unreliable. 1,5-Anhydroglucitol (AG) is an unmetabolized monosaccharide excreted in the urine during hyperglycemia. Its steady state concentration is unaffected by fasting or pregnancy; results <10 μg/mL are abnormal outside of pregnancy. We tested the hypothesis that AG can be used as a screening test for GDM in obese women.

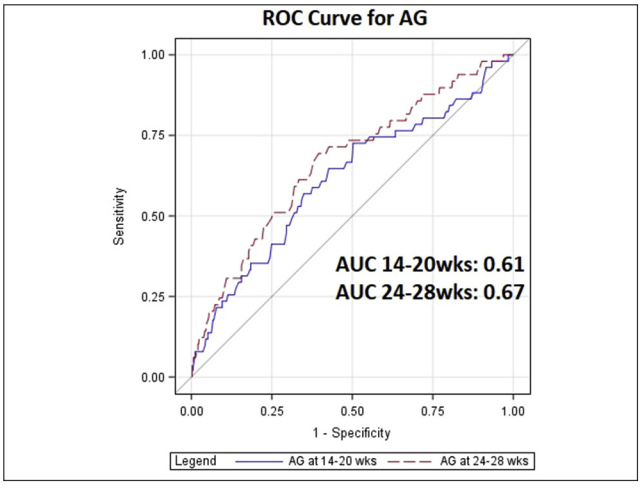
STUDY DESIGN: Prospective observational study as a sub-study of an RCT (n=954) that enrolled obese women (BMI≥30 kg/m^2) with non-anomalous, singleton gestations <20wk. Women were included if serum samples were obtained at 14-20 wk and/or 24-28 wk. GDM screening was performed using a 50-g, 1-hr glucose challenge test followed by a 100-g, 3-hr glucose tolerance test if ≥135 mg/dL. GDM was diagnosed using Carpenter Coustan criteria at 24-28 wk (gold standard). Serum AG levels were measured with a commercially available assay. AG levels of women with and without GDM were compared and an ROC curve was created to assess the association of AG and GDM. A cutoff for AG was selected using the Liu method, and the test characteristics of AG at this cutoff determined. Association of AG with a perinatal composite outcome of macrosomia (>4000g), primary cesarean, hypertensive disease of pregnancy (PIH), shoulder dystocia, neonatal hyperbilirubinemia, and neonatal hypoglycemia was also examined.

RESULTS: Of 954 enrolled, 519 (54.4%) had AG at 14-20 wks and 517 (54.2%) had AG at 24-28 wks. The mean gestational age at blood draw was 17.5 wk and 26.3 wk, respectively. The mean AG value was 13.3 ±5.7 μg/mL at 14-20 wk and 11.1 ± 5.1 μg/mL at 24-28 wk. AG value was significantly different by GDM status at both time points (Table). On ROC analysis, the 14-20 wk AG had an area under the curve (AUC) of 0.61 and the 24-28 week AG had an AUC of 0.67, demonstrating moderate association with a GDM diagnosis. Using a cutoff of 10 μg/mL at 14-20 wk, the sensitivity of an AG≥10 for diagnosing GDM was 45% with a specificity of 70%. Using a cutoff of 11.8 μg/mL at 24 -28 wk the sensitivity was 76% at a specificity of 43%. The primary composite outcome was not associated with AG at either time point (58.3% vs 62.3%, p=0.41 at 14-20 wk; 55.8% vs 63.4%, p=0.08 at 24-28wk).

CONCLUSION: AG at 14-20 wk or 24-28 wk is not sufficiently predictive of a diagnosis of GDM. The sensitivity for GDM is inadequate early in pregnancy and later the specificity is poor.

Table: AG Levels By GDM Status

	GDM	Glucose Tolerant	p
AG at 14-20 wks (μg/mL)	11.4 ± 6.0	13.7 ± 5.6	0.008
AG at 24-28 wks (μg/mL)	8.6 ± 4.8	11.5 ± 5.0	<0.001



400 Early Screening for Gestational Diabetes: What cutoffs should we use?

Lorie M. Harper[1,2], Victoria C. Jauk[1,2], Sherri Longo[3], Anny McClain[1,2], Joseph R. Biggio[1,3], Jeff M. Szychowski[1,2], Alan T. Tita[1,2]

