P.003: FUNCTIONAL AND STRUCTURAL VASCULAR BED PROPERTIES IN YOUNG WOMEN WITH POLYCYSTIC OVARY SYNDROME AND NORMAL LIPIDEMIC, GLYCEMIC AND BLOOD PRESSURE PROFILE


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and collagen have not only passive elastic or rigid properties, but also are implicated in the control of SMC function. In animal models of essential hypertension (SHR and SHR-SP), the structural modifications of the arterial wall include a higher number of elastin/SMC connections, and smaller fenestrations of the internal elastic lamina, which could redistribute the mechanical load towards elastic materials. Thus, the changes in arterial wall material which accompany wall hypertrophy in these animals are not associated with an increased stiffness. Taken together, these data afford strong arguments to consider that arterial stiffness is not only influenced by the amount and density of stiff wall material, but mainly by its spatial organization.

### Poster Presentations

**P.001 ASSOCIATION OF BETA-TALASSEMIA MAJOR WITH IMPAIRED ENDOTHELIAL FUNCTION AND INCREASED LEVELS INFLAMMATION MARKERS**

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**Objective:** We examined endothelial function and serum levels of inflammatory mediators in transfusion-dependent patients with beta-thalassemia major (BTM).

**Methods:** The study population consisted of 85 patients with BTM (age: 25.0 ± 6.0) with normal left ventricular function and 71 healthy age- and sex-matched controls. Forearm blood flow was measured with gauge-strain plethysmography. Forearm vasodilatory response to reactive hyperemia (RHI) or to nitrate (NTGx) was assessed. Serum levels of interleukin 6 (IL-6), soluble adhesion molecule (sICAM-1) and soluble intercellular adhesion molecule (sICAM-1) were determined with ELISA.

**Results:** Patients had significantly lower levels of total cholesterol (124 ± 4.5 vs. 208 ± 7 mg/dl, p < 0.01), ApoA1 (122 ± 3 vs. 129 ± 4 mg/dl, p < 0.05), ApoB (62 ± 3 vs. 97 ± 4 mg/dl, p < 0.01) and Lp(a) (8.1 ± 1.4 vs. 15.5 ± 4 mg/dl, p < 0.01) than controls. IL-6 levels were significantly higher in patients (3.1 ± 0.31 pg/ml) than controls (1.14 ± 0.16 pg/ml, p < 0.01). Similarly, sVCAM-1 and sICAM-1 levels were significantly higher in patients (515.3 ± 30 and 362.2 ± 24 ng/ml, respectively) than controls (331.1 ± 12.6 and 268.1 ± 13.5 ng/ml, p < 0.01 for both). Maximum hyperemic forearm blood flow and RHI were lower in patients (7.0 ± 0.4 ml/100 ml tissue/min and 48 ± 2.5%, respectively) than controls (8.6 ± 0.2 ml/100 ml tissue/min and 88.5 ± 5.4%, respectively, p < 0.01 for both).

**Conclusions:** BTM is associated with impaired endothelial function and increased levels of IL-6, sVCAM-1 and sICAM-1, suggesting a potential role of inflammation and endothelial dysfunction in the cardiovascular complications of the disease. These observations concerned subjects with normal left ventricular ejection fraction, which implies an early implication of these observations concerned subjects with normal left ventricular function.

**P.002 VASCULAR BED PROPERTIES IN MULTISYSTEMIC LÄNGERHANS-CELL HISTIOCYTOSIS**

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**Introduction:** Langerhans-cell histiocytosis (LCH) is a rare disorder that combines features of carcinogenesis and chronic inflammation with specific predilection for the Lymphohematopoietic-Pituitary system. Chronic inflammation, insulin resistance (IR) and hypopituitarism have been associated with increased cardiovascular disease risk. The purpose of this study was to investigate structural and functional vascular properties in treated patients with multisystemic LCH and their associations with inflammation markers and insulin resistance indices.

**Methods:** We studied 8 patients with multisystem LCH (age: 38.38 ± 4.49 yrs; BMI: 25.99 ± 1.26 kg/m²) and 24 controls (age: 37.92 ± 2.50 yrs; BMI: 25.03 ± 0.80 yrs) matched for sex, age and BMI. Structural properties were assessed by intima media thickness estimation in common carotid artery and collagen, respectively, p < 0.01 for both).

**P.003 FUNCTIONAL AND STRUCTURAL VASCULAR BED PROPERTIES IN WOMEN WITH POLYCYSTIC OVARY SYNDROME AND NORMAL LIPIDEMIC, GLYCEMIC AND BLOOD PRESSURE PROFILE**

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**Introduction:** Cardiovascular risk factors and endothelial dysfunction have been shown to be present early in life in women with Polycystic Ovary Syndrome (PCOS). The aim of the present study was a global assessment of abnormalities in the arterial bed of young women with PCOS and normal profile of glycaemia, lipidemia and blood pressure by non-invasive, reproducible methods.

**Methods:** 27 women with PCOS (age: 25.41 ± 0.80 years; BMI: 27.42 ± 1.12 kg/m²) and 27 control women (age: 27.33 ± 0.83 years; BMI: 25.05 ± 1.19 kg/m²) of comparable age, body mass index and waist-to-hip ratio were studied. Macrovascular function was assessed by flow-mediated dilatation (FMD) on the brachial artery. Nitrates-induced dilatation (NID) was applied to exclude smooth muscle cells injury. Microvascular function was assessed by venous occlusion plethysmography studying forearm blood flow. Arterial structure was evaluated by ultrasonographic assessment of intima-media thickness (IMT) of the central arterial bed.

**Results:** FMD values were lower in women with PCOS compared to controls (PCOS: 3.84 ± 0.74% vs. controls: 9.83 ± 0.97%, p < 0.001), but no difference was observed in NID (PCOS: 16.59 ± 1.84% vs. controls: 16.64 ± 2.05%, p = 0.98). The time required for reactive hyperemia to reach peak value, a plethysmography parameter, was longer in PCOS women (PCOS: 20.63 ± 4.67 vs. controls: 10.38 ± 5.11 s, p = 0.02). No difference was observed in the combined IMT among the studied groups (PCOS: 0.49 ± 0.01 mm controls: 0.51 ± 0.02 mm, p = 0.19).

**Conclusions:** Using non invasive methodologies endothelial dysfunction in the macrocirculation and evidence of early impairment in the microcirculation were demonstrated in young women with PCOS who had normal profile of glycaemia, lipidemia and blood pressure, without evidence of structural arterial impairment.

**P.004 HABITUAL CHOCOLATE CONSUMPTION IS ASSOCIATED WITH IMPROVED ARTERIAL ELASTIC PROPERTIES AND CENTRAL ARTERIAL PRESSURES**

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**Introduction:** Flavanoid-rich chocolate has been shown to improve endothelial performance, but its impact on blood pressure (BP) is inconsistent. The effect of habitual chocolate consumption on arterial elastic properties and central (aortic) hemodynamics, which are important predictors of cardiovascular risk, has not been investigated.