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

Lucia Salvi, Paolo Salvi, Andrea Grillo, Stefano Perlini, Gianfranco Parati

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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.

Material and methods: AS was measured by carotid-femoral pulse wave velocity (cPWV) 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 cPWV 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 cPWV 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 cPWV 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 cPWV. This suggest that the autonomic nervous system has a pressure-independent role in the regulation of AS in hypertension.

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

Lucia Salvi 1, Paolo Salvi 1, Andrea Grillo 2, Stefano Perlini 1, Gianfranco Parati 1

1Department of Internal Medicine, IRCCS Policlinico San Matteo Foundation University of Pavia, Pavia, Italy

2Department 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 myocellular extracellular matrix. A wide scientific literature regarding amyloid heart disease is available, but no data about aortic viscoelastic properties. This study 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 annilation 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 = 0.001). 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 = 0.001). 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 preserves aortic properties. Significantly reduced central and peripheral pressure values could be caused by the inability of the heart to develop a proper post load.