wave CR2000 device at the beginning and upon the completion of the program.

The mean age of the subjects was 63±10 years, 80% were men. 4 patients were smokers prior to the enrollment of the program, 5 had a history of hypertension. There were no significant changes in the systolic or the diastolic blood pressure (BP) at the completion of the program. There was a significant increase in the small artery compliance and a small decrease in the large artery compliance at the end of the program. The latter became insignificant when smokers were excluded from the analysis.

In conclusion, a structured exercise program significantly increases small artery compliance in subjects with CAD. We hypothesize that improvement in the endothelial function with exercise may account in part for this finding.

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Final</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systolic BP, mmHg</td>
<td>122 ± 22</td>
<td>127 ± 19</td>
<td>NS</td>
</tr>
<tr>
<td>Diastolic BP, mmHg</td>
<td>68 ± 8</td>
<td>69 ± 8</td>
<td>NS</td>
</tr>
<tr>
<td>LAE-I, nl/mmHg × 10</td>
<td>15.6 ± 4.8</td>
<td>13.2 ± 4.4</td>
<td>0.036</td>
</tr>
<tr>
<td>SAE-I, nl/mmHg × 100</td>
<td>3.9 ± 2.2</td>
<td>5.8 ± 3.6</td>
<td>0.01</td>
</tr>
</tbody>
</table>

LAE-I:large artery elasticity index, SAE-I:small artery elasticity index.

Key Words: Arterial Compliance, Cardiac Rehabilitation, Coronary Heart Disease

P-106
RELATIONSHIP BETWEEN VASCULAR DISTENSIBILITY AND RISK FACTORS IN AN ELDERLY UNTREATED HYPERTENSIVE POPULATION
José Carmona, Paula Amado, Nuno Vasconcelos, Lurdes Almeida, Manuel C. Rodrigues, José Alves, Júlia Teles, José Nazaré. Cardiology, Egas Moniz Hospital, Lisbon, Lisbon, Portugal.

Morbidity and mortality in hypertension are related to the arterial changes on several organs. Arterial stiffness relates to age and hypertension but other cardiovascular (CV) risk factors (RF) may be involved. Arterial distensibility is also considered a major CV RF. It can be easily assessed by carotid-femoral pulse wave velocity (PWV) measurement.

Objective: To evaluate the relationship between the major CV RF and vascular distensibility

Design and Methods: Between 1999-2001 we prospectively studied, a large population of 115 elderly patients, 58 were untreated hypertensive patients. They were evaluated by clinical examination and by ECG, ABPM (Spacelabs 90207), Vascular Distensibility (Complior-Colson), EcoDoppler (Esaote AV3 Partner) studies.

Results: Characteristics population - 71 ± 8 years, 53% males, Diabetes Mellitus (12%), Cholesterol ≥30 mg/dl, 9% with Coronary Artery Disease, Casual Systolic and Diastolic Blood Pressure (174 ± 21/87 ± 11 mmHg), 24 h Ambulatory Blood Pressure (ABP) (151/77/10 mmHg), Day ABP (152±17/87±11 mmHg), Night ABP (147±20/75±11 mmHg), 21% Dippers, 24 h Pulse Pressure (PP) (21 ± 12 mmHg), PWV (14 ± 3 ms), IMVE (121 ± 31 g/m2).

Conclusion: In these untreated hypertensive old patients only ambulatory systolic blood pressure and pulse pressure correlate significantly with vascular distensibility measured by carotid-femoral pulse wave velocity.

Key Words: Risk Factors, Elderly Patients, Vascular Distensibility

P-107
A SINGLE CUP OF COFFEE INCREASES WAVE REFLECTION
Charalampos Vlachopoulos, Christodoulos Stefanadis, Andriana Sofianidou, Dorothea Tsikoura, Michael O’Rourke, Pavlos Toutouzas. Cardiology, Henry Dunant, Athens, Greece; Cardiology, Athens Medical School, Athens, Greece.

Background: Caffeine (C) is the most widely consumed pharmacologically active substance. However, its effects on the arterial system have not been thoroughly investigated. Wave reflection along the arterial tree, an important index of arterial stiffening and cardiac afterload, is involved in the pathogenesis of isolated systolic hypertension.

Methods: To investigate the acute effect of a single cup of coffee on arterial wave reflection we studied 10 healthy volunteers (age 29±4 years) in a randomized, double-blind, crossover fashion (100 mg of caffeine orally –equivalent to 1 cup of coffee- and placebo). Wave reflection was studied using a validated system (Sphygmocor®) that employs (i) high-fidelity arterial tonometry (Millar tonometer) for the non-invasive registration of radial pulse waveform and (ii) appropriate computer software for pulse wave analysis. Aortic pressure waveform was synthesized from the radial waveform using a generalized transfer function. Augmentation index (AI=dp/PP, fig.: waveform) was measured as an index of wave reflection. Reflection point (Pi) was defined with mathematical algorithms. Higher values of AI indicate increased arterial stiffening and increased cardiac load and vice-versa.

Key Words: Hypertension, Risk Factors, Doxazosin
Results: A single cup of coffee leads to an acute increase of wave reflection. This finding has important implications for arterial stiffening and the pulsatile load of the heart and may be involved in the pathogenesis of hypertension.

Key Words: Arteries, Stiffness, Caffeine

P-108
PULSE WAVE VELOCITY IN NORMOTENSIVE, WHITE-COAT NORMOTENSIVE, WHITE-COAT HYPERTENSIVE, AMBULATORY HYPERTENSIVES AND DIABETIC SUBJECTS

Jorge J. Polonia, Paula Amado, Jose A. Silva, Joao Maldonado, Jose Nazare, Telmo Pereira, Jose P. Carmona. Unidade Hipertensao Risco CV, Departamento Medicina - Hospital Pedro Hispano, Matosinhos, Portugal; Serv Cardiologia, Hospital Egas Moniz, Lisboa, Portugal; Unidade Farmacologia Clinica, Faculdade Medicina Porto, Porto, Portugal.

