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### **P9.04: EFFECT OF ANTIHYPERTENSIVE TREATMENT ON PULSE WAVE VELOCITY AFTER ONE YEAR IN NEVER TREATED, NEWLY DIAGNOSED HYPERTENSIVE PATIENTS AND ITS DETERMINANTS**

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have an additional positive effect on wave reflection, possibly linked to a effect on the peripheral microcirculation.

#### P9.04

##### EFFECT OF ANTIHYPERTENSIVE TREATMENT ON PULSE WAVE VELOCITY AFTER ONE YEAR IN NEVER TREATED, NEWLY DIAGNOSED HYPERTENSIVE PATIENTS AND ITS DETERMINANTS

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**Background:** Aorto-femoral pulse wave velocity (PWV) is a well established method to stratify hypertensive patients, but information about the influence of treatment on this variable is scarce.

**Methods:** Longitudinal study that included 212 (122 men, 56 %) non-diabetic, never treated hypertensive patients. We measured at the initial visit standard clinical variables, as well as PWV (Sphygmocor-System), left ventricular mass index (echocardiography) and microalbuminuria to asses target organ damage. At a median of 1,07 (SD±0,34) years, a second visit was performed, measures were repeated.

**Results:** The mean age was 50±13 years with initial systolic and diastolic BP of 148/88 mmHg (SD±16/10). The initial prevalence of left ventricular hypertrophy (LVH), pathological urinary albumin excretion rate (UAER) and PWV > 12 m/sec were 30,7, 15,0 and 9,2 %, respectively. Considering a decrease of 1 m/sec as a significant change in PWV, 43 % of patients showed an improvement in PWV. In a logistic multivariate regression analysis, age (OR: -0,9, p<0,0001), systolic BP reduction > 15 mmHg (OR: 2,9, p<0,005), initial Cholesterol-LDL (OR: 1,1, p<0,006), use of angiotension-receptor-blockers (ARB) (OR: 2,5, p<0,022) and waist diameter (OR: -0,95, p<0,04) were independently associated with a decrease of PWV.

**Conclusions:** In untreated hypertensive patients, age and abdominal obesity are negative predictors of changes in PWV, whereas BP treatment, high cholesterol-LDL and use of ARB seem to favour a decrease of PWV during the first year of treatment.

**Key Words:** arterial stiffness, pulse wave velocity, applanation tonometry.

#### P9.05

##### EFFECT OF ANTIHYPERTENSIVE TREATMENT ON PULSE WAVE VELOCITY AFTER ONE YEAR IN PATIENTS WITH REFRACTORY HYPERTENSION AND ITS DETERMINANTS

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**Background:** Aorto-femoral pulse wave velocity (PWV) has been shown to be modifiable by antihypertensive treatment in newly diagnosed hypertension (HT), but little is known about the effect of treatment on longer standing, refractory HT.

**Methods:** Longitudinal study that included 79 (49 men, 62 %) patients with refractory hypertension, treated with at least three drugs in standard dosis. We measured at the initial visit standard clinical variables, as well as PWV (Sphygmocor-System), ECG-left ventricular mass (CORNELL-product and SOKOLOV) and microalbuminuria to asses target organ damage. At a median of 1,15 (SD±0,34) years, a second visit was performed, measures were repeated.

**Results:** The mean age was 64±11 years with initial systolic and diastolic BP of 155/79 mmHg (SD±25/11). The initial prevalence of left ventricular hypertrophy (LVH), pathological urinary albumin excretion rate (UAER) and PWV > 12 m/sec were 42, 16 and 27 %, respectively. Considering a decrease of 1 m/sec as a significant change in PWV, 36 % of patients showed an improvement in PWV. In a logistic multivariate regression analysis, systolic BP reduction > 9 mmHg (OR: 4,1, p<0,01), initial PWV (OR: 1,5, p<0,009) and glucemic control (HbA1c > 6,5 %, OR: - 0,2, p<0,049) were independently associated with a decrease of PWV.

