Risk Factors for Persistent Hypertension Requiring Anti-Hypertensive Medications Beyond 6 Weeks Postpartum

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Background

- Hypertensive disorders of pregnancy increase risk for developing chronic hypertension, which increases future cardiovascular morbidity and mortality.
- There is limited data on need for continuation of anti-hypertensive (anti-HTN) medication past the immediate postpartum period.

Objective

- To evaluate risk factors for persistent HTN at 6 weeks postpartum requiring continuation of anti-HTN medication.

Study Design

- A retrospective cohort study of birthing patients with peripartum HTN at a quaternary care center over 2 years.
- This study is part of an ongoing postpartum QI project entailing lower BP targets and universal remote BP monitoring.
- Inclusion criteria: delivery at the study institution, prescription of anti-HTN postpartum, having BP data at 6 weeks postpartum.
- Primary outcome: continuation of anti-HTNs past 6 weeks postpartum.
- Maternal and HTN risk factors were compared between groups.

Results

- Out of 6410 deliveries between April 2022-April 2024, 2019 (31.5%) were affected by HTN disorder of pregnancy.
- Total 775 (38.4%) met inclusion criteria, of which 211 (27.2%) patients were continued on anti-HTNs past 6 weeks.
- After adjusting for cesarean delivery and patients on anti-HTN entering pregnancy, we found significantly higher odds of continuing anti-HTN past 6 weeks with: non-Hispanic Black race (aOR, 2.97; 95% CI, 1.91-4.62; p<0.001), prenatal aspirin use (aOR, 1.43; 95% CI, 1.00-2.05, p=0.048), and having public or no insurance (aOR, 1.66; 95% CI, 1.09-2.53, p=0.02).
- Other risk factors: preeclampsia with severe features (aOR, 1.62; 95% CI, 1.12-2.34, p=0.01), taking more than one anti-HTN (aOR, 2.80; 95% CI, 1.76-4.45; p<0.001), requiring anti-HTN adjustment (aOR, 1.96; 95% CI, 1.37-2.79, p<0.001), and postpartum ED visit or readmission (aOR, 2.45; 95% CI, 1.17-5.11, p=0.02).
- Compliance with remote BP monitoring had lower odds of persistent HTN (aOR, 0.23; 95% CI, 0.07-0.79; p=0.02).

Conclusion

- Rates of persistent HTN requiring anti-HTN past 6 weeks postpartum are notable with certain patient cohorts at significantly higher risk.
- Continued intervention is needed to lower future cardiovascular morbidity in these high-risk groups.

Rates of persistent hypertension requiring anti-hypertensive medication past 6 weeks postpartum are notable at 27.2% with certain patient cohorts at significantly higher risk.

Questions? Email Dr. Jenny Mei at jennyyangmei@gmail.com

Table 1: Characteristics by Need for Anti-Hypertensive Medications Beyond 6 Weeks Postpartum

Characteristic	Continuing anti-HTN past 6 weeks (n=211)	No anti-HTN past 6 weeks (n=564)	P-value
Maternal age in years (mean±SD)	35.7±5.4	34.6±5.4	0.10
Maternal age 35 and above	126 (59.7%)	284 (50.4%)	**0.02**
Race/Ethnicity			
Asian	49 (23.2%)	96 (17.0%)	**<0.001**
Black	51 (24.2%)	61 (10.8%)	
Caucasian	46 (21.8%)	223 (39.5%)	
Hispanic/Latina	50 (23.7%)	126 (22.3%)	
None of the above/ Mixed Race	15 (7.1%)	58 (10.3%)	
Nulliparity	113 (53.6%)	415 (73.6%)	**<0.001**
BMI (kg/m^2) at delivery (mean±SD)	33.0±7.19	30.3±6.50	0.056
Obese (>=30 kg/m^2)	130 (61.6%)	255 (45.2%)	**<0.001**
Gestational age (mean± SD)	36w6d±20d	37wd6d±15d	**0.003**
On anti-HTNs entering pregnancy	57 (86.4%)	9 (13.6%)	**<0.001**
Pre-gestational diabetes mellitus	23 (10.9%)	27 (4.8%)	**0.002**
Aspirin use	138 (65.4%)	270 (47.9%)	**<0.001**
Insurance			
Private	163 (77.3%)	472 (83.7%)	**0.038**
Public or No Insurance	48 (22.7%)	92 (16.3%)	
Remote monitoring compliance	170 (95.0%)	526 (99.1%)	**0.001**
Mode of delivery			
Vaginal delivery	103 (48.8%)	320 (56.7%)	**0.049**
Cesarean delivery	108 (51.2%)	244 (43.3%)	
Composite maternal morbidity	3 (1.4%)	12 (2.1%)	0.53
Postpartum LOS in days (mean± SD)	3.0±1.5	2.8±1.5	0.67
Hypertension diagnosis at discharge			
Gestational hypertension	43 (20.4%)	233 (41.3%)	**<0.001**
Preeclampsia without severe features	26 (12.3%)	120 (21.3%)	
Preeclampsia with severe features	81 (38.4%)	161 (28.5%)	
Chronic hypertension only	61 (28.9%)	50 (8.9%)	
Type of anti-hypertensive prescribed			
Nifedipine	64 /161 (39.8%)	321/427 (75.2%)	**<0.001**
Labetalol	43 /161 (26.7%)	53/427 (12.4%)	
Both	54/161 (33.5%)	53/427 (12.4%)	
Outpatient medication titration	113 (53.6%)	231 (41.0%)	**0.002**
Postpartum ED visit or readmission	19 (9.0%)	19 (3.4%)	**0.001**

Table 2. Multivariate Logistic Regression of Risk Factors for Continuing Anti-HTN Beyond 6 Weeks Postpartum

Risk Factor	Unadjusted odds ratio (95% CI)	Adjusted odds ratio (95% CI)
Maternal age 35 and above	1.46 (1.06-2.01)	1.19 (0.83-1.69)
Asian Race	1.48 (1.00-2.17)	1.27 (0.82-1.96)
Black Race	2.63 (1.74-3.97)	**2.97 (1.91-4.62)**
Nulliparity	0.41 (0.30-0.58)	**0.48 (0.34-0.69)**
Obese (>=30 kg/m^2)	1.95 (1.01-2.69)	**1.86 (1.31-2.65)**
Chronic hypertension	5.78 (4.06-8.23)	**3.01 (1.99-4.54)**
Pregestational diabetes mellitus	2.43 (1.36-4.35)	1.64 (0.83-3.21)
Prenatal aspirin use	2.06 (1.48-2.86)	**1.43 (1.003-2.05)**
Public or No Insurance	1.51 (1.02-2.24)	**1.66 (1.09-2.53)**
Remote Monitoring Compliance	0.18 (0.06-0.54)	**0.23 (0.07-0.79)**
Preeclampsia with severe features	1.56 (1.12-2.17)	**1.62 (1.12-2.34)**
Discharged on more than one anti-HTN	3.32 (2.18-5.04)	**2.80 (1.76-4.45)**
Required outpatient medication titration	1.66 (1.21-2.29)	**1.96 (1.37-2.79)**
Postpartum readmission or ED visit	2.84 (1.47-5.48)	**2.45 (1.17-5.11)**