Original Research

Adverse Pregnancy Outcomes Using The International Association of the Diabetes and Pregnancy Study Groups Criteria

Glycemic Thresholds and Associated Risks

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OBJECTIVE: To compare the risks of selected adverse pregnancy outcomes among untreated women who met The International Association of the Diabetes and Pregnancy Study Groups (IADPSG)–defined glucose criteria at two different thresholds.

METHODS: A retrospective cohort study of women tested for gestational diabetes mellitus (GDM) with the 75-g 2-hour glucose tolerance test (GTT) who delivered a live singleton neonate. Data of women who were treated because they met institutional criteria defining GDM (at least two GTT results greater than or equal to fasting 100 mg/dL, 1-hour 195 mg/dL, and 2-hour 160 mg/dL) were excluded. The data of the remaining women were analyzed in three groups. The prevalence of selected adverse pregnancy outcomes was compared for those with no GDM ("no GDM," n=7,943); those at least one of whose results were fasting 92–94 mg/dL, 1-hour 180–190 mg/dL, or 2-hour 153–161 mg/dL ("GDM-1," n=771); and those at least one of whose results were greater than or equal to fasting 95 mg/dL, 1-hour 191 mg/dL, or 2-hour 162 mg/dL ("GDM-2," n=1,121).

RESULTS: Of the 9,835 women, 1,892 (19.2%) met criteria for GDM, of whom 771 (40.8%) were categorized as GDM-1 and 1,121 (59.2%) GDM-2. After adjustment for confounders, women with GDM-2 were at significantly greater risk for preeclampsia or eclampsia, preterm delivery, primary cesarean delivery, shoulder dystocia, higher birth weight, ponderal index, large for gestational age, transient tachypnea, and neonatal hypoglycemia than women without GDM. Only birth weight and large for gestational age were significantly greater in the GDM-1 compared with the no GDM group.

CONCLUSION: Fewer adverse outcomes are found at lower levels of the IADPSG-defined glucose intolerance spectrum. Determining whether these patients will benefit from treatment will require a randomized controlled trial.

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LEVEL OF EVIDENCE: II

In 2010, The International Association of the Diabetes and Pregnancy Study Groups (IADPSG) proposed new criteria for the diagnosis of gestational diabetes (GDM) that required that one or more of the following plasma glucose values be equaled or exceeded: fasting 92 mg/dL, 1-hour 180 mg/dL, and 2-hour 153 mg/dL, the latter two following a 75-g glucose load.[1] These glucose values, selected by consensus, were based on the fasting, 1- and 2-hour results at which the adjusted odds ratio (OR) for selected adverse pregnancy outcomes was 1.75 times that at the mean glucose values of a large, observational study (Hyperglycemia and Adverse Pregnancy Outcome). The IADPSG consensus committee considered selecting glucose values corresponding to an adjusted OR of 2.0 (fasting 95 mg/dL, 1-hour 191 mg/dL, 2-hour 162 mg/dL, or all of these), but this proposal was rejected because of concerns that a substantial

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proportion of women with lower glucose tolerance test (GTT) results at risk for adverse outcomes would be missed.[1] Further investigation of GDM diagnostic criteria based on an adjusted OR of 2.0 was suggested as a research need by the National Institutes of Health consensus panel.[2] Nonetheless, the Canadian Diabetes Association adopted the latter as the preferred criteria to define GDM[3] (Table 1).

The IADPSG criteria were met with critical scrutiny, based largely on the resulting increase in GDM prevalence with the addition of the women who were not previously diagnosed as having GDM.[4–8] Specific concern has been expressed that milder forms of GDM may not benefit from treatment. To address this concern, most researchers have retrospectively applied the IADPSG criteria to existing data and then compared the prevalence of selected adverse pregnancy outcomes among untreated women meeting the IADPSG criteria with those who did not meet these criteria.[9–16] Many of these studies are confounded by selective screening using results of a 50-g 1-hour glucose challenge test to determine candidacy for glucose tolerance testing,[10–15] selected patients for screening based on risk factors,[10] or extrapolated from results of a 100-g GTT.[12] Moreover, it is unclear whether the prevalence of adverse pregnancy outcomes among women who would not have been diagnosed with GDM previously (ie, those at the lower end of the IADPSG-defined glucose intolerance spectrum) is of a magnitude that might warrant treatment. Our purpose was therefore to compare the risks of selected adverse pregnancy outcomes among universally tested untreated women who met the IADPSG-defined glucose thresholds at adjusted ORs of 1.75 and 2.0 with those of women who had no glucose intolerance in pregnancy.

