



## Artery Research

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### **P.041: ARTERIAL STIFFNESS MAY BE DETERMINED BY ASYMMETRIC DIMETHYLARGININE (ADMA)**

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stable angina pectoris (AP) and influence of abnormal glucose metabolism (AGM) and percutaneous transluminal coronary angioplasty (PTCA) on this parameter.

**Methods:** Blood samples were taken from 54 persons (mean age  $54.3 \pm 1.0$  years): 36 patients with AP (16 with AGM, 20 without) and 18 controls. CD34+ cells were measured by flow-cytometric analysis. Besides, CPCs numbers were estimated in patients without AGM undergoing coronary angioplasty on the 1<sup>st</sup> day and the 3<sup>rd</sup>-5<sup>th</sup> day after the procedure.

**Results:** All patients with AP had reduced numbers of CPCs by 29% in comparison to control subjects ( $p=0.01$ ). The group of patients with AGM displayed a tendency to greater decrease in CPCs' count than group without ( $p=ns$ ). On the 1<sup>st</sup> day after PTCA we observed significant reduction of CPCs number in comparison to this parameter before the procedure ( $p=0.03$ ). On the 3<sup>rd</sup>-5<sup>th</sup> day after coronary intervention the number of CPCs increased (insignificantly) as compared to the 1<sup>st</sup> day after PTCA but did not reach the level observed before the procedure. No significant difference was found between CPCs numbers on the 1<sup>st</sup> day after PTCA and this parameter in patients with AP and concomitant AGM ( $p=ns$ ).

**Conclusions:** AP was associated with CPCs reduction, especially in patients with concomitant AGM. Coronary intervention also led to significant decrease in CPCs' count. The influence of AGM and PTCA on CPCs level was similar. These findings suggest a possible use of CPCs as a new diagnostic marker and therapeutic target for AP treatment.

#### P.040

##### ASSOCIATION OF ARTERIAL STIFFNESS, CAROTID INTIMA-MEDIA THICKNESS, CAROTID PLAQUES AND FLOW-MEDIATED DILATATION WITH METABOLIC SYNDROME

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**Purpose:** The purpose was to investigate whether the metabolic syndrome was associated with measures of arterial stiffness, flow mediated dilatation (FMD), carotid intima-media thickness (IMT) and carotid plaques (CP) in middle-aged subjects without and with MetS.

**Methods:** 186 asymptomatic volunteers (40-65 years old, 86 males) without clinically overt cardiovascular disease were examined. MetS was defined according to the International Diabetes Federation consensus. The prevalence of MetS was 32.8%. Augmentation index (Alx) and carotid-radial pulse wave velocity (PWV) as measures of arterial stiffness were assessed by applanation tonometry. FMD as the measure of endothelial function was determined using high resolution B-mode ultrasonography. IMT and CP were assessed by high resolution B-mode ultrasonography.

**Results:** PWV was significantly elevated in the MetS group ( $9.20 \pm 1.08$  vs.  $23.30 \pm 1.02$ ,  $P = 0.003$ ). FMD was significantly lower in the MetS group ( $5.32$  vs.  $6.45\%$ ,  $P = 0.018$ ). There was no statistically significant difference in Alx between patients with and without MetS ( $23.97 \pm 8.08$  vs.  $23.30 \pm 9.75$ ,  $P = 0.248$ ). The presence of MetS was significant ( $P = 0.005$ ) when predicting values of PWV but not FMD. IMT was higher in the MetS group ( $0.08$  [ $0.07-0.1$ ] vs  $0.07$  [ $0.06-0.08$ ]  $P < 0.001$ ). The MetS was a significant predictor of the presence of carotid plaques (OR = 0.341, 95% CI [ $0.173-0.673$ ],  $P = 0.002$ ).

**Conclusions:** Metabolic syndrome is associated with increased arterial stiffness, decreased flow mediated dilatation, increased carotid intima-media thickening and with the presence of carotid plaques.

#### P.041

##### ARTERIAL STIFFNESS MAY BE DETERMINED BY ASYMMETRIC DIMETHYLARGININE (ADMA)

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**Background:** Arterial stiffness is an independent determinant of cardiovascular outcome. However, the factors regulating arterial stiffness remain unclear. Endothelial nitric oxide may partly regulate arterial stiffness. We hypothesized that asymmetric dimethylarginine (ADMA) an endogenous inhibitor of nitric oxide synthase would correlate with arterial stiffness.

