

Ethnic/Racial Differences in Maternal Outcomes with Use of Oral Antihypertensives in Pregnancy for Non-Severe Hypertension

Tiffany Yang MD, Hannah Agoglia BS, David Garry DO, Samantha Gobiuff MD,
Cassandra Heiselman DO
Stony Brook University Hospital, Stony Brook, NY



Objective

- Hypertension is present in 0.9-1.5% of pregnant women and is associated with increased rates of adverse maternal and fetal outcomes both acute and long term.
- The rate of maternal chronic hypertension increased by 67% from 2000 to 2009 with the largest increase (87%) among African American women.
- This study aims to determine if there exist differences in pregnancy outcomes as a result of ethnic/racial differences in response to maternal oral antihypertensive medication use antepartum.

Study Design

- Retrospective cohort study of adult pregnant patients with a diagnosed hypertensive disorder requiring antenatal antihypertensive maintenance medications started by 34 weeks GA or for a minimum of 2 weeks who received prenatal care and delivered at a single academic institution between January 2013 and August 2023.
- Exclusion criteria were pregnancies of known anomalous fetus and multifetal gestations.
- Patients were then stratified by race/ethnicity as self-identified on hospital intake.
- Chi-squared, Fischer's exact, and student t-test analyses were performed.
- Our hypothesis is there are differences in outcomes between ethnic/racial groups on antihypertensive medications in pregnancy.

References

Ferre R, Sibai BM, Maulow CD, Chiquete E, Stevens KR, Cornell J. Management of mild chronic hypertension during pregnancy: a review. *Obstet Gynecol* 2000; 96: 849-60.
Anandh CV, Vintzilos AM. Ischemic placental disease: epidemiology and risk factors. *Eur J Obstet Gynecol Reprod Biol* 2011; 159:77.
Committee on Practice Bulletins—Obstetrics. Gestational hypertension and preeclampsia: ACOG practice bulletin, number 222. *Obstet Gynecol*. 2020;135(6):e237-e260. doi:10.1097/AOG.0000000000003891
8. Hypertension in Pregnancy. Executive Summary. *Obstetrics & Gynecology*; November 2013 - Volume 122 - Issue 5 - p 1122-1131 doi: 10.1097/01.AOG.0000437382.03963.88

Results

Table 1. Pregnancy Outcomes Across White and Non-White Patients

	White (n=86)	Non-white (n=35)	P-value
Antihypertensive Maintenance Regimen			
Labetalol	48 (61)	20 (64)	0.72
Nifedipine	8 (10)	3 (10)	1.00
Other	11 (14)	3 (10)	0.80
Multiple	12 (15)	5 (16)	1.00
Hypertensive Diagnosis at time of medication initiation			
Chronic hypertension	69 (80)	29 (83)	0.80
Gestational hypertension	11 (13)	4 (11)	1.00
Preeclampsia with severe features	8 (9)	4 (11)	0.74
Preeclampsia without severe features	6 (7)	2 (6)	1.00
Escalation in hypertensive diagnosis	6 (7)	21 (64)	0.02
Medication dosage changes	29 (38)	21 (64)	0.0046
Acute management of severe hypertension intrapartum	18 (21)	15 (43)	0.02
Birthweight (g)	2924.2 ± 802.9	252.2 ± 901.2	0.02

Table 2. Pregnancy Outcome Differences Between Black and Non-Black Patients

	Black (n=16)	Non-Black (n=105)	P-value
Multiple Antihypertensive Medications	3 (19)	14 (13)	0.93
Medically indicated preterm delivery (<37 weeks)	11 (69)	37 (36)	0.02
Gestational age at delivery (weeks)	34.3 ± 4.2	36.6 ± 2.78	0.049
Medication non-adherence	5 (33)	7 (8)	0.01
Escalation in hypertensive diagnosis	10 (67)	40 (42)	0.10
Composite peripartum complications	5 (31)	11 (11)	0.04
Birthweight (g)	2230.8 ± 915.8	2896.4 ± 906.5	0.003

*Data presented as N (%) or mean ± SD

Results

- 112 patients met inclusion criteria.
- 79 (79.5%) identified as White, 16 (14.3%) Black, 5 (4.5%) Asian, 10 (8.9%) Hispanic.
- White patients experienced more antenatal baseline medication dose adjustments (31 vs 20, p=0.046), changes in hypertensive diagnosis during pregnancy (29 vs 21, p=0.02), and need for acute antihypertensive medications intrapartum (18 vs 15, p=0.02) as compared to non-white patients.
- Black women had higher rates of medically-indicated preterm delivery (37 vs 11, p=0.01), peripartum complications (11 vs 5, p=0.04), and medication non-compliance (7 vs 5, p=0.01) when compared to non-Black patients.
- Asian women had documented higher initial diastolic pressures upon delivery (99.5 ± 26.1 vs 85.8 ± 13.9, p=0.03) compared to non-Asian subjects.
- Hispanic women were significantly less likely to have cesarean delivery (72 vs 3, p=0.04) with higher APGAR scores at 1- (8.5 ± 0.5 vs 7.65 ± 1.7, p<0.001) and 5-minutes (8.9 ± 0.3 vs 8.6 ± 0.8, p=0.03) compared to all others.

Conclusion

- Among patients prescribed oral antihypertensive medications prenatally, there are significant differences in outcomes between ethnic/racial groups.
- The specific needs of each group may require further provider attention for strict follow-up and improvement in healthcare accessibility to minimize poor maternal outcomes.