

CONCLUSION: Obese patients with T2DM on metformin as an adjunct to insulin required higher insulin doses in the third trimester as compared to patients on insulin only. Use of metformin did not reveal any negative effect on birth outcomes. A key mechanism of action of metformin, increasing insulin sensitivity, would purport that decreased insulin doses would be required, contrary to our conclusions. Prospective trials are needed to elucidate whether empiric metformin can truly decrease insulin needs.

Insulin requirements for the insulin-only and metformin/insulin combination therapy cohorts

Insulin Requirements (units/kg/day)	Insulin Only	Metformin + Insulin	p-value
Obese (n=40)			
Total insulin requirement			
28 weeks	0.9 ± 0.4	1.2 ± 0.7	.03
36 weeks	1.2 ± 0.3	1.6 ± 0.8	.06
NPH dose requirement			
28 weeks	0.5 ± 0.2	0.7 ± 0.3	.06
36 weeks	0.7 ± 0.2	0.8 ± 0.3	.08
Humalog dose requirement			
28 weeks	0.4 ± 0.2	0.5 ± 0.4	.14
36 weeks	0.5 ± 0.2	0.8 ± 0.5	.03
Non-obese (n=19)			
Total insulin requirement			
28 weeks	1.0 ± 0.3	1.0 ± 0.7	1.00
36 weeks	1.3 ± 0.6	1.3 ± 0.6	.91
NPH dose requirement			
28 weeks	0.6 ± 0.1	0.6 ± 0.4	.91
36 weeks	0.8 ± 0.3	0.8 ± 0.3	.79
Humalog dose requirement			
28 weeks	0.4 ± 0.2	0.4 ± 0.3	.88
36 weeks	0.5 ± 0.3	0.5 ± 0.3	.96

Data are mean ± SD.

272 Pregnancy outcomes among women with type 1 diabetes managed with continuous insulin pumps versus multiple injections: a propensity-score based analysis

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OBJECTIVE: Compare pregnancy outcomes among women with type 1 diabetes managed with a continuous subcutaneous insulin pump (pump) to women managed with multiple insulin injections (injections).

STUDY DESIGN: This was a retrospective cohort study of pregnancies among women with type 1 diabetes who delivered at UCSF since 2006. Pregnancies prior to 2006 among women who also delivered after 2006 were included. Outcomes in women who were managed with a pump were compared to women managed with injections using a propensity-score based approach. The propensity to be on a pump was based on age, age at diagnosis, parity, distance from UCSF (> 50 mi or < 50 mi) and median income of the patient's county of residence. Primary outcomes were a composite maternal outcome (vaginal delivery, no antepartum admissions or preeclampsia and peripartum hospitalization ≤ 5 days) and neonatal outcome (delivery ≥ 36 weeks, no hypoglycemia or hyperbilirubinemia, neonatal hospitalization ≤ maternal stay and care in the well-baby nursery).

RESULTS: There were 48 pregnancies included, 35 among women on a pump, 13 among women using injections. Women on pumps were more likely to be older, live closer to UCSF and have a higher median income in their home county. Optimal maternal and neonatal outcomes occurred among 22.7% and 25.7% of women on a pump versus 7.7% of women on injections (p = 0.2). When subjects were propensity-score matched, however, women on pumps were more likely to have both optimal maternal and neonatal outcomes (p < 0.01).

CONCLUSION: Using propensity-scores for matching, women on insulin pumps appear to have better pregnancy outcomes than women on multiple daily injections. Additional investigation is needed to determine if this association is a function of improved glycemic control or other factors. Although geographic and socioeconomic factors may be

important barriers, consideration of initiation of an insulin pump before or even during pregnancy may be warranted.

	Insulin Pump	Multiple Insulin Injections	p			
Number of Pregnancies	35	13				
Mean maternal age at delivery (years)	25	32.9	< 0.001			
Mean age at diabetes diagnosis (years)	15.8	14.2	0.6			
Home > 50 miles from SF (%)	22.9	61.5	0.01			
Median Income in Home County (\$)	73,035	58,025	0.001			
Mean hemoglobin A1c during pregnancy (mg/dl)	6.5	8.3	< 0.001			
Mean GA at Delivery (weeks)	36.9	37.1	0.6			
Vaginal Delivery (%)	60.0	30.8	0.07			
Any Antepartum Stays (%)	31.4	46.2	0.3			
Preeclampsia (%)	22.9	38.5	0.3			
Neonatal Hyperbilirubinemia (%)	45.7	53.9	0.6			
Neonatal Hypoglycemia	40.0	53.9	0.4			
Neonatal Stay > Maternal Stay (%)	17.1	38.5	0.1			
	Insulin Pump	Multiple Insulin Injections	p	† Propensity Matched	Propensity Matched Untreated	p
Optimal Maternal Outcome (%)	22.7	7.7	0.2	18.8	0	< 0.01
Optimal Neonatal Outcome (%)	25.7	7.7	0.2	25.0	0	< 0.01

† Propensity matching based on maternal age, age at diagnosis, parity, distance from UCSF (> 50 miles or < 50 miles) and median income of the patient's county of residence.

273 Gestational diabetes screening: do neonatal outcomes differ based on one-step or two-step methods in a high risk population?

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OBJECTIVE: Our inner city obstetrical clinic changed their routine gestational diabetes screen from the 2 step 1 hour (1H) 50 g glucose screen to the one step 2 hour (2H) 75 g screen in July 2011. We sought to determine the effect of this change on neonatal outcomes.

STUDY DESIGN: A retrospective chart review was performed for the nine months preceding the change in screening method through the first six months of the 2H one-step screen. Delivery date and results of diabetic screen were collected. We also collected infant outcomes including rates of NICU admission, small for gestation age (SGA), large for gestational age (LGA), hypoglycemia, hyperbilirubinemia, respiratory distress syndrome (RDS), intraventricular hemorrhage (IVH), culture proven sepsis, and necrotizing enterocolitis (NEC).

RESULTS: There were 837 patients who delivered during the study period. Of these patients, 501 delivered during the 1H testing period and 336 delivered during the 2H testing period. During the 2H testing period there was an increase in the diagnosis of gestational diabetes from 7% to 11.7%. Rates of NICU admission, SGA, LGA, hypoglycemia, hyperbilirubinemia, RDS, IVH, culture proven sepsis, and NEC were similar between the two groups (see figure). The rate of hypoglycemia was 35.3% during the 1H testing period and 19.2% during the 2H testing period. This was not statistically significant.

CONCLUSION: Screening for gestation diabetes using the 2 step process does not result in a change in neonatal outcomes despite a high risk population. There was a trend towards decreased rates of hypoglycemia but this was not statistically significant.