13 **EVIDENCE FOR A DIFFERENTIAL MATERNAL CYTOKINE PROFILE IN PRETERM PREECLAMPSIA AND TERM PREECLAMPSIA** JU CHEOL KIM[1], TINNAKORN CHAIWORAPONGSA[1], GIANCARLO CONOSCENTI[1], SAM EDWIN[1], JERRIE REFUERZO[2], SUSAN BERMAN[3], YEON MEE KIM[1], BO HYUN YOON[4], ROBERTO ROMERO[1]; [1]Perinatology Research Branch, Detroit, MI; [2]Wayne State University, Obstetrics and Gynecology, Detroit, MI; [3]Wayne State University, Obstetrics/Gynecology, Detroit, MI; [4]Seoul National University, Seoul

OBJECTIVE: The frequency of multi-systemic involvement in preeclampsia is higher the lower the gestational age at which the disease is diagnosed. Such a finding, coupled with increased perinatal mortality, is the basis for the proposal that the severity of the condition be classified according to the gestational age at the time of diagnosis. We propose that the pathogenesis of preeclampsia is different in preterm and term gestations. To test this hypothesis, we have explored the maternal profile of eight different cytokines in maternal blood.

STUDY DESIGN: A prospective cross-sectional study was performed in normal pregnant women (n = 36) and those with preeclampsia (n = 36). Cases and controls were matched for gestational age. Among patients with preeclampsia, 24 were diagnosed before 37 weeks of gestation and 12 before 32 weeks. Interleukin (IL)-1β, IL-2, IL-4, IL-6, IL-8, IL-10, interferon (IFN)γ and tumor necrosis factor (TNF)α were measured using a human multiplex cytokine assay system.

RESULTS: A significant increase in maternal plasma TNFα and IL-10 were observed in patients with preterm preeclampsia but not in term preeclampsia (see Table).

CONCLUSION: Preeclampsia in the preterm gestation is associated with a different profile of maternal cytokine response involving both pro-inflammatory (TNFα) and anti-inflammatory (IL-10) cytokines. Such differences could not be determined in the term gestation.

Table

	IL-1β	IL-2	IL-4	IL-6	IL-8	IL10	IFNγ	TNFα
Preeclampsia (<37 wks, n = 24)	32.5	113	1420	386	77.5	61.1*	132.4	178.9*
Control (<37 wks, n = 24)	23.1	92.8	1020.5	230.9	45.9	22.3	108.7	85.9
Preeclampsia (≥37 wks, n = 12)	5.5	17.5	619.7	257.9	33.8	124.8	17.1	20.1
Control (≥37 wks, n = 12)	5.1	26.4	1590	381.4	23.4	11.7	13	22

Value expressed as median (pg/ml).
*$P < .05$ compared with control.

14 **ELEVATED ENDOTHELIAL MICROPARTICLES IN PREECLAMPSIA** VICTOR GONZALEZ-QUINTERO[1], LAWRENCE HORSTMAN[2], WENCHE JY[3], LAMA TOLAYMAT[1], JOAQUIN JIMENEZ[2], CARLOS BIDOT[2], MARY O'SULLIVAN[4], YEON AHN[2]; [1]University of Miami School of Medicine, Obstetrics/Gynecology, Miami, FL; [2]University of Miami School of Medicine, Medicine, Miami, FL; [3]University of Miami School of Miami, Medicine, Miami, FL; [4]University of Miami, Obstetrics/Gynecology, Miami, FL

OBJECTIVE: Endothelial injury has been implicated in the pathogenesis of preeclampsia. Our laboratory has developed flowcytometric methods for detection of endothelial microparticles (EMP) as an indicator of endothelial activation. The objective of our study was to assess endothelial dysfunction in preeclamptic women with endothelial microparticles (EMP) CD31+/CD42- and platelets microparticles (PMP) CD31+/CD42+.

STUDY DESIGN: A prospective case-control study was conducted on preeclamptic women at our institution. Criteria for selection of preeclamptic women were as defined by the Working Group Report on High Blood Pressure in Pregnancy. Controls subjects were available from healthy pregnant women of similar gestational age and demographics. Flowcytometric assays of EMP and PMP using anti-CD31 and anti-CD42 were developed. EMP and PMP were analyzed on a coulter EPICS XL. Two-sample *t* test and Wilcoxon rank test were used for statistical analyses. Statistical significance was defined as *P* value < .05.

RESULTS: A total of 39 patients were recruited for this study, of whom 19 were preeclamptic and 20 were healthy pregnant controls. No significant difference was noted between cases and control with respect to age, parity and gestational age. Mean arterial pressure (MAP) was calculated in all patients. Plasma EMP was significantly elevated in preeclamptic patients as compared to controls (14798 ± 8158 vs. 8406 ± 2832, $P < .01$). Plasma PMP was not significantly different in cases as compared to controls (10288 ± 6081 vs. 7870 ± 971, $P = .164$). We found no correlation between plasma EMP or PMP and the mean arterial pressure between either cases or controls.

CONCLUSION: The significant elevation in EMP is evidence of endothelial injury in preeclamptic women. Clinical application as a predictive, diagnostic and prognostic tool needs to be further studied.

