multidisciplinary clinic visit.
- Inclusion criterion: in excess of IOM weight gain targets (EGWG) according to self-reported pre-pregnancy BMI at first presentation to the Diabetes Centre. See Table 1 for details.
- Continued EGWG was assessed incrementally: ≤0kg, 0.1-2kg, 2.1-4.0kg, 4.1-6.0kg, 6.1-8.0kg, >8.0kg.
- Exclusions: last recorded weight >4 weeks pre-delivery; GDM managed for <3 weeks.
- Continued excessive gestational weight gain was included in multivariable logistic regression models adjusted for confounders predictive of insulin therapy and LGA infants.
- Outcomes: insulin therapy initiation, mean insulin dose and LGA rates.

Table 1: IOM Maternal Weight Gain Recommendations

Prepregnancy BMI	BMI (kg/m2) (WHO)	Total Weight Gain Range (kgs)	EGWG (kgs)
Underweight	≤18.5	12.5 - 18.0	≥18.1
Healthy weight	18.5-24.9	11-16.0	≥16.1
Overweight	25.0-29.9	7.0-11.5	≥11.6
Obese	≥30.0	5.0-9.0	≥9.1

EGWG = Excessive Gestational Weight Gain

Results:

Of 3345 pregnancies, 776 (23.2%) met criteria.

Table 2: Patient Characteristics

Patient Characteristics (n=723)	Mean±SD
Age	31.8 ± 5.6 years
GDM diagnosis	27.7 ± 4.2 weeks
Pre-pregnancy BMI	29.2 ± 6.0kg/m^2
Weight gain at presentation	16.3 ± 5.0kg
Total maternal weight gain	18.0 ± 5.8kg
Weight gain during GDM treatment	1.7 ± 3.2kg

Continued excessive gestational weight gain was an independent predictor of:

- insulin initiation, (p<0.0001)
- higher mean insulin dose (p<0.0001), and
- LGA (p<0.0001).

Each incremental increase in continued excessive gestational weight gain was associated with:

- a 24.7% (95%CI 11.0-40.1) increase in insulin initiation risk and
- a 30.4% (95%CI 16.8-45.7) increase in risk of having a LGA infant.

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Conclusions:

- Continued excessive gestational weight gain during GDM treatment was associated with a greater likelihood of insulin therapy initiation and having a LGA infant.
- Successful management of GDM with Medical Nutrition Therapy may also need to include weight management. Weight management should focus on prevention, and minimisation of excessive maternal weight gain – both prior to and during GDM treatment.
- Research evaluating strategies to minimise excessive weight gain in women with GDM are warranted.

References:

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