430 The American College of Cardiology/American Heart Association new blood pressure criteria and associated neonatal outcomes

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OBJECTIVE: The blood pressure cut off for diagnosis of preeclampsia has historically been based on hypertension criteria defined by the American College of Cardiology (ACC) and American Heart Association (AHA). Recently, they decreased their criteria, defining stage 1 hypertension as a blood pressure greater than 130/80, raising the question as to whether the new definition should be adopted in pregnancy. We aimed to evaluate whether women meeting this new blood pressure threshold at the time of admission for labor had an increased risk for adverse neonatal outcomes.

STUDY DESIGN: This is a retrospective cohort study of all women with singleton pregnancies admitted for delivery at a tertiary care center from 2004-2014. Using blood pressure on admission, women were classified into three groups: 1) normotensive if their blood pressure was <130/80, 2) stage 1 hypertension if their blood pressure was 130-139/80-89, or 3) overt hypertension if their blood pressure was >140/90. Patients with preexisting chronic hypertension were excluded. The risk of small for gestational age (SGA), 5-minute Apgar score <7, and higher level nursery admission were examined across groups. Baseline characteristics were compared using chi square and ANOVA. Neonatal outcomes were compared with the normotensive group as the reference using logistic regression to control for confounders.

RESULTS: 28,993 women met inclusion criteria, 14,685 (51%) were classified as normotensive, 7,828 (27%) were classified as stage 1 hypertension, and 6,480 (22%) were classified as having overt hypertension. Women with hypertensive disorders were more likely to be older, nulliparous, African American, obese, and have pregestational diabetes. Incidence of SGA increased across the three groups (12.5%, 13.1%, 15.7%) but was only statistically significant for women with overt hypertension (aOR 1.56, 95% CI 1.02-1.31). The risk of Apgar <7 at 5 minutes and higher order nursery admission was significantly increased in the overt hypertension group only (Table).

CONCLUSION: The impact of lowering the diagnostic criteria for hypertension in pregnancy according to the new ACC/AHA criteria has unknown impact for obstetric patients. These results suggest that rates of SGA and immediate neonatal outcomes may be similar among normotensive patients and those with blood pressure elevations of 130- 139/80-89. Further research is required before diagnostic criteria for hypertension are lowered in pregnancy.

Table: Neonatal outcomes in women with hypertension according to the new criteria and current criteria compared to normotensive patients

Outcome	Normotensive N=14,685	Stage 1 HTN N=7,828	OR (95%CI)	aOR (95%CI)	Overt HTN N=6,480	OR (95%CI)	aOR (95%CI)	p-value*
SGA	1,811 (12.5)	1,018 (13.1)	1.10 (1.00-1.14)	1.00† (0.89-1.11)	1,010 (15.7)	1.30 (1.36-1.42)	1.56† (1.02-1.31)	<0.01
Apgar < 7 at 5-minutes	705 (4.80)	304 (3.88)	0.80 (0.70-0.92)	0.76† (0.62-0.93)	415 (6.40)	1.36 (1.20-1.54)	1.50† (1.25-1.79)	<0.01
Higher level nursery admission	2,782 (19.14)	1,380 (17.72)	0.91 (0.85-0.98)	0.97‡ (0.87-1.07)	1,558 (24.19)	1.35 (1.26-1.45)	1.44‡ (1.29-1.61)	<0.01

HTN, hypertension; SGA, small for gestational age; OR, odds ratio; aOR, adjusted odds ratio
Values reported as N (%), unless otherwise specified
* p values reported are from univariate analyses (chi-square and ANOVA)
†Adjusted for nulliparity, body mass index (BMI), and African American race
‡Adjusted for nulliparity, body mass index (BMI), African American race, and diabetes

431 Cost-effectiveness of telehealth blood pressure monitoring in postpartum women with hypertension

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OBJECTIVE: Postpartum hypertension is the leading cause of postpartum readmissions in the US. The objective of this study was to evaluate the cost-effectiveness of telehealth blood pressure monitoring of postpartum women with hypertensive disorders from the hospital's perspective.

STUDY DESIGN: A decision tree was developed based on results from a non-randomized controlled trial comparing telehealth to standard outpatient blood pressure monitoring. Upon postpartum discharge from the hospital, we issued remote monitoring equipment including a Bluetooth tablet, blood pressure cuff, and scale to postpartum women at a single academic center who were diagnosed with a hypertensive disorder in the antenatal or postnatal period. Patients transmitted vital signs daily to a telehealth nurse, who used an outpatient treatment algorithm to monitor patients, manage antihypertensive medications, or refer for emergent care if symptomatic. We followed patients for 6 weeks and performed cost-effectiveness analysis by using data from hospital and device manufacturer supplied charges and literature-derived utilities. A cost-effectiveness threshold was set at $100,000/quality-adjusted life years. One-way sensitivity analyses were performed to evaluate the robustness of our baseline assumptions.

RESULTS: 214 telehealth and 214 control participants were enrolled. Telehealth monitoring significantly reduced postpartum readmissions, from 3.7% (8/214) to 0.5% (1/214). Our study demonstrated that telehealth monitoring was not only cost-effective, but cost-saving. The telehealth cost per patient was $319 and found to be cost-effective up to $423 per patient. Similarly, telehealth monitoring remained cost-effective down to an admission cost of $11,245 compared to our average admission cost of $14,401. Telehealth monitoring also remained cost-effective down to an admission rate of 2.9% with standard monitoring.

CONCLUSION: Our study demonstrates that telehealth blood pressure monitoring of postpartum women with hypertension is cost-effective, cost-saving, and reduces postpartum readmissions.

432 The association of magnesium sulfate with maternal morbidity when used for preeclampsia without severe features

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OBJECTIVE: Current recommendations, based on low quality evidence, suggest avoiding magnesium sulfate ($MgSO_4$) in women who have preeclampsia (PreE) without severe features. Yet, since more than half of women who experience an eclamptic seizure have no prior severe features, practitioners often use $MgSO_4$. We aimed to quantify the risk of adverse outcomes associated with $MgSO_4$ in women without severe features of PreE.

STUDY DESIGN: This was a secondary analysis of an observational cohort of 115,502 mother/infant dyads who delivered at 25 U.S. hospitals, Mar 2008 to Feb 2011. Included were women with PreE without severe features at any time in pregnancy, per local hospital standards, and who delivered after 32 weeks gestation (to exclude $MgSO_4$ use for CP prophylaxis). Our primary outcome was a composite of severe maternal morbidity: postpartum hemorrhage (PPH), pulmonary edema, intensive care unit (ICU) admissions or death. Secondary outcomes included cesarean, use of any uterotonic