Rx

Low-Dose Aspirin for the Prevention of Preeclampsia

HEIDI COLLINS FANTASIA

Preeclampsia is a systemic hypertensive disorder specific to pregnancy that involves multiple organ systems. It remains a significant cause of maternal morbidity and mortality in the United States and globally. Because the only resolution of preeclampsia is delivery of the placenta, the disease is also a leading causative factor in medically necessary preterm birth (Amaral, Wallace, Owens, & LaMarca, 2017). Because of the potential adverse effects of preeclampsia for women and newborns, preventing preeclampsia, especially among women at greatest risk, is an important component of prenatal care.

Overview of Preeclampsia

Preeclampsia is estimated to affect between 5% and 10% of pregnancies in the United States, with recurrence in up to 25% of subsequent

Abstract Preeclampsia is a hypertensive disorder specific to pregnancy that remains a significant cause of maternal and neonatal morbidity and mortality. Identification of women who are most at risk for preeclampsia is imprecise. Because of the potential negative health consequences of preeclampsia for women and newborns and the lack of effective screening mechanisms preventing preeclampsia is an important component of prenatal care. Researchers have documented that low-dose aspirin, taken daily after the first trimester, can decrease the development of preeclampsia and reduce the incidence of preterm birth and birth of small-for-gestational-age infants. This column includes an overview of low-dose aspirin in pregnancy and a review of current recommendations from leading national organizations. https://doi.org/ 10.1016/j.nwh.2017.12.002

Keywords aspirin | hypertension | preeclampsia | pregnancy

Photo © Pekic / istockphoto.com

Preeclampsia is estimated to affect between 5% and 10% of pregnancies in the United States, with recurrence in up to 25% of subsequent pregnancies

pregnancies (Grotegut, 2016; Tolcher et al., 2017). Preeclampsia is recognized as a new onset of hypertension in the second half of pregnancy, often with blood pressure at greater than 140/90 mm Hg and co-occurring proteinuria. Multiorgan system complications can occur such as renal failure, elevated liver enzymes and low platelets (HELLP syndrome), edema, hemolysis, and progression to eclamptic seizures (Amaral et al., 2017).

Risk factors for preeclampsia include pregnancy at the extremes of maternal age (adolescents and women older than 40 years of age), obesity, preexisting hypertension, diagnosis of preeclampsia in a previous pregnancy, diabetes or renal disease, nulliparity, multiple gestation, and preexisting autoimmune diseases such as antiphospholipid antibody syndrome and systemic lupus erythematosus (Grotegut, 2016). However, not all women with these risk factors develop preeclampsia, and the condition can occur in women who do not have any known risk factors, which makes screening and prevention more challenging.

Researchers have investigated different screening mechanisms to identify women at risk for preeclampsia, including maternal serum markers and first trimester ultrasonographic findings (including uterine artery Doppler flow and resistance), but these additional screening tests have not resulted in the accurate prediction of preeclampsia (Halscott, Ramsey, & Reddy, 2014). To date, an effective screening algorithm for the identification of women at risk for preeclampsia does not exist.

Pathophysiology of Preeclampsia

The etiology and underlying pathophysiology of primary and recurrent preeclampsia are not completely understood. However, certain characteristics have been identified, and the placenta is involved in the development of the disease. Hallmarks of preeclampsia include placental ischemia, maternal immune activation, increased arterial resistance, decreased production of vasodilators, and maternal endothelial dysfunction. This causes decreased blood flow to major organs. These factors, combined with the maternal hypertension, often result in intrauterine fetal growth restriction (IUGR) and small-for-gestational-age infants (Amaral et al., 2017; Grotegut, 2016; Tolcher et al., 2017).

Heidi Collins Fantasia, PhD, RN, WHNP-BC, is an associate professor in the Zuckerberg College of Health Sciences, Susan and Alan Solomont School of Nursing, at the University of Massachusetts Lowell in Lowell, MA. The author reports no conflicts of interest or relevant financial relationships. Address correspondence to: Heidi_Fantasia@uml.edu.