Abstract: **P2538**

**Arterial stiffness and remodeling from large to small arteries in patients with spontaneous coronary artery dissection: evidence for a systemic subclinical involvement**

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Background and aim: spontaneous coronary artery dissection (SCAD) is a major cause of acute coronary syndrome in women aged 50 years or less (22-43%). Its etiology is still unknown, though an association with systemic diseases such as fibromuscular dysplasia and collagenopathies has been found. This study is aimed at investigating the presence of subclinical structural and functional alterations in extracoronary districts in SCAD patients.

Methods: The design was a case-control study. Carotid, radial and digital arteries were scanned by standard or ultrahigh frequency ultrasound; clips were analyzed by automated image analysis software for diameter, intima-media thickness (IMT) and local distensibility. Applanation tonometry was used to obtain carotid-femoral pulse wave velocity, a measure of regional, aortic stiffness, and carotid pressure waveform.

Results: 30 patients previously diagnosed with SCAD (27 women, age 51±10years, 8 treated hypertensives, 4 smokers, mean BP 83±11mmHg, BMI 25±5kg/mq) and 30 controls, matched for age, sex and CV risk factors by propensity score, were enrolled. 18 SCAD patients underwent PTCA and 6 had a diagnosis of extracoronary fibromuscular dysplasia. In the left radial artery, wall thickness, cross-sectional area (2.96±1.07 vs 1.79±1.41mm², p=0.008), and wall inhomogeneity were increased, especially in the outer layer, whereas diameter, wall/lumen ratio and distensibility were comparable to controls. In the left common carotid artery, an increased carotid stiffness was shown in SCAD (5.99±0.89 m/s vs 5.6±0.85, 0.03), while IMT tended to be increased bilaterally (0.63±0.12 vs 0.59±0.10mm, p=0.08). Aortic stiffness was similar in the two groups (7.0±1.9 vs 6.7±1.7m/s, p=0.60). Carotid (20.4±14.2 vs 11.9±15.0%, p=0.03), but not aortic augmentation index, was increased bilaterally.

Conclusions: SCAD patients showed a peculiar pattern of alterations in vascular remodeling and stiffness in extracoronary arterial segments such as the carotid and radial arteries, supporting the hypothesis that a systemic susceptibility is present even in the absence of systemic diseases.