MATERIALS AND METHODS

The Kaiser Permanente Southern California Medical Care Program is a large, prepaid, managed health care organization with 3.3 million members in 2010. Health plan members receive their health care in Kaiser Permanente Southern California-owned medical offices and hospitals. In 1995 we published the results of a 75-g, 2-hour GTT administered to 3,505 unselected pregnant women.[17] Following O'Sullivan's model[18] but without antecedent glucose screening, we defined GDM as at least two GTT results equaling or exceeding the mean±2 standard deviation for fasting, 1- and 2-hour values, rounded to the nearest 5 mg/dL. Table 1 presents the specifics of these criteria as well as those determined by the IADPSG and those used in this study. This is a secondary analysis of data from women who received their prenatal care at the Kaiser Permanente Southern California Bellflower Medical Center who were universally screened for GDM using a 75-g 2-hour GTT between October 30, 2005, and December 30, 2010, and who subsequently delivered a live-born singleton neonate at 20 weeks of gestation or greater.[19] Of these 10,459 women, 624 met institutional criteria for GDM treatment (at least two values greater than or equal to fasting 100 mg/dL, 1-hour 195 mg/dL, or 2-hour 160 mg/dL) and were excluded from the study sample, resulting in a final sample of 9,835 women for the current study. Details regarding the GDM screening protocol, sources of data, and definitions of outcomes have been previously reported.[19,20] This study was reviewed and approved by the Kaiser Permanente Southern California institutional review board.

Data were extracted directly from the electronic health record by one of the authors (M.H.B.). Gestational age was obtained from the electronic health

Table 1. Criteria Defining Gestational Diabetes Mellitus

Source	Glucose Load (mg)	Fasting (mg/dL)	1-Hour (mg/dL)	2-Hour (mg/dL)	3-Hour (mg/dL)	No. of Values Equaled or Exceeded to Define GDM
Kaiser Bellflower[17]	75	100	195	160	None	2
IADPSG[1]	75	92	180	153	None	1
GDM-1	75	92–94	180–190	153–161	None	1
GDM-2*	75	95	191	162	None	1
The College[29†]	100	95	180	155	140	2

IADPSG, The International Association of the Diabetes and Pregnancy Study Groups; GDM, gestational diabetes mellitus; the College, American College of Obstetricians and Gynecologists.
American College of Obstetricians and Gynecologists test criteria are included for comparative purposes.
* But not meeting Kaiser Bellflower criteria.
† Glucose tolerance test administered to those whose 50-g, 1-hour glucose screening test result is 130 or greater or 140 mg/dL.

record. Consistent with the methods used in the Hyperglycemia and Adverse Pregnancy Outcome study,[21] birth weight percentile was calculated by quantile regression analysis stratified by sex and race–ethnicity with adjustment for gestational age and parity. Prepregnancy maternal weight was determined in a hierarchical fashion with 98% of the women in the sample having their prepregnancy weight assessed using information in the electronic health record within 3 months before or after last menstrual period.[20] Maternal weight at delivery was based on measures taken within 14 days before delivery in 96% of patients. The GTT results were used to stratify women in the sample into three mutually exclusive categories: those whose GTT results were below the IADPSG criteria ("no GDM"), those whose results met the IADPSG criteria but were less than those that corresponded to an adjusted OR of 2.0 ("GDM-1"), and those whose GTT results met the threshold based on an adjusted OR of 2.0 but did not satisfy the institutional definition requiring treatment ("GDM-2"). Adverse outcomes explored in these analyses included preeclampsia–eclampsia, preterm delivery, cesarean delivery, birth weight, large for gestational age (LGA), shoulder dystocia, birth trauma, and neonatal respiratory distress, transient tachypnea, hypoglycemia, and hyperbilirubinemia. Preterm was defined as birth before 37 weeks of gestation. Large for gestational age was defined as a birth weight greater than or equal to the 90th percentile for gestational age, gender, race–ethnicity, and parity. The remaining outcome variables were based on International Classification of Diseases, 9th Revision, Clinical Modification codes.

