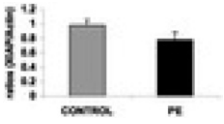
286 XIAP, CASPASE 3 AND APOPTOSIS IN THE PREECLAMTIC PLACENTA JUAN A ARROYO[1] VIRGINIA WINN[1], BRADLEY T. ZIEBELL[1], HENRY GALAN[1], [1]University of Colorado and Health Sciences Center, Obstetrics and Gynecology, Aurora, Colorado

OBJECTIVE: Preeclampsia (PE) is a leading cause of maternal and fetal morbidity and mortality. PE is characterized by an increase in placental apoptosis, however the mechanism is not conclusive. The X-linked inhibitor of apoptosis protein (XIAP) protects against apoptosis. Our objective was to determine the level and localization of XIAP as well as the levels of caspase 3 in PE placenta compared to controls.

STUDY DESIGN: Under IRB consent, tissue biopsies and protein lysates were made from human chorionic villi obtained from pregnancies complicated by PE (n=5) or matched controls (n=5). TUNEL Assay was performed to confirm apoptosis. XIAP localization was determined by immunohistochemistry. Western blot analyses were performed for XIAP and caspase 3. The mean±SE values for the TUNEL and western blot analyses were compared using the Wilcoxon rank sum test.

RESULTS: TUNEL assay showed increased villi apoptosis in PE ($p<0.007$). XIAP localized to the syncytiotrophoblasts. There was a trend for decreased for XIAP protein in the PE samples ($p<0.08$). However, there was no significant difference for both total and activated caspase 3 between the PE and control samples.

CONCLUSION: Our data confirms that apoptosis is increased in PE placentas. XIAP protein is expressed by the syncytiotrophoblasts in the human placenta and may be decreased in PE potentially accounting for the increased apoptosis. However, the lack of a difference in caspase 3 activation suggests that placental apoptosis in PE may occur via a caspase-independent pathway. (NIH: R01 HL071990-01A1 and an ABOG/AAOGF Award).



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287 TRANSPORT ACTIVITY OF HUMAN PLACENTAL P-GLYCOPROTEIN SARAH HEMAUER[1], SVETLANA PATRIKEEVA[1], TATIANA NANOVSKAYA[1], GARY HANKINS[1], MAHMOUD AHMED[1], [1]University of Texas Medical Branch, Obstetrics and Gynecology, Galveston, Texas

OBJECTIVE: Efflux transporters expressed in human placental brush border membranes have an important role in protecting the fetus from xenobiotics and drugs. Accordingly, the extent of fetal exposure to a therapeutic administered to the pregnant woman could, in part, be dependent on the activity of efflux transporters. Therefore, we developed a method for determining the activity of P-glycoprotein, expressed in term human placental brush border membranes, for efflux of its prototypic substrate Taxol.

STUDY DESIGN: Brush border membrane vesicles (BBMVs) were prepared from human term placental trophoblast tissue. An affinity chromatography column was used to enrich the vesicle preparation with those oriented inside-out. The kinetics of the ATP-dependent P-gp-mediated uptake of [^{3}H] Taxol by the inside-out placental BBMVs were determined.

RESULTS: The vesicle preparation exhibited a 12 ± 4 fold enrichment of its brush border membranes over syncytiotrophoblast lysate by the activity of the marker enzyme alkaline phosphatase. Inside-out vesicle preparations isolated by affinity chromatography were approximately 75% oriented inside out. The ATP-dependent uptake of [^{3}H] Taxol by placental BBMVs was 2.5 ± 1.4 fold greater in enriched inside-out preparations over the crude vesicles i.e. before affinity chromatography. The ATP-dependent uptake of [^{3}H] Taxol by P-gp of the inside-out vesicles exhibited classical saturation kinetics with an apparent V_{max} of 13 ± 6 pmol/mg protein.min and an apparent Kt of 58 ± 19 nM.

CONCLUSION: Our data indicate that a method has been established to determine the activity of the efflux transporter P-gp, of placental brush border membranes, in the transfer of its prototypic substrate Taxol. This method is currently used to investigate the activity of human placental P-gp-mediated transport of a variety of therapeutics used during pregnancy. Supported by a grant from NIDA to (MSA) and NICHD to (G.D.H.)