**Methods:** The Caerphilly Prospective Study (CaPS) is a longitudinal cohort study of a representative sample of 2512 men aged 49 to 59 years in Wales. In a subset of 850 men (mean age 73 years) we assessed arterial stiffness (aortic pulse wave velocity, PWV) and wave reflections (augmentation index, Alx). ADMA measurements were made on a subsample of 250 men from the top and bottom of the age-adjusted PWV distribution by ELISA (DL Diagnostika).

**Results:** The mean and median PWV was 11.8 and 11.6 m/s (SD 3.8 m/s), mean Alx 30.6% (SD 7.5%) and mean and median ADMA was 1.2  $\mu\text{mol/l}$  and 0.89  $\mu\text{mol/l}$  (IQR 0.69, 1.78  $\mu\text{mol/l}$ ). There was a positive dose-response association between PWV and ADMA values after adjustment for GFR, heart rate, mean arterial pressure and age. The geometric mean PWV values were 10.9 m/s, 11.4 m/s and 11.8 m/s per tertile of ADMA ( $p$ -value for trend = 0.04). There was no association between ADMA and Alx ( $p$ -value for trend = 0.91).

**Conclusion:** This study shows that ADMA levels are greater amongst subjects with an elevated PWV. As this study is cross-sectional, we cannot be sure whether inhibition of nitric oxide synthase leads to arterial stiffening or vice versa. Future prospective studies are required.

#### P.042

##### NOT ONLY DIABETES MELLITUS, BUT ALSO IMPAIRED GLUCOSE TOLERANCE IS ASSOCIATED WITH ERECTILE DYSFUNCTION IN HYPERTENSIVE PATIENTS

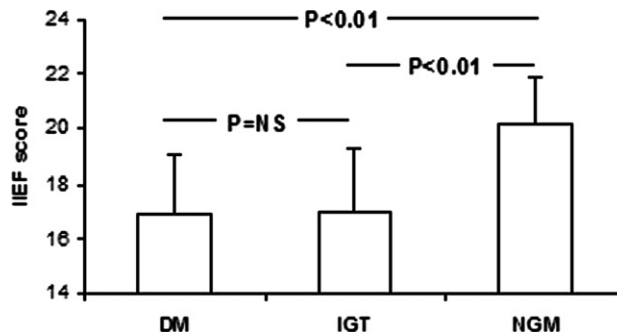
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**Introduction:** Erectile dysfunction may be an early sign of atherosclerosis. The incidence of erectile dysfunction is increased in patients with cardiovascular risk factors, such as hypertension and diabetes mellitus. However, the effect of glucose metabolism on the incidence of erectile dysfunction in hypertensive subjects has not been defined.

**Methods:** We studied 255 consecutive male subjects (age  $52 \pm 11$  years) with never-treated uncomplicated hypertension. The study population was divided into three groups according to glucose metabolism: i) type-II diabetes mellitus (DM) 13 patients, age  $58 \pm 13$  years, ii) impaired glucose tolerance (IGT) 51 patients, age  $55 \pm 10$  years, and iii) normal glucose metabolism (NGM) 191 patients, age  $50 \pm 11$  years. Erectile dysfunction diagnosis and score were evaluated according to the International Index of Erectile Function (IIEF) questionnaire.

**Results:** Patients with DM had decreased IIEF score compared to NGM patients ( $16.9 \pm 6.6$  vs.  $20.2 \pm 5.1$ ,  $p < 0.01$ ). Patients with IGT had also decreased IIEF score compared to NGM patients ( $17.0 \pm 6.9$  vs.  $20.2 \pm 5.1$ ,  $p < 0.01$ ). When patients with DM were compared to patients with IGT no difference was observed in IIEF score.

**Conclusions:** Not only diabetes mellitus, but also impaired glucose tolerance is associated with erectile dysfunction, i.e. an early sign of atherosclerosis, in hypertensives.



#### P.043

##### INFLUENCE OF CATECHOLAMINES ON ARTERIAL STIFFNESS IN PHEOCHROMOCYTOMA

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**Objective:** To evaluate the effect of long-term catecholamine overproduction in subjects with pheochromocytoma on arterial stiffness measured