Standardized Postpartum Blood Pressure Protocol and Lower Rates of Persistent Hypertension at 6 Weeks Postpartum

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Background

- Hypertensive disorders of pregnancy (HDP) increase risk of chronic hypertension (CHTN)
- Remote BP monitoring is a promising intervention to improve postpartum hypertension management
- It is unknown if aggressive management immediately postpartum impacts persistent hypertension

Objective

- Evaluate effect of a postpartum HTN standardized clinical assessment and management plan (SCAMP) on persistent HTN at 6 weeks

Study Design

- Secondary analysis of a prospective cohort study. Prospective group (P) was compared with historical controls (C) delivered prior to initiation of the SCAMP
- Inclusion criteria: existing diagnosis of CHTN or HDP and a documented BP at a 6-week PP visit
- Primary outcome: persistent HTN, defined as SBP≥140 or DBP≥90 at 6 weeks PP
- Secondary outcomes: mean BP values, BP ascertainment, and use of anti-HTNs
- P-values were two-way, and level of statistical significance was set at p<0.05

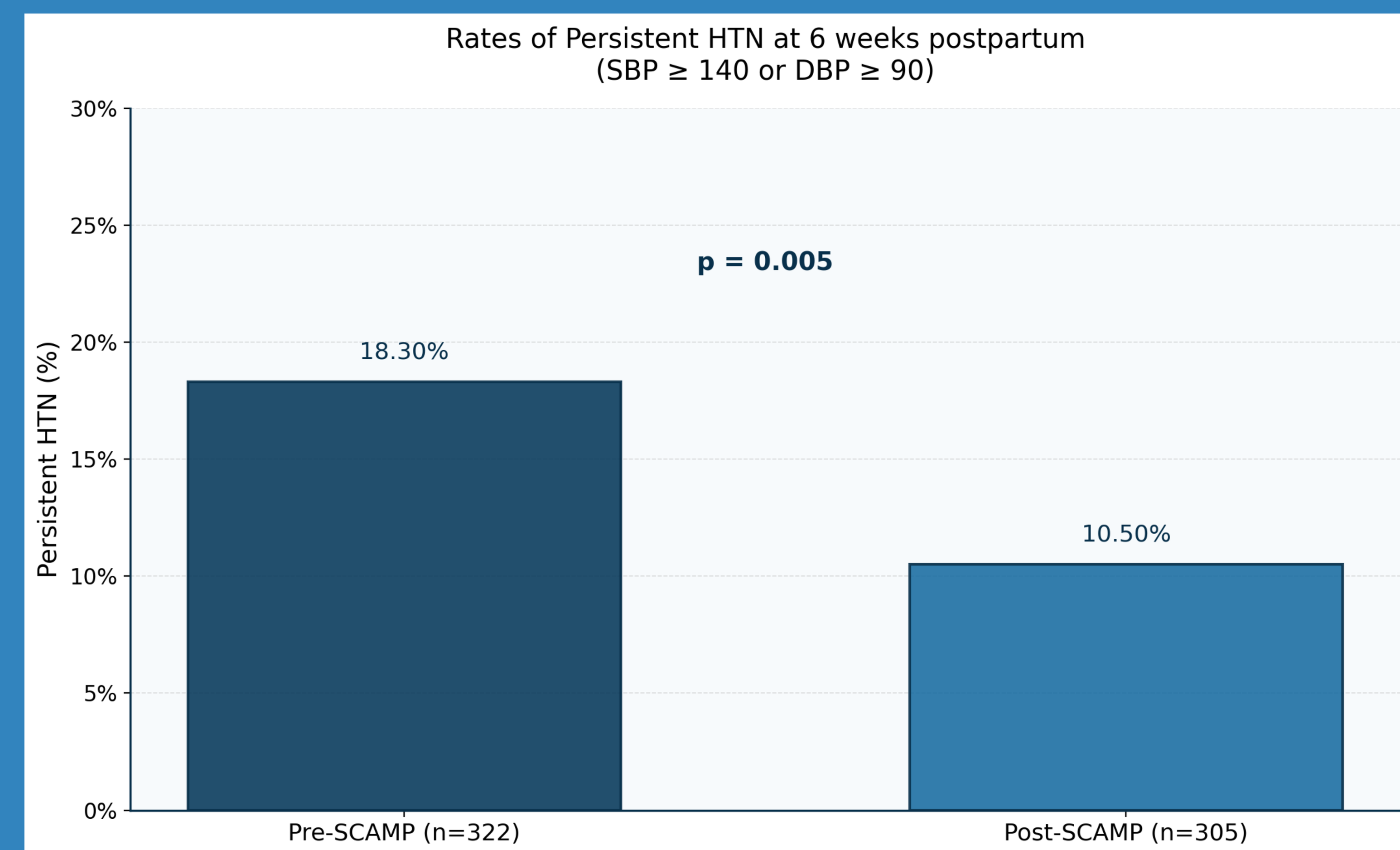
Results

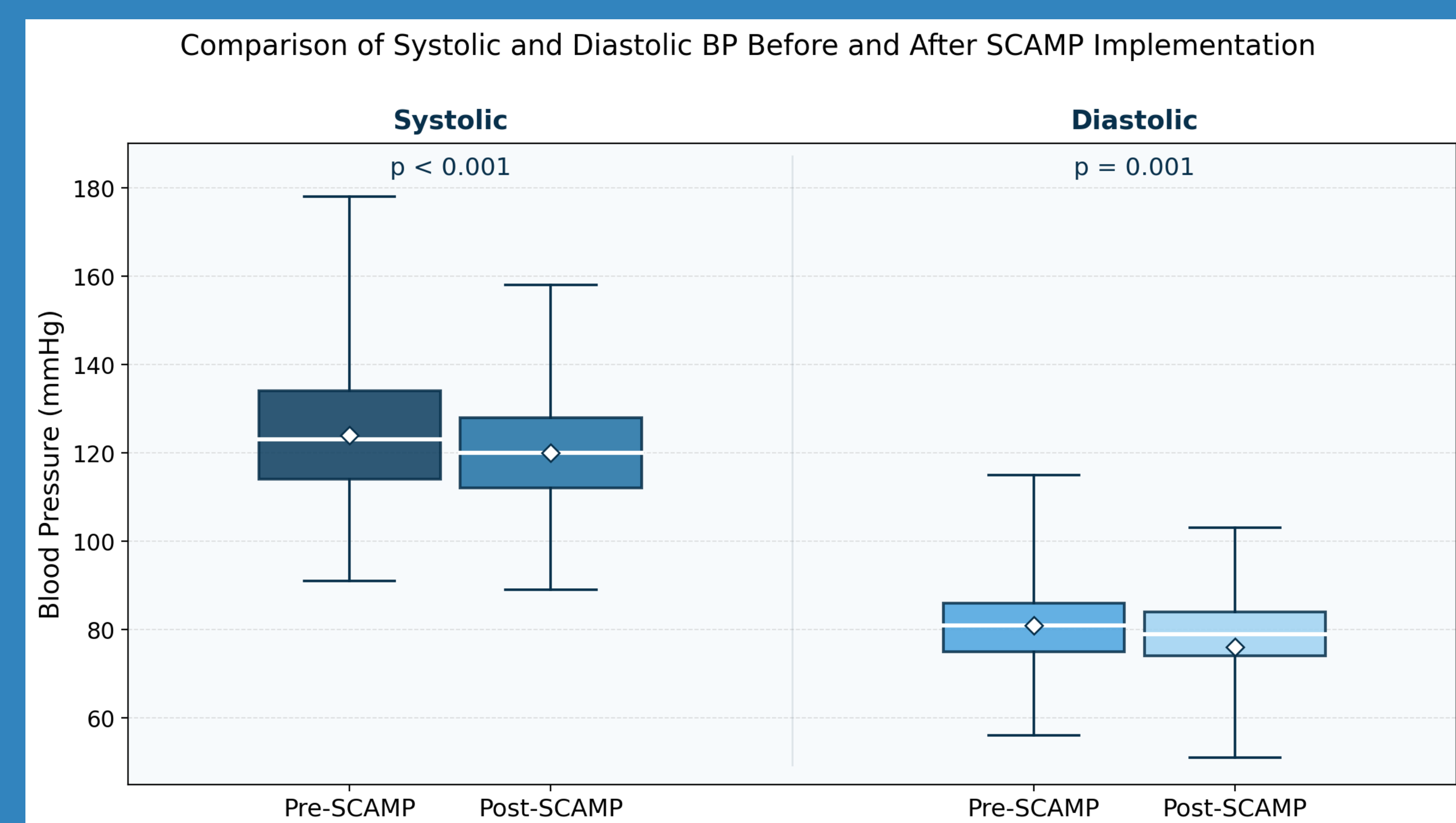
- 305 in (P) cohort and 322 historical controls (C)
- (P) cohort had lower rates of CHTN, more patients on anti-HTNs, and higher rate of nifedipine use
- Logistic regression demonstrated persistent HTN at 6 weeks PP was significantly lower in (P) cohort
- (P) cohort had lower mean systolic and diastolic BP, had earlier BP assessment and higher rate of any BP ascertainment prior to 6-weeks

Conclusion

- The prospective group had significantly improved BP metrics and ascertainment
- Further research required to assess how these findings mitigate long-term HTN risk

A **standardized postpartum blood pressure protocol** is associated with **lower** rates of persistent **hypertension at 6 weeks** postpartum





Questions?
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Table 1: Baseline Characteristics Between Groups

