

97 Magnesium sulfate exposure and neonatal intensive care unit admissionAnna Girsén¹, Mara Greenberg², Yasser El-Sayed², Brendan Carvalho², Deirdre Lyell²¹Oulu University Hospital, Obstetrics and Gynecology, Oulu, Finland, ²Stanford University/Lucile Packard Children's Hospital, Obstetrics and Gynecology, Stanford, CA**OBJECTIVE:** To examine the effect of antenatal magnesium sulfate (MS) treatment on neonatal intensive care unit (NICU) admission among term newborns of mothers with preeclampsia.**STUDY DESIGN:** Secondary analysis of the Maternal-Fetal Medicine Unit Network Cesarean Registry including primary and repeat cesareans, and failed and successful vaginal births after cesarean delivery. Singleton pregnancies among women with preeclampsia and >37 weeks of gestation were included. Pregnancies with chorioamnionitis were excluded. Logistic regression analysis was used to determine associations between MS exposure and important outcomes. $P < 0.05$ was considered statistically significant.**RESULTS:** 2224 pregnancies of women with preeclampsia were included, of whom 1,795 (81%) received MS for eclampsia prophylaxis and 429 (19%) did not. MS exposure was associated with increased NICU admission (23% vs. 14% unexposed, $p < 0.0001$) whereas no significant difference was found in the length of newborn stay in NICU (median 5 days (range 2-91) vs. 6 days (range 3-37) in unexposed, $p = 0.45$). MS-exposed women were more likely to receive public insurance (51% vs. 40% unexposed, $p = 0.0008$) and have a labor induction (43% vs. 9% unexposed, $p = 0.02$), and less likely to be Caucasian (23% vs. 31% unexposed, $p < 0.0001$), be diagnosed with chronic hypertension (7% vs. 9% unexposed, $p = 0.04$), or undergo cesarean delivery (90% vs. 94% unexposed, $p = 0.03$). MS-exposed newborns had significantly lower birthweights (3288 vs. 3442 grams unexposed, $p < 0.0001$) and similar gestational ages at delivery (39.2 vs. 39.1 unexposed, $p = 0.11$). Logistic regression analysis adjusting for receipt of public insurance, race, chronic hypertension, labor induction, cesarean delivery, birthweight and gestational age found that NICU admission was significantly associated with MS exposure [OR 2.60, 95% CI 1.68-4.20, $p < 0.0001$].**CONCLUSION:** Antenatal magnesium sulfate treatment is associated with an increase in NICU admission among exposed term newborns of mothers with preeclampsia.**98 Maternal obesity and the risk of postpartum hemorrhage**Annelee Boyle¹, Julia Timofeev¹, Maisa Feghali¹, Sameer Desale², Menachem Miodovnik¹, Rita Driggers¹¹MedStar Washington Hospital Center, Obstetrics and Gynecology, Washington, DC, ²MedStar Health Research Institute, Biostatistics and Epidemiology, Hyattsville, MD**OBJECTIVE:** To determine if overweight and obese women are at increased risk of postpartum hemorrhage (PPH) and, if so, if the risk of PPH correlates with the degree of obesity.**STUDY DESIGN:** A retrospective cohort analysis of data in the MedStar PeriBirth labor database from 2009 to 2012. Overweight women [body mass index (BMI) 25.0-29.9 kg/m²], obese women (BMI 30.0-39.9 kg/m²), and extremely obese women (BMI ≥ 40.0 kg/m²) were compared to women of normal weight (BMI 18.5-24.9 kg/m²) who delivered a singleton pregnancy at term (37.0-41.9 weeks' gestation). Women were classified by pre-pregnancy BMI. Postpartum hemorrhage was defined as an estimated blood loss of >500 ml following vaginal delivery or >1,000 ml following Cesarean delivery. Multivariate analysis was performed controlling for maternal age, race, parity, mode of delivery, fetal macrosomia (>4,000 grams), polyhydramnios, magnesium sulfate administration, clinical chorioamnionitis, mode of delivery, and episiotomy. χ^2 and Fisher's exact tests were used for categorical variables. Statistical significance was set at a p -value of < 0.05 .