P.082: DIFFERENTIAL ASSOCIATIONS OF LEFT ATRIUM VOLUME WITH BNP AND AORTIC STIFFNESS IN THE EARLY STAGES OF ESSENTIAL HYPERTENSION: IMPORTANCE OF MECHANICAL AND HUMORAL COMPONENTS


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P.079 PULSE WAVE VELOCITY IN SUBJECTS WITH MASKED HYPERTENSION AND WHITE COAT HYPERTENSION
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Purpose: To examined the correlations between large artery stiffness and plasma inflammatory markers such as interleukin-6 (IL-6), C-reactive protein (hs-CRP), plasminogen-activator inhibitor type 1 (PAI-1) and arterial stiffening.

Methods: 84 newly diagnosed untreated non-diabetic hypertensive subjects [58 men, mean age 52 years, office BP = 145±93 mmHg] with a negative treadmill exercise test were divided into those with HRE (n = 24) (peak systolic BP ≥ 140 mmHg and/or diastolic BP ≥ 90 mmHg in men and ≥ 90 mmHg in women) and to those without HRE (n = 60). Moreover, in all subjects venous blood samples were drawn for estimation of hs-CRP and PAI-1 levels, whereas arterial stiffness was evaluated on the basis of carotid to femoral pulse wave velocity (PWV).

Results: Patients with HRE compared those without HRE were older and had greater 24-h systolic BP. Although groups did not differ regarding metabolic profile patients with HRE as compared to those without HRE exhibited significantly higher levels of c-f PWV (8.7±1.6 vs 7.7±13 m/s), hs-CRP (5.1±2.1 vs 2.1±0.8 mg/l) and PAI-1 (38.6±8.5 vs 18.9±2.6 ng/ml). In the total population, peak systolic BP was related to 24-h systolic BP (r = 0.238, p < 0.05), PWV (r = 0.288, p < 0.005) and hs-CRP (r = 0.439, p < 0.0001), whereas there was no association with PAI-1 levels (p > 0.5).

Conclusions: Hypertensives with an HRE exhibit augmented hs-CRP, PAI-1 and PWV values. These findings suggest that impaired thrombosis/fibrinolysis system, arterial stiffening and microinflammation may be mechanisms that contribute to exercise hypertension and associated increased risk.

P.081 HYPERTENSIVE SUBJECTS WITH AN EXAGGERATED BLOOD PRESSURE EXERCISE RESPONSE ARE CHARACTERIZED BY A STATE OF INFLAMMATORY ACTIVATION, IMPAIRED THROMBOSIS/FIBRINOLYSIS SYSTEM AND ARTERIAL STIFFENING
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Background: The assessment of clinical implications of often observed differences between ambulatory (ABP) and office blood pressure (OBP) measurements might be of particular importance. The aim of the study was to assess the arterial stiffness in subjects with masked hypertension (normal OBP, elevated ABP) and in subjects with white coat hypertension (elevated OBP, normal ABP) as compared to normotensives.

Methods: The study group included 259 untreated subjects recruited from general population [age 32.8 ± 12.9 years, 136 F/123 M, BMI = 24.7 ± 4.5 kg/m², n = 70 (27.0%) current smokers, n = 54 (20.9%) declared regular alcohol intake]. The 24-h ABP monitoring was performed using oscillometric SpaceLabs 90207 monitors. Aortic pulse wave velocity (PWV) was measured with the Complior® device.

Results: In subjects with masked hypertension (n = 37) we observed higher PWV as compared to normotensives (10.15 ± 1.6 vs 8.56 ± 1.45 m/s, p < 0.05). Also subjects with white coat hypertension (n = 20) appeared to have higher PWV than normotensives (9.39 ± 1.23 m/s, p < 0.05). In the multifactorial analysis, with adjustment with age, gender, BMI, smoking and alcohol intake, the observed higher values of PWV in subjects with masked hypertension as compared to normotensives remained significant (p < 0.05).

Conclusions: Subjects with masked hypertension and with white coat hypertension, as compared to normotensives, are characterized by higher values of pulse wave velocity, similar to values observed in hypertensives. Only masked hypertension is independent determinant of increased arterial stiffness. This observation might be related to stronger correlation of target organ damage with ambulatory than office blood pressure.

P.082 DIFFERENTIAL ASSOCIATIONS OF LEFT ATRIUM VOLUME WITH BNP AND AORTIC STIFFNESS IN THE EARLY STAGES OF ESSENTIAL HYPERTENSION: IMPORTANCE OF MECHANICAL AND HUMORAL COMPONENTS

Purpose: To investigate the possible interrelationship between Left atrial (LA) enlargement, BNP and aortic stiffness in essential hypertensive subjects.

Methods: 235 consecutive, newly diagnosed subjects (aged 52 ± 10 years), with untreated essential hypertension [office BP ≥ 151/97 mmHg] underwent echocardiography and 24-h ambulatory BP monitoring. LA volume was indexed for body surface area to estimate LA volume index (LAVI). Aortic stiffness was evaluated on the basis of the carotid-femoral pulse wave velocity (c-f PWV) measurement by an automatic device (Complior SP). The study population was divided into two groups: those with increased LAVI (>26 ml/m², n = 45) and those without increased LAVI (<26 ml/m², n = 181). Results: Subjects with increased LAVI compared to those without increased LAVI did not differ regarding age, body mass index, 24-h systolic and diastolic BP and metabolic profile. Subjects with increased LAVI compared to those without increased LAVI had significantly increased 24-h pulse pressure (54.6 ± 9.0 vs 51.3 ± 7.9 mmHg, p < 0.05), left ventricular mass index (LVMI) (123.3 ± 31 vs 99.1 ± 23 g/m², p < 0.0001), LA diameter (4.2 ± 0.3 vs 3.9 ± 0.3 cm, p < 0.0001) and LA plasma levels (41.5 ± 2.6 vs 81.9 ± 2.6 ng/ml, p < 0.05), while do not differ regarding c-f PWV (8.2 ± 1.3 vs 8.1 ± 1.3 m/s, p = NS). Multiple regression analysis model revealed that LVMI and BNP were independent predictors of LAVI (p = 0.05).

Conclusions: Even in newly diagnosed essential hypertensive subjects LA enlargement is associated with increased plasma levels of BNP but not more impaired aortic stiffness. These findings support the notion that LA enlargement is closely related with humoral activation in this setting.