DOMESTIC VIOLENCE ENHANCED HOME VISITATION PROGRAM (DOVE)

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DOVE: The Association between Maternal Exposure to Intimate Partner Violence (IPV) and Being Born Small for Gestational Age

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Purpose of the Study

- To examine the association between baseline violence scores of pregnant abused women participating in the DOVE study, and their risk of delivering SGA neonates.

Background: IPV during Pregnancy

- Prevalence: 4%-20% with majority of studies finding prevalence rates of 4%-8% (Martin et al., 2001)
- 23% - 70% of previously abused women experience abuse during pregnancy (Altarac & Strobino, 2002)
- >80% of women abused during pregnancy also experience abuse prior to pregnancy (Leone et al., 2010)
- Increase in sexual coercion and psychological abuse during pregnancy (Martin et al., 2004)

IPV Among Pregnant Women

- IPV during pregnancy is associated with an increased risk of:
  - Miscarriage
  - Preterm delivery
  - PROM
  - Low Birth Weight
  - Placental Abruption
  - STI's
  - Anemia
  - Poor Gestational Weight Gain
  - Perinatal and Post-partum Depression

(Campbell & Lewandowski, 1997; El Kady et al., 2005; Leone et al., 2010; Stockl et al., 2010)

SGA-Small For Gestational Age

- Fetuses or newborn infants whose weight and/or crown-heel length is less than expected for their gestational age and sex
- BW at/or below the 10th percentile adjusted for gestational age
- Prevalence – 10%
- SGA neonates :
  - Increased Risk for Neonatal Distress
  - Permanent Deficits in Growth and Neurocognitive Development
  - Increased Risk of Preterm Delivery
  - Behavioral Problems in Childhood
  - Increased Rates of CHD, Stroke, NIDDM, Adiposity, and Metabolic Syndrome

MMR December 19, 2008 / 57(50);1359, Saenger, et al. (2007)

GAPS IN THE LITERATURE

- Less is known about the association between maternal exposure to IPV and the risk for delivering a small for gestational age (SGA) neonate

METHOD

- Neonates below the 10th percentile, includes only singleton live births
- Total Sample : 230 women and their neonates (140-MO, 90-BA)
- IPV measured using Severity of Violence Against Women Scale (SVAWS)
  - Well validated 46-item scale for measuring violent behaviors including threats of violence (Marshall, 1992)
- Explores 3 elements of violence:
  - Threats-control(19 items)
  - Acts-physical(21 items)
  - Sexual aggression(6 items)

Prevalence of SGA/LBW babies

Births	Baltimore City	Rural Missouri	Totals	National Average
# of Singleton deliveries	75	119	194	
➢ LBW only	7 (9.3%)	3 (2.5%)	10 (5.1%)	Non-Hispanic black 13.6%
				Non-Hispanic white 7.2%
➢ SGA only	4 (5.3%)	14 (11.8%)	18 (9.3%)	
➢ LBW/SGA	13 (17.3%)	6 (5.04%)	19 (9.8%)	
DOVE TOTALS	**24 (32%)**	**23 (19.3%)**	**47 (24%)**	
DOVE Cumulative SGA compared to National average	17 (22.7%)	20 (16.8%)		Non-Hispanic black 17%
				Non-Hispanic white 9.5%

http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5750a5.htm

Demographics by Group

Variable	Birth outcome AGA n (%)	Birth outcome SGA/LBW n (%)
*RACE		
➢ Af. Amer	65 (41.7%)	29 (61.7%)
➢ Caucasian	77 (49.4%)	13 (27.7%
MARITAL STATUS		
➢ Single ➢ Partnered ➢ Other	79 (50.6%) 37 (23.7%) 30 (25.7%)	25 (54.3%) 13 (28.7%) 8 (16.5%)
EDUCATION		
➢ <HS education ➢ > HS education	66 (43.2%) 87 (56.8%)	14 (29.8%) 33 (71.2%)
DEPRESSION		

* P = 0.47

Univariate -Table 1

Characteristic	Missouri (N=119)	Baltimore (N=75)
Age of mother in years(SD)	22.40(5.0)	26.05(5.6)
Birth weight in grams(SD)	3233(512.3)	2987(695.7)
Employed (%)	79	61
Unemployed (%)	21	9
Race (%)		
White	65	6
Black	13	85
Others	12	9
SGA, N (%)	19 (14)	16(18)
White	10 (53)	1(6)
Black	6 (31)	14(88)
Others	3 (16)	1(6)