**RESULTS:** A total of 6,865 women were included in the analysis: 788 (11.5%) had normal BMI, 2,161 (31.5%) were overweight, 2,965 (43.2%) were obese, and 951 (13.8%) were extremely obese. Extremely obese women were significantly more likely to experience PPH than women of normal weight [OR 1.8, 95% confidence interval (CI) 1.05-3.12, $p = 0.0328$]. There was no significant difference among overweight (OR 1.2, 95% CI 0.73-2.01, $p = 0.4620$) or obese women (OR = 1.2, 95% CI 0.74-1.99, $p = 0.4392$) compared to women of normal weight.**CONCLUSION:** Extremely obese women are at a higher risk of postpartum hemorrhage compared to women with normal BMI. Even a modest decrease in pre-pregnancy BMI can reduce this risk.**99 Obstetrical outcomes in women with epilepsy enrolled in the North American Antiepileptic Drug Registry (NAAPR)**Autumn Klein¹, Hillary Keenan², Robert Mittendorf³, Sonia Hernandez-Diaz⁴, Page Pennell⁵, Nichelle Llewellyn⁵, Caitlin Smith⁶, Lewis Holmes⁶, Thomas McElrath⁷¹University of Pittsburgh Medical School, Neurology and Obstetrics and Gynecology, Pittsburgh, PA, ²Joslin Diabetes Center, Genetics and Epidemiology, Boston, MA, ³Loyola University, Obstetrics and Gynecology, Chicago, IL, ⁴Harvard School of Public Health, Epidemiology, Boston, MA, ⁵Harvard Medical School, Neurology, Boston, MA, ⁶Harvard Medical School, Pediatrics, Boston, MA, ⁷Harvard Medical School, Obstetrics and Gynecology, Boston, MA**OBJECTIVE:** Little is known about obstetrical and neonatal outcomes in women with epilepsy (WWE) taking antiepileptic drugs (AEDs). This study aims to determine the rate of C-section (CS) in WWE on AEDs compared to women without epilepsy not taking an AED (WVoE) and to determine if there is an indication for CS, including seizure.**STUDY DESIGN:** The NAAPR, which began in 1997, is a voluntary call-in registry of pregnant women taking AEDs. Participants are asked a series of questions twice during pregnancy and once postpartum. We determined how many WWE and WVoE reported having a CS and classified their responses into different indications. WWE were compared to WVoE.**RESULTS:** There were 6,253 WWE reporting AED use at the time of last menstrual period and 469 WVoE. WWE were slightly younger (29.5 ± 5.4 v. 31.5 ± 4.1 years) ($p < 0.001$) and were less likely to have had a previous delivery (parity 0.8 ± 0.9 v. 1.0 ± 0.9 , $p < 0.001$), but were likely to have had an equal number of pregnancies (gravidas 2.2 ± 1.3 v. 2.3 ± 1.3 , $p = 0.1$). WWE were more likely to report smoking during the first trimester (14.1% v. 6.8%, $p < 0.05$). There was a higher proportion of whites among WVoE ($p < 0.001$), and the most common AEDs were lamotrigine (26.1%) followed by carbamazepine (22.9%). A total of 34.5% of WWE had a CS as compared to 29.8% of WVoE ($p = 0.05$), but when adjusted for age, parity and pre-existing hypertension, these findings are no longer significant (OR: 1.03 95% CI: 0.54, 2.0, $p = 0.9$). Of WWE, 10.5% reported seizure as a reason for their CS.**CONCLUSION:** There is borderline difference in the rate of CS between WWE and WVoE when adjusted for the confounders of age, parity, and pre-existing hypertension. Seizure was reported as an indication for CS in a significant number of WWE and suggests that WWE may benefit from specialized multi-disciplinary care at larger hospitals. Future studies will examine other obstetrical and neonatal outcomes including CS and SGA by AED.**100 Comparing estimated fetal weight by ultrasound and clinical assessment with actual birthweight**Benjamin Solomon¹, GERALYN O'Reilly¹, Pedro Arrabal¹, David Schwartz¹, Stephen Contag¹¹Sinai Hospital of Baltimore, Obstetrics and Gynecology, Baltimore, MD**OBJECTIVE:** To evaluate if there is a significant difference between two antepartum methods of estimating fetal weight immediately before birth and the actual birthweight.