15 **C-REACTIVE PROTEIN NOT ELEVATED IN PREECLAMPTIC PREGNANCY AT 9-20 WEEKS: THE INFLAMMATION HYPOTHESIS FAILS A TEST** RICHARD LEVINE[1], CONG QIAN[2], KAI YU[3], LUCINDA ENGLAND[1], LAUREN BESTE[1], TINNAKORN CHAIWORAPONGSA[4], SAMUEL EDWIN[4], ROBERTO ROMERO, FOR THE CPEP STUDY GROUP[4]; [1]National Institute of Child Health and Human Development, Epidemiology Branch, Bethesda, MD; [2]Allied Technology Group, Rockville, MD; [3]National Institute of Child Health and Human Development, Statistics Branch, Bethesda, MD; [4]National Institute of Child Health and Human Development, Perinatology Research Branch, Detroit, MI

OBJECTIVE: *Recent studies suggest that preeclampsia may result from an excessive maternal intravascular inflammatory response to pregnancy (AJOG 1999;180:499). Parallels have been drawn between the pathophysiology of preeclampsia and atherosclerosis. Elevated serum concentration of C-reactive protein (CRP), an important component of the acute phase inflammatory response, is a powerful predictor of subsequent cardiovascular disease (NEJM 2000;342:836). The objective of this study was to determine if, using a high sensitivity assay, serum CRP early in pregnancy would predict preeclampsia (PE).*

STUDY DESIGN: We performed a nested case control study within the trial of Calcium for Preeclampsia Prevention (CPEP) cohort. Healthy nulliparous subjects were limited to those who had complete outcome information, serum obtained at <22 wks (mean 16 wks), and who delivered a male infant. *For each PE case one normotensive control was identified, matched for* medical center, gestational age at specimen collection, and freezer storage time. Of 159 matched pairs, 120 pairs, including 40 with cases of severe PE, were randomly chosen for analysis.

RESULTS: CRP concentrations did not differ significantly between cases and controls (medians 7.1 and 5.0 mg/L, respectively, $P = .30$). Odds ratios (OR) of PE in the highest vs. lowest quartiles of the control CRP distribution, with or without adjustment for body mass index, were not significantly different from unity (adj OR 1.6, 95% CI 0.7-3.6). Ratios of mild to severe PE within highest and lowest quartiles were identical (2:1). No significant differences were observed between overall CRP levels in subjects with mild and severe PE (medians 7.2 vs. 6.6 mg/L). Levels were lower in preeclamptic women who delivered small- as compared to appropriate- or large-for-gestational age infants (medians 3.1 vs. 7.3 mg/L, $P = .04$).

CONCLUSION: These results appear not to support an early role for inflammation in the pathogenesis of preeclampsia.

16 **MAGNESIUM SULFATE IN WOMEN WITH MILD PREECLAMPSIA: A DOUBLE-BLIND, PLACEBO-CONTROLLED TRIAL** JEFFREY LIVINGSTON[1], LISA LIVINGSTON[2], RISA RAMSEY[1], LU KAO[1], BILL MABIE[3], BAHA SIBAI[4]; [1]University of Tennessee Health Science Center, Obstetrics and Gynecology, Memphis, TN; [2]University of Tennessee Health Science Center, Prematurity Center, Memphis, TN; [3]University of Tennessee Health Science Center, Obstetrics & Gynecology, Memphis, TN; [4]University of Cincinnati, Obstetrics and Gynecology, Cincinnati, OH

OBJECTIVE: To evaluate the efficacy of magnesium sulfate for the prevention of disease progression in women with mild preeclampsia.

STUDY DESIGN: 222 women with mild preeclampsia (ACOG definition) from a single institution were randomized into a double-blinded trial to receive magnesium sulfate or intravenous placebo. Magnesium was given as a 6 g load over 15 minutes followed by 2 g/hr during labor and/or for 12 hours postpartum. During the study period, blood pressure, reflexes, input & output, as well as laboratory studies were followed closely. Those women who developed severe preeclampsia were unblinded and received magnesium therapy.

RESULTS: Patient characteristics are in the Table. A similar number of women from each group progressed to severe preeclampsia. There was no incidence of eclampsia, HELLP syndrome, pulmonary edema or magnesium toxicity.

CONCLUSION: Magnesium sulfate does not alter progression to more severe forms of preeclampsia. In addition, eclamptic seizures are rare in untreated women with mild preeclampsia under close observation. Furthermore, magnesium sulfate therapy has few adverse effects in women with mild preeclampsia.

Table
Patient characteristics

	MAGNESIUM (N = 109)	PLACEBO (N = 113)	*P* VALUE
Gestational age (wks)	38.4 ± 2.5	38.5 ± 5.8	.60
Developed severe preeclampsia # (%)	14 (12.8)	19 (16.8)	.41
Length of hospital stay (days)	3.2 ± 2.5	2.9 ± 1.2	.15
Cesarean delivery # (%)	33 (30%)	31 (27%)	.61
Blood loss (ml)	582 ± 319	546 ± 261	.49
Uterine atony # (%)	1 (0.9%)	1 (0.88)	.97