CLINICAL OBSTETRICS/ANTEPARTUM ASSESSMENT
Abstracts 27 – 35

Moderators: Aaron Caughey, MD; Brian Mercer, MD

27 Demographic and pre-pregnancy risk factors for stillbirth: a population-based study

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OBJECTIVE: To explore potential demographic and pre-pregnancy factors associated with stillbirth.

STUDY DESIGN: Prospective, multicenter, population-based case-control study of all stillbirths (fetal deaths >20 weeks) and a representative sample of live births enrolled at delivery in 5 geographic areas at 59 hospitals averaging >80,000 deliveries/year. Participants underwent a standardized protocol including maternal interview, medical record abstraction, placental pathology, biospecimen testing, and, in stillbirths, postmortem examinations. Analyses comparing stillbirths and live births were weighted to account for oversampling in the design.

RESULTS: Of 953 women with stillbirths eligible for the study, 126 were not approached, 164 refused and 663 (70%) consented to participate. A total of 3089 livebirth controls were eligible, and 1933 consented (63%). Compared with all livebirths, the following pre-pregnancy maternal characteristics were significantly more likely to be associated with stillbirth in univariate analyses: age <20 or >39 years, black race, BMI <18.5 or >24.9, unmarried/cohabitating, stressful life event, B or AB blood type, illicit drug addiction, nulliparity, previous stillbirth, <13 years education, no private insurance, Rh+, hypertension, diabetes, and smoking. Results were similar when compared to term controls. Results were similar after additional weighting to account for differential consent. The first 9 factors above remained significant in multivariable analysis. Additional subanalyses will be presented.

CONCLUSION: To our knowledge, this is the largest, population-based study of stillbirth with an extensive evaluation of both cases and controls. Our findings are more generalizable than prior hospital-based studies or studies with small sample sizes, less complete ascertainment, non-standardized workup, or convenience sampling. Maternal blood type is a novel risk factor not previously reported. The risks associated with maternal age and BMI appear to be independent of preexisting maternal disease.

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28 Fetal lung maturity testing before 39 weeks and neonatal outcomes

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OBJECTIVE: The risk of neonatal morbidity with delivery < 39 weeks (wks) is reduced by prior confirmation of fetal lung maturity (FLM). We assessed whether the risk is reduced to levels obtained with delivery at 39-40 wks.

STUDY DESIGN: Retrospective cohort study of women delivered at 36-38 wks after positive FLM or at 39-40 wks at our center from '99-'08. FLM was positive if phosphatidyl glycerol was present or if L/S ratio ≥2 (non-diabetics) or ≥ 3.5 (diabetics). Multiples and conditions suggesting fetal compromise (major congenital anomalies, cord prolapse, non-reassuring antepartum testing, abruption and oligohydramnios) were excluded. The primary outcome was a composite of perinatal death and neonatal morbidities including those in the table. We also compared neonatal ICU (NICU) admission and hospital stay.

RESULTS: 442 delivered at 36-38 wks after positive FLM and 12,881 delivered at 39-40 wks. Mean gestational age and birth weight were 37.2 vs. 39.8 wks and 3115 vs. 3360 g, respectively; both p<0.001. Compared to births at 39-40 wks, morbidities, NICU admission and prolonged hospital stay increased with earlier birth after positive FLM and remained so after adjusting for differences in mode of delivery, diabetes, hypertension, age, parity, ethnicity and quality of dating (Table). Risks of bronchopulmonary dysplasia, persistent pulmonary hypertension, surfactant use, hyperbilirubinemia and feeding difficulties were also significantly higher with FLM and delivery <39 wks. Risks of perinatal death and seizures were similar.

Adverse neonatal outcome	<39 weeks + FLM % (n=442)	39-40 weeks %(n=12881)	Unadjusted RR (95% CI)	Adjusted† RR (95%CI)
Composite adverse outcome	5.9	2.5	2.4 (1.6, 3.5)	1.6 (1.02, 2.6)
Composite adverse outcome II*	5.0	2.0	2.5 (1.6, 3.8)	1.7 (1.01, 2.7)
Suspected or proven sepsis	5.7	2.2	2.6 (1.7, 3.8)	1.7 (1.1, 2.8)
Respiratory support	2.9	1.0	2.8 (1.6, 5.0)	1.8 (0.96, 3.5)
RDS	1.4	0.04	35.0 (11, 114)	7.9 (2.0, 31)
Hypoglycemia	2.0	0.14	15.0 (7.0, 32)	6.7 (2.5, 17.6)
NICU admission	5.9	2.3	2.5 (1.7, 3.7)	1.7 (1.05, 2.7)
Hospitalization >4 days	10.8	3.3	3.3 (2.4, 4.4)	2.6 (1.8, 3.9)

*Excludes suspected sepsis; †Adjusted for maternal age, race, parity, medical complications (hypertensive disorder or diabetes) and baby gender.

CONCLUSION: Delivery before 39 wks after confirmed FLM is associated with increased neonatal morbidity compared to 39-40 wks, suggesting that purely elective delivery before 39 wks even after positive FLM should be avoided.

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29 Neonatal outcomes by labor onset type and gestational age

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OBJECTIVE: To determine neonatal outcomes by labor onset type and gestational age.

STUDY DESIGN: The Consortium on Safe Labor retrospectively collected electronic medical records from 10 institutions on 156,786 deliveries from 2002-08. Deliveries were divided by labor onset type (spontaneous, elective induction, indicated induction, unlabored cesarean). Neonatal outcomes were calculated by labor onset type and gestational age.

RESULTS: Neonatal outcomes improve with each week of gestational age for all labor onset types until 39-40 weeks (p<.01 See Figures of unadjusted rates). After adjusting for complications (preeclampsia,