INCREASED NT-PRO-BNP LEVELS IN PATIENTS WITH PERIPHERAL ARTERIAL DISEASE AND “STIFF” VESSELS

ACC Poster Contributions
Georgia World Congress Center, Hall B5
Sunday, March 14, 2010, 3:30 p.m.-4:30 p.m.

Session Title: Peripheral Arterial/Carotid Disease/Aortic Disease
Abstract Category: Peripheral Arterial/Carotid Disease/Aortic Disease
Presentation Number: 1108-331

Authors: Hayan Jouni, Jin Fan, Allison A. Ellington, Kent R. Bailey, Iftikhar J. Kullo, Division of Cardiovascular Diseases, Mayo Clinic, Rochester, MN

Background: Patients with peripheral arterial disease (PAD) have been reported to have higher circulating levels of N terminal pro-B-type natriuretic peptide (NT-pro-BNP) than controls. We hypothesized that among patients with PAD, those with non-compressible (“stiff”) vessels have greater hemodynamic stress (as manifested by higher NT-pro-BNP levels) than in patients without “stiff” vessels.

Methods: We studied 620 PAD cases (68±10 y) identified in the non-invasive vascular laboratory as having an ankle-brachial index (ABI) <0.9 at rest or after exercise (n= 511) or ABI >1.4 (“stiff” vessels; n= 109). Controls (n=102; 64±10 y) were patients referred for cardiovascular screening who had no evidence of PAD. Serum NT-pro-BNP levels were measured by immunoassay. Multivariable regression analyses were used to identify independent predictors of NT-pro-BNP levels in PAD patients from among age, sex, conventional risk factors, history of coronary heart disease (CHD) or stroke, and serum creatinine. Next, we investigated, within the PAD group, whether NT pro-BNP levels differed between patients with “stiff” vessels and those without “stiff” vessels.

Results: Patients with PAD had significantly higher NT-pro-BNP levels (pg/mL) than controls [median (interquartiles) 176 (68, 543) vs. 47 (29, 84), P <0.001]. The difference remained significant (P <0.001) after adjustment for variables associated with higher NT-pro-BNP levels in PAD patients - greater age, hypertension, higher systolic BP, history of CHD or cerebrovascular disease, higher creatinine, lower total cholesterol, statin use, and diabetes. Within the PAD group, those with “stiff” vessels had significantly higher levels of NT-pro-BNP (pg/mL) than those with ABI <0.9 [533 (140, 1456) vs. 149 (64, 403), P<0.001]. This difference remained significant after adjustment for the variables listed above (P <0.001).

Conclusion: Patients with PAD have significantly higher NT-pro-BNP levels than control subjects. Within the subset of PAD, those with “stiff” vessels have higher levels than those without “stiff” vessels. These findings suggest increased hemodynamic stress in patients with PAD, particularly in the subset with “stiff” vessels.