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P2.11: ASSESSING VENTRICULAR-VASCULAR INTERACTIONS IN GIRLS WITH TURNER SYNDROME: A PILOT STUDY

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P2.08

INTERRELATIONSHIPS BETWEEN METABOLIC SYNDROME, ERECTILE DYSFUNCTION AND EARLY ATHEROSCLEROSIS

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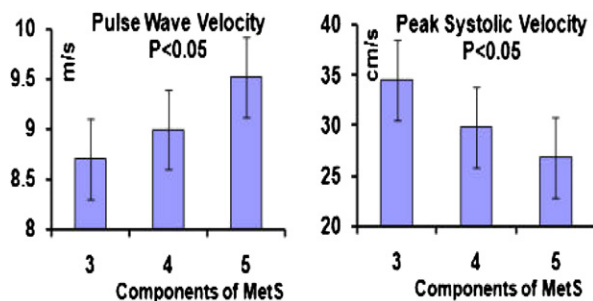
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Purpose: Men with metabolic syndrome (MetS) have an increased prevalence of erectile dysfunction (ED). Large artery stiffness is a marker of vascular wall changes associated with MetS. Aim of the study was to investigate associations between MetS, ED and changes in large artery properties.

Methods: 179 consecutive men with ED were evaluated for penile vascular disease severity by Doppler ultrasonography. Lower Doppler velocities indicate impaired arterial function and vice versa. A mean PSV below 25 cm/sec was considered to indicate severe arterial insufficiency (SAI). Large artery stiffness was evaluated with carotid-femoral pulse wave velocity (PWV) using high-fidelity pulse wave analysis.

Results: Patients with SAI (n = 56) compared to patients with non arteriogenic ED (PSV > 25 cm/s, n = 123) had increased prevalence of MetS (49 vs. 32 % respectively, $P < 0.05$), whereas the 2 groups did not differ regarding age and smoking. Logistic regression analysis for MetS components revealed that blood pressure (OR 7.9, 95%CI, 2.1-30.1, $P < 0.001$) and waist circumference (OR 5.1, 95% CI 1.7- 15.1, $P < 0.01$) were independent determinants of SAI after adjustment for confounders. PWV increased and PSV decreased as the number of MetS components increased (figure).

Conclusions: MetS is strongly associated with increased penile vascular damage and impaired large artery elastic properties. Our findings suggest the presence of a common pathophysiologic pathway and provide a possible marker of risk for cardiovascular disease in men with MetS and ED.



P2.09

INCREASED CAROTID INTIMA MEDIA THICKNESS AND WAVE REFLECTION IN PATIENTS WITH INTRACRANIAL ANEURYSMS

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Background: whether or not the presence of intracranial aneurysms (IAs) is associated with alterations in systemic arteries is not known.

Aim of the study was to evaluate morphology and distensibility of common carotid artery (CCA) in patients with IAs and in a control group of comparable age, gender and blood pressure (BP).

Methods: twenty-eight IAs patients (19 women, mean age 55 ± 12.2) and 27 control subjects (15 women, mean age 50 ± 7.7) were studied. Vascular ultrasound implemented with arterial wall tracking (Aloka Alpha 10 Tokyo, Japan) was used to investigate elastic and structural properties of CCA. Indices of arterial stiffness and wave reflection (pressure independent index β , arterial compliance (AC) and Augmentation Index (Alx)) were obtained after calibration for BP. Mean CCA diameter was derived averaging systolic and diastolic values over ten cardiac cycle, while Intima Media Thickness (IMT) was measured according to the Mannheim consensus.

Results: a significantly higher Alx was observed in patients with IAs (16.84 ± 13.2 vs $11.1 \pm 9.6\%$, $p < 0.05$), while β didn't differ between groups (9.08 ± 4 vs

8.77 ± 3.07). IAs patients showed a higher IMT than controls (0.77 ± 0.23 vs 0.61 ± 0.12 , $p < 0.01$) without difference in diameter (7.55 ± 0.9 vs 7.4 ± 0.7 mm). IMT correlated directly ($p < 0.05$) with β ($r = 0.37$), AC ($r = 0.38$) and Alx ($r = 0.32$) in IAs patients but not in controls.

