Postpartum Preeclampsia/Eclampsia

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Introduction

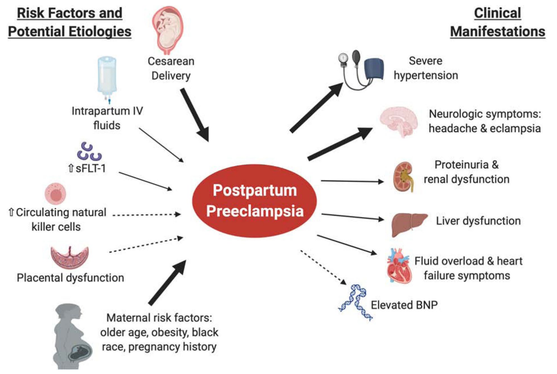
- Discuss diagnosis and management of postpartum pre-eclampsia / eclampsia in ER setting
- Can be fatal if not properly managed (ACOG, 2019)
- Definition (Hauspurg & Jeyabalan, 2022)
    - **Blood Pressure:** New-onset hypertension on more than one occasion, four hours or more apart (systolic blood pressure of 140 mmHg or more or diastolic blood pressure of 90 mmHg or more) within 6 weeks of delivery with no other identifiable etiology
- **AND**
    - Proteinuria: protein/creatinine ratio of 0.3 or more
    - Thrombocytopenia: platelet count less than 100,000
    - Renal insufficiency: Serum creatinine concentrations greater than 1.1 mg/dL or a doubling of the serum creatinine concentration in the absence of other renal disease
    - Impaired liver function: Elevated blood concentrations of liver transaminases to twice normal concentration for individual laboratory
    - Other severe features: pulmonary edema, vision changes or new-onset headache unresponsive to medication and not accounted for by alternative diagnoses
- **OR**
    - Systolic blood pressure of 160 mmHg or more or diastolic blood pressure of 110 mmHg or more within 6 weeks of delivery with no other identifiable etiology in the absence of any of the above features

Key risk factors (Redman et al., 2019)

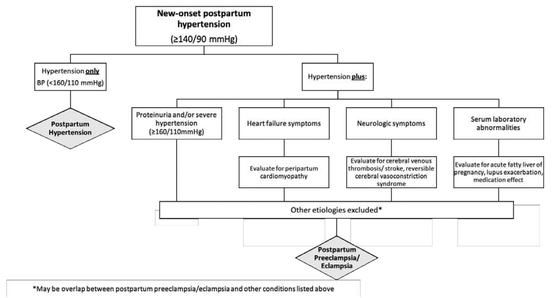
- Older maternal age (≥35 years)
- Black race
- Maternal obesity (higher risk with increasing BMI)
- History of hypertensive disorders in prior pregnancies
- Cesarean delivery (both pre-labor and intra-partum)
- Higher rates of intravenous (IV) fluid infusion during labor and delivery

Common Presentation (Hauspurg & Jeyabalan, 2022)

- Occurs in women with or without a history of hypertensive disorders during pregnancy
- Majority of cases present within the first 7-10 days postpartum, but onset can be reported up to 3 months postpartum
- Most common symptom is headache (in about 60-70% of women)
    - Refractory or thunderclap headaches
    - Headaches associated with altered mental status, seizures, visual disturbances, or focal neurologic deficits
- Other symptoms may include:
    - High blood pressure
    - Swelling (edema) in the hands, feet, or face
    - Protein in the urine
    - Liver or kidney abnormalities
    - Abdominal pain, especially in the upper right area
- The differential diagnosis for postpartum headache should include:
    - Migraine headache
    - Post-dural puncture headache
    - Medication-related headache
    - Cerebral venous thrombosis
    - Reversible cerebral vasoconstriction syndrome



Source: Hauspurg and Jeyabalan (2022)



Source: Hauspurg and Jeyabalan (2022)

Management

Short-term morbidity (Hauspurg & Jeyabalan, 2022)

- Higher risk of severe maternal morbidity in postpartum preeclampsia compared to antepartum preeclampsia (12.1% vs. 6.9%, p<0.01)
- Greater likelihood of eclampsia and stroke among women with new-onset postpartum hypertension
- Most cases of eclampsia, stroke, and severe morbidity associated with postpartum hypertension occur among women without prior diagnosis of pregnancy-associated hypertension
- Emphasizes the need for early identification and monitoring of elevated blood pressure in postpartum women
- Importance of educating women about signs and symptoms of postpartum preeclampsia at discharge from delivery hospitalization
- Maternal hospital readmission postpartum is associated with high healthcare costs, disruption of early parenting, increased family burden, and is a tracked quality measure with financial implications
- Importance of broader education for other health professionals

Long-term morbidity (ACOG, 2019; Redman et al., 2019)

- Hypertensive disorders of pregnancy identified as risk factors for later-life cardiovascular disease (chronic hypertension, heart failure, cardiovascular mortality)
- Risk of chronic hypertension is 30-40% following a pregnancy complicated by preeclampsia within 2-7 years postpartum
- Higher risk observed among women with iatrogenic preterm birth secondary to preeclampsia
- Limited data on whether the risk is the same among women with postpartum preeclampsia
- Over one-third of women with postpartum preeclampsia remained on anti-hypertensive agents at their postpartum visit
- Significantly higher blood pressure observed at both postpartum visit and longer-term follow-up (45% remained hypertensive at follow-up, median 1.1 years)

Labs: (Hauspurg & Jeyabalan, 2022)

- Complete blood count
- Complete metabolic panel
- Urine protein/creatinine ratio
- Women with signs or symptoms of volume overload: consider brain natriuretic peptide (BNP)

Imaging: based on clinical presentation (Hauspurg & Jeyabalan, 2022)

- Chest imaging to include Chest XRay or CT
- Neuroimaging to include brain MRI or CT
- Women with signs or symptoms of volume overload: consider echocardiogram

MANAGEMENT CONSIDERATIONS (Hauspurg & Jeyabalan, 2022)

- Short-acting anti-hypertensive medications (IV labetalol, IV hydralazine, oral nifedipine)*:
    - Administered within 30–60 minutes
    - Threshold for treatment: BP ≥160/110 mmHg
    - Goal BP: <150/100 mmHg
- Long-acting anti-hypertensive medications (most commonly oral labetalol, oral nifedipine extended release)*:
- Administered to maintain BPs <140s-150s/90s-100s

Magnesium for seizure prophylaxis:

- Recommended in women with neurologic symptoms
- Weighted discussion of risks and benefits among women with other severe features, particularly after one week postpartum

Diuresis (most commonly IV or oral furosemide)*:

- Guided by clinical assessment of volume status
- Should be given routinely in women with pulmonary edema or significant volume overload

Management/ Conclusions

Follow up: (Hauspurg & Jeyabalan, 2022)

- Home BP monitoring and management where feasible, where not feasible, recommend short-interval in-office BP check (within 5–7 days)
- BP assessment at comprehensive postpartum visit
- Education on long-term morbidity associated with hypertensive disorders of pregnancy, risk factor identification and management and at least annual assessment of BP.

Future research should address (Hauspurg & Jeyabalan, 2022; Skurnik et al., 2017) :

- Precise causes and underlying mechanisms of preeclampsia development
- Accurate and early prediction of preeclampsia risk in pregnant women
- Optimal strategies for preeclampsia prevention and management
- Long-term consequences of preeclampsia on maternal and offspring health
- Differences in risk and long-term outcomes between antepartum and postpartum preeclampsia
- Identification of novel biomarkers for early diagnosis and prognosis
- Development of targeted therapies to treat or prevent preeclampsia

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