

Arterial health after preeclampsia: role of chronic hypertension

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Objective

Preeclampsia (PE) is associated with an increased cardiovascular (CV) risk. Recent data have shown worse left ventricular remodeling and diastolic function in women with PE who have persistent hypertension (HTN). To improve our understanding of CV health and risk after PE, we evaluated the contribution of persistent HTN on arterial health.

Methods

We recruited 40 women with PE history and 40 age-matched women with normotensive pregnancies (6 months - 6 years post-partum). We comprehensively evaluated measures of arterial health (arterial stiffness, central blood pressure, pulsatile and steady arterial load) with validated technique combining applanation tonometry and transthoracic echocardiography. We compared 3 groups: previous PE with persistent HTN (PE-HTN), previous PE with normalized blood pressure (PE-noHTN) and controls. Associations of PE-HTN with arterial health measures were assessed with multivariable linear regression adjusted for age, diabetes, smoking history, serum creatinine and parity.

Results

Eight (20%) of the post-PE women had persistent HTN. Mean age was 35.8 ± 3.9 years, number of pregnancies was 2.4 ± 1.4 , and time since last pregnancy was 2.6 ± 1.2 years, and not different across the 3 groups ($P > 0.05$ for each). Results of the multivariable linear regression models demonstrated that women with PE-HTN had significantly higher aortic stiffness, wave reflections, pulsatile and steady arterial load than controls. Conversely, among women with previous PE whose blood pressure normalized postpartum, there were no detrimental alterations in arterial health.

Conclusion

This is the first study to demonstrate the contribution of persistent HTN on worse arterial health following PE. Since measures of arterial health are associated with CV events in the population, women with PE-HTN may represent a higher risk subgroup who could benefit from targeted primary prevention strategies.