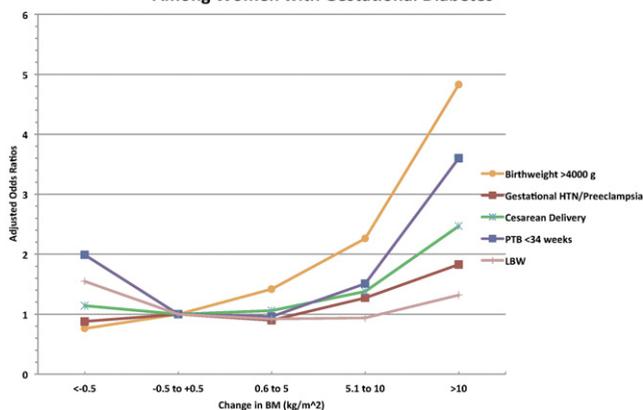


Adjusted Odds Ratios for Pregnancy Outcomes as a Function of Change in BMI Among Women with Gestational Diabetes



269 Delivery outcomes of large for gestational age (LGA) infants of diabetic mothers (IDMs)

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OBJECTIVE: To evaluate delivery outcomes of LGA infants of IDMs.
STUDY DESIGN: Observational study (2008-11) of all LGA infants (birthweight >90th% for GA) delivered to 144 mothers with pregestational diabetes (PGDM) and 157 mothers with GDM. Major malformations and GA <34 w pts were excluded. Primary outcome of interest was shoulder dystocia (SD) and associated morbidity.

RESULTS: A total of 301 births were identified. 104 women (34.6%) delivered via repeat cesarean delivery (CD) while 106 (35.2%) women underwent a primary CD (67 for macrosomia, 13 for FTP, 8 for breech presentation, 10 for nonreassuring fetal heart rate status, 8 other). A total of 91 women (30.2%) delivered vaginally, with 20 cases complicated by shoulder dystocia (22% of vaginal deliveries). No cases of brachial plexus injury or humeral/clavicular fracture occurred. Other neonatal morbidities included RDS/TTNB (55%), late preterm birth (35% of PGDMs and 24% of GDMs), 5 minute Apgar <6 (9 patients, 2 with severe depression), and neonatal hypoglycemia (Glc values <40 mg/dl, affected 68 pts once and 49 others at least twice). NICU admission occurred in 81% of PGDMs and 35% of GDMs, but 75% of these admissions were <48 hours in duration, usually for the indication of blood sugar monitoring.

CONCLUSION: We confirm a high frequency of SD in LGA IDMs delivered vaginally. Despite selection of a high proportion of cases for primary CD, SD occurred in 22% of all vaginal deliveries. A liberal approach to CD with suspected macrosomia in diabetic pregnancy cannot prevent all cases of SD in this high risk population.

	34-36 w	37 w	38 w	39 w	40 w	Total
Number	88	78	74	49	12	301
% GDM	43%	35%	53%	84%	100%	51%
IOL (#)	28	22	17	18	4	89 (30%)
Vag del (#)	35	18	16	17	5	91 (30%)
Primary CD (#)	29	31	29	14	3	106 (35%)
Shoulder Dystocia (#)	4	7	3	4	2	20 (22%)
Mean Birthweight (g)	3543	4062	4221	4289	4223	

270 Effects of maternal hyperglycemia on placental vascular responsiveness

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OBJECTIVE: Hyperglycemia has been shown to impact the body's ability to regulate blood supply via excess uptake of endogenously produced nitric oxide. Lacking any neural stimulus, fetal-placental vascular tone is regulated via autocrine mechanisms, specifically vascular production of nitric oxide. We sought to investigate the effects of maternal hyperglycemia on the placenta's ability to self regulate its blood flow.

STUDY DESIGN: Using the placental perfusion model, 15 unlabored placentas at term were analyzed. Vascular responsiveness, as measured by pressure change from baseline, was recorded following serial injections of L-NAME, a nitric oxide inhibitor, into the fetal circulation. Dextrose was then added to the circulatory bath at a concentration of 8×10^{-3} M, and serial injections of L-NAME were again administered; pressure change from baseline was again recorded. The pressure changes between the normoglycemic and hyperglycemic placentas were compared at each concentration of L-NAME. The data was analyzed using the Mann-Whitney U test.

RESULTS: Fetal vascular responsiveness, as measured by the change in pressure, was diminished in 10/15 placentas at an L-NAME concentration of 10^{-3} M, 7/15 at 10^{-4} M, 9/14 at 10^{-5} M, and 6/15 at 10^{-6} M. There was a significant difference in the change in pressure in the normoglycemic placenta vs. the hyperglycemic placenta after injection of L-NAME at 10^{-5} and 10^{-3} concentrations.

CONCLUSION: In an in vitro placental perfusion model, placental hyperglycemia appears to reduce the nitric oxide inhibition effects of L-NAME, reaching statistical significance at 10^{-5} and 10^{-3} .

L-NAME Concentration	Normoglycemia (median mmHg)	Hyperglycemia (median mmHg)	p
10^{-6}	25.0 (20.2 - 31.0)	30.0 (18.0 - 42.0)	0.23
10^{-5}	29.0 (20.6 - 33.1)	24.0 (16.0 - 30.8)	0.001
10^{-4}	26.0 (18.3 - 30.0)	26.0 (17.0 - 36.3)	0.57
10^{-3}	24.0 (20.0 - 30.0)	20.0 (11.2 - 26.0)	0.01

271 The effect of metformin on insulin requirements in pregnancies complicated by type 2 diabetes

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OBJECTIVE: To investigate the effect of metformin on gestational insulin requirements in pregnancies complicated by type 2 diabetes (T2DM) in obese and non-obese populations.

STUDY DESIGN: A retrospective cohort study was performed on women with singleton term pregnancies with T2DM enrolled in the U.C. San Diego Diabetes and Pregnancy program from February 2008 to October 2011. Exclusion criteria included use of sulfonylureas, delivery at outside institutions, or insufficient prenatal care. Comparisons of patients using insulin alone versus those on insulin/metformin therapy were made using the t-test for continuous variables and the chi-squared or fisher's exact tests for categorical variables.

RESULTS: A total of 69 women met inclusion criteria, 40 in the insulin-only cohort and 19 in the insulin/metformin cohort. Demographic variables, including age, ethnicity, parity, initial BMI and HbA1c were not significantly different between the two groups. 75% of patients in the insulin-only cohort and 53% in the insulin/metformin cohort were obese in the first trimester. In the obese population, patients on metformin had significantly higher total and short-acting insulin requirements at 36 weeks compared to the insulin-only cohort (table 1). In the non-obese population, there were no significant differences in insulin requirements between the metformin/insulin and insulin-only cohorts. Gestational age at delivery, infant birthweight, frequency of macrosomia, mode of delivery, and Apgar scores were similar in both groups.