8:00 AM–9:00 AM
ULTRASOUND

Does Obesity Affect the Assessment of Third Trimester Amniotic Fluid? [1P]

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INTRODUCTION: To determine the inter-observer and intra-observer variability of amniotic fluid index (AFI) and maximum vertical pocket (MVP) measurements in obese pregnant women compared to non-obese pregnant.

METHODS: This is a prospective study of women presenting for scheduled 3rd trimester clinically indicated ultrasound. AFI and MVP were measured by two sonographers. The first sonographer collected each measurement twice to assess intra-observer variability. The second sonographer was blinded to the measurement of the first sonographer to provide the measurement of inter-observer variability. Both measures of variability were estimated using the intra-class correlation (ICC) with 95% confidence intervals, ICC of 0.4 was considered the minimally accepted level of variability. All analyses were done using SAS 9.4®.

RESULTS: Of the 126 patients enrolled, there was a mean maternal age of 33.8±5.5 years, mean BMI of 29.1±7.1 kg/m^2 and mean gestational age 32.9±0.9 weeks. At that time, 57.8% of the patients were obese, 20.6% of the patients were affected by gestational diabetes, and 19% of the patients had prior cesarean section. The mean BMI for obese patients was 36.9±5.6 kg/m^2 and for non-obese 26.5±2.8 kg/m^2. ICC and 95% CI are presented for the overall cohort, as well as obese and non-obese women.

CONCLUSION: Intra-observer variability for both MVP and AFI were acceptable in obese and non-obese women. Inter-observer correlation was poor, particularly when MVP was assessed in both obese and non-obese women. Obesity does not appear to have a significant impact on the variability of amniotic fluid assessment in the third trimester.

Effect of Increased Abdominal Circumference on Outcomes in Ultrasounds With Estimated Fetal Weight Greater Than 90% [2P]

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INTRODUCTION: Macrosomia is associated with increased perinatal complications. Avoiding poor outcomes is an important goal of obstetric care, yet prenatal diagnosis of macrosomia remains a challenge. Third trimester ultrasound can predict large for gestational age (LGA), but the accuracy is unreliable. We sought to evaluate whether increased abdominal circumference (AC), predicts poor perinatal outcomes in pregnancies with estimate fetal weight (EFW) greater than 90%.

METHODS: Retrospective cohort study of singleton pregnancies with EFW greater than 90% between 2006 and 2015. Exclusion criteria were lack of third trimester ultrasound, multiples and delivery outside of study institution. Primary outcome was cesarean delivery (CD). Secondary outcomes included 5 minute Apgar less than 7, NICU admission, LGA, shoulder dystocia, and composite of these 4. Demographics and outcomes were compared and adjusted for confounding factors.

RESULTS: 360 pregnancies met eligibility criteria. Pregnancies with fetal AC greater than 90% were more than twice as likely to be LGA and have a poor composite outcome in adjusted and unadjusted analysis. They were twice as likely to have a CD in unadjusted analysis only. However, those with AC greater than 95% had an almost 3 times increased risk of CD, which remained significant on adjusted analysis. They were also 3 to 4 fold more likely to have each of the poor

obstetric outcomes and had a higher mean birth weight, all still significant in adjusted analysis.

CONCLUSION: Our study shows that large AC, specifically AC greater than 95%, conveys the greatest risk for LGA, poor perinatal outcomes and CD in this cohort.

Fetal Damage in Congenital Zika Virus Infection: Cohort Study [3P]

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INTRODUCTION: Brazil recently, mainly the Brazilian Northeast, was affected by an epidemic of Zika virus. This epidemic was accompanied by an increase in the birth of infants with microcephaly. In addition to microcephaly other injuries were observed.

METHODS: This is a preliminary analysis of a cohort study involving 500 pregnant women with symptoms suggestive of Zika. The women came to the service during the symptoms and blood and urine were collected for RT-PCR. They were subjected to ultrasonography at 24 and 32 weeks. Pregnant women with positive PCR for Zika done neurosonography, amniocentesis and Magnetic resonance.

