Protocol: Severe Hypertension in Obstetrics: Emergent Treatment

PURPOSE:

Early identification and treatment of severe hypertension.

SUPPORTIVE INFORMATION

Hypertensive disorders of pregnancy are leading causes of maternal death, contributing greatly to neonatal morbidity and mortality. Controlling blood pressure is the optimal intervention to prevent deaths due to stroke in women with preeclampsia. Preeclampsia is associated with an elevated risk cardiovascular disease later in life.

Acute onset, severe hypertension (≥ 160 systolic OR diastolic ≥ 110) that is accurately measured using a standard technique, and is persistent for 15 minutes or more is considered a hypertension emergency. Early treatment of antihypertensive therapy is recommended within 60 minutes. Intravenous Labetalol and IV Hydralazine are considered first line drugs of choice. However, labetalol is preferred. Oral Nifedipine may be administered if unable to obtain IV access.

Postpartum Considerations: Up to 26% of eclamptic seizures occur beyond 48 hours and as late as four to six (4-6) weeks after delivery. However, most of these cases occur in the first seven (7) days after delivery. As many as 78% of patients have no previous diagnosis of hypertensive disease with pregnancy. While the clinical presentation of delayed postpartum preeclampsia may be atypical, headache up to 69% of patients is the most common complaint. The natural progression of postpartum hypertension includes an initial decrease in blood pressure (BP) within 48 hours, but BP rises again between three to six (3-6) days postpartum. Preeclampsia may occur (6) weeks postpartum.

Labetalol HCL (Normodyne) - A non-selective alpha - and beta - adrenergic antagonist, onset of action 2-5 minutes after IV administration. Labetalol decreases heart rate, but does not significantly decrease cardiac output. Patients with asthma, cocaine and amphetamine use or low pulse (less than 60) are not candidates for labetalol.

Relative Contraindications:

- Asthma
- Congestive Heart Failure
- 2nd and 3rd degree heart block
- Bradycardia
- Conduction defects (Wolfe-parkinson White syndrome)
- Cardiogenic shock
- Prolonged hypotension (SBP-90)

Hydralazine (Apresoline) - A direct vasodilator, onset of action 5-20 minutes after IV administration. Hydralazine reduces systemic vascular resistance, increases heart rate, and increases cardiac output. May cause tachycardia.

STEPS → KEY POINTS

1. Blood Pressure Assessment:
   a. Position patient sitting of semi-fowlers
   b. Position arm level with the heart

2. If Systolic BP (SBP) is ≥ (greater or equal to) 160 OR Diastolic BP (DBP) is ≥ 110:
   a. Recheck in 15 minutes with patient sitting
   b. If second BP reading is still ≥ 160 SBP OR DBP ≥ to 110:

Key Point: Do not re-position patient to either side to obtain a lower BP due to risk of false reading

Initiate Protocol Emergent Treatment Protocol: Labetalol 1st line

Treatment for blood pressure threshold: Systolic BP (SBP) is ≥ (greater or equal to) 160 OR Diastolic BP (DBP) is ≥ 110

Key Point: If clinical situation warrants Hydralazine as 1st line refer to Algorithm B, if patient does not have immediate IV access Oral Nifedipine is an alternative 1st line treatment

Key Point: If patient is on Mother Baby Unit transfer to Labor and Delivery, or have L & D RN assume care on MBU if needed

- a. Notify Provider
- b. Initiate EFM if undelivered and fetus is viable
- c. Admit if not inpatient
- d. Start IV
- e. Place on pulse oximeter
- f. Get labetalol hydrochloride (HCL) ready: 20 milligrams intravenously over two (2) minutes
- g. Use continuous pulse oximetry with HR during administration and for at least one hour after last IV labetalol dose
- h. Repeat Blood pressure in 10 minutes and record result
   - If either SBP or DBP are greater than threshold, administer Labetalol HCL 40 milligrams IV over (2) minutes
   - If BP below threshold continue to monitor closely
- i. Repeat BP in 10 minutes and record result
   - If either SBP or DBP are greater than threshold, administer Labetalol HCL 80 milligrams IV over (2) minutes
   - If BP below threshold continue to monitor closely
- j. Repeat BP in 10 minutes and record result
   - If either SBP or DBP are greater than threshold, administer Hydralazine 10 milligrams IV over (2) minutes
   - If BP below threshold continue to monitor closely
- k. Repeat BP measurement in 20 minutes and record results
   - If either SBP or DBP are greater than threshold notify provider

https://www.lucidoc.com/cgi/doc-gw.pl?ref=overlake_p:53602
Emergent Treatment Protocol: Hydralazine 1st line

Key Point — If clinical situation warrants Hydralazine as 1st line refer to Algorithm B e.g. Bradycardia (pulse less than 60), Asthma

Key Point — Goal is to administer within 1 hour and slowly reduce Blood Pressure to less than 160/110

