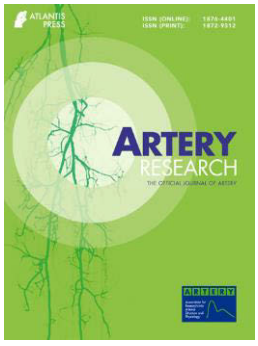


Artery Research

ISSN (Online): 1876-4401 **ISSN (Print): 1872-9312**
Journal Home Page: https://www.atlantis-press.com/journals/artres

P78: PRESSURE-INDEPENDENT ROLE OF THE AUTONOMIC NERVOUS SYSTEM IN THE REGULATION OF ARTERIAL STIFFNESS IN SUBJECTS WITH ESSENTIAL HYPERTENSION

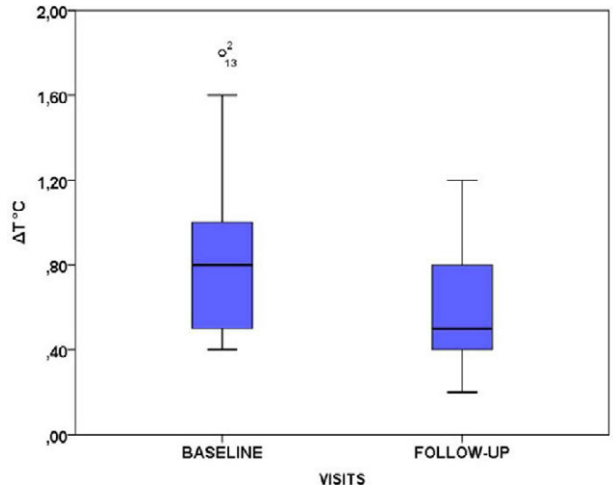
Luca Faconti, Bushra Farukh, Philip J. Chowienczyk

To cite this article: Luca Faconti, Bushra Farukh, Philip J. Chowienczyk (2018) P78: PRESSURE-INDEPENDENT ROLE OF THE AUTONOMIC NERVOUS SYSTEM IN THE REGULATION OF ARTERIAL STIFFNESS IN SUBJECTS WITH ESSENTIAL HYPERTENSION, Artery Research 24:C, 101–101, DOI: https://doi.org/10.1016/j.artres.2018.10.131

To link to this article: https://doi.org/10.1016/j.artres.2018.10.131

Published online: 7 December 2019

of treatment was reduced statistically significant (0.88 ± 0.42 to 0.58 ± 0.29 °C, p = 0.021) (Image).
Conclusion: In a group of patients with dyslipidemia thermal heterogeneity in the carotid arteries was positively associated with carotid subclinical atherosclerosis. Moreover, dyslipidemia treatment reduced thermal heterogeneity after a short-term period, implying a beneficial effect of treatment on thermal heterogeneity.



P77
TARGETED LIPIDOMICS OF ARTERIAL STIFFNESS AND HEMODYNAMICS IN ATHEROSCLEROSIS

Kaido Paapstel, Jaak Kals, Jaan Eha, Kaspar Tootsi, Aigar Ottas, Anneli Piir, Mihkel Zilmer
University of Tartu, Tartu, Estonia

Objectives: This study examined relationships between lipidomic profile, arterial function and hemodynamics in coronary artery disease (CAD) patients, peripheral arterial disease (PAD) patients and healthy controls.
Methods: We studied 52 patients with CAD, 32 patients with PAD, and 40 apparently healthy controls. Serum levels of 40 acylcarnitines, 76 phosphatidylcholines (PC) and 14 lysophosphatidylcholines (lysoPC) were determined with the AbsoluteIDQ™ p180 kit (BIOCRATES). Arterial applanation tonometry (Sphygmocor, Atcor Medical) was used for pulse wave analysis and carotid-femoral pulse wave velocity (cf-PWV) assessments.
Results: 1) Acylcarnitine profile (CAD patients vs healthy subjects): elevated levels of C16:1, C18:1, C3-DC(C4-OH), PC aa C40:6, Met-SO/Met were observed in the CAD group compared to the healthy controls. Cf-PWV showed positive correlations with C14, C16:1, (C2 + C3)/C0, C2/C0 and the CPT-1 ratio for the CAD group. Moreover, PCA-derived factor 3 (acylcarnitines) proved to be an independent determinant of cf-PWV for these patients. 2) PC and lysoPC profiles (CAD patients vs PAD patients vs healthy subjects): decreased serum levels of several PC and lysoPC species (PC aa C28:1, PC aa C30:0, PC aa C32:2, PC ae C30:0, PC ae C34:2, lysoPC a C18:2) were observed for both patient groups in comparison to the healthy controls. Further, a considerable number of PCs and lysoPCs were inversely related to either cf-PWV, heart rate, asymmetric dimethylarginine (ADMA) or ADMA/arginine only for patients.
Conclusions: In addition to classical lipid-related cardiovascular risk markers, intermediates of lipid metabolism may serve as novel indicators for altered vascular function and hemodynamics.

