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VASCULAR DISEASE

RELATIONSHIP BETWEEN AMBULATORY BLOOD PRESSURE VARIABLES AND AORTIC ARCH ATHEROSCLEROSIS

ACC Poster Contributions

Ernest N. Morial Convention Center, Hall F

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Session Title: Thoracic and Abdominal Aortic Diseases

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Background: The presence of atherosclerotic plaque in the aortic arch is an independent risk factor for ischemic stroke. Although high blood pressure (BP) measured in the doctor's office is known to be associated with aortic atherosclerosis, little is known on the association between ambulatory BP and aortic plaque. Our objective was to clarify the association of ambulatory BP variables with aortic atherosclerosis in a sample of the general population.

Methods: The study population consisted of 748 patients (mean age 70±9 years) participating in the Cardiovascular Abnormalities and Brain Lesions (CABL) study. BP was measured at the initial visit, and 24-hour ambulatory BP monitoring (ABPM) was performed on the same day. The presence of arch plaque was evaluated by 2D and 3D transthoracic echocardiography from a suprasternal view.

Results: In univariate analysis, age, smoking history, and all systolic BP variables (24-hour, daytime, and nighttime average) were associated with aortic arch atherosclerosis, whereas diastolic BP variables and a reduced nocturnal decline of both systolic and diastolic BP (non-dipping status) were not associated with atherosclerosis. In multivariate analysis adjusted for age, sex, smoking status and history of diabetes mellitus and hypercholesterolemia, only daytime systolic BP variability (expressed as the standard deviation of daytime systolic BP) was independently associated with aortic arch plaque (odds ratio 1.4 per 5 mmHg increase, 95% CI 1.058 to 1.815, p=0.02). Systolic nighttime variability, 24 hours mean systolic BP, daytime mean systolic BP and night time mean systolic BP were not associated with arch atherosclerosis.

Conclusions: Daytime systolic BP variability is independently associated with the presence of aortic arch atherosclerotic plaque. This finding may have important implications in gaining further insights into the mechanism of arch plaque formation.