4. OUTPATIENT Algorithm:
   a. Emergency Department: Pregnant or postpartum patients presenting with severe HTN (≥160 systolic or diastolic ≥110):
      - If patient presents pregnant to main ED
        - Notify OB ED
        - RN transport to OB ED for emergent treatment of hypertension and magnesium as a CNS protectant
      - If patient presents postpartum (up to six weeks post delivery)
        - Notify Primary OB
        - ED physician enters orders
        - Place patient on Heart Monitor (3 lead)
        - Notify OB ED
        - RN transport
        - Notify OB
        - ED physician enters orders
      - Emergent Treatment Protocol: Labetalol refer to Appendix A
      - If clinical situation warrants Hydralazine as st line refer to Algorithm B
      - Admit patient to L & D (preferred) or designated unit for continued care
      - Consider IV magnesium as a CNS protectant LINK: Preeclampsia Management (Lucidoc)

Key Point — RRT does not need to monitor heart rhythm prior to administration of IV labetalol in ED setting

   b. Mom & Baby Care Center:
      - Notify Primary OB office
      - Notify OB ED
      - Initiate Nifedipine (oral) 1st line option if ordered and available prior to arrival to OBED for continued evaluation
      - Call 911 for transport to OB ED for emergent treatment of hypertension
      - Declination of 911 transport may occur if patient assumes risks/benefits and signs refusal of treatment form LINK: EMTALA Expanded Policy for Outpts. Seeking Emergency Care (Lucidoc)
      - Emergent Treatment Protocol: Nifedipine 1st line

If patient does not have immediate IV access Oral Nifedipine is an alternative st line treatment

Treatment for blood pressure threshold: Systolic BP (SBP) is ≥ (greater or equal to)160 OR Diastolic BP (DBP) is ≥ 110

   a. Notify Provider
   b. Initiate EFM if undelivered and fetus is viable
   c. Admit if not inpatient
   d. Start IV
   e. Administer st dose nifedipine 10 milligrams orally
   f. Repeat BP in 20 minutes record result
      - If either SBP or DBP are greater than threshold, administer 2nd dose nifedipine 20 milligrams orally
      - If BP below threshold continue to monitor closely
   g. Repeat BP in 20 minutes and record result
      - If either SBP or DBP are greater than threshold, administer 3rd dose nifedipine 20 milligrams orally
      - If BP below threshold continue to monitor closely
   h. Repeat BP in 20 minutes and record result
      - If either SBP or DBP are greater than threshold, administer Labetalol HCL 40 milligrams IV over (2) minutes
      - Obtain Consultation
      - Give additional Antihypertensive medication as ordered
      - If BP below threshold continue to monitor closely

   i. BP thresholds achieved:
      - Repeat BP every 10 minutes x 1 hour
      - then every 15 minutes x 1 hour
      - then every 30 minutes x 1 hour
      - then every hour for 4 hours
      - Institute additional BP timing per specific orders

   j. Consider IV magnesium as a CNS protectant LINK: Preeclampsia Management (Lucidoc)

Emergent Treatment Protocol: Hydralazine 1st line

Treatment for blood pressure threshold: Systolic BP (SBP) is ≥ (greater or equal to)160 OR Diastolic BP (DBP) is ≥ 110

   a. Notify Provider
   b. Initiate EFM if undelivered and fetus is viable
   c. Admit if not inpatient
   d. Start IV
   e. Administer hydralazine 10 milligrams intravenously over two (2) minutes
   f. Repeat BP in 20 minutes record result
      - If either SBP or DBP are greater than threshold, hydralazine 10 milligrams intravenously over two (2) minutes
      - If BP below threshold continue to monitor closely
   g. Repeat BP in 20 minutes and record result
      - If either SBP or DBP are greater than threshold, administer Labetalol HCL 20 milligrams IV over (2) minutes
      - If BP below threshold continue to monitor closely
   h. Repeat BP in 10 minutes and record result
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j. Consider IV magnesium as a CNS protectant LINK: Preeclampsia Management (Lucidoc)

See Appendix B: Algorithm for Severe obstetrical Hypertension

Algorithm A - Emergent Treatment Protocol: Labetalol

Treatment for blood pressure threshold: Systolic BP (SBP) is ≥ 160 OR Diastolic BP (DBP) is ≥ 110
Algorithm for Severe Obstetric Hypertension: Treatment for blood pressure threshold: Systolic BP (SBP) is ≥160 OR Diastolic BP (DBP) is ≥110

Appendix B - Emergent Treatment Protocol: Hydralazine
SEVERE HTN TREATMENT ALGORITHMS

Goal: Bring Down BP Slowly

Understand the Drugs of Choice:

Hydralazine 5mg – 10mg IV
Given slowly over 2 minutes

Hydralazine is a direct-acting smooth muscle relaxant used to treat hypertension by acting as a vasodilator primarily in arteries and arterioles.

Nifedipine 10mg IV PO if NO IV Access
Calcium Channel Blocker
Repeat in 30 minutes if above threshold.
It works by relaxing the muscles of your heart and blood vessels.

Resources

ACOG (2013) Executive summary on hypertension