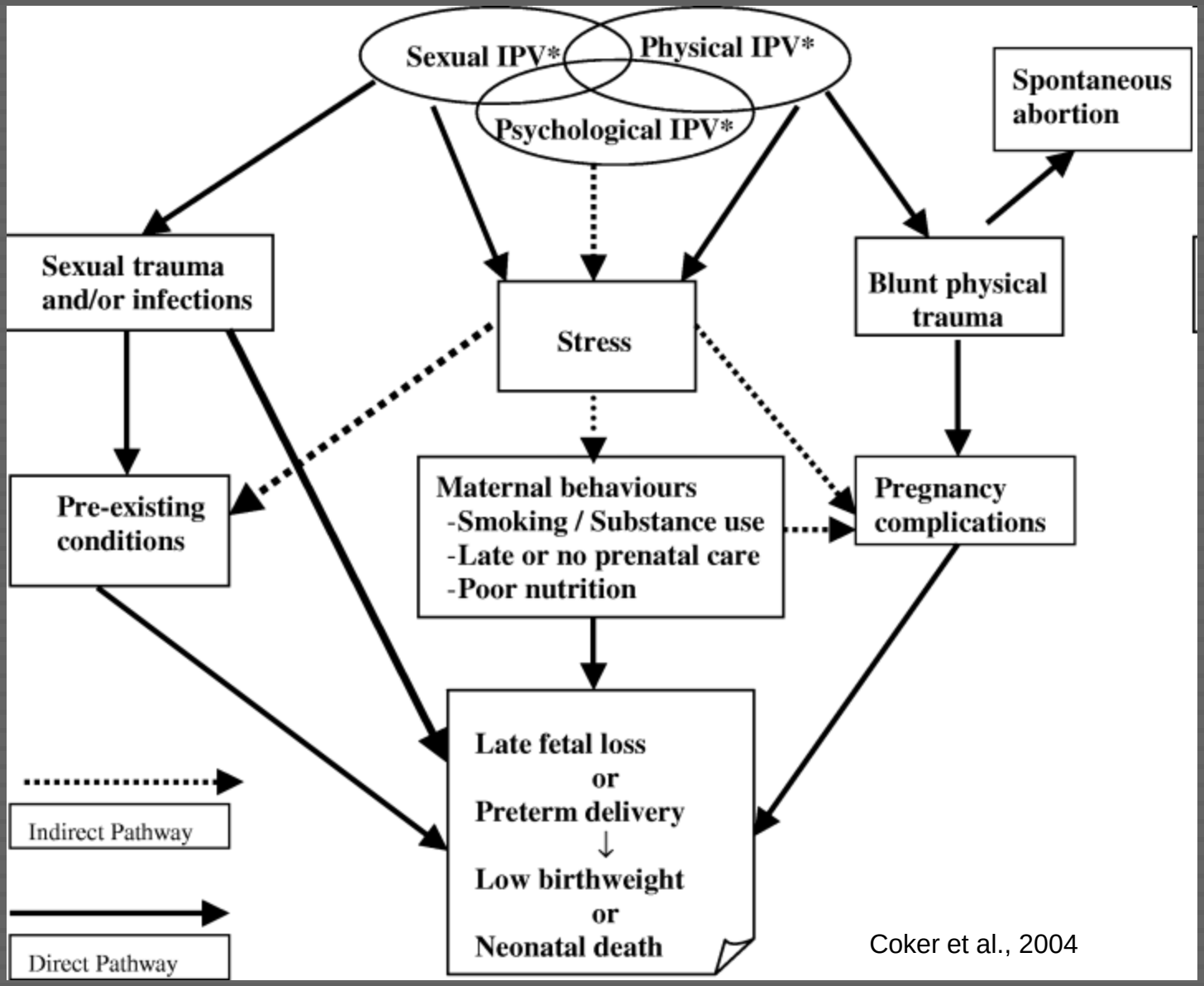
Logistic Regression -Table 2

Characteristic	Baltimore (N=75)		Missouri(N=119)	
	Unadjusted(p)	Adjusted(p)	Unadjusted(p)	Adjusted(p)
Sexual abuse	1.15(0.03)*	1.26(0.06)	1.01(0.82)	1.04(0.80)
Physical Violence	1.03(0.17)	0.98(0.80)	1.00(0.82)	0.94(0.19)
Control Violence	1.04 (0.40)	1.01(0.80)	1.02(0.55)	1.13(0.16)
Employment	0.17(0.03)*	0.50(0.03)*	2.25(0.30)	2.15(0.39)
Gender	2.58 (0.10)	5.70(0.03)*	1.27(0.65)	0.99(1.00)
Age	0.88(0.03) *	0.76(0.02)*	0.92(0.19)	0.92(0.20)
Depression	1.23(0.70)	1.28(0.85)	0.95(0.57)	0.50(0.26)
Smoked during pregnant	0.60(0.40)	1.20(0.87)	1.06(0.93)	2.15(0.41)
Smoked Before Pregnant	0.63(0.42)	3.58(0.20)	0.73(0.55)	0.57(0.56)

