Gestational Diabetes Mellitus Diagnosed at One Hour on a 75g OGTT and Perinatal Outcomes.

Catherine Finneran, Gael Holters, and Tang Wong.
Diabetes Centre, Bankstown-Lidcombe Hospital, Bankstown NSW 2200.

Background: Pregnancy complicated by Gestational Diabetes Mellitus(GDM) is associated with adverse maternal and neonatal outcomes. A 1-hour glucose level (1-hrBGL) ≥10mmol/L on a 75g oral Glucose Tolerance Test (oGTT) is included in the new International Association Diagnostic Pregnancy Study Groups (IADPSG) GDM diagnostic criteria (1).

Aim: To explore whether a diagnosis of GDM according to a 1-hrBGL ≥10mmol/L on an oGTT conferred an increased risk of adverse outcomes in our patient cohort.

Methods: We analysed de-identified prospectively collected data (2009-2013), from women diagnosed with a 1-hrBGL ≥10mmol/L only, compared to those diagnosed on fasting or 2-hour glucose levels, (or both), according ADIPS(1998) Australian criteria, or on a glucose challenge test of >11.0mmol/L. Outcomes analysed included: rates of insulin therapy, premature delivery, caesarean delivery, small for gestational age(SGA), large for gestational age(LGA) infant and abnormal post-partum oGTT. Independent samples t-tests and chi-square analyses were used to test for statistical significance ($p<0.05$).

Results: There were 1786 complete records, 94 of whom were treated for GDM exclusively on the basis of an elevated 1-hrBGL on oGTT. There were no demonstrated differences in baseline characteristics of age, gravida, parity, pre-pregnancy BMI, risk factors for GDM, oGTT parameters, HbA1c, pregnancy weight gain, or maximum dose of insulin use between those diagnosed and those not diagnosed on 1-hrBGL only. In women diagnosed on 1-hrBGL, compared to the other groups, there was no difference in caesarean delivery or SGA infants, a trend to lower LGA rates ($p=0.09$), and significantly lower rates of insulin therapy, premature delivery and abnormal post-partum OGTT (Table 1).

Table 1.	Basis of GDM Diagnosis					
Outcome	One hour Glucose only	Fasting Glucose only	Two hour Glucose only	Both Fasting and Two hour Glucose	50 g Screen >11.0	Overall p-value
Insulin Therapy	29/94[b,c] (30.9%)	106/208[b] (51.0%)	320/1184 (27.0%)	164/241[c] (68.0%)	35/59 (59.3%)	<0.0001
Early Delivery	4/94[a] (4.3%)	9/208 (4.3%)	64/1184 (5.4%)	25/241 (10.4%)	9/59[a] (15.3%)	<0.001
Caesarean Delivery	29/94 (30.9%)	63/208 (30.3%)	315/1181 (26.7%)	94/240 (39.2%)	19/59 (32.2%)	<0.01
SGA	10/94 (10.6%)	19/208 (9.1)%	97/1184 (8.2)%	19/241 (7.9%)	6.8% (8.3%)	NS
LGA	11/94 (11.7%)	41/208 (19.7%)	143/1184 (12.1%)	47/193 (19.5%)	8/51 (13.6%)	<0.01
Abnormal oGTT	9/36[d] (25.0%)	17/79 (21.5%)	119/515 (23.1)%	44/93 (47.3%)	17/33[d] (51.5%)	<0.0001

[a, d] between designated groups $p<0.05$

[b, c] between designated groups $p<0.0001$

Conclusion: Women diagnosed with GDM on 1-hrBGL criterion alone appeared to have lower rates of adverse outcomes with significantly lower rates of insulin use, premature delivery and abnormal oGTT post-partum. There was a trend to lower LGA rates.

Reference:

(1) International Association of Diabetes and Pregnancy Study Groups Consensus Panel. International Association of Diabetes and Pregnancy Study Groups recommendations on the diagnosis and classification of hyperglycaemia in pregnancy. Diabetes Care 2010; **33:** 676-682

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	Diagnosed on 1-hr glucose (mean±SD)	Diagnosed on other parameter (mean±SD)	p-value
Age	31.7 ± 4.2	31.9 ± 5.5	NS
Gestational Age At Diagnosis	25.7 ± 6.1	25.2 ± 6.2	NS
Gravida	3.1 ± 2.1	2.1 ± 2.0	NS
Parity	1.5 ± 1.4	1.3 ± 1.4	NS
Risk factors	1.8 ± 1.2	1.8 ± 1.2	NS
Total Weight Gain	12.7 ± 6.0	12.2 ± 6.2	NS
Pre-Pregnancy BMI	26.9 ± 5.9	26.9 ± 6.6	NS
Fasting Glucose	5.1 ± 0.6	5.2 ± 0.6	NS
2-hour glucose on oGTT	6.3 ± 1.6	6.9 ±1.9	NS
HbA1c	5.5 ± 0.4	5.5 ± 0.5	NS
Max dose of insulin	24.9 ± 21.0	32.9 ±35.9	NS