P.067: NO DIFFERENCES IN AUGMENTATION INDEX OR ENDOTHELIAL FUNCTION IN ESSENTIAL HYPERTENSIVE PATIENTS WITH OR WITHOUT THE METABOLIC SYNDROME

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To cite this article: Y. Plantinga*, L. Ghiadoni, C. Giannarelli, A. Magagna, S. Taddei, A. Salvetti (2006) P.067: NO DIFFERENCES IN AUGMENTATION INDEX OR ENDOTHELIAL FUNCTION IN ESSENTIAL HYPERTENSIVE PATIENTS WITH OR WITHOUT THE METABOLIC SYNDROME, Artery Research 1:S1, S43–S43, DOI: https://doi.org/10.1016/S1872-9312(07)70090-X

To link to this article: https://doi.org/10.1016/S1872-9312(07)70090-X

Published online: 21 December 2019
P.065 LEFT VENTRICULAR DIASTOLIC FUNCTION IS ASSOCIATED WITH ARTERIAL STIFFNESS IN PATIENTS WITH ESSENTIAL HYPERTENSION

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Background: Left ventricular (LV) diastolic dysfunction with preserved systolic function is an echocardiographic finding in the early stage of arterial hypertension. Arterial stiffness is increased in hypertensives enhancing LV afterload. The aim of the study was to evaluate the relationship between LV diastolic dysfunction and arterial stiffness both in patients with essential hypertension (EH) and white coat hypertension (WCH).

Methods: We studied 200 consecutive patients with uncomplicated, newly diagnosed and never treated EH and 120 age-matched patients with WCH. All subjects underwent a transthoracic echocardiogram (TTE) in which the peak early diastolic to peak early systolic velocity ratio (E/A) was estimated using pulse wave doppler imaging of transmitral diastolic flow. Arterial stiffness was assessed by the measurement of carotid-femoral pulse wave velocity (PWVc-f) using the Comp SP device.

Results: PWVc-f values were higher in patients with WCH compared to patients with EH (7.8 ± 1.3 vs 7.4 ± 0.9 m/s, p < 0.01). In univariate analysis, PWVc-f was correlated with E/A ratio in both groups (r = 0.25, p = 0.0003 for patients with EH and r = 0.23, p = 0.04 for patients with WCH). After adjustment for age, PWVc-f sustained the independent association with E/A in the EH group (p = 0.04) but not in the WCH group as well (p > NS). In both groups, PWVc-f values were not related to LV systolic function indices (p > NS).

Conclusion: In patients with newly diagnosed essential hypertension, impaired LV diastolic filling is related to arterial stiffness independently of LV systolic function, while this association is weaker in patients with WCH.

P.066 BENEFICIAL EFFECT OF ANGIOTENSIN-II TYPE I RECEPTOR BLOCKER ANTHYHERTENSIVE TREATMENT ON ARTERIAL STIFFNESS: A DRUG-COMPARISON STUDY

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Background: Arterial stiffness has been recognized as a significant predictor of cardiovascular risk, while experimental data indicate that angiotensin II receptor blocker (ARB) treatment reduces arterial stiffness. The purpose of the present study was to assess ARB treatment on arterial stiffness in hypertensive patients.

Methods: We studied 81 consecutive, untreated, non-diabetic patients (mean age 52 years, 47 males) with uncomplicated essential hypertension who were administrated for 6-month monotherapy with either irbesartan (n = 47) or candesartan (n = 34). Large-artery stiffness and arterial wave reflections indices [carotid-femoral pulse wave velocity (PWVc-f), carotid-radial pulse wave velocity (PWVc-r) and augmentation index (AIx)] were measured before and after ARB antihypertensive treatment.

Results: ARB antihypertensive treatment reduced all elastic properties indices (AIx: from 26.3 ± 10.7 to 21.2 ± 10.0%, p < 0.05; PWVc-f: from 7.4 ± 1.3 to 6.7 ± 1.2 m/s, p < 0.05; PWVc-r: from 8.9 ± 3.1 to 7.1 ± 2.9 m/s, p < 0.05). Arterial stiffness (AIx) was significantly lower (p < 0.05) in both groups, but only in group A the change was statistically significant (p < 0.05, paired t-test). During mental stress the CI between both groups did not differ, but immediately after performing arithmetic challenge CI increased in both groups (p < 0.05, paired t-test).

Conclusion: Chronic ARB treatment may affect favorably arterial stiffness and wave reflections in hypertensive patients, while lowering of PWVc-f may account for the therapeutic benefit conferred by irbesartan and candesartan independently of their blood pressure lowering effect.

P.067 NO DIFFERENCES IN AUGMENTATION INDEX OR ENDOTHELIAL FUNCTION IN ESSENTIAL HYPERTENSIVE PATIENTS WITH OR WITHOUT THE METABOLIC SYNDROME

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We recruited 229 untreated essential hypertensive patients (HT) (age: 22-73 years) to evaluate augmentation index (AIx) and endothelial function in the presence (MS+) or absence (MS-) of the metabolic syndrome (MS). AIx was measured by applanation tonometry (Sphygmocor). Endothelium-dependent (FMD) and -independent dilation (25 μg sublingual glyceryl trinitrate, GTN) were evaluated by ultrasound and automatic computerized analysis of brachial artery diameter (BAD) changes. MS was defined using the ATP III criteria (2001). No significant (p > 0.05) differences between MS+ (N = 71) and MS- (N = 156) were found for AIx (23.9 ± 8.0 vs 25.9 ± 10.4), FMD (4.8 ± 2.6 vs 5.5 ± 2.6%) or response to GTN (6.0 ± 3.8 vs 7.7 ± 3.3%). Age, systolic (SBP), diastolic blood pressure (DBP) and total cholesterol did not differ significantly (p > 0.05, or less). Body mass index (BMI) (29.0 ± 3.3 vs 25.5 ± 3.1 kg/m²), waist circumference (WC) (102.6 ± 8.6 vs 90.8 ± 9.2 cm), plasma glucose (103.4 ± 42.3 vs 90.5 ± 9.6 mg/dl) and HDL cholesterol (4.9 ± 0.8 vs 4.4 ± 0.9 mg/dl) were significantly (p < 0.05, or less) higher in MS+ as compared to MS-, while HDL cholesterol was lower (41.9 ± 11.5 vs 54.5 ± 13.6 mg/dl, respectively). In the whole group, AIx correlated (p < 0.05) with age (r = 0.37), SBP (r = 0.20), DBP (r = 0.17), E/A (r = 0.29), and augmentation index (AIx) and brachial pulse wave velocity (PWV) were assessed by applanation tonometry (Sphygmocor®). Disease activity and severity scores and inflammatory parameters (erythrocyte sedimentation rate, ESR; C reactive protein, CRP; interleukin-6, IL-6) were evaluated. FMD was significantly (p < 0.001) lower in SSc (4.3 ± 2.3%) than in controls (6.9 ± 3.3%), while response to GTN was similar. FMD was not related to disease's activity and severity score, or response to GTN (8.0 ± 2.3 vs 8.1 ± 2.6%). In conclusion, SSc patients show marked endothelial dysfunction in the peripheral macrocirculation, which is not related with disease's grade. Upper limb arterial stiffness seems not to be affected by SSc, but increased indices of arterial stiffening are related to greater disease activity and severity, inflammatory markers and cardiovascular risk factors.