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288 BUPRENORPHINE VS. METHADONE FOR TREATMENT FOR OPIOID ADDICTION DURING PREGNANCY: A RETROSPECTIVE STUDY OF PRENATAL COMPLIANCE AND NEONATAL OUTCOMES PAYEL PATEL[1], MARISA NADAS[1], MAUREEN SULLIVAN[1], HOWARD CABRAL[2], KELLEY SAIA[1], [1]Boston University, Boston, Massachusetts, [2]Boston University, Biostatistics, Boston, Massachusetts

OBJECTIVE: Methadone is currently the gold-standard for opioid addiction treatment during pregnancy. However, it is estimated that 60-80% of infants exposed to methadone in utero experience neonatal abstinence syndrome (NAS) substantial enough to prolong hospital stay. Buprenorphine (Subutex) is a partial opioid agonist used as an alternative to methadone for opioid addiction. The purpose of this study was to determine the effects of buprenorphine and the buprenorphine treatment program on maternal and neonatal outcomes in comparison to mother-infant pairs treated in the methadone program. Outcomes resulted here are limited to those of the newborn.

STUDY DESIGN: This is a retrospective chart review of women who have completed a full term pregnancy while being treated with buprenorphine (n=19) or methadone (n=64) through Boston Medical Center's Addiction in Pregnancy Program from 2004 to 2008. Outcomes evaluated included number of prenatal visits, pregnancy outcomes, infant NAS scores, number of infants requiring pharmacotherapy for NAS, duration of therapy, maximum therapeutic dose, and duration of infant hospital stay

RESULTS: Mothers participating in the buprenorphine program had more prenatal visits than those receiving methadone. Infants of mothers treated with buprenorphine had shorter median hospital stays vs. those treated with methadone (10 days vs 16 days, respectively, $p<0.03$). Additionally, 2 (11%) of infants of buprenorphine treated mothers required admission to NICU compared to 30 (47%) of infants of methadone treated mothers ($p<0.006$).

CONCLUSION: These results support previously reported safety and efficacy of buprenorphine as an alternative to methadone in treatment of opiate dependence during pregnancy. Other investigators have demonstrated a neonatal benefit to maternal buprenoprhine treatment. Our results indicate that, under specific treatment conditions, buprenorphine may confer greater neonatal benefit than previously reported.

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289 ELECTRICAL UTERINE ACTIVITY IS HIGHER IN INDUCED LABOR COMPARED TO SPONTANEOUS LABOR KAREN PLAYFORTH[1], ODED LANGER[2], CHRISTINE FARINELLI[3], GAL BEN DAVID[4] ILAN CALDERON[4], [1]St. Luke's-Roosevelt Hospital Center, New York, New York, [2]St. Luke's-Roosevelt Hospital Center, Obstetrics and Gynecology, New York, New York, [3]St. Luke's Roosevelt Hospital Center, Obstetrics and Gynecology, New York, New York, [4]Bnai Zion Medical Center, Obstetrics and Gynecology, Haifa, Israel, Israel

OBJECTIVE: To characterize the electrical uterine activity during induced labor in comparison to spontaneous labor.

STUDY DESIGN: Twenty patients undergoing induction of labor and 20 patients in spontaneous labor were recruited into a prospective, double-blind, IRB-approved study. Cervical characteristics and stage of labor were determined at baseline. Electrical activity of the uterine myometrium was measured with a multichannel electromyogram (EMG) amplifier and a 3-dimensional position sensor at preset intervals. EMG data and cervical exam were obtained at study entry, at 4 cms cervical dilatation, and every 2 hours during active labor (cervical dilatation 4 cms). EMG data was recorded and sent offsite to an individual blinded to all clinical data for analysis. Both cross-sectional and longitudinal data analysis was performed.

RESULTS: The study revealed: (1) the electrical uterine activity during active labor (cervical dilatation 4 cms) in patients undergoing induction was significantly higher than in patients in spontaneous labor ($p=0.018$)(500.4 vs. 420.7); (2) the electrical uterine activity during latent labor (cervical dilatation <4 cms) was not significantly different between the 2 groups; (3) in the induction patients, a higher level of electrical uterine activity was seen in active labor in comparison to latent labor (471.6 vs. 522.4 $p=0.06$); (4) no correlation was found between the level of electrical activity during the induction and maximum pitocin dose given; and (5) significant correlation was found between the level of electrical uterine activity in latent labor and active labor ($r=0.61$, $p=0.02$).

CONCLUSION: The electrical uterine activity achieved during the active phase of induced labor is significantly greater than in spontaneous labor. Our data suggests that patient's response to pitocin has marked individuality.

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