



Hypertensive disorders of pregnancy among mothers of medically fragile infants

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BACKGROUND

Mothers of medically fragile infants (MMFI) must recover from birth while attending to an infant in the neonatal intensive care unit (NICU). MMFI are also more likely to have a hypertensive disorder of pregnancy that requires a blood pressure check within 10 days postpartum.

OBJECTIVE

- We sought to quantify the prevalence and early postpartum (PP) follow-up assessments for hypertensive disorders of pregnancy among MMFI.
- These findings will inform new clinical strategies for addressing the postpartum health needs of MMFI.

METHODS

- We conducted a retrospective cohort study of mothers of liveborn infants delivered at North Carolina Women's Hospital between July 1, 2014 and June 30, 2016.
- We defined mothers of well babies (MWB) as mothers of infants who were not admitted to an intensive care unit and were discharged to home.
- We defined MMFI as mothers of infants with a total neonatal intensive care unit and pediatric critical care unit length of stay ≥ 3 days.
- We defined mothers of transiently ill infants (MTII) as mothers of infants with a total neonatal intensive care unit and pediatric critical care unit length of stay < 3 days.
- Outcomes were ascertained from the UNC Perinatal Database and the Carolina Data Warehouse for Health, which includes data from the Epic@UNC electronic medical record (EMR).
- We ascertained hypertensive disorders using blood pressures (BP) that were measured in routine clinical care between 20 weeks of pregnancy and PP discharge, which we abstracted from the Epic EMR.

METHODS

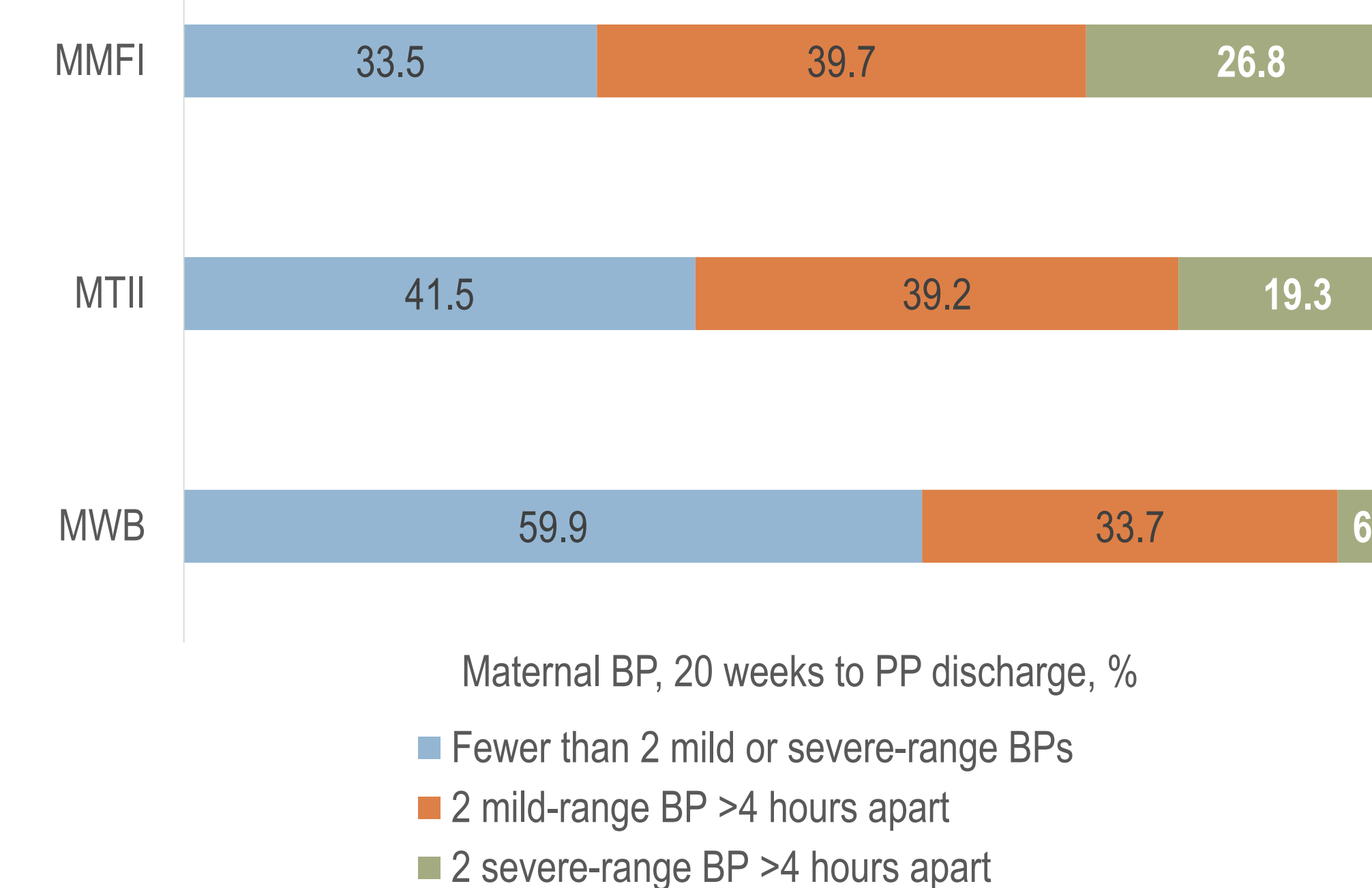
- Severe hypertension was defined as ≥ 2 severe BP measurements (Systolic BP ≥ 160 or Diastolic BP ≥ 110) > 4 hours apart.
- Mild hypertension was defined as ≥ 2 mild BP measurements (SBP ≥ 140 or DBP ≥ 90) > 4 hours apart.
- An early postpartum blood pressure follow-up assessment was considered indicated for a diagnosis of pregnancy-induced hypertension, preeclampsia, eclampsia, or HELLP syndrome.
- Diagnoses were abstracted from the medical record by chart review.
- Completion of the postpartum BP follow-up assessment was indexed by a documented BP in the UNC EMR between postpartum discharge and 10 days after delivery.
- We used chi square test to compare rates of mild and severe hypertension and completion of recommended follow-up after maternal discharge among MMFI, MTII, and MWB.
- P values less than 0.05 were considered statistically significant.