**Conclusions:** In hypertensive patients with refractory HT, BP treatment is able to decrease PWV, correcting for age, gender and initial PWV-values, whereas a poor glucemic control appears to hinder the positive effect of antihypertensive treatment.

**Key Words:** arterial stiffness, pulse wave velocity, applanation tonometry.

#### P9.06

##### CORRELATES OF AUGMENTATION INDEX IN PATIENTS WITH NEVER TREATED UNCOMPLICATED NON-DIABETIC PATIENTS WITH ESSENTIAL HYPERTENSION

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**Objective:** Assessment of the association between augmentation index (AI75) and hemodynamic factors and target organ damage in 98 patients with:

1) prehypertension (N=56, BP=120-139 / 80-89 mmHg)- GI

2) grade 1 hypertension (N=42, BP=140-160 / 90-100mmHg)- GII

**Methods:** Evaluated parameters: biochemical profile, sphygmocardiography (Augmentation Index-AI75 and central BP), echocardiography (Left Ventricular Mass/Height<sup>2.7</sup>- LVM/Ht<sup>2.7</sup>) and renal functional indices (Creatinine Clearance-Ccr and Urinary Albumin Excretion-UAE).

**Results:** (table)

	GI	GII
Age (Years)	45.5 ± 2	67.5 ± 1.9*
BMI (kg/m <sup>2</sup> )	27.9 ± 0.6	27.7 ± 0.6
SBPb (mmHg)	122 ± 1.9	143 ± 3.2*
DBPb (mmHg)	81 ± 1.4	78.5 ± 2.1
SBPc (mmHg)	114 ± 1.6	134 ± 3*
DBPc (mmHg)	82 ± 1.5	79 ± 2.2
PPb (mmHg)	41 ± 1.4	65 ± 3.1*
PPc (mmHg)	32 ± 0.8	55 ± 2.7*
LVM/Ht <sup>2.7</sup> (g/m <sup>2.7</sup> )	60 ± 2	76 ± 4.9*
AI75 (%)	10.2 ± 5.6	39 ± 1*
Ccr (ml/min)	109.2 ± 5.6	71.9 ± 5.1*
UAE (mg/24hrs)	32 ± 8.2	56 ± 24.6

\* p< 0.05, SBP=systolic blood pressure, DBP=diastolic blood pressure, b=brachial, c=central, PP=pulse pressure, BMI=Body Mass Index

In middle age and elderly hypertensive subjects, increased AI75 is:

1) associated with increased central/brachial SBP and PP, increased LVM/Ht<sup>2.7</sup>, reduced Ccr and high UAE 2) independent of changes in biochemical profile.

**Conclusion:** Increased AI75 in never treated uncomplicated essential hypertension is: 1) associated with target organ damage; 2) probably a cardiovascular risk factor; 3) a sign of vascular disease which should be included in the evaluation of hypertensive patients.

#### P9.07

##### CAROTID STIFFNESS AND WAVE REFLECTION DURING ANTIHYPERTENSIVE THERAPY WITH CALCIUM ANTAGONISTS: INSIGHT FROM A WAVE INTENSITY APPROACH

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**Background:** Increasing evidence emphasizes the role of central pressure augmentation in the development of hypertension-related complications, and highlights the importance of targeting arterial stiffness and wave reflection with treatment.

**Objective:** Of this study was to evaluate the effects of the calcium antagonist barnidipine on large artery stiffness and wave reflection by means of separated wave analysis.

**Methods:** In twenty-one naïf-treatment hypertensive patients, carotid artery mechanics was investigated at baseline and after 3 and 6 months of barnidipine therapy by a double-beam carotid ultrasound technique (Aloka SSD 5500) which provides simultaneous recording of diameter-derived pressure and flow velocity signals and allows wave intensity (WI) analysis. Indices of local arterial stiffness and wave reflection, and separated forward and backward pressures were estimated. Twenty normotensive subjects were also .

**Results:** Compared to controls, hypertensive patients had higher forward and backward pressures (137±17 vs 108±7 and 21±6 vs 17±5 mmHg,