RESULTS: Among the 486 women studied, 53 women (10.9%) were diagnosed as GDM by American Diabetes Association (ADA) criteria. The fasting plasma glucose (FPG), two step 50gr GCT and 75gr GTT methods identified GDM in 25/486(5.1%), 15/248(6.0%) and 27/238(11.3%) women respectively. Area under ROC curve of FPG testing was 0.623 (95% CI, 0.538-0.707), 50gr two step GCT was 0.708 (95% CI, 0.617-0.798) and 75 gr GTT was 0.792 (95% CI, 0.709-0.876) respectively.

CONCLUSION: Fasting plasma glucose levels recommended by The International Association of Diabetes and Pregnancy Study Groups (IADPSG) has a very high false positive rate, making it an inappropriate test for diagnosing GDM. The 75 gr GTT is the preferable test with the highest sensitivity, specificity, positive and negative predicitive values for diagnosing GDM in the first trimester.

Diagnostic performance of FPG, 50 gr GCT and 75gr GTT in the first trimester

	Fasting Plasma Glucose	50gr two-step OGCT	75gr GTT
Sensitivity	47.17	68.18	87.1
Specificity	77.37	100	100
Positive Likelihood Ratio	2.08	Infinity	Infinity
Negative Likelihood Ratio	0.68	0.32	0.13
Positive predictive value	20.33	100	100
Negative predictive value	92.29	97	98.1
Prevalence	10.91	8.87	13.03

240 Ultrasound prediction of birthweight in diabetic pregnancies: 3D volumes vs 2D biometry?

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OBJECTIVE: Risk of macrosomia and shoulder dystocia in diabetic pregnancies place a premium on prediction of birthweight (BW) in late pregnancy. 2D ultrasound has historically performed poorly. We aimed to estimate if 3D humeral and femoral volumes were superior to, or could improve upon the 2D estimated fetal weight (EFW) prediction of BW.

STUDY DESIGN: We performed a 2-year prospective cohort study of consecutive pregnancies complicated by gestational (GDM) and pregestational Type II diabetes (DM-II). Between 33-37 weeks, they underwent 2D ultrasound for estimated weight (EFW) by biometry, as well 3D volumes of the humerus and femur. BW and detailed clinical history was collected. Macrosomia was defined by absolute weight, using ≥ 4000g and ≥ 4500g, as well as BW percentile, using ≥ 90th and ≥ 95th %iles. 2D EFW and 3D volumes were considered both continuously as percentiles using published nomograms, and dichotomously. Multivariable regression was used to adjust for diabetes type and time in weeks between ultrasound and delivery. Receiver operator characteristic curves were used to estimate the predictive ability of the models, and were compared with the c-statistic.

RESULTS: Of 176 women, 27 (15.3%) delivered an infant ≥ 4000g, 36 (20.5%) ≥ 90th%ile, and 26 (14.8%) ≥ 95%ile. 2D EFW was most predictive of BW ≥ 95%ile (AUC 0.82), followed by humerus volume (AUC 0.80), and then femur volume (AUC 0.67). The addition of 3D volumes to the 2D predictive model did not improve upon its ability to predict BW.

CONCLUSION: While humoral and femoral volumes are easily obtained during 2D ultrasounds for growth, they do not improve prediction of macrosomia in diabetic pregnancies; 2D biometry alone remains the most predictive tool for BW in diabetic pregnancies.

	2D EFW (Base model)	Including 3D Femur volume %ile		Including 3D Humerus volume %ile		Including 3D Femur & Humerus volumes	
	AUC	AUC	p	AUC	p	AUC	p
BW ≥ 4000g	0.83	0.83	0.81	0.85	0.12	0.86	0.13
BW ≥ 4500g	0.86	0.85	0.64	0.86	0.83	0.85	0.90
BW ≥ 90th %ile	0.81	0.81	0.78	0.82	0.61	0.82	0.56
BW ≥ 95th %ile	0.82	0.82	0.71	0.85	0.18	0.86	0.09

**P* values compare AUC for specified model to base model AUC.

241 Prospective evaluation of glycemic markers to predict morbidity in diabetic pregnancies

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OBJECTIVE: Fructosamine remains unutilized in clinical obstetrics, though it is considered superior to hemoglobin A1c in non-pregnant settings complicated by anemia, as a marker of chronic glycemic control. We aimed to compare fructosamine, hemoglobin A1c, and fasting glucose in their association with neonatal morbidity and macrosomia.

STUDY DESIGN: We performed a prospective cohort study of women with gestational (GDM) and Type-II diabetes (DM-II), singletons, and no known anomalies. Daily fasting serum glucose, hemoglobin (Hgb) A1c and fructosamine each trimester, as well as measures at delivery were recorded. Detailed medical and pregnancy history were recorded. Primary outcome was composite neonatal morbidity, defined as one or more of: respiratory distress syndrome (RDS), hyperbilirubinemia (HB), perinatal death, shoulder dystocia, hypoglycemia requiring treatment. Secondary outcomes included macrosomia (>4000g), and the individual components of the composite. Generalized estimating equations (GEE) were used to estimate the risk of composite morbidity, accounting for repeated measures and adjusting for confounders. Analyses were repeated stratified by DM-II vs GDM.

RESULTS: 301 women met eligibility; 97 with GDM and 204 with DM II. There was a high incidence of the composite morbidity (n=147, 48.1%) as well as macrosomia (n=49, 16.3%); but composite morbidity occurred less frequently in women with GDM v. DM-II (42.3% v. 51.9%, p=0.01). Elevated fructosamine, even >210, was not significantly associated with an increased risk of morbidity (aOR 1.55, 95%CI 0.84 - 2.86) or macrosomia (aOR 2.14, 95%CI 0.95 - 4.80); elevated mean fasting values also showed no significant association. However, elevated Hgb A1c >8.0 was significantly associated with morbidity and macrosomia.

CONCLUSION: Fructosamine was not found to be a useful tool to predict neonatal morbidity in pregnancies complicated by GDM and DM-II. However, HgbA1c was associated with adverse birth outcomes and should be used clinically for counseling.

	Composite Morbidity		Macrosomia	
	aOR (95% CI)	p	aOR (95% CI)	p
HgbA1c				
≤ 6.0	Ref.		Ref.	
6.1 - 6.8	1.33 (0.87 - 2.05)	0.19	2.07 (1.06 - 4.03)	0.03
6.8 - 8.0	1.15 (0.59 - 2.21)	0.68	7.09 (2.95 - 17.03)	<0.01
>8.0	3.01 (1.17 - 7.75)	0.02	4.17 (1.36 - 12.79)	0.01
Fructosamine				
≤ 186	Ref.		Ref.	
186.1 - 210	1.32 (0.92 - 1.87)	0.13	1.41 (0.90 - 2.21)	0.13
>210	1.55 (0.84 - 2.86)	0.16	2.14 (0.95 - 4.80)	0.01
Mean Fasting Glucose				
≤ 95	Ref.		Ref.	
95.1 - 105	1.14 (0.77 - 1.70)	0.51	1.43 (0.86 - 2.37)	0.16
≥ 105	1.08 (0.48 - 2.45)	0.85	1.37 (0.48 - 3.87)	0.55