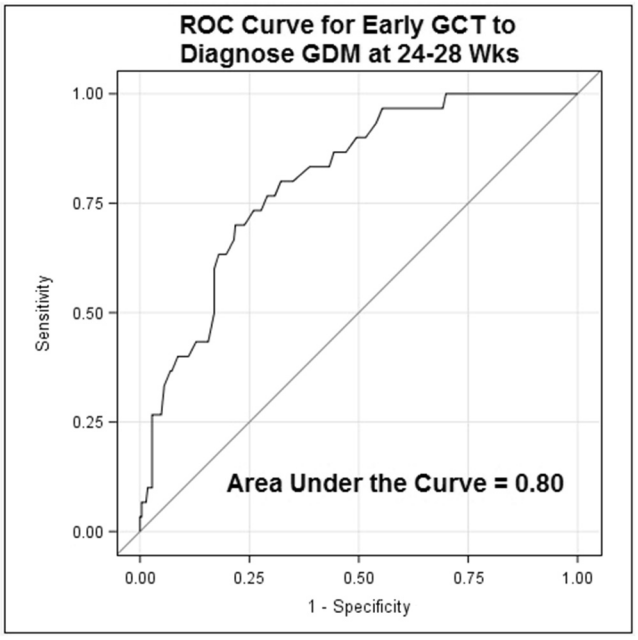
[1]Center for Women's Reproductive Health, University of Alabama at Birmingham, Birmingham, AL, [2]Department of Obstetrics and Gynecology, University of Alabama at Birmingham, Birmingham, AL, [3]Ochsner Health System, New Orleans, LA

OBJECTIVE: While ACOG recommends screening obese women for gestational diabetes (GDM) early, standards for early screening are not established. Many providers use the same GDM screening and diagnostic criteria regardless of gestational age, which may not be appropriate due to increasing insulin resistance throughout pregnancy. We hypothesize that lower screening and diagnostic thresholds are needed at 14-20 wks to identify GDM.

STUDY DESIGN: Planned secondary analysis of an RCT. Eligible women (BMI≥30 kg/m^2) were enrolled <20 wks and randomized to GDM testing (1-hr, 50-g glucose challenge test (GCT) followed by a 3-hr, 100-g glucose tolerance test (GTT) if GCT≥135 mg/dL) at 14-20 wks versus 24-28 wks. Carpenter-Coustan criteria were used to diagnose GDM. This analysis included only women with 14-20 wk and 24-28 wk GCT available. A receiver operator characteristics (ROC) curve was created to assess the test characteristics of early testing compared to GDM >24 wks (gold standard). The Liu method was used to determine the ideal cutoff for each test. The test characteristics of various cutoffs were determined. The incidence of a composite adverse outcome (>4000g, primary cesarean, pregnancy-induced hypertension, hyperbilirubinemia, and hypoglycemia) above and below cutoffs were compared using a chi- squared test.

RESULTS: Of 912 women completing the RCT, 319 (35%) had a GCT available at both time points and 30 (9.4%) were diagnosed with GDM >24 wks. 68 women had a GTT performed at 14-20 weeks. The gestational age at first screen was 17.3±1.7 wks and 26.2±1.3 wks at second. GCT at 14-20 wks was closely associated with GDM at 24-28 wks (area under the curve [AUC] 0.80) with an optimal cutoff of 130 mg/dL. Compared to the cutoff of 135 mg/dL, lowering the threshold to 130 mg/dL increases the sensitivity from 63% to 70% and increases the number of GTTs performed by 4/100 patients. Early GCT≥ 130 mg/dL was associated with the primary outcome (p=0.04). Liu cutoffs for early GTT diagnosis of GDM were 97 (fasting), 155 (1-hr), 127 (2-hr), and 95 (3-hr). Using these cutoffs, an additional 37 women would be diagnosed early with GDM: 43% were diagnosed with GDM at 24-28 wks and 75% had the adverse composite outcome.

CONCLUSION: Early screening for GDM may require lower cutoffs than those used at 24-28 wks. Information regarding whether or not outcomes are improved at these levels is needed before implementing new screening cutoffs.



50-g, One-Hour Glucose Challenge Test Cutoffs at 14-20 wks

Cut Off	Sensitivity	Specificity	# of GTT performed per 100 patients	Incidence of Primary Outcome in ≥ Cutoff	Incidence of Primary Outcome in < Cut off	p
105	96.7	34.9	68	143/225 (63.6%)	55/94 (58.5%)	0.39
110	96.7	44.6	59	124/194 (63.9%)	74/125 (59.2%)	0.40
115	86.7	52.9	50	111/170 (65.3%)	87/149 (58.4%)	0.21
120	83.3	61.2	42	97/145 (66.9%)	101/174 (58.1%)	0.10
125	76.7	70.5	33	77/112 (68.8%)	121/207 (58.5%)	0.07
130*	70.0	78.2	26	64/90 (71.1%)	134/229 (58.5%)	0.04
135	63.3	81.3	22	52/74 (70.3%)	146/245 (59.6%)	0.10
140	43.3	85.8	16	39/58 (67.2%)	159/261 (60.9%)	0.37

*Liu Cutoff

401 Pregnancy outcomes with telemedicine management in women with gestational diabetes mellitus

Maisa Feghali[1], Anna Binstock[1], James Henderson[2], Hyagriv Simhan[1]
[1]University of Pittsburgh, Magee Womens Research Institute, Pittsburgh, PA, [2]Wolff Center at UPMC, Pittsburgh, PA

OBJECTIVE: Telemedicine care is an innovative healthcare delivery approach to help overcome difficulties with access to care. We sought to compare pregnancy outcomes with in-person and telemedicine Maternal-Fetal Medicine consultation in women with gestational diabetes mellitus (GDM).

