

 HYPERTENSION, LIPIDS AND PREVENTION

**ASSOCIATION BETWEEN LARGE AND SMALL ARTERY ELASTICITY AND NT-PRO B-TYPE NATRIURETIC PEPTIDE: RESULTS OF THE MULTI-ETHNIC STUDY FOR ATHEROSCLEROSIS**

ACC Poster Contributions  
 Georgia World Congress Center, Hall B5  
 Tuesday, March 16, 2010, 9:30 a.m.-10:30 a.m.

Session Title: Hypertension and obesity  
 Abstract Category: Hypertension  
 Presentation Number: 1242-118

Authors: *Daniel A. Duprez, David Jacobs, Jr, David Bluemke, Joao Lima, Hossein Bahrami, Carmen Peralta, Michael Criqui, Lori Daniels, Alan Maisel, University of Minnesota, Minneapolis, MN*

**Background:** Large (LAE) and small artery (SAE) elasticity are predictive of heart failure (HF) events beyond blood pressure (BP). NT-proB-type Natriuretic Peptide (NT-proBNP) is an early diagnostic marker for HF. The association of arterial elasticity and NT-proBNP is unknown in asymptomatic subjects. We studied the association of LAE and SAE and NT-proBNP in the MESA study cohort.

**Methods:** 5,223 women and men of white, African American, Hispanic and Chinese ethnicity, aged 45-84 years and free of overt CVD were recruited in 6 US communities. Pulse wave contour registration at the radial artery was performed in all subjects using radial tonometry. LAE and SAE were derived from diastolic pulse contour analysis. At the same time a venous blood sample was collected for analysis of NT-proBNP. Left ventricular mass (LVM) was calculated from MRI measurements.

**Results:** NT-proBNP had median 54 (IQR, 24- 110) pg/mL. Table 1 presents the slope ( $\beta$ ) in LAE, SAE each regressed on ln(NT-proBNP) in 3 models: 1) unadjusted, 2) adjusted for age, site, race, gender, height, BP, heart rate, BMI, BP, lipids, BP and lipid lowering medication, smoking, diabetes and 3) further adjusted for LV mass.

**Conclusions:** In asymptomatic subjects free of overt CVD, NT-proBNP is inversely associated with both LAE and SAE. These associations are partly reflective of larger LV mass, consistent with the idea that stiffer arteries contribute to elevated NT-proBNP and left ventricular dysfunction.

Table 1

	Unadjusted (n=5223)		Adjusted (n=4886)		Further adjusted for LV mass (n=3635)	
	$\beta$	P-value	$\beta$	P-value	$\beta$	P-value
LAE	-3.0	0.04	-5.5	<0.0001	-3.3	0.04
SAE	-6.8	<0.0001	-4.8	0.009	-3.4	0.05