Conclusions: IAs patients show an increased IMT independent of age, BP and gender, which is related to increased wave reflection and arterial stiffness. This finding suggests an underlying systemic arterial involvement in patients prone to IAs.

P2.10

METABOLIC SYNDROME DOES NOT HAVE AN INDEPENDENT IMPACT ON ULTRASOUND INDICES OF PRECLINICAL CARDIOVASCULAR DISEASE

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Background: whether metabolic syndrome (MetS) has an independent impact on development of cardiovascular (CV) disease is uncertain.

Aim: to evaluate indices of preclinical CV disease in subjects with MetS.

Methods: we studied 160 subjects: 50 with MetS (ATP III criteria, age 49 ± 12 , BMI 36 ± 7 , 12 diabetics) and 110 healthy age-matched controls (NL: 59 males, age 47 ± 9 , BMI 28 ± 6). Left ventricular (LV) mass and function were assessed by echocardiography, and common carotid artery (CCA) stiffness (b index, pressure-strain elastic modulus EP, and local wave speed WS) by wall tracking (Aloka SSD-5500).

Results: MetS+ showed higher ($p < 0.01$) EP (138 ± 62 vs 110 ± 40 kPa), β (9.5 ± 3.8 vs 8.2 ± 2.3), WS (7 ± 1.5 vs 6 ± 1.1 cm/s), cardiac index (3.2 ± 0.7 vs 2.8 ± 0.5 l/min/m²), and LV mass index (LVMI) (102 ± 24 vs 88 ± 21 g/m²), and lower peripheral resistance (TPR: 0.016 ± 0.004 vs 0.018 ± 0.004 dyne/s/cm⁵, $p < 0.05$) than NL. In multivariate analysis (dependent variable WS and independent variables age, sex, SBP, DBP, waist circumference, BMI, triglyceride, HDL-cholesterol and blood glucose levels), the main independent correlated of WS were age and SBP (adjusted $r^2 = 0.53$, $p < 0.01$), while male gender and waist were predictors of LVM (adjusted $r^2 = 0.56$, $p < 0.01$).

Conclusions: in subjects without clinical CV disease and various clustering of risk factors, MetS does not seem to represent an independent predictor of preclinical CV involvement. Large artery stiffness appears mainly related to age and BP, and LVM by body size.

P2.11

ASSESSING VENTRICULAR-VASCULAR INTERACTIONS IN GIRLS WITH TURNER SYNDROME: A PILOT STUDY

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Objectives: Women with Turner Syndrome (TS) have increased incidence of cardiovascular disease, thought to be related to a clustering of risk factors including insulin resistance, hypertension, obesity and dyslipidemia. The aim of this study was to non-invasively determine and compare ventricular and vascular function in girls with TS to healthy controls.

Methods: Ventricular assessment included standard echocardiographic M-mode and 2-D volumetric techniques, plus Doppler tissue velocities. Vascular assessment included applanation tonometry, carotid ultrasound, echo-Doppler of the aorta and brachial artery reactivity. Between groups comparisons were performed using parametric methods with p-values > 0.05 considered significant.

Results: Seventeen girls with TS without significant congenital heart disease and 17 healthy age-matched girls (8-18 years) were studied. Heights and weights were similar, but BMI increased in TS, suggesting increased weight-for-height, as expected. Resting heart rates and peripheral and derived central systolic and diastolic blood pressures were increased in TS. Carotid distensibility was decreased in TS, but derived augmentation index, carotid-femoral pulse wave velocity, aortic dimensions and echo-Doppler measures of aortic stiffness and vascular impedance, and flow-mediated dilation assessment of endothelial function, were all similar. Left ventricular systolic function by M-mode and two-dimensional volumetric assessment and myocardial performance index by Doppler were similar, but increased E/E' ratios suggestive of increased ventricular filling pressures were found in TS.

Conclusions: Elevated resting heart rates and blood pressures, decreased carotid distensibility and suggestion of increased ventricular filling pressures in girls with TS, may be playing a role in future increased risk of cardiovascular disease and warrant further investigation.