RESULTS: The findings were then initially classified into three patterns whose findings are repeated in degrees more or less severe: 1 - the classic pattern of microcephaly, where we observe a reduction in the size of the brain and head, with coarse calcifications, however the structure is more conserved, 2 - the destructive pattern where basic structures not be identified and 3 - a third pattern, with more discrete signals as isolated calcifications, slight alterations in neuronal migration pattern or other extracranial changes. Until this date the most cases showed the pattern I (70%). Most Class II cases died. The pattern III is still rare, with a better prognosis and usually occurs when the infection occurs in later periods of pregnancy.

CONCLUSION: Because it is a new disease, there are still more questions than answers and among them, what are the factors that leads to different aggressiveness patterns and other damage we can find.

Sonographic Findings in Congenital Zika Virus Infection: Cohort Study [4P]

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INTRODUCTION: The Congenital Zika Virus Infection was first observed in the Northeast of Brazil, being confirmed by amniocentesis in November 2015. From the first findings characterized by microcephaly, ventriculomegaly, arthrogryposis and injuries of posterior fossa, other findings were being identified.

METHODS: A prospective cohort study that followed 500 pregnant women with symptoms suggestive of ZikV. The women collected blood and urine to search ZikV by RT-PCR and they were submitted to ultrasound and came to the service. We also evaluated ultrasound performed in other services. The ultrasounds were performed in Samsung WS80 Elite.

RESULTS: Among the 500 pregnant women evaluated, 96 showed positive PCR for Zika and 32 had some brain damage. The mean gestational age of the first finding was 27 weeks, with a minimum age of 14 weeks. The most common early finding was mild ventriculomegaly, followed by calcifications and changes of posterior fossa. Arthrogryposis was observed in severe cases. The mean age at diagnosis of microcephaly, when present, was 28 weeks. The average age at birth was 39 weeks, ranging from 29 to 42 weeks. The average head

circumference was 30 cm ranging from 23 to 36 cm and the mean birth weight was 2775 grams, ranging between 1060 and 3770 grams.

CONCLUSION: Despite microcephaly is the most frequent sign of the syndrome of congenital Zika, it is generally not the first sign and is not always present.

Does a Large Fetal Abdominal Circumference in Women Without Diabetes Predict Adverse Outcomes? [5P]

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INTRODUCTION: We sought to determine if fetuses that have a large abdominal circumference (AC) have an increase in adverse outcomes.

METHODS: This is a retrospective cohort study conducted via chart review of women seen for ultrasound at 28-32 weeks gestation with fetal AC measuring >90th percentile during the study period of 1/1/2014 through 12/31/2015. Women with a known diagnosis of diabetes were excluded. Multivariate logistic regressions were conducted to determine relationships between fetal AC and neonatal and maternal outcomes: neonatal hypoglycemia, birth weight, NICU admission, 5-minute Apgar scores, mode of delivery, development of gestational diabetes, and polyhydramnios. These outcomes were adjusted for presence or absence of gestational diabetes, race, maternal age, and gravidity.

RESULTS: 1715 women were included. Mean gestational age was 31 weeks. Increasing fetal AC is predictive of primary cesarean delivery (OR 1.486, p=0.0023). Fetuses with larger abdominal circumferences on antenatal ultrasounds are more likely to be macrosomic with birth weight >4000 grams (OR 2.496, p < 0.0001). Increasing fetal AC is associated with the later development of gestational diabetes (OR 2.343, p=0.0023) and polyhydramnios (OR 2.938, p=0.0003). Fetal AC does not predict lower Apgar score (OR 0.615, p=0.416), NICU admission (OR 0.824, p=0.167), or neonatal hypoglycemia (OR 1.047, p=0.852). Though none of the patients in this study were initially diagnosed with diabetes, 220 (12.8%) were found to have gestational diabetes by the time of delivery.

CONCLUSION: Women should be counseled about the increased risks of primary cesarean delivery, polyhydramnios, macrosomia, and gestational diabetes when a large fetal AC is found.

