SERUM N-TERMINAL PRO-B-TYPE NATRIURETIC PEPTIDE LEVELS ARE ASSOCIATED WITH WALKING CAPACITY IN PATIENTS WITH PERIPHERAL ARTERIAL DISEASE

ACC Poster Contributions
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Background: We hypothesized that higher levels of serum N-terminal pro-B-type Natriuretic Peptide (NT-pro-BNP) would be associated with lower walking capacity in patients with peripheral arterial disease (PAD).

Methods: We studied 442 PAD patients who walked on the treadmill as part of outpatient non-invasive lower extremity arterial evaluation. PAD was defined as ankle-brachial index (ABI) <0.9 at rest or after exercise. Patients with severe PAD (ABI<0.5) or "stiff" vessels (ABI>1.4) did not walk on the treadmill and were excluded from the analyses. Walking capacity was estimated in terms of distance covered in 5 min on a fixed-grade treadmill at a speed of 1.0-2.0 mph. Serum levels of NT-pro-BNP were measured by an electro-chemiluminescence immunoassay and were log transformed because of skewed distribution. Patients who completed 5 min on the treadmill were “right-censored”, and therefore the association of NT-pro-BNP levels with walking distance was assessed in multivariable Cox proportional hazards regression analyses.

Results: The mean age of patients was 67±10 years, 66% were male and the median (interquartile range) level of NT-pro-BNP was 146 (62 - 348) pg/ml. Significant (Spearman) correlation was observed between NT-pro-BNP levels and walking distance (r= -0.184, P <0.0001). Cox regression analyses that adjusted for age, sex, body mass index, smoking status, hypertension, diabetes, coronary heart disease/cerebrovascular disease, and resting ABI, revealed that a greater log NT-pro-BNP level was independently associated with the likelihood of stopping during the treadmill walk and therefore with lower walking distance (hazard ratio 1.19; 95% CI (1.05-1.34), P=0.005). Other predictors of earlier stopping/lower walking distance were greater age (P=0.020), female sex (P <0.001), and greater BMI (P <0.001).

Conclusion: Increased NT-pro-BNP levels are independently associated with lower walking capacity in patients with mild to moderate PAD and may be a marker of hemodynamic stress in these patients.