

- 253 PREINDUCTION CERVICAL RIPENING WITH THE FOLEY CATHETER AND THE RISK OF SUBSEQUENT PRETERM BIRTH** ANTHONY SCISCIONE¹, MOLLY LARKIN², ANNE O'SHEA³, MARJORIE POLLOCK³, MATTHEW HOFFMAN², GARRETT COLMORGEN²; ¹Newark, DE; ²Christiana Hospital, Obstetrics and Gynecology, Newark, DE; ³Christiana Hospital, Newark, DE
OBJECTIVE: The Foley catheter is a safe and effective form of preinduction cervical ripening and is quickly growing in popularity. Because its major effect is through forced mechanical dilatation of an unripe cervix, there has been concern that cervical damage may occur, which would increase the risk of preterm birth in a subsequent pregnancy.
STUDY DESIGN: This is a case-cohort study of all inductions of labor in our institution from 7/98-7/01 that required preinduction cervical ripening and had a subsequent birth. Women with more than one preinduction cervical ripening agent or a nonviable fetus in the index pregnancy were excluded. The primary outcome variable was preterm birth. Demographic and potential confounding variables were analyzed. A *P* value <.05 was considered significant.
RESULTS: To detect a 30% increase in preterm birth and maintain an 80% power, 62 women were needed in each group. A total of 126 women with 63 in the Foley group (F) and 63 in the non-Foley group (NF) were studied. Women in the NF group had a prostaglandin agent used. There was no difference in maternal age, gravidity, parity, Bishop score, total time of induction, gestational age, oxytocin use, maximum oxytocin level, tobacco or drug use, or type of delivery in the index pregnancy between the groups. In the subsequent pregnancies, there were no differences in maternal age, gravidity, parity, spontaneous abortions, terminations, cone or LEEP biopsies, history of cervical manipulation, tobacco or drug use, stillbirth, need for induction, mode of delivery, episiotomy, gestational age at delivery, Apgar scores, labor duration, use of oxytocin or birthweight. There were no differences in preterm birth at 37, 35, or 32 weeks between the groups.
CONCLUSION: Use of the Foley catheter for preinduction cervical ripening does not increase the risk of preterm birth in a subsequent pregnancy.
- 254 Tocolysis with Magnesium Sulfate and Neonatal Outcome** CHARLES INGARDIA¹, BETH URBONAS¹, RENEE BOBROWSKI¹, DEBORAH FELDMAN¹; ¹Hartford Hospital, Maternal Fetal Medicine, Hartford, CT
OBJECTIVE: To evaluate the role of tocolysis with magnesium sulfate on preterm neonatal morbidity and mortality.
STUDY DESIGN: A retrospective review was conducted of our computerized perinatal data base and medical charts of births from 1992-2000. All singleton deliveries between 23-32 wks gestational age (GA) exposed to magnesium sulfate (MG), terbutaline (T), or both (B) were identified. Patients with pregnancy induced hypertension, multiple births, or neonates with congenital malformations were excluded. Maternal data analyzed included: age, race/ethnicity, substance abuse, smoking and medical complications. Obstetrical data included: GA at delivery, use and total dosage of tocolysis, mode of delivery, preterm premature rupture of membranes, chorioamnionitis, and use of antenatal steroids. Neonatal data included: Apgar scores, cord pH, birth weight, use of surfactant, respiratory distress syndrome (RDS), intraventricular hemorrhage (IVH), ventilator use (V), necrotizing enterocolitis (NEC), sepsis (S), and neonatal death (ND). Data were analyzed using Chi Square and Fisher Exact test.
RESULTS: One hundred seventy preterm births were identified which met criteria. Of these, 65 mothers received MG only, 68 received T, and 37 received B. There were no differences in mean maternal age, smoking status, medical complications, GA at treatment or delivery between tocolytic groups. More patients in the MG group used illicit drugs than in the T group (8/65 vs. 2/68) (*p* = .05) and had cardiac disease (10/65 vs. 2/68) (*P* = .05). Neonatal mortality was similar for the MG (9/68-14%), T (11/68-16%), and B (8/37-22%) groups even when controlled for GA at delivery and use of antenatal steroids. No significant differences were noted in the mean cumulative MG dose in neonates who survived (82.7 gms) vs. those who did not (73.9 gms, *P* = .29). The rates of IVH, NEC, RDS, S, or V were not significantly different between the three groups.