Effects of Ambient Light on the Biophysical Profile [6P]

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INTRODUCTION: The objective is to assess if ambient light serves as a fetal stimulus to decrease the time needed to complete a biophysical profile (BPP).

METHODS: This is a randomized controlled trial in which 190 women with singletons were randomized to ambient overhead light or no ambient light during BPP. The hypothesis is that the ambient light group would require less total time to complete the BPP. Secondary outcomes include BPP total and subcomponent scores, delivery and neonatal outcomes. Sonographers not involved with the study performed the BPPs and documented end times. The investigators were blinded to allocation group when analyzing the data.

RESULTS: 89 women were randomized to no ambient light and 101 to ambient light. Demographics were similar among the two groups with the exception of race (81% African American with ambient light; 66% African American without ambient light; p = 0.006). No difference was noted among indication for testing, gestational age, fetal position, placenta location, BPP start time or performance of Doppler during the assessment. There was no difference in the time needed to complete the BPP (10.3 + 8.4 minutes with ambient light; 11.1 + 9.2 minutes without ambient light; p=0.518) or in total BPP ultrasound score (7.78 + 0.74 with light; 7.84 + 0.54 without light; p=0.527). Gestational age at delivery, mode of delivery, neonatal weight, Apgars, cord pH and NICU admissions were not different between groups.

CONCLUSION: There is no evidence ambient light serves as a fetal stimulus to decrease the time needed to complete a BPP.

Litigation in Obstetrical Sonography: Lessons Learned From 100 Consecutive Cases in the Public Library of Law [7P]

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INTRODUCTION: Ultrasound is an essential technology in the practice of obstetrics and gynecology. Instruction in point-of-care obstetrical imaging is necessary for both resident and medical student curriculum. Few articles have examined case law in obstetrical sonography, with the last published case series reported in 2003.

METHODS: A search was conducted in the US Public Library of Law for cases regarding obstetrical imaging. Of approximately 270 consecutive cases reviewed, one hundred were determined to be directly related to obstetrical imaging. These were extracted for location, year, causation, legal content, and resolution. Group comparisons for continuous variables were made using the Student's t test. Categorical variables were compared with Fisher's exact tests.

RESULTS: Cases occurred from 1988 to 2016, with no measurable increase in frequency in the last decade. The most common states were New York, New Jersey and California. The most commonly represented ACOG districts were districts II, VI, IV, and VI. Four major categories of causation were elicited. Of missed diagnosis, 20% were due to inaccurate fetal biometry, 10% missed ectopic pregnancy, and the remainder were missed diagnoses of fetal abnormalities. Three out of six sonographer-related cases involved sexual assault. A subset of cases specifically related to wrongful life, wrongful birth, and wrongful death were brought in 20% of cases.

CONCLUSION: Modern curriculum must stress meticulous fetal biometry, specific communication techniques, anatomic integrity, and diagnostic criteria to be met for ectopic gestations. The concepts of "wrongful life", "wrongful birth" and "wrongful death" should be included in ongoing resident and student education.

Role of Genetic Sonogram After EIF Detection: A Cost-effectiveness Analysis [8P]

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INTRODUCTION: Echogenic Intracardiac Foci (EIF) have been associated with trisomy 21 (t21) but in isolation, the positive likelihood ratio is low or nonsignificant. The 2014 Fetal Imaging Workshop recommends a completed targeted ultrasound (US) to identify other findings associated with t21. In light of US's low sensitivity, difficulty achieving adequate visualization due to maternal factors, and barrier to specialized care for rural populations, our goal was to evaluate outcomes and costs of this recommendation.

METHODS: A decision-analytic model was constructed using TreeAge software and probabilities derived from the literature. The model compared targeted US with no further studies in women with both a negative quad screen and fetal EIF identified on screening US. This was stratified by maternal age. T21 Sensitivities for US and quad screen for women below and above 35 were assumed at 69%, 68%, and 91% and were examined in sensitivity analysis. Strategies were