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## Vascular Medicine

### CAROTID ADVENTITIAL NEOVASCULARIZATION AND INTIMA-MEDIA THICKNESS AS MARKERS OF ATHEROGENESIS: EVIDENCE FROM TWO RANDOMIZED CONTROLLED TRIALS

Moderated Poster Contributions

Poster Sessions, Expo North

Saturday, March 09, 2013, 3:45 p.m.-4:30 p.m.

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Session Title: Classic and Novel Cardiovascular Risk Predictors and Impact

Abstract Category: 35. Vascular Medicine: Non Coronary Arterial Disease

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**Background:** Arterial adventitial vasa vasorum (VV) constitute an index of neovascularization, a critical process in atherogenesis. Therefore, we sought to determine factors associated with quantitative measures of carotid VV.

**Method:** We analyzed data from 324 diabetics and 141 non-diabetics who prospectively underwent in vivo contrast enhanced ultrasonography (CEUS) imaging for the assessment of carotid adventitial neovascularization (VV) ratio and intima-media thickness (CIMT). Adjusted multivariable linear models were used to evaluate the relationship between baseline covariates and VV ratio and CIMT.

**Results:** There was no difference in age between non-diabetics and diabetics (59.8 vs 59.3,  $p = 0.525$ ). The diabetics had mean hemoglobin A1C of  $7.44 \pm 0.99$ . The median CIMT (in mm) was  $0.82 \pm 0.22$  among non-diabetics and  $1.06 \pm 0.19$  among diabetics ( $p < 0.0001$ ). The median VV ratio was higher in diabetics than non-diabetics ( $1.21 \pm 0.26$  vs.  $0.80 \pm 0.19$ ,  $p < 0.0001$ ). The mean LDL cholesterol was higher among non-diabetics than diabetics ( $139 \pm 30$  vs.  $107 \pm 31$ ,  $p < 0.0001$ ), likely because statin use was higher among diabetics (55% vs. 15%,  $p < 0.0001$ ). Diabetic status was associated with almost 40% higher VV ratio (95% CI 0.243 to 0.480,  $p < 0.001$ ) whereas a unit increase in body mass index was associated with a 0.9% higher VV ratio (95% CI 0.005 to 0.014,  $p < 0.001$ ). A ten-year increase in age was associated with 4% higher CIMT (95% CI 0.001 to 0.007,  $p = 0.005$ ). A ten-unit increase in systolic blood pressure was associated with 2% higher CIMT (95% CI 0.001 to 0.004,  $p = 0.003$ ) whereas diabetic status increased CIMT by 31% (95% CI 0.191 to 0.421,  $p < 0.001$ ). Female sex was associated with 9% (95% CI -0.129 to -0.041,  $p < 0.001$ ) lower CIMT. Lipids, blood pressure, and CIMT were not significantly associated with VV ratio in this population.

**Conclusions:** Both neovascularization and CIMT were strongly associated with diabetes. VV ratio and CIMT were not associated with each other in this cohort of patients with minimal carotid atherosclerosis mostly driven by diabetes. The data suggest that the VV ratio is a distinct and strong marker of atherogenesis in cardiovascular patients, and has potential application for risk stratification.