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THE ASSOCIATION BETWEEN VISIT-TO-VISIT BLOOD PRESSURE VARIABILITY AND SUBCLINICAL CAROTID ATHEROSCLEROSIS

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Purpose Recent study demonstrated that visit-to-visit variability in blood pressure was strong predictor of stroke. However, the role of visit-to-visit variability as a risk factor of subclinical atherosclerosis has not been well established. The authors aim to investigate whether and to what extent visit-to-visit variability in blood pressure is associated with subclinical carotid atherosclerosis after adjustment for traditional cardiovascular risk factors in Chinese population.

Methods The authors measured the levels of traditional risk factors including blood pressure among 1985 residents from Beijing community in 1992, 2002 and 2007, respectively. Visit-to-visit variability in blood pressure was expressed as SD and coefficient of variation (CV). Two carotid ultrasound examinations were conducted among 1245 subjects in 2002 and 2007. Finally, the authors analysed the association of visit-to-visit blood pressure variability with carotid intima-media thickness (IMT) and plaque among 1074 subjects.

Results The mean level of SD of systolic blood pressure (SBP) in patients with increased IMT was higher than that in subjects with normal IMT (12.2 ± 5.3 mm Hg vs 11.0 ± 5.2 mm Hg, $p=0.001$); the mean level of SD of SBP in patients with carotid plaque was higher than that in subjects without plaque (12.1 ± 5.3 mm Hg vs 11.3 ± 5.2 mm Hg, $p=0.02$). However, no significant differences in mean levels of CV of blood pressure were found between subjects with and without carotid atherosclerosis. Multivariable logistic regression analysis showed that, after adjustment for other traditional cardiovascular risk factors, the odds ratios of SD in systolic blood pressure for increased IMT and common carotid plaque was 1.04 (95% CI, 1.01 to 1.06; $p=0.005$) and 1.05 (95% CI, 1.01 to 1.09; $p=0.008$); the odds ratios of CV in systolic blood pressure for increased IMT and common carotid plaque was 1.05 (95% CI, 1.01 to 1.08; $p=0.01$) and 1.06 (95% CI, 1.01 to 1.12; $p=0.02$).

Conclusion Visit-to-visit variability in blood pressure was associated with subclinical carotid atherosclerosis, but this relationship was merely found between systolic blood pressure and common carotid artery.