GENERAL

Abstracts 36 – 43

Moderators: Mary D'Alton, MD; Thomas Garite, MD

36 The role in emergent cerclage of indomethacin and antibiotics (RECIA)

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OBJECTIVE: To determine whether perioperative antibiotics and indomethacin administration at the time of exam-indicated second-trimester cerclage placement significantly prolongs gestation.

STUDY DESIGN: This is a randomized controlled trial performed at a single tertiary care hospital between March 2010 and November 2012. Women older than 18 years of age with a singleton pregnancy between 16+0 and 23+6 weeks gestation who were undergoing an exam-indicated cerclage were eligible. Women were randomly assigned to receive either perioperative antibiotics (either cefazolin 1-2mg based on weight or 600mg clindamycin IV pre-operatively followed by 2 additional doses q8 hours) and indomethacin (50mg PO immediately post-operatively followed by 2 additional doses q8 hours) or no peri-operative prophylactic medications. The primary outcome was gestational latency after cerclage placement. Using 80% power and an alpha of 0.05, we needed 50 women to show a 28 day improvement in latency assuming a baseline latency without intervention of 50 ± 35 days.

RESULTS: Fifty-three subjects were enrolled in the study, with three lost to follow-up. There was no difference between groups in demographic characteristics, obstetric history, or pre-operative cervical exam. A significantly greater proportion of pregnancies were prolonged by at least 28 days among women who received perioperative antibiotics and indomethicin [24 (92.3%) vs 15 (62.5%), p=0.01]. However, median latency, gestational age at delivery, and neonatal outcomes were statistically similar between groups.

CONCLUSION: Among women receiving an exam-indicated cerclage in the second trimester, gestation was significantly more likely to be prolonged by 4 weeks among women who received perioperative indomethacin and antibiotics. Larger studies will be necessary to determine whether this pregnancy prolongation can translate into improvements in neonatal outcomes.

Obstetric and neonatal outcomes

	Intervention	No intervention	p value
Latency > 28 days	24 (92.3%)	15 (62.5%)	0.01
Median latency (days)	97 (57-125)	80 (15-122)	0.18
Gestational age at delivery (weeks)	34.8 (27.1-38.4)	31.1 (22.9-38.5)	0.39
Delivery < 37 weeks	14 (53.8%)	15 (62.5%)	0.54
Delivery < 28 weeks	7 (26.9%)	11 (45.8%)	0.16
Delivery < 24 weeks	4 (15.4%)	7 (29.2%)	0.24
PPROM	14 (53.8%)	8 (33.3%)	0.15
Chorioamnionitis	6 (23.0%)	4 (17.4%)	0.62
Birth weight (grams)	2850 (1440-3380)	2488 (955-3175)	0.36
NICU days	43 (19-107)	95 (11-112)	0.88
Survival until discharge	21 (87.5%)	17 (77.3%)	0.36

NICU, neonatal intensive care unit; *PPROM*, preterm premature rupture of membranes.

37 Maternal pravastatin therapy prevents altered brain development of the offspring in a murine model of preeclampsia

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OBJECTIVE: Using an animal model, we showed that preeclampsia alters brain candidate gene expression and results in long-term adverse neuromotor outcomes in the offspring, and this effect was prevented by antenatal treatment with pravastatin. This study aims to localize, by neuroimaging, the altered neuromotor programming in this animal model and the role of pravastatin in its prevention.

STUDY DESIGN: At day 8 of gestation, pregnant CD-1 mice were randomized to tail vein injection with adenovirus carrying soluble Fms-like tyrosine kinase 1 (sFlt-1) or murine immunoglobulin G2Fc (mFc; control). sFlt-1 dams received pravastatin (5mg/kg/d; sFlt-pra group) or water (sFlt group) until weaning, and mFc received water (mFc group). Male offspring (representing 3-9 litters/group) at 6 months of age were sacrificed, and whole brains underwent magnetic resonance imaging (MRI). MRIs were performed using Brucker 11.7 Tesla horizontal bore MRI scanner. T2 and diffusion weighted images were acquired to evaluate the gross volumes of 29 regions of interest, including areas involved in the regulation of motor function (lateral globus pallidus, neocortex), spatial reasoning (fimbria, neocortex), sensory perception (neocortex), and adaptation to stress (stria medullaris) and pain (periaqueductal gray). 1-way ANOVA with multiple comparison testing was used for statistical analysis.

RESULTS: Male sFlt-1 offspring showed decreased fimbria, periaquaductal gray, stria medullaris, and ventricular volume and increased lateral globus pallidus and neocortex volume (Figure 1: all $p<0.05$). Prenatal pravastatin treatment restored volumes to those seen in controls ($p<0.05$). Whole brain and cerebellar volumes were similar between groups.

CONCLUSION: Preeclampsia alters development in specific brain regions in adult offspring, and maternal therapy with pravastatin prevents this altered neuroanatomic programming in this animal model of preeclampsia.