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

A. Casanova, G. Pichler, O. Juan, E. Solaz, J. Mas, F. Martinez


To link to this article: https://doi.org/10.1016/j.artres.2014.09.147

Published online: 7 December 2019
P5.10 INFLUENCE OF OBESEITY IN THE RELATIONSHIP BETWEEN CAROTID ARTERY FUNCTION AND CENTRAL BLOOD PRESSURE

A. Casanova, G. Pichler, O. Juan, E. Solaz, J. Mas, F. Martinez. Hospital Clinico Universitario, Valencia, Spain

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), Elastic modulus (Ep), Arterial Compliance (AC) and local PWV (PWVij) 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 26.6 ± 4.4; 139 (62.6%) hypertensives, 104 (74.8%) under treatment). BMI categories: 85 (38.3%) normal weight, 88 (39.6) overweight, 49 (22.1%) obesity. Age, HR, central BP showed significant positive association with CAF parameters. BMI categories and gender were not significantly associated with CAF parameters, except for overweight with PWVij (p-value 0.02).

There was no significant difference in β, Ep, AC and PWVij 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: 0.46, -0.37, -0.31; PWVij: 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

F. Tosello, D. Leone, G. Bruno, A. Ravera, L. Sabia, F. Veglio, A. Milan. University of Turin, Turin, Italy

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 enable us to evaluate the remodeling process.

Aim of our study was to evaluate in a cohort of essential hypertensives the association between AoAsc remodeling and markers of hypertension related to both cardiac and vascular (cfPWV) damage: AoAsc remodeling could be a marker of early vascular ageing, carrying a potential prognostic value 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 two different 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, Wurzburg, 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 67 Patients (35.8% 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.

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

M. Frick *, V. Jacomella *, S. Roth *, I. Wilkinson ††, B. Amann-Vesti*, M. Hushima *

*University Hospital Zurich, Zurich, Switzerland ††University of Cambridge, Cambridge, UK

Introduction: Peripheral arterial disease (PAD) is associated through its extensive atherosclerotic burden with both increased arterial stiffness and

P5.14 IMPACT OF KIDNEY DONATION ON AORTIC STIFFNESS: A FEASIBILITY STUDY


Background: Aortic pulse wave velocity (aPWV) is an important determinant of cardiovascular risk and predicts survival in patients on dialysis and other patient populations. Aortic stiffening is associated with a progressive decline in renal function whilst renal impairment results in accelerated aortic stiffening. However, existing studies are confounded by co-morbid illness. The aim of the current study was to better understand the impact of a reduction in renal function on aortic stiffness by examining blood pressure (BP) and aPWV in people undergoing donor nephrectomy, prior to, and 12 months following, donation.

Methods: 48 living donors (20 male) were recruited over a 3 year period. The average age was 51±13 years and there were 3 current smokers. Glomerular filtration rate (eGFR) was estimated, and aortic stiffness assessed by measuring carotid-femoral (aortic) PWV.