In a cross-over study we evaluate in 1308 subjects (183 with type 2 diabetes) ageing 18-80 years, office BP values and carotid-femoral pulse wave velocity (PWV, Complior) as a measure of aortic stiffness. Also in 688 subjects we evaluated ambulatory BP (ABP), (mean 24h, daytime, nighttime levels and pulse pressure), plasma glucose, cholesterol and left ventricular mass index (LVMI). In all population PWV correlated with casual systolic BP and pulse pressure (PP), daytime, 24-hours and morning, nighttime SBP and respective pulse pressures (all p<0.0001) and with LVMI, plasma cholesterol and glucose (all p<0.01). Multivariate analysis showed that age and daytime pulse pressure were the stronger predictors of PWV variation. Subjects that performed ambulatory BP were divided into 7 groups: normotensives (NT, n=132, 48±20 yrs, casual BP<140/90, daytime <135/85 mmHg), white coat normotensives (WCT-NT n=39, 53±21 yrs, casual BP<140/90, daytime >135/85 mmHg), white coat hypertensives (WCT-HT n=87, 50±17 yrs, casual BP>140/90, daytime <135/85 mmHg), untreated hypertensives (HT n=154, 52±16 yrs, casual BP>140/90, daytime >135/85 mmHg), treated hypertensives (HT-t, n=132, 49±15 yrs), untreated hypertensive diabetics (HT-DiAB, n=57, 53±11 yrs) and treated hypertensive diabetics (HT-tDiAB, n=86, 54±12 yrs). The ranking order of PWV values was NT = WCT-HT < HTtr = WCH-NT < HT = DIAB-HTtr < DIAB-HT (p<0.05 for trend ANOVA) which was similar to that of daytime pulse pressure values. PWV is markedly influenced by pregnancy and lactation period. Ambulatory normotensives appear to show lower aortic stiffness compared with ambulatory hypertensives, difference being more pronounced in diabetic hypertensives.

Key Words: Pulse pressure, Pulse Wave Velocity, Ambulatory Blood Pressure Monitoring

P-109
INFLUENCE OF ARTERIAL HYPERTENSION ON LEFT VENTRICULAR STRUCTURE AND FUNCTION IN PATIENTS WITH SEVERE AORTIC STENOSIS


The aim of this study was to evaluate the influence of arterial hypertension on left ventricular structure and function in patients with severe aortic stenosis.

We studied 54 patients with aortic stenosis and aortic valve area 0.62±0.13 cm2, aged 67±10 years. All patients were grouped according to the coexistence (n=30) or not (n=24) of arterial hypertension. Every patient underwent a detailed echocardiographic study, while patients with significant coronary artery disease were excluded from the study.

Hypertensive patients had relatively increased intraventricular septal and posterior left ventricular wall thickness (16.2 and 15.2 vs 14.7 and 14.0 mm) compared to the normotensives, with increased LV mass index (198 vs 183 g/m2) respectively. Valvular lesion severity, as expressed with maximum gradient had a weak negative correlation with ejection fraction in normotensives (r=-0.22, p=ns) and positive in hypertensives (r=0.44, p=0.015), thus differentiating the two groups (p=0.02). On the contrary, left ventricular ejection fraction had a good correlation with aortic valve area in normotensives(r=0.53, p=0.008) and weak in hypertensives (r=0.51, p=ns).

In patients with severe aortic stenosis the coexistence of arterial hypertension aggravates left ventricular structural indices, without influencing directly left ventricular function.

Key Words: Arterial Hypertension, Left Ventricular Structure and Function, Severe Aortic Stenosis

P-110
PSYCHOLOGICAL CORRELATES OF SUBSTANCE USE AND ADHERENCE BEHAVIORS IN URBAN YOUNG HYPERTENSIVE BLACK MEN

Miyong T. Kim, Hae-Ra Han, Martha N. Hill, Linda Rose. The Johns Hopkins University, Baltimore, MD, United States.

This study examined the relationships among selected psychological and behavioral factors that are potential barriers to BP control in urban hypertensive young black men. Data on 190 men who were enrolled in an ongoing hypertension control clinical trial were used. More than one fourth (27.4%) of the sample scored greater than 16 on the Center for Epidemiological Studies-Depression Scale (CES-D), indicating the high risk of clinical depression. Depressed men were 4.4 times more likely to meet the DSM-IV criteria for alcohol abuse or dependence (95% CI, 1.56-12.40). The level of depression was significantly associated with poor medication and dietary compliance (r=0.30 and 0.16, respectively). Sense of mastery was predictive of depression diagnosis (OR, 0.4; 95% CI, 0.18-0.78), but it was not related to alcohol and illicit drug use or adherence behaviors. Both alcohol and illicit drug use were significantly correlated with adherence behaviors such as low dietary compliance (r=0.195 and 0.185, respectively) and smoking (r=0.190 and 0.269, respectively). While the potential confounding effects of demographic variables were noted, multivariate analyses suggested an indirect relationship of depression with hypertension control through poor adherence behaviors, alcohol and illicit drug use, or both. In conclusion, in urban young hypertensive black men, alcohol and illicit drug use and adherence to treatment recommendations were associated with depression. Further in-depth exploration is needed to identify the role of depression in the care of these men. Comprehensive interventions for young black men with hypertension should include screening for