We examined the associations among maternal demographic, clinical, and anthropometric characteristics, adverse maternal and neonatal outcomes, and GDM status (no GDM, GDM-1, and GDM-2) before and after adjustment for maternal age, race–ethnicity, parity, prepregnancy body mass index (BMI, calculated as weight (kg)/[height (m)]^2), and gestational weight gain up until the oral GTT. Associations between outcomes and GDM status were assessed using the χ^2 test in logistic regression models for categorical variables and the analysis of variance F-test in generalized linear regression model for continuous variables. Adjusted associations were assessed using type III χ^2 test and analysis of variance type III F-test for categorical and continuous variables, respectively. The pairwise differences in least-square means among the three GDM status categories (no GDM, GDM-1, and GDM-2) were compared and Tukey honestly significant difference adjustment was applied for multiple comparisons. All analyses were performed with SAS 9.3.

RESULTS

Of the 9,835 women, 1,892 (19.2%) met the IADPSG criteria for the diagnosis of GDM. Among the latter, 771 (40.8%) had GDM-1 and 1,121 (59.2%) GDM-2. Patient characteristics are presented in Table 2. Eighty-three percent of all patients initiated prenatal care in the first trimester. Women in both GDM groups were older and of greater parity than those without GDM. Overall, 31.7% of women were overweight and 27.8% were obese. The proportion of overweight and obese women (combined) in the two GDM groups (74.9% in GDM-1 and 77.3% in GDM-2) was greater than that of the women with no GDM (55.5%) ($P<.001$). Although absolute weight gain in the two GDM groups was less than that of women in the no GDM group, the proportion of women exceeding Institute of Medicine weight gain recommendations based on their prepregnancy BMI[22] was significantly greater in the GDM-2 group than in the no GDM group. As expected, significant differences in each of the three (fasting, 1- and 2-hour) GTT results were noted among all three groups. In addition, the proportion of women who had two or more abnormal values was greater for the GDM-2 group than for the GDM-1 group (respectively, 32.0% and 9.9%, $P<.001$).

The unadjusted associations between maternal and neonatal outcomes for each of the three GDM groups are reported in Table 3. Significant differences were found between the GDM-2 and No GDM groups for preeclampsia–eclampsia, preterm delivery, primary and total cesarean deliveries, birth weight, neonatal ponderal index, LGA, shoulder dystocia, transient tachypnea, and neonatal hypoglycemia. All but the difference in total cesarean deliveries remained significant after adjustment for maternal age, race–ethnicity, parity, prepregnancy BMI, and gestational weight gain at oral GTT (Table 4). In contrast, significant differences found in univariate analyses between GDM-1 and no GDM groups in primary and total cesarean delivery and ponderal indices did not remain after adjustment, whereas those in birth weight and LGA did (Table 3). In comparing the incidence of pregnancy complications between women who did or did not have GDM, the majority (59–80%) of adverse pregnancy outcomes in the total patient sample occurred among women who did not have IADPSG-defined GDM (Table 4).

Table 2. Demographic and Clinical Characteristics of the 9,835 Women in the Study Sample, Overall and Stratified by Gestational Diabetes Mellitus Status Subtype