CONCLUSION: Tocolysis with magnesium sulfate is not associated with increased preterm neonatal mortality or morbidity.
- 255 PHARMACOLOGIC INHIBITION OF MATRIX METALLOPROTEINASES IN THE LATE GESTATION FETAL-MATERNAL INTERFACE** AMIR WEISS¹, SHLOMIT GOLDMAN¹, IZHAR BEN-SHLOMO¹, ELIEZER SHALEV²; ¹Ha'Emek Medical Center, Obstetrics and Gynecology, Afula; ²Technion, Rappaport Faculty of Medicine, Haifa
OBJECTIVE: Preterm labor may be prevented pharmacologically by inhibiting matrix metalloproteinases (MMP). Using an in vitro model, we sought to determine the effect known MMP inhibitors have on MMP-2, MMP-9 and tissue inhibitors of MMPs (TIMP-1) activity in the fetal-maternal interface: decidua, chorion and amnion.
STUDY DESIGN: Decidua, amnion and chorion samples were taken from 7 non-laboring women undergoing elective C/S. Tissues were incubated in minimal media. Direct effect on MMP activity was measured with gelatin substrate-zymography of incubation media and developed in different concentrations of indomethacin, COL3, COL308, and N-acetylcysteine (NAC). Overall effect of NAC was measured by incubating tissues in a minimal media with NAC at various concentrations. MMP activity was measured in the incubation fluid using zymography. Protein levels were analyzed with western blot.
RESULTS: NAC had the most significant, concentration dependent, direct inhibitory effect on MMP-2 and MMP-9 activity starting at 1mM NAC, with total inhibition at 20mM. In tissue incubations, 20 mM NAC produced a significant decrease of gelatinolytic activity of MMP-9 and MMP-2 on zymography in all three tissues. There were reduced protein levels of MMP-9 and MMP-2 in the decidua only. 10mM NAC reduced MMP-9 but not MMP-2 activity in decidua and amnion. MMP-9 protein levels in decidua were also reduced. NAC had no effect on TIMP-1 production in any of the tissues. MMP-2 and MMP-9 protein levels in amnion and chorion were also not effected.
CONCLUSION: N-acetylcysteine has a dual inhibitory effect on MMP-2 and MMP-9. It has a direct inhibitory effect on activity starting at 1mM, and it has an inhibitory effect on MMP-2 and MMP-9 production in decidua but not in amnion or chorion. Our findings support the possibility that NAC may be useful in the prevention of preterm labor.
- 256 A COMPARISON OF NIFEDIPINE VERSUS TERBUTALINE FOR MAINTENANCE Tocolysis Following Stabilization of an Initial Preterm Labor Episode in Women with Singleton Gestation** JOSEPH COLLEA¹, NIKI ISTWAN², DEBBIE JACQUES², SUZANNE COLEMAN², GARY STANZIANO²; ¹George Washington University Hospital, Dept. of Ob/Gyn, Washington, DC; ²Matria Healthcare, Clinical Research Dept., Marietta, GA
OBJECTIVE: To compare the incidence of recurrent preterm labor (RPTL) in women with singleton gestations prescribed oral nifedipine (NIF) versus oral terbutaline (TERB) for maintenance tocolysis.
STUDY DESIGN: Women with singleton gestations diagnosed with preterm labor (PTL) by their individual physicians and enrolled for perinatal outpatient services were identified from a database. Included were those prescribed either NIF or TERB following stabilization of their initial episode of PTL. Those prescribed NIF were matched 1:1 to those prescribed TERB by gestational age (GA) and cervical dilation (CD) at initial diagnosis of PTL, history of previous preterm delivery (PPTD), and presence or absence of cerclage. Frequency of RPTL requiring hospitalization and days to breakthrough (DTB) were analyzed using matched pairs statistics.
RESULTS: Nine hundred seventeen matched pairs were analyzed. Matched variables are as follows: GA at start of maintenance tocolysis 29.3 ± 3.2 weeks, cervical dilation 1.4 ± 0.8 cm, cerclage 5.3%, history of PPTD 29.9%. The mean dose for NIF was 68.1 ± 31.9 mg/day; for TERB 24.0 ± 9.6 mg/day.
CONCLUSION: Women receiving NIF for maintenance tocolysis following an initial episode of PTL had a higher incidence of RPTL at an earlier gestational age than women receiving TERB. For those with RPTL, time to tocolytic breakthrough was greater for those receiving TERB by a mean of 5.7 days.

Table

	NIF N = 917	TERB N = 917	P VALUE
RPTL	49.4% (453)	37.2% (341)	<.001
GA at RPTL	31.9 ± 3.1	32.7 ± 3.2	.004
≥35.0 weeks at RPTL	15.3% (26)	25.9% (44)	.022
DTB	23.5 ± 19.6	29.2 ± 21.2	.006