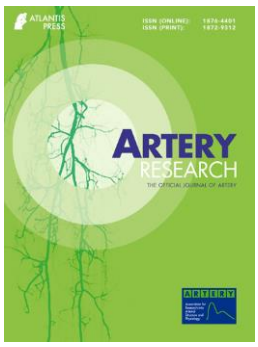

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P.066: BENEFICIAL EFFECT OF ANGIOTENSIN-II TYPE I RECEPTOR BLOCKER ANTIHYPERTENSIVE TREATMENT ON ARTERIAL STIFFNESS: A DRUG-COMPARISON STUDY

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P.065
LEFT VENTRICULAR DIASTOLIC DYSFUNCTION 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 Complior SP device.
Results: PWVc-f values were higher in patients with ES compared to patients with WCH (7.81±1.38 vs 7.40±1.37 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 ES and $r = -0.23$, $p = 0.01$ for patients with WCH). After adjustment for age, PWVc-f sustained the independent association with E/A in the ES 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 ANTIHYPERTENSIVE 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, nondiabetic patients (mean age 52 years, 47 males) with uncomplicated essential hypertension who were administrated to 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 to 21.2%, PWVc-f: from 7.7 to 7.3 m/s and PWVc-r: from 8.9 to 8.3 m/s, $p < 0.001$). After adjusting for systolic blood pressure, PWVc-f change remained significant ($p < 0.001$), but that was not seen for PWVc-r and AIx change ($p = NS$). No differences between the two agents were detected ($p = NS$).
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+ ($N = 71$) or MS– ($N = 162$) were found for AIx (23.9±8.0 vs 25.9±10.4), FMD (4.8±2.6 vs 5.2±2.6%) or response to GTN (8.0±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/m^2), waist circumference (WC) (102.6±8.6 vs 90.8±9.2 cm), plasma glucose (103.4±23.0 vs 90.5±9.6 mg/dl) and BAD (4.9±0.8 vs 4.4±0.9 mm) 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±13.3 mg/dl, respectively). In the whole group, AIx correlated ($p < 0.05$ or less) with age ($r = 0.37$), SBP ($r = 0.20$), DBP ($r = 0.17$), BAD ($r = -0.24$), total cholesterol ($r = 0.20$), BMI ($r = -0.17$) and WC ($r = -0.17$). FMD correlated negatively with BAD ($r = -0.43$), age ($r = -0.31$), SBP ($r = -0.16$) and BMI ($r = -0.13$). In multivariate analysis, age, BAD and DBP resulted significant predictors of AIx ($R^2 = 0.42$), while age and BAD resulted as significant predictors for FMD ($R^2 = 0.14$). In hypertensive patients the presence of the metabolic syndrome does not account for a further deterioration of vascular function and structure.

P.068
ENDOTHELIAL FUNCTION AND ARTERIAL STIFFNESS IN PATIENTS WITH SCLERODERMIA

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In 40 patients (36 females, mean age 56±13 years) with capillaroscopic pattern of sclerodermia (SSc) and 30 matched healthy subjects (27 females), we assessed endothelium-dependent (flow-mediated dilation, FMD), and -independent vasodilation (sublingual administration of glycerol trinitrate, GTN, 25 μg), by ultrasounds and computerized analysis. 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 CRP and IL-6 levels. AIx (26.0±13.1 vs 24.8±7.5% %) and PVW (8.8±1.4 vs 8.3±1.4 m/s) were not significantly different in SSc as compared to controls. However, AIx was significantly ($p < 0.05$ or less) related to activity ($r = 0.30$) and severity score ($r = 0.30$), ESR ($r = 0.32$), but not with CRP and IL-6 levels. AIx was related to age ($r = 0.65$), total cholesterol ($r = 0.49$) and systolic blood pressure (PAS, $r = 0.33$). PWV was significantly ($p < 0.05$ or less) related to severity score ($r = 0.49$), CRP ($r = 0.47$) and total cholesterol ($r = 0.49$) levels, but not to activity score, ESR or IL-6 levels.
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 indexes of arterial stiffening are related to greater disease activity and severity, inflammatory markers and cardiovascular risk factors.

P.069
EFFECTS OF ACUTE MENTAL STRESS ON PERIPHERAL VASCULAR ACTIVITY IN YOUNG HEALTHY ADULTS WITH AND WITHOUT FAMILY PREDISPOSITION OF HYPERTENSION

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A predominance of sympathetic activity has been described in patients with developed essential hypertension. We were interested to know whether the peripheral vascular activity and its changes provoked by mental stress were different in young healthy adults with family predisposition of hypertension (group A) and those without (group B). Peripheral vascular activity was assessed by measuring the finger artery compliance.
Experiments were performed on 38 healthy adults 19–24 years old (17 in group A, 21 in group B). We measured ECG, arterial blood pressure and finger artery compliance at rest, 3 minutes during standard arithmetic challenge and 3 minutes immediately after it. A noninvasive method was used to measure finger artery compliance, compliance index (CI) was calculated. There were no differences in systolic and diastolic blood pressure or in RR interval between the two groups.
Our results revealed the reduced CI in group A compared to group B (0.52±0.05 and 1.33±0.16, $p < 0.05$, t-test) at rest. CI decreased during mental stress in both groups, but only in group B the change was statistically different ($p < 0.05$, 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) nearly to the control