Characteristic	All Women	No GDM	GDM-1	GDM-2	P*
n	9,835	7,943 (80.8)	771 (7.8)	1,121 (11.4)	
Demographics					
Maternal age (y)	28.9±6.0	28.4±5.9†,‡	30.9±5.6§	31.0±5.7§	<.001
Race–ethnicity					.020
Non-Hispanic white	666 (6.8)	534 (6.7)	54 (7.0)	78 (7.0)	
Black	1,003 (10.2)	848 (10.7)	69 (8.9)	86 (7.7)	
Latina	7,343 (74.7)	5,922 (74.6)	582 (75.5)	839 (74.8)	
Asian or Pacific Islander	717 (7.3)	552 (6.9)	62 (8.0)	103 (9.2)	
Other	56 (0.6)	47 (0.6)	1 (0.1)	8 (0.7)	
Unknown	50 (0.5)	40 (0.5)	3 (0.4)	7 (0.6)	
Parity					<.001
0	4,371 (44.4)	3,640 (45.8)	299 (38.8)	432 (38.5)	
1 or greater	5,331 (54.2)	4,188 (52.7)	463 (60.1)	680 (60.7)	
Unknown	133 (1.4)	115 (1.4)	9 (1.2)	9 (0.8)	
Began prenatal care in 1st trimester	8,486 (86.3)	6,825 (85.9)	675 (87.5)	986 (88)	.102
Gestation at OGTT (wk)	26.8±2.9	26.8±2.8	26.9±3.0	26.8±3.6	.617
Prenatal smoking					.485
No	9,299 (94.6)	7,515 (94.6)	727 (94.3)	1,057 (94.3)	
Yes	420 (4.3)	332 (4.2)	39 (5.1)	49 (4.4)	
Unknown	116 (1.2)	96 (1.2)	5 (0.6)	15 (1.3)	
Weight and weight gain					
Prepregnancy BMI category					<.001
Normal (BMI [kg/m^2] 18.5–24.9) and underweight (BMI less than 18.5)	3,984 (40.5)	3,535 (44.5)	194 (25.2)	255 (22.7)	
Overweight (BMI 25.0–29.9)	3,116 (31.7)	2,493 (31.4)	279 (36.2)	344 (30.7)	
Obese (BMI 30 or greater)	2,735 (27.8)	1,915 (24.1)	298 (38.7)	522 (46.6)	
Weight gain total (lb)	28.9±14.1	29.1±13.9†	27.8±14.5§	28.3±15.2	.013
Weight gain at OGTT (lb)‖	12.5±10.8	12.4±10.6	12.7±10.4	12.9±12.5	<.385
Exceeded IOM weight gain at delivery	4,819 (49.0)	3,811 (48.0)‡	392 (50.8)	616 (55.0)§	<.001
Exceeded IOM weight gain at OGTT	4,351 (44.3)	3,438 (43.3)‡	366 (47.5)	547 (48.8)§	.001
Glucose					
Mean OGTT values (mg/dL)					
Fasting	83.5±8.0	81.1±5.6†,‡	90.0±5.3‡,§	96.4±9.3†,§	<.001
1 h	131.6±30.7	124.3±26.3†,‡	155.9±27.8‡,§	166.4±29.4†,§	<.001
2 h	107.4±22.9	102.7±19.7†,‡	123.0±22.0‡,§	130.0±26.7 †,§	<.001
No. of glucose thresholds exceeded					<.001
0	7,943 (80.8)	7,943 (100)	0 (0)	0 (0)	
1	1,456 (14.8)	0 (0)	694 (90)	762 (68)	
2	377 (3.8)	0 (0)	72 (9.3)	305 (27.2)	
3	59 (0.6)	0 (0)	5 (0.6)	54 (4.8)	

GDM, gestational diabetes mellitus; OGTT, oral glucose tolerance test; BMI, body mass index; IOM, Institute of Medicine.
Data are mean±standard deviation or n (%) unless otherwise indicated.
* *P* values based on χ^2 test or analysis of variance F test for continuous variables. Tukey-adjusted pairwise comparisons of variance or frequencies among multiple groups were used.
† Significantly different than GDM-1.
‡ Significantly different than GDM-2.
§ Significantly different than no GDM.
‖ Data for four patients are missing.

DISCUSSION

After the retrospective application of the IADPSG criteria to the 75-g oral GTT values of the women in this sample, we found that with the exception of birth weight and LGA, the adjusted prevalence of adverse outcomes in the milder GDM group (GDM-1) was not significantly different from that of the no GDM group. Mean birth weight and the percent with LGA neonates was significantly greater among neonates born to women in the GDM-1 and GDM-2 groups than among those born to women without GDM. For the GDM-1 group, differences in all outcomes except for birth weight and LGA were no longer significant after adjusting for maternal demographic characteristics,

Table 3. Prevalence of Maternal and Neonatal Outcomes Overall and by Gestational Diabetes Mellitus Subtype, Before and After Adjustment for Maternal Demographics, Prepregnancy Body Mass Index, and Gestational Weight Gain