Adjusted for sexual abuse, physical abuse, control, employment, depression, gender, age, smoking status, gestational age, prenatal care, insurance status, race *statistically significant

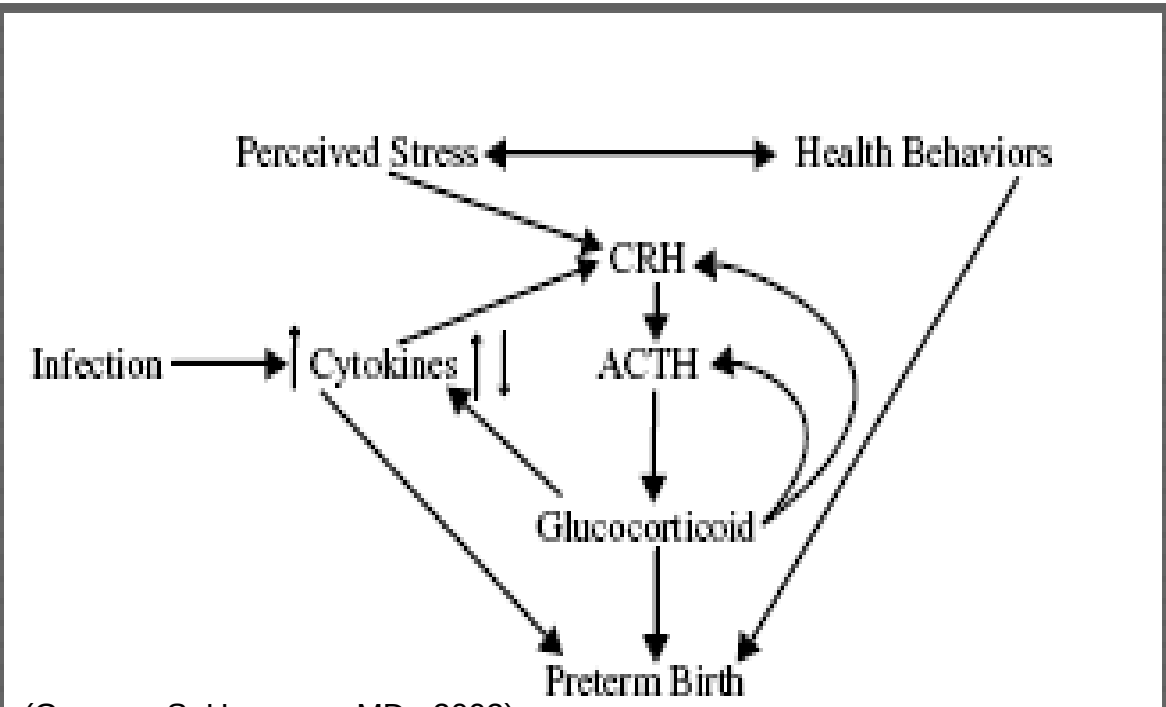
Results and Discussion

- No association between IPV and SGA in MO sample
- In Baltimore:
  - Sexual abuse was significantly associated with increased risk of SGA (1.26, p=0.03) in the adjusted model
  - Age was significantly associated with risk of having SGA babies (24%↓)
  - If employed, risk of SGA reduced by 50 %



Coker et al., 2004

The Role of IPV in SGA Neonates



(Gennaro S, Hennessy MD , 2003)

Stress increases proinflammatory cytokine production- leads to increased prostaglandin production, increased uterine contractility, and preterm labor.

IL-1, IL-6 and TNF-α most consistently found to be elevated in preterm delivery (confirmed in small amts. in nml. pregnancies)

DOVE Sample

- Potential Mediators/Moderators
  - Tobacco Use
  - Substance Use
  - Late Entry into Prenatal Care
  - Missed Appointments
  - Poor Gestational Weight Gain
  - "Empty" Calories
- Sexual Violence
  - Indicative of More Severe Abuse
  - ? Multiple Abusers

Future Considerations

- Comprehensive assessment of severity of abuse as related to poor neonatal outcomes
  - Perception of Stress
- How to Best Assess for Potential Mediators
- Physiological Measurements