STUDY DESIGN: Fetal ultrasound was performed within 48 hours of delivery on term fetuses in women admitted to Sinai Hospital of Baltimore. Clinical estimates of fetal weight were obtained by attending and resident physicians. These estimates were then compared to the actual birthweight after delivery.

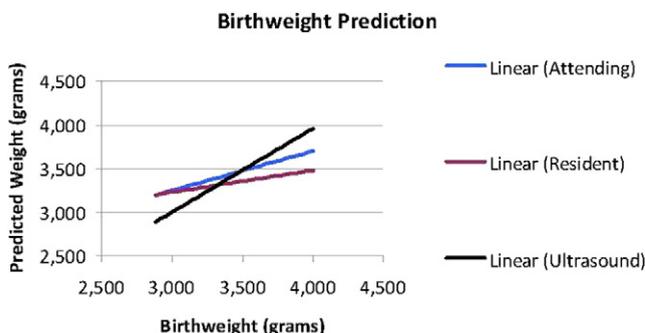
RESULTS: We analyzed 47 of 51 recruited women. The median age was 28 years, median gestational age was 40 weeks, median BMI was 29.7 with 50% of patients between 26 and 32.8 kg/m² and the mean birthweight was 3,451 ± 343 grams. There were 47% African American and 51% Caucasian women. The majority of patients were nuliparous (53%). The clinical fetal weight estimates by the attendings correlated better with the birthweight than did the resident's (Pearson correlation 0.49 vs. 0.20). When attendings and residents estimated fetal weight on the same patient, only attendings' estimates were significant, r = 0.46 (p = 0.01). Clinical estimates consistently overestimated birthweight at lower values and underestimated it at higher values (Figure). Multiple regression adjusting for maternal parity, age and BMI demonstrated that ultrasound correlated better with birthweight than clinical estimates (0.73). Attending but not resident estimates were significantly associated with birthweight in the model. Experience with ultrasound increased the correlation with birthweight (Pearson correlation 0.68 first half vs 0.79 second half). Various published equations for calculating fetal weight using different biometric parameters found that Hadlock '85 formula with BPD, HC, AC and FL was the best predictor (Table).

CONCLUSION: Ultrasound was the best method to predict birthweight. Physician experience improves clinical prediction. No formula to predict fetal weight was better than the Hadlock '85 formula that includes cephalic, abdominal and femoral measurements.

Multivariate models for predicting birthweight

Method		R	R-square	P-value
Clinical	Attending	0.37	0.28	<0.01
	Resident	0.10	0.01	0.07
	Hadlock 1985: HC, BPD, AC, FL	0.56	0.52	<0.01
Ultrasound	Hadlock 1985: AC, FL	0.56	0.51	<0.01
	Hadlock 1985: BPD, AC, FL	0.56	0.51	<0.01
	Woo 1985: AC, FL	0.55	0.50	<0.01
	Sheppard 1982: BPD, AC	0.53	0.49	<0.01
	Hadlock 1985: HC, BPD, AC, FL	0.56	0.52	<0.01

AC, abdominal circumference; BPD, biparietal diameter; FL, femur length; HC, head circumference.



101 Does placenta previa location matter? Surgical morbidity associated with previa location

Brett Young¹, Allan Nadel¹, Britta Panda¹, Anjali Kaimal¹

¹Massachusetts General Hospital, Obstetrics-Gynecology, Boston, MA

OBJECTIVE: To evaluate the effect of placenta previa location (anterior versus posterior) on surgical morbidity in primary and repeat cesarean deliveries.