P78
PRESSURE-INDEPENDENT ROLE OF THE AUTONOMIC NERVOUS SYSTEM IN THE REGULATION OF ARTERIAL STIFFNESS IN SUBJECTS WITH ESSENTIAL HYPERTENSION

Luca Faconti, Bushra Farukh, Philip J. Chowienczyk
King's College London, UK

Objective: To test if arterial stiffness (AS) can be modulated by the autonomic nervous system (ANS) independently of blood pressure (BP) in hypertensive patients.
Material and methods: AS was measured by carotid-femoral pulse wave velocity (cfPWV) using the SphygmoCor device (AtCor Medical, Australia). Mean arterial pressure (MAP) was obtained by pulse-wave analysis of the radial artery and ANS activity was estimated by heart rate variability (HRV) as log-ratio of low-frequency/high-frequency heart rate components (Schiller Medilog AR12plus, United States) in hypertensive subjects (n = 43, 17 female, mean ± SD age 45 ± 13 years, brachial BP 145 ± 17/87 ± 10 mmHg) at rest. All measurements were subsequently repeated during supervised device-guided paced breathing (DGB) and reduction of cardiac pre-load by lower limb venous occlusion (LVO). These interventions, which are known to decrease and increase sympathetic activity, were performed in random order.
Results: DGB reduced HRV by 0.14 [0.07, 0.20] (Mean [95% confidence intervals]) and LVO increased HRV by 0.13 [0.08, 0.18] (both P<0.05). DGB reduced cfPWV by 1.3 [0.9, 1.6] m/s alongside with a reduction in MAP of 6.6 [5.1, 8.1] mmHg (both P < 0.01). By contrast, LVO increased cfPWV by 1.0 [0.6,1.4] m/s (P < 0.01), despite a fall in MAP of 1.5 [0.2,2.7] mmHg (P < 0.05). The difference between effects of DGB and LVO on cfPWV was significant whether adjusted or unadjusted for change in MAP (P < 0.05).
Conclusion: Despite BP-lowering effects, DGB and LVO had opposite effects on HRV and cfPWV. This suggest that the autonomic nervous system has a pressure-independent role in the regulation of AS in hypertension.

P79
AORTIC VISCOELASTIC PROPERTIES AND ALTERED ELECTROMECHANICAL CARDIO-AORTIC CONNECTION IN PATIENTS WITH CARDIAC AMYLOIDOSIS

Lucia Salvi [1], Paolo Salvi [2], Andrea Grillo [2], Stefano Perlini [1], Gianfranco Parati [3]
[1]*Department of Internal Medicine, IRCCS Policlinico San Matteo Foundation University of Pavia, Pavia, Italy*
[2]*Department of Cardiovascular Neural and Metabolic Sciences, Istituto Auxologico, Italiano, Italy*
[3]*Department of Cardiovascular Neural and Metabolic Sciences, Istituto Auxologico, Italiano, Italy*

Background: Cardiac amyloidosis (CA) is an infiltrative disorder caused by deposition of amyloid fibrils in the myocardial extracellular matrix. A wide scientific literature regarding amyloid heart disease is available, but no data about aortic viscoelastic properties. This studio has the aims to start filling this gap.
Methods: 129 outpatients attending the Pavia Amyloid Center were enrolled, 66 of them affected by cardiac amyloidosis. Arterial applanation tonometry (PulsePen, DiaTecne, Milan, Italy) was performed to calculate carotid-to-femoral pulse wave velocity (PWV) as index of aortic stiffness. Carotid pressure wave was calibrated with oscillometric brachial blood pressure (BP) to obtain central BP, pulse pressure amplification (PPA) and augmentation index (Aix). Tonometric data were related to biochemical parameters, clinical data and treatment. Populations with and without cardiac involvement (NCA) were compared.
Results: There is no difference in Carotid-femoral PWV in the two groups (p = 0,749), PPA was significantly reduced in CA subjects (p = 0,0010). CA subjects had lower both peripheral pressure values and central ones. No significant differences in central pulse pressure (p = 0,684), and Aix (p = 0,1518) were found Heart rate is significantly higher in CA (p = 0,0010). In these patients, isovolumic contraction time is prolonged (p = 0.0120), and the ejective period is reduced (p < 0.0001).
Conclusions: Amyloid cardiopathy strongly impairs cardiac function without significantly alteration in aortic function. In other words, in CA there is an altered electromechanical cardio-aortic connection, with preserved aortic properties. Significantly reduced central and peripheral pressure values could be caused by the inability of the heart to develop a proper post load.

P80
ANALYSIS OF ENDOTHELIAL FUNCTION IN MALE STUDENTS IN SOUTHERN BRAZIL: THE ROLE OF PHYSICAL ACTIVITY

Marcos Paulo Camboim [1], Bruna Eibel [1], Lucia Pallanda [2], Salvador Neto [3], Gustavo Waclawovsky [3], Vitor Kunrath [3]
[1]*Institute of Cardiology/University Foundation of Cardiology of Rio Grande do Sul (IC/FUC), Porto Alegre, Brasil*