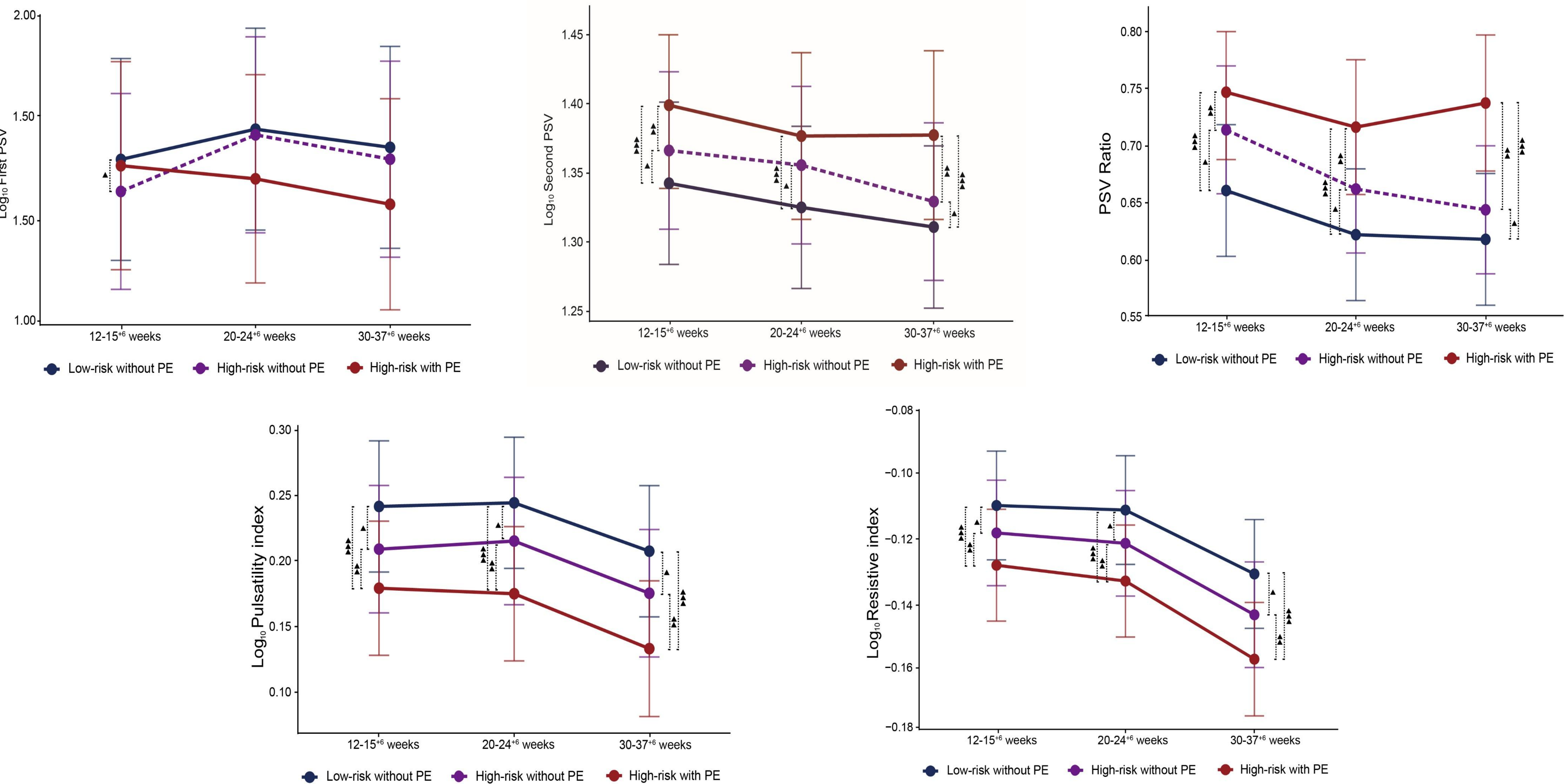


Longitudinal changes in maternal ophthalmic artery Doppler in high-risk pregnancies receiving aspirin for preeclampsia

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Temporal changes of OA Doppler parameters across gestation
P value < 0.05: triangle denotes low risk without PE vs high risk without PE; double triangles denote high risk without PE vs high-risk with PE; triple triangles denote low risk vs high risk with PE.

Introduction

To evaluate longitudinal changes in maternal ophthalmic artery (OA) Doppler hemodynamics throughout pregnancy among women at high risk for preterm preeclampsia (PE) receiving aspirin prophylaxis, compared to low-risk controls without aspirin treatment.

Methods

This prospective longitudinal nested case-control study comprised 1,276 singleton pregnancies. Preterm PE risk was assessed using the Fetal Medicine Foundation first trimester triple test. OA Doppler parameters (1st and 2nd peak systolic velocity [PSV], PSV ratio [2nd PSV/1st PSV], pulsatility index [PI], and resistance index [RI]) were evaluated at 12–15⁺⁶, 20–24⁺⁶, and 30–37⁺⁶ weeks. Variables were transformed using log₁₀ to attain a Gaussian distribution. A linear mixed-effects analysis was performed to compare the longitudinal changes of these Doppler parameters across gestation between the study groups.

Results

The cohort consisted of 468 low-risk women without PE (LR), 662 high-risk women without PE (HR-noPE), and 76 high-risk women who developed PE (HR-PE). The LR group had significantly lower PSV ratio and log₁₀ 2nd PSV throughout pregnancy, but significantly higher log₁₀ PI and RI from early pregnancy and throughout gestation. Analysis at individual gestational time point showed that, compared with HR-noPE, those who developed PE had higher PSV ratio and lower log₁₀ PI and log₁₀ RI at all three time points, and higher log₁₀ 2nd PSV in early and late pregnancy.

Conclusion

Group differences suggested that OA Doppler parameters reflect maternal circulatory characteristics during pregnancy.