STUDY DESIGN: Retrospective cohort undergoing cesarean for placenta previa. The rate of operative morbidity for women with an anterior

previa was compared to women with a posterior previa. Stratified analysis was performed based on primary versus repeat cesarean. Logistic regression was performed to control for potential confounders. **RESULTS:** 48,229 women delivered during the study timeframe. 285 women (0.6%) underwent cesarean delivery for placenta previa. 42 (14.5%) women received a hysterectomy or blood transfusion.

The anterior and posterior previa groups were similar with respect to age, tobacco use and BMI. Women with an anterior previa were more likely to have a prior cesarean delivery, be multiparous and have a singleton gestation compared to women with a posterior previa. The mean blood loss during cesarean was higher for women with an anterior previa (p=0.0005) compared to those with a posterior previa. Women with an anterior previa were more likely to require a blood transfusion (p=0.014) and to undergo hysterectomy (p=0.0001). Consistent with prior studies, women undergoing repeat cesarean had higher likelihoods of hysterectomy (OR 9.8, 95% CI 3.1-31.5), blood transfusion (OR 2.1, 95% CI 1.0-4.2) and accreta (OR 5.3, 95% CI 2.1-13.4). In stratified analysis, primary cesareans with anterior previa had higher rates of blood transfusion (aOR 3.09; 95% CI: 1.16-8.17) and hysterectomy (p=0.001) than posterior previas. Women undergoing repeat cesarean with anterior previa had higher rates of hysterectomy (aOR 4.72; 95% CI 1.12-19.78) compared to those with posterior previa.

CONCLUSION: Compared to a posterior placenta previa, an anterior previa increases the risk of hysterectomy for both primary and repeat cesareans and increases the likelihood of blood transfusion at primary cesareans. This information may be useful for pre-operative planning.

Subgroup analysis of operative morbidity based on cesarean order and placental location

	Primary Cesarean				Repeat Cesarean					
	Anterior Previa	Posterior Previa	P-Value	Unadjusted OR	Adjusted OR	Anterior Previa	Posterior Previa	P-Value	Unadjusted OR	Adjusted OR
Blood Transfusion	10 (18.5%)	14 (9.0%)	0.057	2.3 (0.96-5.55)	3.09 (1.16-8.17)	9 (26.5%)	7 (17.1%)	0.373	1.75 (0.57-5.33)	1.67 (0.53-5.23)
Hysterectomy	4 (7.4%)	0 (0%)	0.001			9 (26.5%)	3 (7.3%)	0.024	4.56 (1.12-18.5)	4.72 (1.12-19.78)

Data presented as: N (%) or odds ratios (95% confidence interval). Regression covariates: BMI, age, multiple gestation.

102 Postpartum elevation of Toll-like receptor 1: innate immune system activation persists beyond the prototypical postpartum period

Brett Young¹, Aleksandar Stanic¹, Britta Panda², Alexander Panda³, Bo Rueda¹

¹Massachusetts General Hospital, Vincent Obstetrics and Gynecology, Boston, MA, ²Tufts Medical Center, Obstetrics and Gynecology, Boston, MA, ³Yale University, Internal Medicine, New Haven, CT

OBJECTIVE: Toll-like receptors are important mediators of the innate immune system that recognize structurally conserved protein sequences that are expressed by specific microorganisms. TLR 1 recognizes triacyl lipoproteins which are specifically expressed by bacteria. Immune system dysfunction may be causal or serve as a stimuli to preterm labor. There is limited information regarding basal expression of TLR 1 during pregnancies not affected by preterm labor. In this study, our objective was to investigate whether TLR 1 expression in healthy pregnant women changes longitudinally during a pregnancy and postpartum.

STUDY DESIGN: We prospectively evaluated TLR expression in dendritic cells (DCs) of 20 healthy women during the 1st trimester (Collection 1), 2nd trimester (Collection 2), the day of delivery (Collection 3) and 6 weeks postpartum (Collection 4). TLR1/2 expression on DCs was measured by multicolor flow cytometry. TLR levels from each collections were compared to non-pregnant controls and to the postpartum collection. ANOVA and T-tests were used to assess statistical significance.

RESULTS: Basal expression of TLR 1 was elevated throughout pregnancy in all trimesters and the postpartum collection relative to a