

**STUDY DESIGN:** We explored serum levels of ES and HIF-1 $\alpha$  in 22 patients with histological-confirmed invasive placentation (GA: 29 $\pm$ 5w, accreta: n=5; increta: n=11; percreta: n=6) by ELISA and Western blot. Samples (total n=30) were retrieved prospectively and in a serial fashion prior to blood transfusion or steroids. We controlled for pregnancy and possible GA variation using blood samples (n=43) of 10 healthy nonpregnant and 10 healthy pregnant (GA: 26 $\pm$ 9w) subjects. Full-thickness myometrial-villous hysterectomy sections were immunostained and scored for ES, HIF-1 $\alpha$ , VEGF, and cytokeratin-7 (CK7, epithelial cell marker). Myometrium opposite from the accreta insertion site and normal placental bed biopsies (n=4) served as tissue controls (CRL).

**RESULTS:** In CRL subjects, systemic ES levels were unaffected by pregnancy status or GA (P=.752), while serum HIF-1 $\alpha$  was undetectable. Women with advanced trophoblast invasion (increta & percreta) had lower serum levels of ES compared with less invasion (accreta) (P=.009). The site of excessive trophoblast invasion (+CK7) lacked immunostaining for ES and HIF-1 $\alpha$  relative to the deeper myometrium and the opposite myometrial site (P<.001). In an opposing pattern, VEGF was highly expressed at the site of excessive myometrial invasion and aberrant vascularization (P<.001).

**CONCLUSION:** The local imbalance among expression of ES and VEGF likely contributes to the invasive phenotype of the accreta trophoblasts. This effect seems to occur independent of HIF-1 $\alpha$ .

### 106 The impact of the Bakri Balloon on the rate of cesarean hysterectomy at a single university hospital

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**OBJECTIVE:** To evaluate the impact on the rate of Cesarean Hysterectomy when a Bakri Balloon was added as part of the management of a postpartum hemorrhage.

**STUDY DESIGN:** We reviewed all cases of postpartum hemorrhage at our hospital from January, 2004- December, 2010. We compared the incidence of Cesarean Hysterectomy between January, 2004 -September, 2007, prior to the availability of the Bakri Balloon at our hospital, and a similar period of time after the device was available, from October, 2007-December, 2010. The primary outcome was the rate of cesarean hysterectomy for postpartum hemorrhage in these two time periods. Cases of placenta accreta, increta, and percreta were excluded.

**RESULTS:** Between January, 2004 - September, 2007 there were 35 cases of Postpartum hemorrhage, of which 10 had a Cesarean Hysterectomy (28.5%). After the Bakri balloon was introduced (October, 2007-December, 2010), there were 45 cases of postpartum hemorrhage, of which 1 had a C-Hysterectomy (2.2%). The Bakri balloon was used in 23 of the 45 cases. The p-value by Chi Square analysis was 0.00068.

**CONCLUSION:** Since the introduction in our hospital of the Bakri balloon as an option in the treatment of postpartum hemorrhage, there has been a 92.3% reduction in the rate of Cesarean Hysterectomies performed.

### 107 Placental findings suggesting preeclampsia is at least two different diseases

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**OBJECTIVE:** It has long been suspected that hypertension specific to pregnancy represents at least two different diseases depending on the timing during gestation when preeclampsia is first diagnosed. Early-onset preeclampsia has often been observed to be associated with placental insufficiency attributable to vascular abnormalities; in contrast,

late-onset preeclampsia has been associated with excessive placenta-manifest as hyperplasia. Our purpose was to evaluate the placental pathology in women with preeclampsia occurring at varying gestational ages.

**STUDY DESIGN:** This was a secondary analysis of a prospective observational study of placentas from pre-specified complicated pregnancies routinely submitted for standardized examination. For this study, a database of placental diagnoses of liveborn singleton gestations without major malformations was linked to a computerized obstetric database. The rates of standardized placental findings including vascular (atherosis; infarction) and non-vascular (hyperplasia) changes were evaluated according to gestational age and diagnosis of severe preeclampsia.

**RESULTS:** A total of 7,122 women with pregnancies complicated by preeclampsia were delivered at our institution between January 1, 2001 and September 30, 2007. Of these, 1,210 had placental examinations. Within this cohort, 209, 355, and 646 were diagnosed with preeclampsia at < 34, 34 - 36 6/7, and  $\geq$  37 weeks gestation, respectively. Selected placental findings in women with preeclampsia are shown in the Table.

**CONCLUSION:** The placentas of women with preeclampsia developing before 34 weeks gestation were significantly different from those with preeclampsia at term. The former group demonstrated placental findings predominantly consistent with insufficiency due to vascular abnormalities whereas placental hyperplasia was significantly associated with preeclampsia at term. Such differing placental findings support the hypothesis that preeclampsia is a different disease depending on the gestational age at diagnosis.

Table 1. Selected placental findings of women with preeclampsia.

Placental Findings	Gestational Age (weeks)			P-value*
	24 0/7 - 33 6/7 N = 209 (17)	34 0/7 - 36 6/7 N = 355 (29)	$\geq$ 37 0/7 N = 646 (53)	
Consistent with insufficiency:				
Vascular Lesions	111 (53)	119 (34)	165 (26)	< 0.001
Hypoplasia	81 (39)	103 (29)	115 (18)	< 0.001
Consistent with hyperplacentation:				
Hyperplasia	11 (5)	46 (13)	113 (17)	< 0.001
Data presented as N (%)				
* P-value for trend				

### 108 Maternal and perinatal consequences of a primary elective cesarean delivery

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**OBJECTIVE:** To estimate cumulative risks of maternal and perinatal morbidity associated with the choice of elective cesarean for a first delivery.

**STUDY DESIGN:** A decision analytic model was designed to compare major adverse outcomes across a woman's reproductive life associated with the choice of primary elective cesarean versus a trial of labor at a first delivery. Maternal outcomes assessed included maternal transfusion, hysterectomy, thromboembolism, operative injury, and death. Perinatal outcomes assessed included cerebral palsy (CP) and permanent brachial plexus (BP) palsy in the offspring.

**RESULTS:** Choosing an initial cesarean resulted in a 0.3% increased risk of a major adverse maternal outcome in the first pregnancy. In each subsequent pregnancy, the difference in maternal morbidity increased between strategies, such that by the fourth pregnancy, the cumulative risk of a major adverse maternal outcome was nearly 10% in the elective primary cesarean group, three times higher than among women who initially underwent a trial of labor. Although the choice of an initial cesarean resulted in 2.4 and 0.41 fewer cases of CP and BP palsy, respectively, per 10,000 women in the first pregnancy, by a fourth pregnancy, the risk of either adverse neonatal outcome was higher among offspring of women who had chosen the initial elective cesarean (0.368% vs. 0.363%).

**CONCLUSION:** Maternal morbidity associated with the choice of a primary elective cesarean increases in each subsequent pregnancy and is