Maternal Hypertension Protocol: Clinical Algorithm for EDs

MISSOURI PQC
Perinatal Quality Collaborative

Female 15-50 years of age

Is the patient pregnant?

No

Delivered in the past year?

Yes

Consider Cardiac issue S/S – See back page

No

Delivered in the past 6 weeks?

Yes

Clinical Features:

*Headache, visual complaints, altered mental status, CVA, seizure

*Abdominal pain – especially RUQ, epigastric pain

*Persistent nausea, vomiting

Measure BP

- SBP ≥160 OR DBP ≥110 HYPERTENSIVE EMERGENCY
- SBP 140-159 OR DBP 90-109 HYPERTENSION
- SBP <140 AND DBP <90 NORMAL BP

Immediate OB Consult required:
*Initiate anti-hypertensive immediately per treatment guidelines
*Administer Magnesium Sulfate as ordered by OB consult
*Labs: CBC with platelets, AST, ALT, creatinine; urine dip for protein, UA, LDH & uric acid

OB Consult within 60 minutes:
*Labs: CBC with platelets, AST, ALT, creatinine; urine dip for protein, UA, LDH & uric acid if ordered by OB
*Serial BP q1hr unless significant change in patient condition
*If patient's BP increases to SBP >160 or DBP >110 then initiate anti-hypertensive and notify OB if not already aware of change in condition

OB Consult PRN and/or upon discharge:
*Routine ED protocol per diagnostic criteria
*Notify OB if BP changes
*Plan for transitional care management and notification of OB that patient was seen in the ED upon admission and/or discharge

Yes

<20 weeks gestation

ED Treatment with OB consultation as needed for vaginal bleeding, uterine contractions, etc.

Yes

>20 weeks gestation

Plan ED to OB Transfer

Yes

If in-house OB: Transfer to L&D and Communicate:

*Suspicion of maternal HTN and/or Preeclampsia

*Symptoms

*VS including BP

*Any pertinent prenatal and medical history

No

If no in-house OB: Consult OB at higher level of care and initiate transfer as needed. Plan for same report as an internal transfer and proceed

Follow pathway based on clinical features and BP

References: ACOG. (2019). ACOG Committee Opinion No. 767: Emergent therapy for acute-onset, severe hypertension during pregnancy and the postpartum period. *Obstetrics and Gynecology, 133(2)*, e174-e180; CMQCC. (2017, November). Improving Health Care Response to Cardiovascular Disease in Pregnancy and Postpartum Toolkit.

Adapted from the New York State Department of Health.

Treatment Recommendations

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1st Line Anti-Hypertensive Treatment in the ED setting:
IV Labetalol or Hydralazine; if no IV access, give immediate release oral nifedipine
Target BP: 140–150/90–100 mm Hg (BP< 140/90 = decreased fetal perfusion)

IV LABETALOL as Primary

*Administer labetalol 20 mg IV over 2 min

*Repeat BP in 10 min

*If BP threshold is still exceeded, administer labetalol 40 mg IV

*Repeat BP in 10 min

*If BP threshold is still exceeded, administer labetalol 80 mg IV *Repeat BP in 10 min

*If BP threshold is still exceeded, administer hydralazine 10 mg IV over 2 min

*Repeat BP in 20 min; if BP threshold is still exceeded, obtain emergent consultation from maternal-fetal medicine, internal medicine, anesthesiology, or critical care.

*Once target BP achieved, monitor BP q10 min for 1 hour, q15 min for 2nd hour, q30 min for 3rd hour, q hr x 4 hrs

IV HYDRALAZINE as Primary

*Administer hydralazine 5 or 10 mg IV

*Repeat BP in 20 min

*If BP threshold is still exceeded, administer hydralazine 10 mg IV

*Repeat BP in 20 min

*If BP threshold is still exceeded, administer labetalol 20 mg IV

*Repeat BP in10 min

*If BP threshold is still exceeded, administer labetalol 40 mg IV and obtain emergent consultation from maternal-fetal medicine, internal medicine, anesthesiology, or critical care

*Once target BP achieved, monitor BP q10 min for 1 hour, q15 min for 2nd hour, q30 min for 3rd hour, q hr x 4 hrs

PO NIFEDIPINE as Primary

*Administer immediate release nifedipine capsules 10 mg po

*Repeat BP in 20 min

*If BP threshold is still exceeded, administer immediate release nifedipine capsules 20 mg po *Repeat BP in 20 min

*If BP threshold is still exceeded, administer immediate release nifedipine capsules 20 mg po *Repeat BP in 20 min

*If BP threshold is still exceeded, administer labetalol 20 mg IV and obtain emergent consultation from maternal-fetal medicine, internal medicine, anesthesiology, or critical care *Once target BP achieved, monitor BP q10 min for 1 hour, q15 min for 2nd hour, q30 min for 3rd hour, q hr x 4 hrs

***Consider administering antihypertensive therapy for borderline BP of 155-159 mm Hg/ 105-109 mm Hg using one of the algorithms above.**

Druzin, M. Shields, L., Peterson, N., Sakowski, C., Cape, V., & Morton, C. (2021). Improving Health Care Response to Hypertensive Disorders of Pregnancy, a California Maternal Quality Care Collaborative Quality Improvement Toolkit. https://www.cmqcc.org/resources-tool-kits/toolkits/HDP

Magnesium

- Initial Treatment in ED:
  - Consult with OB and if ordered, give Magnesium Sulfate IV loading dose of 4-6 gm over 15-20 min followed by 1-2gm/hr per orders. If IV dosing not available, consider IM dose of 5 gm x 2. (Increased risk of adverse effects with IM dosing)
  - Close observation for signs of toxicity
    - Disappearance of deep tendon reflexes
    - Decreased RR, shallow respirations, shortness of breath
    - Heart block, chest pain
    - Pulmonary edema
  - Place Calcium Gluconate at bedside as reversal agent; follow ED anti-seizure protocol; give Ativan stat if patient seizes

Cardiac S/S (currently pregnant or pregnant within the past year):

- Resting HR ≥110
- Systolic blood pressure of > 140 mmHg
- Resting respiratory rate of > 24
- Oxygen saturations ≤ 96%
- Loud Murmur
- Orthopnea > 3 pillows
- Asthma unresponsive to therapy
- Shortness of breath without activity
- New onset chest pain
- Syncope

Prompt evaluation by obstetrics and cardiology

Recommend obtaining:

- EKG
- ECHO
- BNP/NT-proBNP

Provide education and counseling about modifiable CVD risk behaviors for those with the following risk factors:

- ≥ 40 years old
- African American
- Pre-Pregnancy BMI ≥ 35
- Pre-existing diabetes
- Hypertensive disorder
- Substance Use
- History of chemotherapy

Hameed, A. B, Tarsa, M, Graves, C. R., Grodzinsky, A., De Bocanegra, H. T., & Wolfe, D. S. (2024). Universal cardiovascular disease risk assessment in pregnancy: Call to action JACC: Advances Expert Panel. JACC: Advances, 3(8), 1-9. https://doi.org/10.1016/j.jacadv.2024.101055