



Loss of Imprinting in First Trimester Placentas

CONCLUSION: Our results show that LOI is more common in 1st trimester placentas than in term human placentas. This is the first biological observation suggesting that genetic imprinting is not completely established and occurs beyond the 1st trimester of pregnancy. Genes like CD44, MEG3, PLAGL1, DLK1, H19 and SNRPN show appreciable rates of LOI in the 1st trimester placentas, but become totally imprinted by the 3d trimester of human gestation. Our findings also suggest that many mechanisms, rather than methylation alone, might be responsible for imprinting in the placenta.

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39 Cervical funneling: effect on gestational length and ultrasound-indicated cerclage in high-risk women

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OBJECTIVE: To assess the relationship between the type of cervical funneling and birth gestational age (GA) in women with prior spontaneous preterm birth (SPTB) and cervical length (CL) < 25 mm enrolled in a randomized intervention trial of ultrasound-indicated cerclage.

STUDY DESIGN: This is a planned secondary analysis of the NICHD-sponsored cerclage trial. Women with prior SPTB at 17–33 6/7 weeks underwent serial vaginal scans between 16 and 22 6/7 weeks. 301 women whose CL was < 25 mm were randomized to receive cerclage or no cerclage. At the qualifying scan for randomization, the presence and type of funnel (U or V-shaped) were recorded.

RESULTS: 147 of 301 (49%) had a funnel: 99 were V-shaped (V-F) and 48 were U-shaped (U-F). In univariate analyses, the presence of U-F, but not V-F, was associated with an increased risk of preterm birth < 24 weeks ($p=0.0092$), < 28 weeks ($p=0.0002$), < 35 weeks ($p=0.0005$), and < 37 weeks ($p=0.002$). In a multivariable regression model of GA as the dependent variable, U-F (but not V-F) remained significant ($p=0.003$) after controlling for baseline CL and cerclage group, demonstrating a mean 3 week earlier birth. We also considered the possibility of an interaction between U-F and cerclage. The interaction term ($p=0.06$) suggested that women with U-F have a disproportionate benefit from cerclage: women with U-F were delivered a mean 4.9 weeks later in gestation with cerclage than without cerclage.

CONCLUSION: The finding of a U-F, but not a V-F, in women with shortened midtrimester CL is associated with a earlier birth GA. The pathophysiologic mechanisms of a U-F appear to be more amenable to cerclage therapy in women with prior SPTB and shortened CL < 25 mm.

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40 Preterm severe preeclampsia is associated with decreased decidual T regulatory cells

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OBJECTIVE: Immunologic mechanisms play a pivotal role in the pathophysiology of preeclampsia (PE). Specifically, immunosuppressive T regulatory (Treg, FoxP3+, CD4+, CD25bright) cells control the cytotoxic T cell (CD8+) response and tolerance to the fetus. In maternal peripheral blood Tregs are elevated in pregnancy, decrease across gestation, and are decreased in pregnancies with PE. To determine the role of these cells at the implantation site, we characterized the proportion of decidual Treg and cytotoxic T cells in normal and preeclamptic pregnancies.

STUDY DESIGN: Decidua from first trimester terminations ($n=5$) and fetal chorioamniotic membranes, containing decidua, from term deliveries ($n=14$), early onset (≤ 34 weeks) severe PE ($n=7$), and late onset (>34 weeks) severe PE ($n=7$) were evaluated. Immunohistochemistry for CD3, CD8, and FoxP3 was performed. Cells were counted in three 5x fields; CD8+ and FoxP3+ cells were calculated as a percentage of CD3+ cells (total T cells) and analyzed non-parametrically.

RESULTS: The median percentage of decidual Tregs decreases with advancing gestational age (59.67% first trimester, 5.21% third trimester; $p=0.001$). The median proportion of decidual Treg cells is significantly lower in pregnancies complicated by early onset severe PE (0.65%) compared to uncomplicated term pregnancies (5.21%; $p=0.004$), and to pregnancies complicated by late onset severe PE (3.67%; $p=0.003$). The latter two categories were not significantly different ($p=0.628$). The proportion of CD8+ cells was significantly higher in pregnancies complicated by severe PE compared to gestational age-matched controls ($p=0.018$).

CONCLUSION: In normal pregnancy, decidual Tregs decrease with advancing gestational age. Early onset severe PE showed a significantly lower percentage of Tregs compared to estimates of gestational age-matched controls. Taken together with increased cytotoxic T cells in PE, our data suggest that early onset severe preeclampsia has a unique pathophysiology involving defective immuno-regulatory pathways at the implantation site.

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41 Labor induction with a foley balloon trial (LIFT) – a randomized controlled trial of 30mL versus 60mL Foley balloon inflation

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OBJECTIVE: To compare 30mL and 60mL Foley balloon inflation in labor induction and the effect on length of labor and mode of delivery.

STUDY DESIGN: 192 women with term, vertex, singleton pregnancies & Bishop score < 5 were randomized to receive a 30mL or 60mL Foley balloon (FB). Exclusion criteria were regular contractions on admission, ruptured membranes, low-lying placenta or prior hysterotomy. Randomization was stratified by parity and providers were blinded to FB size. Outcomes included delivery times, time to FB expulsion, cervical dilation after FB expulsion, maximum oxytocin dose, method of delivery, chorioamnionitis, meconium, cervical laceration, abruptio, 5-minute Apgar and umbilical cord artery gas.

RESULTS: FB inflation to 60mL produced a higher rate of delivery within 12 hours compared to 30mL. Stratified by parity, delivery within 12 hours remained significant for nulliparous women. Inflation to 60mL produced a larger cervical dilation after FB expulsion. There was no difference in median delivery time, cesarean delivery rate or neonatal outcomes.