RESULTS

- A total of 6,851 women gave birth to one or more liveborn infants during the study period.
- 504,104 blood pressure measurements were recorded in the EMR between 20 weeks' gestation and postpartum discharge.
- 34.4% of women met criteria for mild hypertension. 9.0% met criteria for severe hypertension.
- 1,058 women had a diagnosis indicating a need for a postpartum blood pressure check.
- 601 women had a health encounter with a documented blood pressure in the EMR between postpartum discharge and 10 days postpartum.

RESULTS

One in four MMFI met criteria for severe hypertension, as did one in five MTII



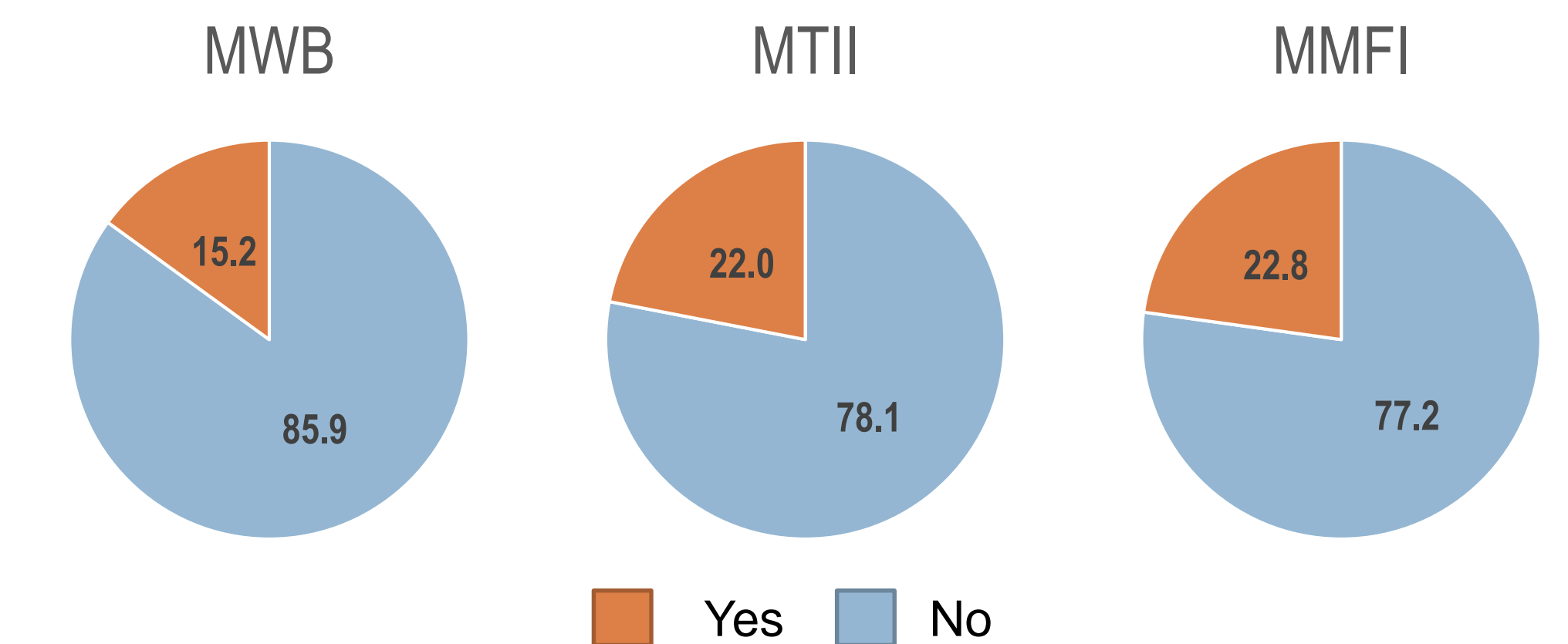
Sociodemographic characteristics of women with an indication for a postpartum BP check

	All, N	MWB, % Never in NICU, d/c to home	MTII, % in NICU < 3 days	MMFI, % in NICU ≥ 3 days	p-value*
N	1058	726	82	250	
Age at Delivery					0.08
<20	66	6.0	4.9	7.2	
20-34	751	72.9	75.6	64.0	
≥ 35	241	20.1	19.5	28.8	
Race/Ethnicity					0.0004
Non-Hispanic White	515	47.7	45.1	52.8	
Non-Hispanic Black	245	20.8	29.3	28.0	
Asian/Pacific Islander	23	2.9	1.2	0.4	
Hispanic	191	20.9	19.5	9.2	
Other	84	7.7	4.9	9.6	
Primary Language					0.02
English	894	84.0	84.2	92.6	
Spanish	136	15.2	14.6	6.6	
Other	9	0.8	1.2	0.8	
Insurance Type (at Delivery)					0.009
Private	483	45.5	31.7	50.8	
Public	532	50.4	65.9	44.8	
Tricare	35	3.4	0.0	4.0	
Self / unknown	8	0.7	2.4	0.4	
Cesarean Birth	435	31.2	58.5	65.1	<.0001

% = column percent. *p-value from the Pearson chi-square test. Missing not calculated in percents.

RESULTS

Few women underwent an indicated blood pressure check by 10 days postpartum



- Although mothers of infants who were admitted to the NICU were more likely than MWB to complete a blood pressure check by 10 days, fewer than 1 in 4 underwent recommended assessment.
- MMFI whose infants remained hospitalized at UNC through 10 days postpartum were no more likely than MMFI whose infants had been discharged to have had a blood pressure check (22.8 vs. 22.9%, $p=0.99$)

CONCLUSIONS

- Among MMFI, hypertensive complications of pregnancy are common.
- Arranging recommended follow-up at the infant's bedside in the NICU could improve adherence to recommendations and reduce burden for mothers.

FUNDING

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