	6 months Post-SCAMP (n=305)	Controls (n=322)	p-value
Maternal age (years, mean +/- SD)	34.2+/-5.17	34.7+/-4.79	0.18
Maternal age 35-39	151 (49.5%)	171 (53.1%)	0.37
Maternal age >/= 40	40 (13.1%)	47 (14.6%)	0.59
Race/Ethnicity			
White	130 (42.6%)	145 (45.0%)	0.67
Black	34 (11.1%)	33 (10.2%)	
Hispanic/Latina	57 (18.7%)	70 (21.7%)	
Asian/Pacific Islander	60 (19.7%)	52 (16.1%)	
Other	24 (7.9%)	22 (6.8%)	
Gravida (median, IQR)	2 (1,2)	2 (1,3)	0.5
Parity (median, IQR)	1 (1,2)	1 (1,2)	0.51
Nulliparity	215 (70.5%)	221 (68.6%)	0.61
BMI at delivery (kg/m^2, mean +/- SD)	29.0 +/- 5.6	28.1 +/- 6.9	0.08
Gestational age (mean +/- SD)	38w2d +/- 15d	38w2d +/- 15d	0.62
Preterm delivery	44 (14.4%)	42 (13.0%)	0.62
Chronic hypertension	71 (23.3%)	106 (32.9%)	**0.007**
Pre-gestational diabetes mellitus	9 (3.0%)	9 (2.8%)	0.91
Gestational diabetes	27 (8.9%)	34 (10.6%)	0.47
Autoimmune disease	5 (1.6%)	2 (0.6%)	0.23
Renal disease	2 (0.7%)	6 (1.9%)	0.18
Multifetal gestation	11 (3.6%)	6 (1.9%)	0.18
Aspirin use	91 (29.8%)	134 (41.6%)	**0.002**
In vitro fertilization	30 (9.8%)	37 (11.5%)	0.5
Insurance type			
Private	268 (87.9%)	290 (90.1%)	0.38
Public or None	37 (12.1%)	32 (9.9%)	
Hypertensive diagnosis at discharge			
Gestational hypertension	132 (43.3%)	130 (40.4%)	0.06
Preeclampsia without severe features	61 (20.0%)	48 (14.9%)	
Preeclampsia with severe features	63 (20.7%)	65 (20.2%)	
HELLP	1 (0.3%)	4 (1.2%)	
Chronic hypertension only	48 (15.7%)	75 (23.3%)	
Proteinuria	101 (33.1%)	94 (29.2%)	0.29
Magnesium sulfate given	64 (21.0%)	68 (21.1%)	0.97
IV anti-HTN given	33 (10.8%)	40 (12.4%)	0.53
Method of diagnosis of severe preeclampsia			
Severe range blood pressures	43 / 63 (68.3%)	49 / 68 (72.1%)	0.89
Lab abnormalities	19 / 63 (30.2%)	18 / 68 (26.5%)	
Clinical symptoms	1 / 63 (1.6%)	1 / 68 (1.5%)	
Anti-HTN prescribed on discharge	101 (33.1%)	75 (23.3%)	**0.006**
Type of Anti-HTN prescribed			
Nifedipine	65 / 100 (65%)	32 / 75 (42.7%)	**0.001**
Labetalol	16 / 100 (16%)	30 / 75 (40%)	
Both	19 / 100 (19%)	13 / 75 (17.3%)	

Table 2: Six Week Postpartum HTN Outcomes

	6 months Post-SCAMP (n=305)	Controls (n=322)	p-value for X2	Adjusted Odds Ratio (95% CI)
Persistent HTN at 6 weeks postpartum (SBP>=140 or DBP>=90)	32 (10.5%)	59 (18.3%)	**0.005**	0.62 (0.38-0.996)
Average systolic BP at 6 weeks postpartum (mmHg, mean +/- SD)	120 +/- 12	124 +/- 14	**<0.001**	N/A
Average diastolic BP at 6 weeks postpartum (mmHg, mean +/- SD)	76 +/- 8	81 +/- 8	<**0.001**	N/A
BP recorded prior to 6 week appointment	268 (87.9%)	200 (62.1%)	<**0.001**	4.35 (2.86-6.62)
Number of days after discharge of first BP ascertainment (days, median, IQR)	1 (1,6)	13 (3, 41)	<**0.001**	N/A
Postpartum readmission	5 (1.6%)	23 (7.1%)	**0.001**	0.22 (0.08-0.58)
On anti-HTN medication at 6 weeks postpartum	49 (16.1%)	58 (18.0%)	0.52	0.73 (0.43-1.22)
Continued on anti-HTN medication past 6 weeks postpartum	44 (14.4%)	49 (15.2%)	0.78	0.92 (0.53-1.61)
Seen by primary care or cardiology postpartum	152 (49.8%)	186 (58.1%)	**0.04**	0.72 (0.52-0.99)