Preeclampsia

Short-term and Long-term Implications

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KEYWORDS

• Preeclampsia • Hypertension • Pregnancy • Prenatal screening
• Cardiovascular risk

KEY POINTS

- Preeclampsia is a hypertensive disease specific to pregnancy with a high risk of maternal and fetal morbidity and mortality, as well as long-term cardiovascular risks to both the patient and her child.
- The cause of preeclampsia is not fully understood, but is most likely to be abnormal placentation and release of placental factors that contribute to systemic endothelial function.
- Risk factor and biochemical/biophysical screening tests are available to approximate the risk of developing preeclampsia. Low-dose aspirin may reduce the risk of preeclampsia in high-risk patients; however, the ultimate cure remains delivery of the fetus and placenta.
- Diagnosis of preeclampsia is defined by hypertension with either proteinuria or signs of severe multiorgan dysfunction.
- Management of preeclampsia depends on gestational age at diagnosis and the presence of severe symptoms, and involves continuous maternal and fetal evaluation for worsening of disease prompting delivery. Postpartum hypertension and preeclampsia require vigilance on the part of both the medical provider and the patient to reduce morbidity.

Preeclampsia affects approximately 4% of all pregnancies[1,2] and is a major cause of maternal, fetal, and neonatal morbidity and mortality worldwide. It is a unique disease in several ways: it is one of only a small number of pathologic conditions that are specific to pregnancy; it is, by definition, a precursor of a potentially severe disease (eclampsia) but is lethal in its own right; it has had the same essential treatment (delivery) for hundreds of years; and its fundamental cause and prevention continue to elude researchers. It has recently become topical, both in mainstream and medical communities, at least in part because of its increasing incidence (25% increase in

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the United States in the last 20 years[3,4]) and severity of disease as it relates to the obesity epidemic currently facing the world.

DEFINITION

Preeclampsia is a hypertensive disease that is exclusive to pregnancy. It was traditionally defined as the triad of hypertension, proteinuria, and edema occurring after 20 to 24 weeks' gestation.[5] This definition has changed and been refined over the years as its pathology has been unraveled. Increase in systolic blood pressure of 30 mm Hg or diastolic blood pressure of 15 mm Hg is no longer part of the definition because these criteria are not predictive of adverse outcomes. Edema has also been removed from the definition, because it is too common a clinical finding during pregnancy to be clinically relevant.

It is now defined as new-onset hypertension (systolic blood pressure ≥140 mm Hg or diastolic blood pressure ≥90 mm Hg) and new-onset proteinuria after 20 weeks' gestation in a previously normotensive patient.[4] The hypertension should be documented to be persistent over 2 determinations at least 4 hours apart, unless it is greater than or equal to 160 mm Hg systolic or greater than or equal to 110 mm Hg diastolic. This severe increase may be confirmed in a shorter interval for prompt therapy. Proteinuria is defined as 300 mg of protein in 24 hours or a urine protein/creatinine ratio of 0.3 mg/dL. Urine dipstick of +1 is only to be used if the other methods are not available.

In the absence of proteinuria, preeclampsia may also be defined as new-onset hypertension with other signs of multisystem involvement (thrombocytopenia, liver dysfunction, renal insufficiency, pulmonary edema, cerebral or visual disturbances) (**Table 1**).

Preeclampsia is further divided into 2 categories: with and without severe features (**Box 1**).

Preeclampsia is part of a collection of hypertensive disorders of pregnancy, including gestational hypertension, chronic hypertension, and chronic hypertension with superimposed preeclampsia. Eclampsia (seizure associated with preeclampsia) and the HELLP (hemolysis, elevated liver enzymes, low platelets) syndrome are

Table 1
Definitions of preeclampsia

Hypertension	Proteinuria	Multisystem Involvement
≥140 mm Hg systolic or ≥90 mm Hg diastolic	≥300 mg in 24 h	Thrombocytopenia
Previously normotensive patient >20 wk gestation	Protein/creatinine ratio ≥0.3 mg/dL	Renal insufficiency
BP measured two times at least 4 hours apart[a]	Dipstick 1+ (only if other methods not available)	Liver dysfunction
		Pulmonary edema
		Cerebral or visual disturbances

Abbreviation: BP, blood pressure.

[a] Greater than or equal to 160 mm Hg or greater than or equal to 110 mm Hg diastolic may be confirmed within minutes to facilitate treatment.

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