Hypertension, Postpartum (New Onset)

New onset postpartum Hypertension *

Evaluate for preeclampsia/HELLP:
- CNS/GI symptoms?
- Abnormal physical exam?
- Evidence of end organ damage?
- Evaluated UPC?
- Abnormal HELLP labs?

Yes

Preeclampsia

Severe Features?

Yes

- IV Magesium Sulfate for preeclampsia with severe features or new onset HTN associated with headaches or blurred vision ¹
- Consider furosemide 20mg daily for 5 days for volume overloaded patients ¹

No

No

Postpartum Hypertension

-IV antihypertensive therapy if SBP> 160 or DBP > 110 ¹

-Start oral antihypertensive therapy if requiring IV therapy or when SBP > 150 or DBP > 100 on 2 occasions 4-6 hours apart. ¹,3,5

-Stop NSAIDs if BP elevated for over 1 day. Use alternative analgesics. ¹,5

- Inpatient management until stable

Responsive To Treatment?

Yes

No

6 weeks postpartum:
- Arrange f/u with PCP for ongoing management of still requiring antihypertensive’s.
- Consider other first line contraceptive options for all women with HTN.
- If obese or overweight, counsel regarding weight management.

Monitor BP for 72 hrs w/inpatient or equivalent outpatient surveillance and again 7-10 days after delivery ¹

Consider imitators of severe preeclampsia² and evaluation for secondary causes of hypertension ²

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## Antihypertensive Drugs

<table>
<thead>
<tr>
<th>Drug Class/ Medication</th>
<th>Initial daily dose in mg (max daily dose)</th>
<th>Number of doses per day</th>
<th>Common side effects</th>
<th>Considerations in lactation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium Channel Blockers (dihydropyridines)</td>
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<tr>
<td>Nifedipine XL</td>
<td>30 (90-120)</td>
<td>1</td>
<td>Nifedipine: headache, flushing, peripheral edema, palpitations</td>
<td>Nifedipine: - no known adverse effects on lactation - no adverse reactions reported in breastfed infants</td>
</tr>
<tr>
<td>Amlodipine</td>
<td>5 (10)</td>
<td>1</td>
<td>Amlodipine: peripheral edema, pulmonary edema in patients with heart failure, palpitations</td>
<td>Amlodipine: - no data on effects on lactation - no adverse effects in breastfed infants based on limited information</td>
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<tr>
<td>Calcium Channel Blockers (non-dihydropyridines)</td>
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<tr>
<td>Diltiazem</td>
<td>180 (480-540)</td>
<td>1-2</td>
<td>Edema, headache, bradycardia, 1st degree AV block</td>
<td>Diltiazem: - no adverse effects in breastfed infants based on limited information</td>
</tr>
<tr>
<td>Verapamil</td>
<td>180 (480)</td>
<td>1-3</td>
<td></td>
<td>Verapamil: - no adverse effects in breastfed infants based on limited information</td>
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<tr>
<td>Beta blockers</td>
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<tr>
<td>Labetalol</td>
<td>200 (2400)</td>
<td>2</td>
<td>Labetalol: Fatigue, nausea</td>
<td>Labetalol: - no known adverse effects on lactation - possible association with Reynaud’s phenomenon of the nipples in a woman with known Reynaud’s phenomenon - no adverse effects in full-term breastfed infants - case report of bradycardia in a newborn 26week preterm infant whose mom was taking labetalol</td>
</tr>
<tr>
<td>Metoprolol</td>
<td>50 (200)</td>
<td>1-2</td>
<td>Metoprolol: Fatigue, depression, decreased exercise tolerance, bradycardia, 1st degree AV block</td>
<td>Metoprolol: - no known adverse effects on lactation - no adverse reactions reported in breastfed infants</td>
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<tr>
<td>Thiazide diuretics</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Chlorthalidone</td>
<td>25 (25)</td>
<td>1</td>
<td>Electrolyte abnormalities (hypokalemia most common, hyponatremia, hypercalcemia), skin photosensitivity</td>
<td>Chlorthalidone: - intense diuresis with large doses may suppress lactation - slow clearance may lead to accumulation in the infant</td>
</tr>
<tr>
<td>Hydrochlorothiazide</td>
<td>12.5-25 (50)</td>
<td>1-2</td>
<td></td>
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</tbody>
</table>
### Sulfa Allergy
- Contraindicated in sulfonamide allergy
- Avoid use in those with severe allergy to sulfonylureas, carbonic anhydrase inhibitors, loop diuretics

### Hydrochlorothiazide
- Typical doses used for hypertension (50mg daily or less) are acceptable in lactation
- Intense diuresis with large doses may decrease milk production

<table>
<thead>
<tr>
<th>ACE inhibitors</th>
<th>Lisinopril</th>
<th>Enalapril</th>
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<tbody>
<tr>
<td></td>
<td>10 (40)</td>
<td>5 (20)</td>
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<tr>
<td>Angiotensin receptor blockers</td>
<td>50 (100)</td>
<td>80 (320)</td>
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<tr>
<td>Losartan</td>
<td>1-2</td>
<td></td>
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<tr>
<td>Valsartan</td>
<td>1</td>
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</tbody>
</table>

#### Cough (ACEI not ARBs), angioedema, hyperkalemia, acute renal failure, teratogenicity

**For women of reproductive age without a compelling indication (such as proteinuric renal disease), the use of ACEIs and ARBs is not recommended.**

For women with a compelling indication, it is recommended that highly effective contraception is established prior to initiation of treatment.

### ACE Inhibitors
- Limited data
- No known adverse effects on lactation or on breastfed infants

### Angiotensin Receptor Blockers
- No information on use in lactation
- No adverse reactions reported in breastfed infants

### Loop Diuretics
- Furosemide
  - Typical doses used for hypertension (50mg daily or less) are acceptable in lactation
  - Intense diuresis with large doses may decrease milk production

### Central Alpha Receptor Agonist
- Methyldopa
  - No known adverse effects on lactation
  - No adverse reactions reported in breastfed infants

### Direct Vasodilator (Arterial)
- Hydralazine
  - No known adverse effects on lactation
  - No adverse reactions reported in breastfed infants

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*First line for treatment of hypertension for general non-pregnant population.
Long-acting dihydropyridine calcium channel blockers and thiazide diuretics are preferred in the black hypertensive population

**Non-dihydropyridines calcium channel blockers have a antiproteinuric effects in patients with renal disease with proteinuria*
References:


These algorithms are designed to assist the primary care provider in the clinical management of a variety of problems that occur during pregnancy. They should not be interpreted as a standard of care, but instead represent guidelines for management. Variation in practices should take into account such factors as characteristics of the individual patient, health resources, and regional experience with diagnostic and therapeutic modalities.

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