BMI, Gestational Weight Gain and Angiogenic Biomarker Profiles for Preeclampsia Risk

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In May 2009, after considering short and long-term maternal/child outcomes, the Institute of Medicine (IOM) revised recommendations for gestational weight gain (GWG); however, preeclampsia was dismissed due to insufficient evidence. Since change in recommendations, epidemiologic studies have published that support an association between GWG adherence and hypertensive disease.

Materials & Methods

- Pregnant subjects ≤24 weeks gestation enrolled from outpatient prenatal clinics at UMass Memorial Health Care between May 2004 and January 2006.
- Each subject had >31273127 BMI
- BMI Comparisons
- Statistical Analysis
  - ANOVA performed for comparisons of means by BMI categories
  - Bonferroni post hoc analysis
  - Demographic comparisons utilized Fisher exact test for categorical variables and Wilcoxon rank sum test for continuous variables (see Table 1)
  - Geometric means (sFlt1+sEng)/PlGF
- Results
  - Analytic sample included 82 subjects (342 specimens). See Table 1 for Demographic Comparisons.
  - Table 1. Demographic comparisons
  - Figures 1-3. Angiogenic biomarker profiles comparing under-/normal-weight to overweight/obese at 3 gestational age windows
  - Figures 4-6. Angiogenic biomarker profiles comparing under/appropriate gainers to over-gainers at 3 gestational age windows
- Limitations
  - Small sample size required collapsing of BMI and GWG-adherence categories; thus unable to look at adherence within each BMI category
  - Secondary analysis not powered for this exploratory analysis
  - Only had total GWG at end of pregnancy

Background

Objective

Materials & Methods

- Subjects recruited
- Exclusions
- Subjects included in analyses
- Adherence defined by GWG and GA @ last prenatal visit subtracted from pre-pregnancy weight; thus preterm and term deliveries included

Statistical Analysis

- Demographic comparisons utilized Fisher exact test for categorical variables and Wilcoxon rank sum test for continuous variables (see Table 1)
- Within-women correlation and right-skewness handled by estimating linear mixed models for In-transformed biomarkers and then exponentiating on In scale (i.e., geometric means)
- Geometric mean and 95% confidence intervals displayed for sFlt1, PlGF and (sFlt1+sEng)/PlGF in each of 3 gestational-age windows for UW-N vs. OW-OB BMI and Under-Appropriate vs. Over-gainers (see figures 1-6)

- T-test compared means in 3 windows.