Changes in arterial stiffness and cardiac function: comparison between preeclampsia and normal pregnancy

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Objective. Preeclampsia (PE), a pregnancy-specific condition characterized by high blood pressure (BP), is associated with significant changes in arterial stiffness and cardiac function. In this study, we compared such changes between PE and normotensive pregnant women.

Materials and Methods. Between May 2019 and February 2022, pregnant women were enrolled in this study in a prospective manner. Echocardiography, pulse wave velocity (PWV), pulse wave analysis (PWA), and carotid artery ultrasound were evaluated for the entire study population. The PE group met the criteria for PE based on Williams Obstetrics 25th edition.

Results. Among 60 pregnant women, there were 35 in the PE group and 25 in the control group. Most PWV parameters and central BP indices were significantly higher in PE than in control patients. Among the PWA indicators, augmentation pressure and augmentation index were higher in PE than in control patients. LV mass index, E/septal E', and LA diameter were statistically significantly higher in PE patients than in controls. Circumferential strain of the carotid artery was higher in controls than in PE patients, while carotid distensibility was higher in the PE group.

Conclusions. PE was associated with increased arterial stiffness and decreased LV diastolic function. The severity of PE can vary, and the extent of changes in arterial stiffness and cardiac function depend on the individual patient. Regular monitoring of BP, arterial stiffness, and cardiac function is crucial in the management of PE to ensure the well-being of both the mother and the foetus.