P5.11: PROXIMAL AORTIC REMODELING IS ASSOCIATED WITH LEFT VENTRICULAR MASS AND PULSE WAVE VELOCITY IN ESSENTIAL HYPERTENSION

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P5.10  
INFLUENCE OF OBESITY IN THE RELATIONSHIP BETWEEN CAROTID ARTERY FUNCTION AND CENTRAL BLOOD PRESSURE

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Background: Obesity blunts the association of cfPWV with BP, at least in youth. We assessed the impact of BMI in the relationship between carotid artery function (CAF) and central BP.

Methods: Stiffness index (β), Elastico modulus (Ep), Arterial Compliance (AC) and local PWV (PWVl) were measured at the common carotid arteries by echo-tracking (Aloka prosound alpha 10), and central BP was assessed with the SphygmoCor device. Patients were classified into 3 groups according to BMI (<25 normal weight; 25-30 overweight; >30 obesity). Linear regression models, Pearson’s correlation coefficient and ANCOVA models (age, gender, heart rate and central PP as covariates) were performed.

Results: 222 patients (mean age 42.8 ± 14.2 years; 93 (42%) women; mean BMI 26.1 ± 4.4; 139 (62.6%) hypertensives, 104 (74.8%) under treatment). BMI categories and gender were not significantly associated with CAF parameters, except for overweight with PWVl (p-value 0.02). There was no significant difference in β, Ep, AC and PWVl between BMI groups after adjusting by covariates. Pearson’s correlation coefficient between central SBP and CAF parameters was significantly lower if BMI <25 (β: 0.46, 0.19, 0.13; Ep: 0.69, 0.43, 0.3; AC: -0.48, -0.37, -0.31; PWVl: 0.66, 0.48, 0.36 for normal weight, overweight and obesity, respectively; p-value for overweight<-0.001, p-value for obesity<-0.05).

Conclusions: BMI categories are not closely related to CAF. BMI might blunt the increment of CAF parameters with rising central BP.

P5.11  
PROXIMAL AORTIC REMODELING IS ASSOCIATED WITH LEFT VENTRICULAR MASS AND PULSE WAVE VELOCITY IN ESSENTIAL HYPERTENSION

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Background: Hypertension accelerates vascular ageing, leading to aortic stiffening and dilatation. We have few data about ascending aorta diameter (AoAsc) remodeling in hypertension. Recently published reference values for AoAsc parameters, except for overweight with PWVl (p-value 0.02). There was no significant difference in β, Ep, AC and PWVl between BMI groups after adjusting by covariates. Pearson’s correlation coefficient between central SBP and CAF parameters was significantly lower if BMI <25 (β: 0.46, 0.19, 0.13; Ep: 0.69, 0.43, 0.3; AC: -0.48, -0.37, -0.31; PWVl: 0.66, 0.48, 0.36 for normal weight, overweight and obesity, respectively; p-value for overweight<-0.001, p-value for obesity<-0.05).

Conclusions: BMI categories are not closely related to CAF. BMI might blunt the increment of CAF parameters with rising central BP.

P5.12  
CAROTID-FEMORAL AND BRACHIAL PULSE WAVE VELOCITY IN PERIPHERAL ARTERIAL DISEASE

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Introduction: Peripheral arterial disease (PAD) is associated through its extensive atherosclerotic burden with both increased arterial stiffness and cardiovascular events. Recently, different non-invasive assessment devices that measure carotid-femoral or brachial pulse wave velocity (PWV) have become commercially available.

Aim: To compare PWV derived from carotid-femoral (cfPWV) or brachial (bPWV) assessments in patients with PAD.

Material and methods: Measurements of PWV with the different two non-invasive methods were performed as part of standard-of-care assessment in outpatients with PAD. Pulse wave velocities were assessed as bPWV by Mobil-O-Graph (ABPM by IEM; Stolberg, Germany), which is a brachial cuff-based method and as cfPWV by Vicorder (SMT Medical, Würzburg, Germany) an oscillometric technique for carotid and femoral pulse wave assessment. Differences between the two methods were compared by Mann Whitney U test and Bland Altman plot. Spearman rank correlation was performed to test for age dependency.

Results: In 667 Patients (58.5% female, mean age 69, range 39-91 years) bPWV (mean 10.5 ± 2.4 m/s) was significantly higher than cfPWV (mean 9.2 ± 2.1 m/s; p = 0.0013). Brachial PWV was related to age (r=-0.935, p=<0.0001) whereas cfPWV did not (r=-0.311, p=0.116). Bland Altman plot for bPWV and cfPWV resulted in a mean difference of -10.4 (+2 SD (4.31), -2 SD (-6.38)).

Conclusion: In patients with peripheral arterial disease, the gold standard assessment (cfPWV) differs from brachial PWV and lacks correlation with age. Aorto-femoral atherosclerotic burden may in part explain this finding since these arterial segments impact the difference in transit time in the femoral segment.