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

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Pregnant subjects 24 weeks gestation enrolled from outpatient 31 27 27 31 27

Each subject had >

Mean ratio (sFlt1+sEng):PlGF trended higher in OG compared to U-AG 31 27

N) women and under-appropriate-gainers (U-AG), respectively.

• Numerous studies have revealed adipose tissue’s ability to

• Since change in recommendations, epidemiologic studies have since been published that support an association between GWG adherence and hypertension diseases of pregnancy.

• T-test compared means in 3 windows.

• Within-women correlation and right-skewness handled by estimating

• Demographic comparisons utilized Fisher exact test for categorical

• Hypothesis

We hypothesized that overweight/obese (OW-OB) women and over-gainers (OG) would have altered angiogenic profiles compared to under-normal/gainer (U-NAG) women and under/appropriate-gainers (U-AG), respectively.

Objective

To evaluate preeclampsia risk by angiogenic biomarker profile by both BMI and GWG-adherence.

Hypothesis

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

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Abstract

Objective: In May 2009, after considering short and long-term limitations of the Institute of Medicine (IOM) revised recommendations for weight gain during pregnancy (GWG), the American College of Obstetricians and Gynecologists (ACOG) provided a set of new recommendations for gestational weight gain (GWG). While these preeclampsia was defined as proteinuria plus hypertension in 2 or more prenatal visits. While these preeclampsia profiles were defined by serum levels of sFlt1, PlGF, and sEng. Using angiogenic profile as a biomarker for preeclampsia risk, we hypothesized that overweight/obese (OW-OB) women and over-gainers (OG) would have altered angiogenic profiles compared to under-normal/gainer (U-NAG) women and under/appropriate-gainers (U-AG), respectively.

Methods: In May 2004 and January 2006, serial serum specimens collected from 94 women at high-risk for gestational hypertension. All women were enrolled within 44 weeks of gestation. Mean sFlt1 lower in all windows in OW-OB vs 788.8 (95% CI 656.8-947.4) p=0.01 and in OG compared to U-AG with no significant comparisons. Mean ratio (sFlt1+sEng):PlGF trended higher in OG compared to U-AG with no significant comparisons. Mean ratio (sFlt1+sEng):PlGF trended higher in OG compared to U-AG with significant comparisons (p=0.05) 22-36wks (Figure 4-4).

Conclusion

• 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

Limitations

Materials & Methods

In May 2009, after considering short and long-term limitations of the Institute of Medicine (IOM) revised recommendations for weight gain during pregnancy (GWG), the American College of Obstetricians and Gynecologists (ACOG) provided a set of new recommendations for gestational weight gain (GWG). While these

Statistical Analysis

- Demographic comparisons utilized Fisher exact test for categorical variables and Wilcoxon rank sum test for continuous variables

- Within-women correlation and right-skewness handled by estimating linear mixed models for transformed biomarkers and calculating Spearman’s correlation or rank correlation on scale (i.e., geometric means).

- Mediation of GWG adherence included using the sFlt1, PlGF and (sFlt1+sEng)/PlGF in each of 3 gestational-age windows for evaluating the association between GWG adherence and angiogenic biomarker profiles consistent with higher preeclampsia risk by end of gestation.

- BMI and GWG as potentially modifiers factors must further investigation for preeclampsia risk assessment.

- Median (interquartile range)

- Figures 1-3. Geo-metric mean (sFlt1+sEng)/PlGF (95% CI)

- Figures 4-4. Gender-specific angiogenic biomarkers comparing under/normal-gainers to over-gainers at 3 gestational age windows

- Analysis sample included 82 subjects (342 specimens). Among these, 27 women were overweight (OW) and 20 were obese (OB).

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