Objective To assess the difference of arterial stiffness in prehypertensive subjects in comparison to normotensive subjects.

Methods Non-invasive ambulatory blood pressure monitoring and ultrasonography of carotid arteries were performed in 337 subjects with prehypertension and 338 normotensive subjects. Symmetric ambulatory arterial stiffness index and carotid artery compliance were calculated.

Results Symmetric ambulatory arterial stiffness index, ambulatory arterial stiffness index and common carotid artery intima-media thickness in prehypertensive subjects were higher and carotid artery compliance was lower than that in normotensive subjects. Both symmetric ambulatory arterial stiffness index and ambulatory arterial stiffness index positively related to common carotid artery intima-media thickness, and negatively correlated with carotid artery compliance in prehypertensives. After adjustment for covariates, the correlation remains persistent. Correlation was closer between symmetric ambulatory arterial stiffness index and common carotid artery intima-media thickness, carotid artery compliance than that between ambulatory arterial stiffness index and common carotid artery intima-media thickness, carotid artery compliance.

Conclusions Symmetric ambulatory arterial stiffness index, ambulatory arterial stiffness index and common carotid artery intima-media thickness values were higher, and carotid artery compliance value was lower in prehypertensive subjects than those in normotensive subjects. It is concluded that there is subclinical atherosclerosis in prehypertensives.