

Update in the Management of Patients with Preeclampsia

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KEYWORDS

- Preeclampsia • Biomarkers • Magnesium sulfate • Hypertension
- Renal dysfunction

KEY POINTS

- Gestational hypertension and preeclampsia develop after 20 weeks' gestation and resolve after delivery of the fetus. Preeclampsia is diagnosed by the presence of hypertension and either proteinuria or signs and symptoms of end-organ dysfunction.
- Risk factors for developing preeclampsia include prior history of preeclampsia, multiple gestation pregnancy, obesity, preexisting hypertension, and preexisting renal disease.
- Monitoring for progression of disease is essential for optimal management of both mother and fetus, with the intent of delivering the fetus as maximally developed as possible while weighing the risks of continuing the pregnancy.

INTRODUCTION

Hypertensive disorders of pregnancy complicate approximately 10% of all deliveries in the United States and is a leading cause of both maternal and fetal morbidity and mortality. Although great efforts have been undertaken to better understand and prevent preeclampsia, little improvement in maternal and fetal outcomes has been observed. Whether a pregnancy is complicated by preexisting hypertension or by preeclampsia, it is essential that a patient's obstetric team monitor the patient's health more frequently to more rapidly identify and treat worsening hypertension. Close monitoring of fetal development is also important to optimally time delivery. This article reviews current knowledge of the factors important to the development of preeclampsia and discusses the anesthetic management of the hypertensive peripartum patient.

The authors have nothing to disclose.

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DEFINITIONS

Hypertension presenting during pregnancy may be 1 of 4 distinct disease processes:

- Chronic hypertension
- Gestational hypertension
- Preeclampsia
- Chronic hypertension superimposed with preeclampsia

Chronic hypertension is defined as hypertension that exists either before pregnancy or hypertension that develops during pregnancy and fails to resolve by 12 weeks postpartum.¹ Gestational hypertension is defined as an elevation in blood pressure after 20 weeks' gestation without proteinuria or systemic findings. Preeclampsia is defined as hypertension in association with either proteinuria (>300 mg in 24 hours), thrombocytopenia (<100,000/ μ L), impaired liver function, renal insufficiency (>1.1 mg/dL), pulmonary edema, or new-onset cerebral or visual disturbances.^{1,2} Early-onset preeclampsia occurs between 20 weeks' and 34 weeks' gestation. Late-onset preeclampsia develops on, or after, 34 weeks. **Table 1** displays characteristics differentiating gestational hypertension from mild and severe preeclampsia.

Although preeclampsia has traditionally been defined as new-onset hypertension and proteinuria, a subset of preeclamptic women presents with hypertension and systemic signs without proteinuria. For this reason, the definition of signs and symptoms defining preeclampsia has broadened to become more inclusive of these patients.²

Severe preeclampsia is defined as a systolic blood pressure of 160 mm Hg or greater or a diastolic blood pressure of 110 mm Hg or greater on 2 occasions at least 4 hours apart.²

Eclampsia is defined by seizure activity in the presence of preeclampsia. Although it typically presents as a late manifestation after other systemic signs of disease, it can present without other warning signs.

Chronic hypertension superimposed with preeclampsia can present both diagnostic and treatment challenges. This diagnosis is made when a woman with preexisting hypertension after 20 weeks' gestation presents with a sudden exacerbation in hypertension, development of signs or symptoms consistent with preeclampsia

Table 1

Comparison of signs and symptoms of gestational hypertension, mild preeclampsia, and severe preeclampsia

Symptom	Gestational Hypertension	Mild Preeclampsia	Severe Preeclampsia
Systolic blood pressure	140 mm Hg	140 mm Hg	160 mm Hg
Diastolic blood pressure	90 mm Hg	90 mm Hg	110 mm Hg
Proteinuria	None	300 mg/24 h or 1 + Proteinuria on dipstick or Protein/creatinine ratio ≥ 0.3 mg/dL	≥ 2 g/24 h or 3 + Proteinuria on a dipstick
Thrombocytopenia	Normal	Normal	<100,000
Liver function tests	Normal	Normal	2 \times Normal
Creatinine	Normal	Normal	1.1 mg/dL
Pulmonary edema	No	No	Yes
Cerebral disturbances	No	No	Yes
Visual disturbances	No	No	Yes

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