



Preeclampsia in Washington State: The influences of race and nationality on a mother's risk.

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MCH Concern

Gestational hypertensive disorders are major causes of maternal morbidity and mortality, low birth weight, and premature delivery. In the United States, black women have been documented to be at greater risk of gestational hypertension when compared to white women. However, studies have not looked at a woman's country of birth in relation to her risk of preeclampsia. While US-born African Americans and first generation African immigrants to the US may share a similar genetic heritage, there may be other factors that influence their obstetric outcomes.

Objectives

- Determine the influence of race and nationality on the risk of gestational hypertensive disorders.
- Determine whether race or nationality effects the risk of an adverse birth outcome associated with a gestational hypertensive disorder.
- Compare the severity of the gestational hypertensive disorder that ensues for each cohort.

Approach

Data source:

- Washington State Birth Records maternally linked to data in the Comprehensive Hospital Reporting System (CHARS)

Study Design:

- Cohort study including African-born black immigrant (n=2,763), US-born African American (n=10,125), and US-born white (n=11,027) women without chronic hypertension delivering a singleton infant in King, Pierce, or Snohomish counties during the years 1993-2002.
- Outcome: Women with gestational hypertensive disorders (gestational hypertension, preeclampsia, eclampsia) as identified by either CHARS ICD-9 codes or birth certificate check-box.

Analysis:

- Mantel-Haenszel stratified analysis
- The following variables were evaluated for their possible effects on the relationships of interest: number of previous pregnancies, trimester prenatal care began, diabetes, county of childbirth, maternal age, marital status, insurance at birth, low-income benefit participation, cardiac disease, renal disease, and smoking during pregnancy.
- Unless otherwise stated, all risk estimates are unadjusted.

Findings

Table 1. Risk of gestational hypertensive disorders in King, Pierce, and Snohomish Counties, Washington State 1993 to 2002.

Cohort	N	%	Gestational hypertensive disorders	
			RR ^a (95% CI) ^b	RR (95%CI)
US-born Whites	11027	7.5	ref	--
US-born African Americans	10125	8.1	1.2 (1.1 – 1.3) ^c	1.0 (0.8 - 1.1) ^d
African-born black Immigrants	2763	7.7	1.0 (0.9 – 1.2)	ref

^a Relative Risk [RR]
^b Confidence Interval [CI]
^c Adjusted for county of infant birth
^d Adjusted for maternal marital status

Findings

- Substantial differences in the characteristics describing the cohorts include:
 - Fewer African-born black immigrants smoke (1% compared to the US-born cohorts (13%).
 - African Americans were significantly less likely to be married (39%) in comparison to the other cohorts (79%).
- US-born black women had a small but significantly greater risk of developing preeclampsia relative to US-born white women (Table 1).
- Gestational hypertensive disorders increase the risk of delivering a preterm or low birth weight infant (Table 2).
 - African-born black immigrant women have a greater risk of these outcomes than US-born women.
- There is a difference in the severity of hypertensive disorders experienced by mothers of differing races/nationalities.
 - Age modified the relationship of nationality and eclampsia in black women.

Implications

- Race and nationality are not greatly related to the incidence of gestational hypertensive disorders.
 - The relationship between some adverse pregnancy outcomes and gestational hypertensive disorders is dependent on nationality.
 - Race and nationality are associated to the severity of the gestational hypertensive disorder that ensues.
- **A mother's race and birthplace are important when considering approaches to monitoring women with gestational hypertensive disorders.**

Table 2. The risk of adverse pregnancy outcomes among women with and without gestational hypertension in King, Pierce and Snohomish counties, Washington 1993-2002.

Cohort	Low Birth Weight ^a	Preterm Delivery ^b
	RR (95% CI)	RR (95% CI)
US-born White	2.0 (1.6 – 2.4)	2.5 (2.0 – 3.3)
US-born African American	1.9 (1.6 – 2.3)	2.4 (2.0 – 2.8)
African-born Black Immigrants	5.5 (3.9 – 7.7)	4.4 (3.2 – 6.1)

^a Infant's birth weight less than 2500 g
^b Delivery before 37 weeks

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