STUDY DESIGN: This is a retrospective cohort study of 542 pregnant women with GDM who underwent Maternal-Fetal Medicine consultation between 2016 and 2017. GDM management included physician consultation, medical nutrition therapy counseling by a certified diabetes educator, and weekly glycemic surveillance for both telemedicine and in-person groups. We compared baseline maternal characteristics and pregnancy outcomes based on the type of care.

RESULTS: Telemedicine management was performed in 88 (16%) of women with GDM. Women undergoing telemedicine management were younger (29.6 vs 32.2, p<0.001), more likely to be obese (71.6 vs 55%, p=0.02), and to actively smoke (22.7 vs 11.1, p=0.01), but there were no differences in gestational age at GDM diagnosis (23.7 vs 25.1 weeks, p=0.06). Need for pharmacologic therapy was similar in both groups (53.4 vs. 54.8%, p=0.8). Also, mean fasting (100.5 vs 98.7 mg/dL, p=0.4) and postprandial (130.8 vs 129.9 mg/dL, p=0.7) glucose values were similar in women undergoing telemedicine and in-person consultation. Pregnancy outcomes did not differ by management type including preterm birth, hypertensive disorders of pregnancy and cesarean delivery. Neonatal outcomes were similar including NICU admission (17.1 vs. 25.2%, p=0.1) and composite neonatal morbidity (52.3 vs. 45.2%, p=0.2) in women with GDM undergoing telemedicine and in-person management.

CONCLUSION: We found no difference in pregnancy outcomes in women with GDM who underwent telemedicine or in-person management. Our findings suggest a potential role for telemedicine care in the management of women with GDM.

402 Basal insulin analogs versus neutral protamine hagedorn for type 2 diabetics

Michal Fishel Bartal, Clara Ward, Jerrie S. Refuerzo, Sunbola S. Ashimi, Cornthwaite A. Joycelyn, Han-Yang Chen, Suneet P. Chauhan, Baha M. Sibai
McGovern Medical School – University of Texas at Houston (UTHealth), Houston, TX

OBJECTIVE: Based on data from non-pregnant women, American Diabetes Association (ADA) recommends long- acting basal analogs (glargine or detemir) be used instead of intermediate-acting insulin (neutral protamine hagedorn [NPH]) to reduce adverse outcomes in type 2 diabetic (T2DM) (Diabetes Care, 2018). However, in pregnant women with T2DM there is a paucity of reports focused exclusively on T2DM. The aim of this study was to compare whether basal insulin analogs reduces rate of composite neonatal morbidity (CNM) and maternal adverse outcomes compared to NPH in women with T2DM.

STUDY DESIGN: A retrospective cohort study of all women with T2DM and singleton pregnancy (March 2012 to May 2018) managed at a single tertiary center. Exclusion criteria were known major anomalies, diabetic nephropathy or proliferative retinopathy. The primary outcome was a CNM of any of the following: large for gestational age, shoulder dystocia, NICU admission, hypoglycemia (BS< 40 mg/dL in the first 24 hours of life or <50 mg/dL after 24 hours or requiring medical therapy) or RDS. Secondary outcomes were rates of maternal hypoglycemia events, hypertensive disorders, admission for glucose control, preterm birth (< 37 wks) and primary cesarean delivery. Adjusted relative risk (aRR) and 95% confidence intervals (CI) were calculated.

RESULTS: Of 233 women with T2DM, 114 (49%) were treated with basal insulin analogs and 119 (51%) with NPH. Table 1 compares demographic and clinical characteristics. Significant differences on univariate analysis are bolded. The rate of CNM was similar between groups (73% vs 60%, aRR 1.16, 95% CI 0.90-1.49). Basal insulin treatment was associated with a lower risk for a primary cesarean delivery compared to NPH (21% vs 36%, aRR 0.43; 95% CI 0.24-0.76). There were no differences in the rates of maternal hypoglycemic events, admission for glucose control, preeclampsia or preterm birth between the groups (Table2).

CONCLUSION: The rate of CNM, neonatal or maternal hypoglycemia—were similar for T2DM managed with either basal or NPH insulin regimen. Since this is a retrospective study, a randomized trial enrolling patients with T2DM prior to 20 weeks of gestation and comparing short and long-term maternal and neonatal outcomes between the two treatment regimens is warranted.