Outcome	No GDM	GDM-1	GDM-2	Unadjusted P[a]	Adjusted P[b]
Maternal					
Preeclampsia–eclampsia	352 (4.4)[c,d]	33 (4.3)[c,d]	86 (7.7)[e,f,g,h]	<.001	.001
Preterm delivery[i]	491 (6.2)[c,d]	53 (6.9)[c,d]	121 (10.8)[e,f,g,h]	<.001	<.001
Primary cesarean delivery	1,322 (16.6)[c,d,f]	159 (20.6)[e]	250 (22.3)[e,g]	<.001	.02
Total cesarean delivery	2,102 (26.5)[c,f]	237 (30.7)[c,e]	410 (36.6)[e,f]	<.001	.07
Neonatal					
Male sex	4,111 (51.8)	382 (49.5)	575 (51.3)	.496	.55
Gestational age at delivery (wk)[j]	39.0±1.7[c,d,f]	38.8±1.9[e]	38.7±2.0[e,g]	<.001	<.001
Birth weight (g)	3,333.8±509.9[c,d,f,h]	3,442.2±558.1[e,g]	3,450.8±618.8[e,g]	<.001	<.001
Ponderal index[k]	2.7±0.3[c,d,f]	2.7±0.3[e]	2.8±0.4[e,g]	<.001	.001
LGA	785 (9.9)[c,d,f,h]	120 (15.6)[c,e,g]	226 (20.2)[e,f,g]	<.001	<.001
Shoulder dystocia	175 (2.2)[c,d]	19 (2.5)	42 (3.7)[e,g]	.007	.05
Birth trauma	137 (1.7)	17 (2.2)	29 (2.6)	.103	.19
Respiratory distress	125 (1.6)	14 (1.8)	28 (2.5)	.078	.43
Transient tachypnea	182 (2.3)[c,d]	21 (2.7)	44 (3.9)[e,g]	.004	.03
Hyperbilirubinemia	1,571 (19.8)	155 (20.1)	249 (22.2)	.163	.32
Neonatal hypoglycemia	41 (0.5)[c,d]	5 (0.6)[c]	24 (2.1)[e,f,g]	<.001	<.001

GDM, gestational diabetes mellitus; LGA, large for gestational age.
Data are n (%) or mean±standard deviation unless otherwise indicated.
[a] P values based on χ^2 test or analysis of variance F test for continuous variables.
[b] P values based on type III Wald χ^2 test or analysis of variance F test for continuous variables. Models were adjusted for maternal age (continuous), race–ethnicity (categorical), parity (categorical: 0, 1, 2 or greater), prepregnancy body mass index (continuous), and gestational weight gain at oral glucose tolerance test (continuous). Tukey-adjusted pairwise comparisons of frequencies among multiple groups were used.
[c] Significantly different than GDM-2 (in crude model).
[d] Significantly different than GDM-2 (in adjusted model).
[e] Significantly different than no GDM (in crude model).
[f] Significantly different than GDM-1 (in crude model).
[g] Significantly different than no GDM (in adjusted model).
[h] Significantly different than GDM-1 (in adjusted model).
[i] Data for four patients missing (in adjusted model).
[j] Data for six patients missing.
[k] Adjusted analysis of ponderal index included 71.4% of women (n=7,020).

BMI, and weight gain. In contrast, there were statistically significant differences between the GDM-2 and the no GDM groups for all but one adverse outcome (total cesarean deliveries) even after adjustment for these variables. Despite 19% of all 9,835 women in our patient sample having GDM-1 and GDM-2, the largest proportion of adverse outcomes occurred among women who did not have GDM (Table 4). Clinicians should be mindful that these same outcomes may also occur in association with other risk factors, for example, maternal overweight and obesity.[19]

Fetal overgrowth is a common clinical measure used in comparisons of levels of glucose intolerance and success of treatment of GDM. In studies comparing untreated women with and without IADPSG-defined GDM, some found significant differences in birth weight, macrosomia, or LGA,[9–12,16] whereas others did not.[13–15] Differences in patient demographics and between-institution differences in glucose tolerance testing (eg, use of a 50-g screening test), glucose loading doses, glucose thresholds defining GDM and number of thresholds required to be equaled or exceeded to define GDM may partially explain the disparity in findings between these studies.

