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Vitamins C and E to prevent complications of pregnancy-associated hypertension.

Roberts JM¹, Myatt L, Spong CY, Thom EA, Hauth JC, Leveno KJ, Pearson GD, Wapner RJ, Varner MW, Thorp JM Jr, Mercer BM, Peaceman AM, Ramin SM, Carpenter MW, Samuels P, Sciscione A, Harper M, Smith WJ, Saade G, Sorokin Y, Anderson GB; Eunice Kennedy Shriver National Institute of Child Health and Human Development Maternal-Fetal Medicine Units Network.

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Abstract

BACKGROUND: Oxidative stress has been proposed as a mechanism linking the poor placental perfusion characteristic of preeclampsia with the clinical manifestations of the disorder. We assessed the effects of antioxidant supplementation with vitamins C and E, initiated early in pregnancy, on the risk of serious adverse maternal, fetal, and neonatal outcomes related to pregnancy-associated hypertension.

METHODS: We conducted a multicenter, randomized, double-blind trial involving nulliparous women who were at low risk for preeclampsia. Women were randomly assigned to begin daily supplementation with 1000 mg of vitamin C and 400 IU of vitamin E or matching placebo between the 9th and 16th weeks of pregnancy. The primary outcome was severe pregnancy-associated hypertension alone or severe or mild hypertension with elevated liver-enzyme levels, thrombocytopenia, elevated serum creatinine levels, eclamptic seizure, medically indicated preterm birth, fetal-growth restriction, or perinatal death.

RESULTS: A total of 10,154 women underwent randomization. The two groups were similar with respect to baseline characteristics and adherence to the study drug. Outcome data were available for 9969 women. There was no significant difference between the vitamin and placebo groups in the rates of the primary outcome (6.1% and 5.7%, respectively; relative risk in the vitamin group, 1.07; 95% confidence interval [CI], 0.91 to 1.25) or in the rates of preeclampsia (7.2% and 6.7%, respectively; relative risk, 1.07; 95% CI, 0.93 to 1.24). Rates of adverse perinatal outcomes did not differ significantly between the groups.

CONCLUSIONS: Vitamin C and E supplementation initiated in the 9th to 16th week of pregnancy in an unselected cohort of low-risk, nulliparous women did not reduce the rate of adverse maternal or perinatal outcomes related to pregnancy-associated hypertension (ClinicalTrials.gov number, [NCT00135707](#)).

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