P.021: RENAL INSUFFICIENCY IS ASSOCIATED WITH AUGMENTATION INDEX AND ENDOTHELIAL DYSFUNCTION

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The approach to imaging studies is therefore standardization so observational epidemiological and trial data become complementary. Moreover, image acquisition and administration using DICOM based trial specific application protocols, allow for regulatory compliant imaging procedures and quality assessment and quality control.

We address how and why this fascinating and elegant tool has widespread scientific and clinical applications in atherosclerosis research as well as its implications on cardiovascular disease prevention.

P.020 PLASMA HOMOCYSTEINE IS AN INDEPENDENT RISK FACTOR OF THE INCREASED INTIMA-MEDIA THICKNESS

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Background: Clinical studies showed the association of mild to moderate hyperhomocysteinemia not only with coronary artery disease (CAD), but also with stroke and peripheral artery disease.

The aim of study was to assess the relationship between intima media thickness (IMT) measured by B-mode ultrasound and conventional risks factors in families with premature CAD.

Methods: The study population consisted of 40 families with premature CAD. Totally n = 87 subjects were studied. Each family in the cohort has at least one affected sibling with premature CAD. Plasma level of homocysteine, IL-6 and serum lipid profile was measured. All conventional risk factors were analyzed. Carotid and femoral IMT was assessed by high-resolution B-mode ultrasonic imaging (GE, 13 MHz). The carotid and femoral IMT was scanned at the near wall 15-20 mm proximal to the tip of the flow divider into the common carotid or femoral artery.

Results: A total of 66.6% subjects had increased IMT (>0.9 cm). Plasma levels of homocysteine (10.29 ± 2.64 vs 8.58 ± 2.61, p = 0.006), IL-6 (3.76 ± 1.63 vs 2.30 ± 0.74, p = 0.05), arterial hypertension (56% vs 43%; p = 0.006) and waist circumference (98.3 ± 11.0 vs 91.40 ± 8.45, p = 0.044) were significantly higher in increased IMT group compared with normal IMT group. Logistic regression analysis of data detected that only homocysteine strongly (Exp(B) 1.3, CI 1.0–1.62) and independently predicts increased IMT (p = 0.015).

Conclusion: Theses data show that in families with premature CAD, elevated plasma homocysteine is an independent risk factor of the increased IMT.

P.021 RENAL INSUFFICIENCY IS ASSOCIATED WITH INCREASEDimentary INDEX AND ENDOTHELIAL DYSFUNCTION

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Background: Patients with mild or moderate chronic kidney disease (CKD) are know to have a significant increase in cardiovascular morbidity in which alterations in large artery as well as endothelial function may play a role. In the past study, we investigated the relationship between glomerular filtration rate (GFR), augmentation index and endothelial function.

Methods: Cross sectional study with healthy controls (CONT, n = 16), patients with essential hypertension (EH, n = 14), and those with essential hypertension and peripheral artery disease (EH-PAD, n = 26). The effect of postocclusive reactive hyperemia (PORH; 220 mmHg, 3 min, %) was measured on skin microcirculation with laser Doppler flowmetry (Perfluor 5051). Augmentation index (Alx, %) was evaluated with the newly developed TensioClinic Arteriograph instrument which registers the pulse wave curves with the oscillometric method and automatically calculates Alx. GFR was estimated by the Cofroot-Gault formula.

Results: PORH, Alx and GFR were significantly different in healthy controls (65.08%; 37.56%; 110.14 ml/min) compared to the different patient groups: EH (294.43%; 29.87%; 86.18 ml/min) and EH-PAD (196.81%; 7.75%; 56.15 ml/min). Subjects were divided into three groups based on their GFR: 1. GFR > 90; 2. 90 > GFR > 60; 3. 60 > GFR > 30. In the different groups of GFR a deterioration of PORH (1: 328.54%; 2: 278.67%; 3: 200.85%) and Alx (-58.3%; -2.73%; 8.80%) was observed (p < 0.05). Significant (p = 0.01) correlation was found between GFR and PORH (r = 0.50), and between GFR and Alx (r = -0.81).

Conclusions: Alx and PORH is associated with early renal function loss, suggesting that arterial stiffening and endothelial dysfunction may be involved in the vascular complications of CKD.