Our data demonstrate that a greater number and proportion of adverse outcomes occurred among women at the higher end of the IADPSG GDM glucose spectrum than at the lower end. Whether treating women in either or both GDM groups would have resulted in a reduction in frequency of these outcomes is not known. One study of women with IADPSG-defined GDM found a greater incidence of gestational hypertension and LGA in the treated GDM group than in the group without GDM.[23] Two other studies reported that the prevalence of adverse outcomes including LGA and hypertensive disorders of pregnancy among treated women with

Table 4. Proportion of Each Adverse Outcome Associated With No Gestational Diabetes Mellitus and Each Gestational Diabetes Mellitus Subtype in Relation to the Distribution of the Subtypes in the Overall Sample

Outcome	Total	Total Study Sample		
		No GDM	GDM-1	GDM-2
	9,835	7,943 (80.8)	771 (7.8)	1,121 (11.4)
Obstetric				
Preeclampsia–eclampsia	471	352 (74.7)	33 (7.0)	86 (18.3)
Preterm delivery	665	491 (73.8)	53 (8.0)	121 (18.2)
Primary cesarean delivery	1,731	1,322 (76.4)	159 (9.2)	250 (14.4)
Total cesarean delivery	2,749	2,102 (76.5)	237 (8.6)	410 (14.9)
Neonatal				
LGA	1,131	785 (69.4)	120 (10.6)	226 (20.0)
Shoulder dystocia	236	175 (74.2)	19 (8.1)	42 (17.8)
Birth trauma	183	137 (74.9)	17 (9.3)	29 (15.8)
Respiratory distress	167	125 (74.9)	14 (8.4)	28 (16.8)
Transient tachypnea	247	182 (73.7)	21 (8.5)	44 (17.8)
Hyperbilirubinemia	1,975	1,571 (79.5)	155 (7.8)	249 (12.6)
Neonatal hypoglycemia	70	41 (58.6)	5 (7.1)	24 (34.3)

GDM, gestational diabetes mellitus; LGA, large for gestational age.
Data are n or n (%).

IADPSG GDM was not significantly different from women who did not have GDM.[24,25] Whether in the latter studies the absence of differences in these two groups was the result of effectiveness of treatment or a lack of difference in prevalence of adverse outcomes independent of treatment cannot be inferred as a result of the lack of an untreated IADPSG GDM control group.

The limitations of our study must be acknowledged. To avoid confounding by treatment, we limited our analyses to data from women who did not meet our institutional criteria for GDM. In doing this, we reduced the total IADPSG GDM population included in these analyses by approximately 25%. However, the eliminated women would all have been included in the GDM-2 group and likely would have contributed to an increase in the proportion of adverse outcomes observed for that group. Although we were able to calculate neonatal ponderal indices, we did not have measurements of neonatal body composition. The ponderal index correlates poorly with objective measures (eg, air displacement plethysmography) of neonatal fat.[26] Having the latter measures might have enabled analysis of the relationships among maternal glucose intolerance, prepregnancy weight, weight gain, and neonatal body composition. Although we had adequate power to detect differences between GDM-1 and GDM-2 for most outcomes, power for some differences may have been limited by sample size (eg, neonatal hypoglycemia). The women in our study sample were predominantly (75%) Latina. Although our sample is not representative of the overall race and ethnic composition of the U.S. population, it does provide insight into the fastest growing minority group in the United States and a group that is at substantial risk for developing GDM.

Our study has a number of strengths. We took advantage of a retrospectively identified cohort of 9,835 women of which a large (n=1,892) proportion met or exceeded IADPSG GDM thresholds but did not meet institutional criteria for treatment. This provided an opportunity to analyze pregnancy outcomes among women who did and did not meet IADPSG GDM criteria independent of treatment. Eighty-three percent of the women in our sample started prenatal care in first trimester, facilitating accuracy in estimating gestational age. The prevalence of overweight and obesity among women in our sample (59%) closely approximated that of reproductive-aged women in the United States.[27] Having objective measurements of prepregnancy weight and weight at delivery taken from the electronic health record provided greater accuracy in estimating pregnancy weight gain. Our ability to detect differences in mean birth weight was enhanced by our sample size and the fact that birth weight was treated as a continuous variable.

In this study, we found that women with milder IADPSG-defined GDM had fewer adverse outcomes than those with higher GTT results. After adjustment for confounders, significant differences in birth weight and LGA remained between women with milder GDM and those who did not have GDM. The critical

clinical question that cannot be answered by these or similar comparative data are whether the prevalence of these outcomes can be reduced by treatment. Forty-five years elapsed between the time of presentation of criteria defining GDM in the United States[18] and a randomized controlled trial that established that a subset of women identified by these criteria for GDM would benefit from treatment.[28] The current data are presented in the hope that they will serve as a stimulus to shorten the latency period between publication of the IADPSG criteria and a prospective randomized controlled trial establishing their value.

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